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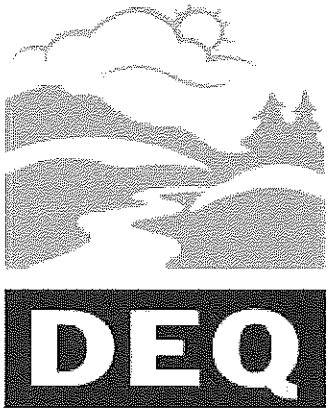
Part 2 of 2

# OREGON

# ENVIRONMENTAL QUALITY

# COMMISSION MEETING

# MATERIALS 06/23/2005




State of Oregon
**Department of Environmental Quality**

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Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

October 14, 2004

Via Certified Mail

Cynthia K. McNeff
Attorney at Law
4720 NE 21st Street
Portland, OR 97211

RE: Agency Case No. AQ/AB-WR-02-046

Dear Ms. McNeff:

The Environmental Quality Commission received your request for an extension of time to file exceptions and briefs in the above-referenced case. The Commission has granted your request for an extension in filing time until November 24, 2004. To file exceptions and briefs, please mail these documents to Mikell O'Mealy, on behalf of the Environmental Quality Commission, at 811 SW 6th Avenue, Portland, Oregon, 97204, with copies to Jane Hickman, Oregon Department of Environmental Quality, 811 SW 6th Ave., Portland, Oregon 97204.

If you have any questions, please contact me at 503-229-5301 or 800-452-4011 ext. 5301 within the state of Oregon.

Sincerely,

Mikell O'Mealy
Assistant to the Commission

cc: Jane Hickman, Oregon Department of Environmental Quality

Attachment M

# Law Offices of Cynthia K. McNeff

4720 NE 21st Street
Portland, OR 97211
Tel (503) 282-2889
Fax (503) 493-7306
E-mail cynthia@mcneff-law.com

4 October 2004

Environmental Quality Commission
c/o Stephanie Hallock, Director, DEQ
811 SW Six Ave
Portland, OR 97204

**RE: In the Matter of Jack D. Price**
For the Oregon Department of Environmental Quality
Office of Administrative Hearings Case No. 110485
Agency Case No. AQ/AB-WR-02-046
Contested Hearing Date: 25 February 2004

Dear Ms. Hallock,

I respectfully request for an extension of time to file the requirements for review until the 24th of November 2004 due to case load and additional time constraints. Thank you for your time.

Sincerely,

Cynthia K. McNeff
cc: DEQ-Jane Hickman by email
Jack Price

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

October 1, 2004

Via Certified Mail

Cynthia K. McNeff
Attorney at Law
4720 NE 21st Street
Portland, OR 97211

RE: Agency Case No. AQ/AB-WR-02-046

Dear Ms. McNeff:

On September 24, 2004, the Environmental Quality Commission received your timely request for Commission review of the Proposed Order for the above referenced case.

The Proposed Order outlined appeal procedures, including filing of exceptions and briefs. The hearing decision and Oregon Administrative Rules (OAR 340-011-0132) state that you must file exceptions and brief within thirty days from the filing of your request for Commission review, or October 24, 2004. Your exceptions should specify the findings and conclusions that you object to in the Proposed Order and include alternative proposed findings. Once your exceptions have been received, a representative of the Department of Environmental Quality may file an answer brief within thirty days. I have enclosed a copy of the applicable administrative rules for your information.

To file exceptions and briefs, please mail these documents to Mikell O'Mealy, on behalf of the Environmental Quality Commission, at 811 SW 6th Avenue, Portland, Oregon, 97204, with copies to Jane Hickman, Oregon Department of Environmental Quality, 811 SW 6th Ave., Portland, Oregon 97204.

After both parties file exceptions and briefs, this item will be set for Commission consideration at a regularly scheduled Commission meeting, and I will notify you of the date and location. If you have any questions about this process, or need additional time to file exceptions and briefs, please call me at 503-229-5301 or 800-452-4011 ext. 5301 within the state of Oregon.

Sincerely,

Mikell O'Mealy
Assistant to the Commission

cc: Jane Hickman, Oregon Department of Environmental Quality

# Oregon Administrative Rules 340-011-0132

Alternative Procedure for Entry of a Final Order in Contested Cases Resulting from Appeal of Civil Penalty Assessments

(1) Commencement of Review by the Commission:

(a) Copies of the hearing officer's Order will be served on each of the participants in accordance with OAR 340-011-0097. The hearing officer's Order will be the final order of the Commission unless within 30 days from the date of service, a participant or a member of the Commission files with the Commission and serves upon each participant a Petition for Commission Review. A proof of service should also be filed, but failure to file a proof of service will not be a ground for dismissal of the Petition.

(b) The timely filing of a Petition is a jurisdictional requirement and cannot be waived.

(c) The timely filing of a Petition will automatically stay the effect of the hearing officer's Order.

(d) In any case where more than one participant timely serves and files a Petition, the first to file will be the Petitioner and the latter the Respondent.

(2) Contents of the Petition for Commission Review. A Petition must be in writing and need only state the participant's or a Commissioner's intent that the Commission review the hearing officer's Order.

(3) Procedures on Review:

(a) Petitioner's Exceptions and Brief: Within 30 days from the filing of the Petition, the Petitioner must file with the Commission and serve upon each participant written exceptions, brief and proof of service. The exceptions must specify those findings and conclusions objected to, and also include proposed alternative findings of fact, conclusions of law, and order with specific references to the parts of the record upon which the Petitioner relies. Matters not raised before the hearing officer will not be considered except when necessary to prevent manifest injustice.

(b) Respondent's Brief: Each participant will have 30 days from the date of filing of the Petitioner's exceptions and brief, in which to file with the Commission and serve upon each participant an answering brief and proof of service. If multiple Petitions have been filed, the Respondent must also file exceptions as required in (3)(a) at this time.

(c) Reply Brief: Each participant will have 20 days from the date of filing of a Respondent's brief, in which to file with the Commission and serve upon each participant a reply brief and proof of service.

(d) Briefing on Commission Invoked Review: When one or more members of the Commission wish to review a hearing officer's Order, and no participant has timely filed a Petition, the Chairman will promptly notify the participants of the issue that the Commission desires the participants to brief . The Chairman will also establish the schedule for filing of briefs. The participants must limit their briefs to those issues. When the Commission wishes to review a hearing officer's Order and a participant also requested review, briefing will follow the schedule set forth in subsections (a), (b), and (c) of this section.

(e) Extensions: The Chairman or the Director, may extend any of the time limits contained in this rule except for the filing of a Petition under subsection (1) of this rule. Each extension request must be in writing and be served upon each participant. Any request for an extension may be granted or denied in whole or in part.

(f) Dismissal: The Commission may dismiss any Petition if the Petitioner fails to timely file and serve any exceptions or brief required by this rule.
(g) Oral Argument: Following the expiration of the time allowed the participants to present exceptions and briefs, the Chairman will schedule the appeal for oral argument before the Commission.
(4) Additional Evidence: A request to present additional evidence will be submitted by motion and be accompanied by a statement specifying the reason for the failure to present the evidence to the hearing officer. If the Commission grants the motion or decides on its own motion that additional evidence is necessary, the matter will be remanded to a hearing officer for further proceedings.
(5) Scope of Review: The Commission may substitute its judgment for that of the hearing officer in making any particular finding of fact, conclusion of law, or order except as limited by OAR 137-003-0665.

Stat. Auth.: ORS 183.335 & ORS 468.020
Stats. Implemented: ORS 183.430 & ORS 183.435
Hist.: DEQ 78, f. 9-6-74, ef. 9-25-74; DEQ 115, f. & ef. 7-6-76; DEQ 25-1979, f. & ef. 7-5-79; DEQ 7-1988, f. & cert. ef. 5-6-88; DEQ 1-2000(Temp), f. 2-15-00, cert. ef. 2-15-00 thru 7-31-00; DEQ 9-2000, f. & cert. ef. 7-21-00

Attachment P

# Law Offices of Cynthia K. McNeff

4720 NE 21st Street
Portland, OR 97211
Tel (503) 282-2889
Fax (503) 493-7306
E-mail cynthia@mcneff-law.com

23 September 2004

Environmental Quality Commission
c/o Stephanie Hallock, Director, DEQ
811 SW Six Ave
Portland, OR 97204

**Fax, 1st Class Mail and E-Mail to Jane Hickman**
**503.945.5304**

**RE: In the Matter of Jack D. Price**
For the Oregon Department of Environmental Quality
Office of Administrative Hearings Case No. 110485
Agency Case No. AQ/AB-WR-02-046
Contested Hearing Date: 25 February 2004

Dear Ms. Hallock,

Please find that attached Petition for Commission Review as required by statute. Contact me if you have any questions. Thank you for your time.

Sincerely,

Cynthia K. McNeff
cc: DEQ-Jane Hickman
Jack Price

RECEIVED
SEP 24 2004
Oregon DEQ
Office of the Director

Attachment Q

BEFORE THE ENVIRONMENATAL QUALITY COMMISSION

OF THE STATE OF OREGON

| | | |
|---|---|---|
| IN THE MATTER OF: | ) | Petition for Commission Review |
| JACK D. PRICE, formerly dba. | ) | |
| JACKSON ENTERPRISES, | ) | NO. AQ/AB—WR-02-046 |
| | ) | |
| Respondent. | ) | YAMHILL COUNTY |

As per 340-011-0575 (4), Mr. Jack Price intends that the commission review the proposed order and will be filing a brief as required.

Cynthia K. McNeff
OSB#98164
Attorney for Respondent

23 Sept 04
Date

Cynthia K. McNeff
Attorney at Law
4720 NE 21st Street
Portland, OR 97211
503.282.2889
Fax 503.493.7306

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS**
**STATE OF OREGON**
**for the**
**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY**

| | | |
|---|---|---|
| In The Matter of the Civil Penalty of | ) | **AMENDED PROPOSED AND** |
| | ) | **FINAL ORDER** |
| | ) | |
| **JACK D. PRICE,** | ) | OAH Case No.110485 |
| **formerly dba as Jackson Enterprises,** | ) | DEQ No: AQ/AB-WR-02-046 |
| Appellant | ) | |

## HISTORY OF THE CASE

On April 17, 2003, the Oregon Department of Environmental Quality (DEQ), issued a Notice of Civil Penalty for five alleged violations of the Oregon law, to Jack D. Price, formerly doing business as Jackson Enterprises. The Notice imposed penalties for three of the alleged violations. On May 12, 2003, Appellant submitted a request for a hearing. At the same time he requested an informal discussion, and denied allegations of the violations 1 through 5.

The file was referred to the Office of Administrative Hearings. A hearing was held on February 25, 2004, before Administrative Law Judge Lewis. Jane Hickman, Environmental Law Specialist represented DEQ. Cynthia McNeff, Attorney at Law, represented Appellant. Dottie Boyd, Liliana Escheverria, Dan Sekerak, Jesus Lomeli Flores testified for DEQ. Wally Thomas, Jack Price, Casey Mitchell, and Bruce Korum testified for Appellant. Daniel Coble, a court certified interpreter interpreted during the testimony of Jesus Lomeli Flores.

The parties requested an opportunity to brief. The record was originally set to close on April 16, 2004, with the receipt of a rebuttal memorandum from DEQ. DEQ requested an extension, which was granted. The record closed on April 26, 2004, with the receipt of that rebuttal memorandum.

On May 17, 2004, the Administrative Law Judge sent a letter to the parties, reopening the record, seeking a response to a concern about the legal citation in the Notice of Hearing. The record was reopened for 21 days for the parties to respond to the concern. DEQ submitted a response on May 18, 2004. Counsel of Mr. Price did not respond. The record closed again on June 8, 2004.

## ISSUES

(1) Whether Appellant violated ORS 468A.710(1) and OAR 340-248-0120(1) by working on an asbestos abatement project without being licensed to do so.

(2) Whether Appellant openly accumulated asbestos-containing waste materials (ACWM) in violation of OAR 340-248-0250(2).

(3) Whether Appellant violated OAR 340-012-248-0270(2) by failing to adequately wet asbestos containing material when it was being removed.

(4) Whether Appellant violated OAR 340-248-0280(2) by failing to adequately wet ACWM to ensure that they remained wet until disposed of.

(5) Whether Appellant violated OAR 340-248-0260(1) by failing to provide notification to the Department of its intent to conduct a friable asbestos abatement project.

(6) Whether the Civil Penalties assessed for violations (1) through (3) are appropriate.

## EVIDENTIARY RULINGS

Exhibits A-1 through A-29, excepting A-7, were received into evidence. Exhibits R-100, R-101, R-102, R-107 and R-108 were received. Appellant offered Exhibit R-104, a summary with supporting documents of other civil penalty assessments issued by DEQ. DEQ objected to its admission. I reserved ruling on the admissibility because the supporting documents were not provided until after the hearing date.

I have reviewed Exhibit 104 in its entirety, and find that it offers nothing of value to this record. It was offered to show disparate treatment of Mr. Price as compared to others who have similar violations. The documents fail to provide the factual bases for the civil penalties, and so I cannot discern whether there is any basis for comparison. The documents fail to provide any evidence of disparate treatment. I exclude Exhibit 104 as irrelevant and immaterial, and having no tendency to prove or disprove any issued involved in the case.

## FINDINGS OF FACT

(1) Hans Hendgen and his wife own a property commonly described as the old McMinnville hospital. The property is located at 603 Baker Street in McMinnville. In 1996, an asbestos survey was performed, and possible problem areas were listed to include salmon floor tiles on the third floor and green floor tiles on the second and third floors. The green tiles were 9 inches x 9 inches. (Ex. A-3.) When Mr. Hendgen purchased the property he was given documents related to environmental issues. During

the summer of 2001, Mr. Hendgen spoke with contractors about demolition of the building during which time he was informed of asbestos abatement issues. (Ex. A-2.)

(2) On December 26, 2001, the Hendgens entered into a contract with Jack Price, a licensed contractor, to demolish the buildings located at 603 S. Baker Street, McMinnville, Oregon. The scope of the work included completing an environmental survey with a DEQ approved contractor; remediating and abating all materials and disposing of them properly (requiring a DEQ approved contractor) and compliance with all governing agencies. The contract was for a lump sum, and had to be completed by February 28, 2002. A bonus was available if the work was completed by February 15, 2002. (Ex. A-9.)

(3) Prior to entering into the contract, Mr. Price had never done demolition work. He had inquired about getting licensed by DEQ for asbestos removal, but had decided against it. He made the contract without having any information about the cost of asbestos abatement for the job. (Test. of Price.) Mr. Price was aware of the asbestos problems with some third floor tiles prior to entering into the contract. (Test. of Mitchell.)

(4) Randy Bartholomew worked for Mr. Price supervising the work on site. Jesus Lomeli and other workers were hired to work on the demolition. They were paid in cash. (Ex. A-26.)

(5) Mr. Lomeli and the others began working at the hospital site in early January, 2002. On or about January 14, 2002, Bruce Korum of IRS Environmental of Portland went to the site for the purpose of giving a bid for asbestos removal. At that time, he observed some previously abated floor areas with mastic, but did not see any evidence of recent tile removal. Mr. Korum observed about 1,500 square feet of 9 X 9 inch green tiles on the third floor of the older portion of the hospital, which he suspected contained asbestos, and estimated the cost of that abatement to be about $1,500. (Test. of Korum.)

(6) On or about January 16 and/or 17, 2002, Mr. Batholomew instructed Mr. Lomeli and his crew to remove floor tiles, including the nine inch tiles on the third floor. They were taught how to operate a machine to accomplish this purpose. There were broken windows in the building, and because it was winter, rain had fallen on some of the floors. There were puddles near windows, but other parts of the floor were dry. During those two days, Mr. Lomeli participated in the removal of nine inch tiles in the hallway of the old section of the third floor. He was instructed by Mr. Bartholomew to put the tiles in plastic bags and to take them to dumpsters. There was a hose available, but Mr. Bartholomew did not instruct the workers to wet the tile during the removal process. The employees were told to use water to later clean the mastic. (Test. of Lomeli.)

(7) During the tile removal process many broke into very small pieces, more than four pieces per tile. (Exs. A-19 through A-21.) Mr. Bartholomew instructed the workers to clean up by using water, and another liquid to try to remove the glue. (Test. of Lomeli.)

(8) On January 16, 2002, another abatement contractor, Wally Thomas, was contacted for a bid. He walked through the site with Mr. Price and saw workers removing green nine inch square tiles on the third floor. Mr. Thomas saw no water, and the tiles looked dry. He suspected the tile contained asbestos. Mr. Price told the workers to stop the removal. Tiles were in a pile, and there were many small broken pieces of tile around. (Test. of Thomas.)

(9) On January 17, 2002, IRS Environmental submitted a proposal for the asbestos clean-up. The bid was for removal of all remaining asbestos materials for $32,570, and an additional $.52 per square foot for additional mastic under tile previously abated. (Ex. 1-28.) On January 17, 2002, IRS Environmental submitted a Notice of Intent to DEQ to remove friable asbestos-containing material from the old McMinnville Hospital, estimating a start date of January 26, 2002, and a completion date of February 10, 2002. (Ex. A-10.)

(10) On January 18, 2002, Dottie Boyd, a natural resources specialist working for DEQ in Yamhill County, Oregon, visited the demolition site. Ms. Boyd walked through portions of the hospital, but did not go to the third floor. Mr. Bartholomew arrived at the site and told Ms. Boyd that the work had started on January 5, 2002. Ms. Boyd asked Mr. Bartholomew if there had been any tile removal from the old section of the hospital. He answered in the negative. On the afternoon of January 18, 2002, Ms. Boyd learned from Mr. Price that he had hired IRS Environmental to conduct asbestos abatement. (Ex. A-2.) On that date, IRS Environmental submitted a Notification to DEQ of an intent to remove or encapsulate friable asbestos-containing material. (Ex. A-10.)

(11) On January 22, 2002, Ms. Boyd spoke with Mr. Price and asked what work had been done on the site. He made no mention of the tile removal. He mentioned his desire to have the project completed by February 15, 2002. They agreed to meet at the site the next day. (Test. of Boyd, Ex. A-2.)

(12) On January 23, 2002, Ms. Boyd met Mr. Price at the site. Some environmental consultants had been there that morning taking samples. IRS Environmental was on site doing some prep work, including installing two barrier walls on the third floor where some of the nine inch tiles had been removed. Ms. Boyd went to the third floor. In the southeast corner of the old portion of the building she saw the barrier placed by IRS Environmental. Mr. Price said the tile had come up when the carpet was removed. He stated that he had not realized there was tile under the carpet. He stated he had the workers stop the tile removal when he saw them. Within the barricaded area Ms. Boyd observed shattered pieces of tile in rooms and in the corridor. The materials were dry. Ms. Boyd offered to give Mr. Price an emergency waiver to start clean-up immediately, but he declined, because to start immediately would substantially increase the cost. (Test. of Boyd.)

(13) Ms. Boyd took a sample of the green hallway tile, and of the pink tile in one of the rooms. Both types of tile had been removed by the workers, and there were scattered pieces of the tile throughout the area. Both the pink and green tiles were tested

at the DEQ laboratory, using the adopted protocols of the agency (Ex. R-108.). DEQ's lab has been evaluated by the EPA and has been found to be in compliance with federal standards. (Test. of Escheverria.) The test results showed the pink flooring had three percent chrysotile asbestos in the tile; and the green flooring, with mastic on either side had five percent chrysotile asbestos. (Ex. A-2.)

(14) Mr. Price also had some samples tested by a lab. There were no chain-of-custody documents with these samples. That technician received the samples on January 15, 2002, and found a green tile with black backing had a layer of three percent chyrsotile asbestos in the tile. Polarized Light and phase contract microscopy were used in testing the samples. (Ex. A-8.) Mr. Price submitted the test results to DEQ. (Test. of Price.)

(15) IRS Environmental offered a bid for asbestos removal, totaling $34,450, plus $0.52 per square food of mastic under tile previously abated. (Ex. A-28.) On February 26, 2002, Bruce Korum of IRS Environmental indicated that abating 1,504 square feet of VAT(vinyl asbestos tile) would cost about $1,500, but that cleaning up the same quantity which had already been chipped up would cost approximately $700.

(16) When Mr. Lomeli learned of the allegations about asbestos in the floor tile he had removed, he submitted to testing for asbestos. Asbestos fibers were found on his clothing. (Test. of Lomeli.)

(17) DEQ found violations of several administrative rules, and imposed penalties on three of those violations. The decision was made to impose penalties on three violations because of the "severity of the violations and the intentional behavior of Mr. Price." (Ex. R-100.) DEQ determined the economic benefit to Appellant by using the BEN model provided by the U.S. Environmental Protection Agency, and information from Mr. Korum about the cost of removing the tiles properly and the cost of cleaning up the already removed tiles. (Ex. A-24.)

## CONCLUSIONS OF LAW

(1) Appellant violated ORS 468A.710(1) and OAR 340-248-0120(1) by working on an asbestos abatement project without a license.

(2) Appellant openly accumulated asbestos-containing waste materials (ACWM) in violation of OAR 340-248-0250(2).

(3) Appellant violated OAR 340-012-248-0270(2) by failing to adequately wet asbestos containing material when it was being removed.

(4) Appellant violated OAR 340-248-0280(2) by failing to adequately wet ACWM to ensure that they remained wet until disposed of.

(5) Appellant violated OAR 340-248-0260(1) by failing to provide notification to the Department of its intent to conduct a friable asbestos abatement project.

(6) Appellant is assessed civil penalties of $8,842, $9,600, and $9,600 respectively for violations (1) through (3).

## OPINION

In an administrative hearing the burden of presenting evidence to support a fact or position rests upon the party who proposes that fact or position. ORS 183.450(2). Here, DEQ alleges five violations, and imposes penalties for three of them. Appellant appealed denying all of the allegations. DEQ argues that because Appellant did not raise specific defenses, he cannot raise them at hearing.

OAR 340-011-0530(2) provides, in relevant part:

> The request for hearing must include a written response to the formal enforcement action that admits or denies all factual matters alleged therein, and alleges any and all affirmative defenses and the reasoning in support thereof. Factual matters not denied will be considered admitted, and failure to raise a defense will be a waiver of the defense.

Appellant, in the request for hearing denied each and every allegation of the Notice. In making this general denial, he brought each and every element of the allegation into the forefront. He did not admit anything. He did not admit to violating any rules. He did not admit that he was subject to a civil penalty for any violation. He did not admit to any wrongful intent. The rule prohibits the appellant from bringing forth an affirmative defense at the hearing which had not previously been raised.

An "affirmative defense" is a concept of code pleading which allows an individual to raise a defense even assuming the complaint is true. See Black's Law Dictionary, Revised Fourth Edition (1968) While DEQ did not assert intent in the actual Notice of Civil Penalty, it was included in a factor in the calculation of each of the penalties. DEQ argues that because the alleged violations do not require intent, arguing that there was no intent amounts to an affirmative defense.

DEQ is correct that intent is not necessary to show a violation. While the mental state is not an issue as to whether there was a violation, it is a factor to be considered in applying the calculation of penalties. The imposition of a penalty and the appropriateness of it, are within the scope of this hearing. Under such circumstances, it is not an affirmative defense to argue that the State has failed to show intent, or that the facts do not support the State's position. Appellant denied each and every allegation, which includes a denial of liability for the civil penalty. He is not precluded from presenting evidence related to intent at the hearing.

**Violation (1) – Working Without a License**

DEQ contends that Appellant engaged in asbestos abatement without a license. ORS 468A.707(1) provides:

> The Environmental Quality Commission by rule shall:
>
> (a) Establish an asbestos abatement program that assures the proper and safe abatement of asbestos hazards through contractor licensing and worker training.
>
> (b) Establish the date after which a contractor must be licensed under ORS 468A.720 and a worker must hold a certificate under ORS 468A.730.
>
> (c) Establish criteria and provisions for granting an extension of time for contractor licensing and worker certification, which may consider the number of workers and the availability of accredited training courses.

ORS 468A.710(1) provides, in relevant part:

> [N]o contractor shall work on an asbestos abatement project unless the contractor holds a license issued by the Department of Environmental Quality under ORS 468A.720.

OAR 340-248-0010(16) defines "contractor" as:

> [A] person that undertakes for compensation an asbestos abatement project for another person. As used in this Division, "compensation" means wages, salaries, commissions and any other form of remuneration paid to a person for personal services.

Subsection (6) of the same rule defines "Asbestos abatement project" as

> [A]ny demolition, renovation, repair, construction or maintenance activity of any public or private facility that involves the repair, enclosure, encapsulation, removal, salvage, handling, or disposal of any asbestos-containing material with the potential of releasing asbestos fibers from asbestos-containing material into the air.

Appellant entered into a contract with the landowner, for compensation, to demolish a building. He was a contractor. He had his employees work on a project which involved the removal of asbestos. Regardless of whether Mr. Price personally directed the work, or removed the tiles, he was the contractor engaged in the action. He is responsible for the work of his employees.

Appellant argues that DEQ has not shown that there was asbestos. The argument is disingenuous. Appellant testified that he believed there was asbestos in the hospital's

floor tiles prior to entering into the contract. He knew an asbestos survey had been done on the property in the past. He contacted asbestos removal contractors prior to the violations. He submitted his own analysis to DEQ, which showed green tile with black backing had a layer of three percent chyrsotile asbestos in the tile. He hired asbestos removal contractors to remove the asbestos tiles and the debris.

Despite all of these admissions and actions against interest, he argues that DEQ's testing protocols were insufficient to show there was asbestos in the tile floors.

OAR 340-248-0205(4) requires that identification of ACM "must, at a minimum, be determined using the method specified in 40 CFR Part 763 Subpart E, Appendix E, Section 1, Polarized Light Microscopy *or another method approved by the Department.*" That rule, however, was not effective on January 29, 2002, when the samples were tested by DEQ. Consequently, DEQ was under no obligation to test the samples as required by a rule which did not exist at the time of the test. DEQ used an appropriate and approved protocol.

OAR 340-248-0010(8) defines ACM as "any material containing more than one-percent asbestos by weight." Appellant argues that the EPA requires Polarized Light Microscopy and requires "point counting." DEQ used Light Microscopy, but did not "point count." Nothing in the existing rules requires point counting. DEQ has the burden of demonstrating the substance as ACM. They have done so. Once the burden of proof has been met, the onus is on the Appellant to rebut that presumption. Appellant offered no countervailing interpretation of the samples, and no expert witnesses to dispute the findings. DEQ has met its burden of showing the tiles contained more than one percent asbestos. A contractor needed a license to remove these tiles. Appellant did not have such a license, and was therefore in violation of ORS 468A.710.

**Violation (2) - Open Accumulation**

DEQ alleged Appellant violated OAR 340-248-0250(2) by opening accumulating asbestos containing materials. OAR 340-248-0250(2) provided, at the time of the alleged infraction, that "Accumulation of asbestos-containing material or asbestos-containing waste material is prohibited."[1]

OAR 340-248-0010(30) defines "open accumulation" as:

> Any accumulation, including storage, of friable asbestos-containing waste material other than material securely enclosed and stores as required by OAR 340-248-0280.

The evidence demonstrates that the tiles were torn from the floor by Mr. Lomeli and his co-workers on or about January 16, 2002. The asbestos containing tiles were left

[1] The administrative rule was renumbered to OAR 340-248-0205(1) effective February 4, 2002. At the time of the assessment Mr. Price was provided with a copy of the rules which were applicable to the events of January, 2002.

without any secure enclosure for a week, at which time the area was secured by IRS Environmental. There were shattered tiles, scattered throughout several rooms, and the corridors. The Appellant openly accumulated asbestos-containing material in violation of OAR 340-248-0250(2)

**Violation (3) – Wetting While Removing**

DEQ asserts a violation of OAR 340-248-0270(2) in the removal of the tiles. That rule requires, "Asbestos-containing material shall be adequately wetted when they are being removed."

Mr. Lomeli, the worker involved in the tile removal testified that he was not instructed to use water while removing the tiles, and that none was used. Appellant contended that there was rain water on the floor, which would have allegedly been adequate to meet the requirements of the rule. The clothing of Mr. Lomeli was contaminated with asbestos. Even if there was some water there was not "adequate" water. The purpose of keeping the material wet is to avoid it from dispersing into the air. Clearly, that did not happen in this case.

Appellant failed to have his employees use proper techniques in removing the tile to protect themselves or the environment. This was a violation of OAR 340-248-0270(2).

**Violation (4) – Failure to Keep Materials Wet**

OAR 340-248-0280(2) requires that all asbestos-containing waste material "shall be adequately wetted to ensure that they remain wet until disposed of."

Water was not used in the process, although there may have been spots near windows where rain had come into the building. Certainly, in the hallways, where there were no windows, there was no accumulation of water to keep the asbestos-containing materials wet.

The preponderance of the evidence shows that between January 16, 2002, and January 23, 2002, the asbestos-containing material was not kept wet. There were shattered pieces of asbestos-containing tiles in the area. The shattered materials were dry on January 23, 2002, a week after their removal. Failing to keep the material wet after removal was a separate violation from the failure to properly remove the tile. Appellant and his agents failed to comply with OAR 340-248-0280(2).

**Violation (5) – Failure to Provide Notification**

DEQ contends that Appellant violated OAR 340-248-0260(1) by failing to provide notification to the Department of its intent to conduct a friable asbestos abatement project. OAR 340-248-0260 requires:

> Written notification of any asbestos abatement project shall be provided to the Department on a Department form. The notification must be submitted by the facility owner or operator or by the contractor in accordance with one of the procedures specified in sections (1), (2) or (3) of this rule.

The rule then sets forth the type of information required on the notifications, and the various fees to be filed to accompany the notification. Subsection (1) of the rule requires that the notification and fee be submitted to the Department at least "ten days before beginning any friable asbestos abatement project and at least five days before beginning any non-friable asbestos abatement project."

It is clear that an asbestos abatement project began no later than January 15, 2002, without the appropriate notifications or payment of fees. As discussed above, there were friable asbestos-containing materials involved in the project. The operator needed to provide notice by January 5, 2002. The notification was not filed until IRS Environmental came into the picture, after the removal of materials had already started. Appellant violated OAR 340-248-0260 for failing to provide the required Notification.

**Civil Penalty Provisions**

DEQ seeks to impose a civil penalty for three of the five violations. In the Notice of Civil Penalty, DEQ sought $10,042 for the first violation and $10,000 for the second and third violation. At the hearing, the parties submitted a stipulation in regard to the calculation of the penalties for the first and third violations. It was agreed that the "O" factor should be "0" for purposes of calculating any penalty imposed.

ORS 468.140 provides for the imposition of a civil penalty for each day of a violation, and provides the authority for promulgating rules to establish those penalties. Counsel for Appellant argues that although there have been technical violations, DEQ should not assess separate penalties for three violations, as a matter of equity. There is no allegation that the Department was arbitrary or capricious in imposing these fines.[2]

DEQ has uncontroverted authority to impose a penalty for each violation, and could even do so on a continuing basis, for each day of violation. In this instance, DEQ did not seek to impose a penalty for two of the violations, and did not seek to impose daily penalties. This was within their discretion. Unless Appellant can show an abuse of discretion, or disparate treatment of this Appellant as compared to similarly situated individuals, the decision to impose penalties on three separate violations must stand.

Appellant offered an exhibit as evidence of disparate treatment. As discussed above in the Evidentiary Rulings, the documents submitted failed to provide any credible evidence in this regard. The imposition of multiple penalties is a discretionary act. I cannot find any abuse of the agency's discretion in deciding to impose three penalties for

[2] See Rebuttal Hearing Memorandum of Appellant's attorney.

five separate violations.[3] Appellant's counsel argues that the multiple penalties were imposed specifically because of the allegation that Mr. Price intentionally violated the law. The record demonstrates otherwise. The severity of the violations was also a factor. Because the "intent" is considered in calculating the fine, the determination to assess multiple penalties can stand without regard to intent. Exposing untrained workers to asbestos-containing material is a serious matter, even without regard to Appellant's "intent," the imposition of multiple penalties is appropriate.

OAR 340-012-0045 establishes procedures for determining the penalty, and sets forth the formula and factors to be used in determining the proper penalty for a violation. The formula requires that the magnitude of the violation be considered, with a default to "moderate" magnitude if DEQ cannot determine the violation "had a significant adverse impact on the environment, or posed a significant threat to public health", or "the violation had no potential for or actual adverse impact on the environment." The penalty shall be the result of the formula, BP + [(.1 x BP) x (P + H + O + R + C)] + EB. Each of the factors is then defined.

Penalty for Violation (1)

OAR 340-012-0050(1)(s) classifies working on an asbestos abatement project without a license as a Class One violation. OAR 340-012-0042 imposes a penalty for Class I violations of $6,000, $3,000, and $1,000 respectively depending on whether the violation was major, moderate or minor, respectively.

In this instance, the magnitude is major, because the amount of asbestos-containing material removed was more than 160 square feet. OAR 340-012-0090(1)(d)(A). The "P" factor relates to whether Appellant has any prior significant actions related to rules, orders and permits pertaining to environmental quality. DEQ found no prior significant actions of Appellant, and imposed a value of 0 for this factor. Similarly, DEQ did not attempt to apply a factor for "H", which relates to Appellant's history in correcting prior significant actions. I find the application of 0 for those two factors to be supported by the record.

The "O" factor evaluates the repeated or continuing nature of the violation. A value of 2 is imposed when the violation existed for more than one day. A factor of 0 is imposed if the violation existed for one day or less and did not recur, or if there is insufficient information on which to base a finding. The parties stipulated to a value of 0, pursuant to OAR 340-012-0045(1)(c)(C)(i), and I find no reason to disturb that stipulation.

The "R" factor relates to the cause of the violation. A factor of 0 applies only if the incident was an unavoidable accident, or if there is insufficient information to make a

[3] In disputing the agency's use of discretion in determining number of penalties, Appellant argues that less than three violations would be most appropriate. To avoid the type of problem alleged by the Appellant, the agency would have to impose a penalty for each and every violation. Appellant is not seeking an increase in liability.

finding. A factor of 2 is applied if the violation was due to negligence. A factor of 6 is imposed when the Appellant acted intentionally. A factor of 10 is applied if the violation is flagrant. DEQ imposed a factor of 6, arguing that Appellant is responsible for the work on his agents, and that the employees were instructed to remove the tile. Mr. Price asserts that he never gave such a directive, and that he advised the supervisor not to remove those tiles. If the supervisor was told not to remove the tiles, and instructed the employer's to remove them, the employees were acting within the scope of their job descriptions, following the orders of a management employee. Jackson Enterprises apparently directed the work, knowing it was a violation of law. Jackson Enterprises, of which Mr. Price is principal, is responsible for the acts of the business. The work apparently was done "intentionally," even if Mr. Price personally did not intend for the work to occur. The "R" factor was appropriate assigned a 6.

The "C" factor relates to the cooperation of Appellant in efforts to correct the violation. If an individual was cooperative and took reasonable efforts to correct the violation, a factor of -2 is applied. If there is insufficient information to make a finding about cooperation the factor is 0. If the respondent was uncooperative a factor of 2 is applied. . OAR 340-012-0045(1)(c)(E). DEQ found Appellant was cooperative because he hired a licensed contractor to remove and dispose of the asbestos-containing material. I concur with this, and find a value of -2 should be applied.

Finally, the "EB" factor, or economic benefit must be added. This is the estimated valued of the amount of money gained through noncompliance. The rule provides for a method of calculating "EB."[4]

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[4] The administrative rule sets for the following factors for determining economic benefit: (i) Add to the formula the approximate dollar sum of the economic benefit gained through noncompliance, as calculated by determining both avoided costs and the benefits obtained through any delayed costs, where applicable;

(ii) The Department need not calculate nor address the economic benefit component of the civil penalty when the benefit obtained is de minimis;

(iii) In determining the economic benefit component of a civil penalty, the Department may use the U.S. Environmental Protection Agency's BEN computer model, as adjusted annually to reflect changes in marginal tax rates, inflation rate and discount rate. With respect to significant or substantial change in the model, the Department shall use the version of the model that the Department finds will most accurately calculate the economic benefit gained by Respondent's noncompliance. Upon request of the Respondent, the Department will provide Respondent the name of the version of the model used and respond to any reasonable request for information about the content or operation of the model. The model's standard values for income tax rates, inflation rate and discount rate shall be presumed to apply to all Respondents unless a specific Respondent can demonstrate that the standard value does not reflect that Respondent's actual circumstance. Upon request of the Respondent, the Department will use the model in determining the economic benefit component of a civil penalty;

Appellant had the benefit of use of money during the time he was not using a licensed contractor. DEQ also contends that the clean-up of the materials cost $700, and that removal and clean-up would have cost $1,500. This was based on information provided by Bruce Korum, the individual who bid the asbestos removal job for IRS Environmental. Appellant argues that Mr. Korum made his bid based on a review of the property before the removal of the tiles, and that there was no adjustment of the contract to compensate for this alleged saving. Thus, it is argued there was no "economic benefit" to Appellant.

The purpose of this portion of the penalty is to return the entity to the position it would have been if it had complied on time. Assuming $800 was saved, and the remaining $700 was deferred until the job was completed, DEQ estimated an economic benefit of $442. While IRS Environmental's agent reviewed the property before Mr. Lomeli removed the tile, the bid was submitted after the removal, and specifically addressed a charge for "previously abated" areas. When Mr. Korum was questioned by DEQ he told DEQ that removal of the tile resulting in a cost saving. I find that DEQ has provided credible evidence of economic benefit to Appellant of $442.[5] The penalty for the first violation is $8,842.[6]

Penalty for Violation (2)

The same formula was applied to the other two violations for which DEQ is seeking penalties. Appellant openly accumulated asbestos-containing waste materials. Again, because of the amount of material, the base penalty is $6,000. OAR 340-012-0042(1)(a)(A)(i). DEQ seeks adjusting factors of "O", "R" and "C" for that violation. Because the asbestos-containing material was openly accumulated for more than one day, the "O" factor of 2 is appropriately applied to this violation.

Appellant again argues against an "R" factor of 6, but provided no evidence to rebut DEQ's assertion that Appellant became aware of the open accumulation on or about January 17, 2002, but that the materials were not secured until more than one week later. Even if Appellant had not told the employees to remove the tile, once it was removed he

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(iv) As stated above, under no circumstances shall the imposition of the economic benefit component of the penalty result in a penalty exceeding the statutory maximum allowed for the violation by rule or statute. When a violation has extended over more than one day, however, for determining the maximum penalty allowed, the Director may treat the violation as extending over at least as many days as necessary to recover the economic benefit of noncompliance. When the purpose of treating a violation as extending over more than one day is to recover the economic benefit, the Department has the discretion not to impose the gravity and magnitude-based portion of the penalty for more than one day.

[5] If Appellant had provided reliable evidence of the wages paid to Mr. Lomeli and/or others, it might have been appropriate to make an adjustment. I was not given any such information, and therefore no consideration is given for these offsetting costs.

[6] $6,000 + [$600 x (0 + 0 + 0 + 6 - 2)] + $442 = $8,842

had an obligation to secure the materials. He did not immediately do so. A factor of "6" is appropriate.

DEQ suggests that Appellant's cooperation was -2 because he complied with directives of DEQ. DEQ added no economic benefit for this violation. I concur. For violation OAR 340-248-0250(2), Appellant is fined $9,600.[7]

Penalty for Violation (3)

Appellant failed to adequately wet asbestos-containing material during removal in violation of OAR 340-248-0270(2). DEQ seeks a penalty for this violation. Again, the base penalty is $6,000 because of the quantity of asbestos-containing tile removed. The only factor DEQ seeks to add to this violation is a 6 for the intentional conduct of Appellant in failure to provide water during the tile removal.

Appellant argues that this was not intentional. Appellant is responsible for the acts of the agents working in the course and scope of their employment. Those individuals were advised by a supervisor about how to remove the tile, and were given no instruction or directive to hose down the tiles while working. A factor of 6 is appropriate. No additional economic benefit was added to this calculation because it was already considered in the first penalty. No mitigating cooperation factor is appropriate because the harm could not be corrected by subsequent cooperation. I find the calculation used to be appropriate and impose a fine of $9,600.[8]

**PROPOSED ORDER**

I propose the three civil penalty notices issued by DEQ be modified. Jack Price is liable for civil penalties in the amounts of $8,842, $9,600 and $9,600 respectively, for violations of ORS 468A.710(1), OAR 340-248-250(2) and OAR 340-248-0270 in January 2002.

W. Lewis

W. LEWIS, Administrative Law Judge
Office of Administrative Hearings

ISSUANCE AND MAILING DATE August 25, 2004

[7] $6,000 + [($600 x (0 + 0 + 2 + 6 - 2)] + 0 = $9,600.
[8] $6,000 +[$600 x (0 + 0 + 0 + 6 + 0)] + 0 = $9,600

## APPEAL RIGHTS

If you are not satisfied with this decision, you have the right to have the decision reviewed by the Oregon Environmental Quality Commission. To have the decision reviewed, you must file a "Petition for Review" within 30 days of the date this order is served on you as provided in Oregon Administrative Rule (OAR) 340-011-0132(1) and (2). The Petition for Review must be filed with:

Environmental Quality Commission
c/o Stephanie Hallock, Director, DEQ
811 SW Sixth Avenue
Portland, OR 97204.

Within 30 days of filing the Petition for Review, you must also file exceptions and a brief as is provided in OAR 340-011-0132(3). If the petition, exceptions and brief are filed in a timely manner, the Commission will set the matter for oral argument and notify you of the time and place of the Commission's meeting. The requirements for filing a petition, exceptions and briefs are set out in OAR 340-011-0132.

Unless you timely and appropriately file a Petition for Review as set forth above, this Proposed Order becomes the Final Order of the Environmental Quality Commission 30 days from the date of service on you of this Proposed Order. If you wish to appeal the Final Order, you have 60 days from the date the Proposed Order becomes the Final Order to file a petition for review with the Oregon Court of Appeals. See ORS 183.400 et. seq.

**EXHIBIT LIST**
**Jack D. Price**
**Department of Environmental Quality**

A-1 Enforcement referral to DEQ Enforcement Section (6 pages)

A-2 February 19, 2002, memorandum of Dottie Boyd (12 pages)

A-3 Asbestos Survey Summary, October 23 – 25, 1996 (4 pages)

A-4 Diagram of southeast corner of third floor of Old McMinnville Hospital

A-5 Map of entire third floor of Old McMinnville Hospital

A-6 Asbestos sample transmittal form from Dottie Boyd to DEQ laboratory

A-7 DEQ lab test results

A-8 January 16, 2002, Bulk Asbestos Analysis Report

A-9 Demolition Contract between Jackson Enterprises and Hans Hendgen, signed December 26, 2001.

A-10 Five ASN-a Forms dated between January 18, 2002, and February 8, 2002

A-11 Photo Documentation Comment Sheet by Dottie Boyd (3 pages)

A-12 through A-21 Photographs, three to a document taken by Dottie Boyd on January 18, 2002.

A-22 February 25, 2002, letter of Noncompliance to Jack Price (2 pages)

A-23 E-mail from Jane Hickman to Les Carlough

A-24 Memorandum from Les Carlough to File regarding the benefit calculation for Jack Price (6 pages)

A-25 EPA Investigative Activity Report prepared by Daniel Sekarek, interview of Jack Price (2 pages)

A-26 EPA Investigative Activity Report prepared by Daniel Sekarek, interview of Jesus Lomeli. (3 pages)

A-27 Stipulation of DEQ and Jack Price, dated February 25, 2004, revising the "O" factor of the penalty assessment calculations (7 pages)

A-28 January 17, 2002, bid for asbestos removal by IRS Environmental

A-29 DEQ Asbestos Advisory Fact Sheet

R-100 E-mail of Jane Hickman dated January 31, 2003, regarding the imposition of civil penalties

R-101 Ken Leahy Construction's January 14, 2002, demolition bid

R-102 Color coded map of Old McMinnville Hospital, third floor

R-104 Notebook of DEQ asbestos abatement violations, with Summary (offered, and taken as an offer of proof- ruling deferred for Proposed Order.

R-107 January 9, 2002, memorandum to Hans Hendgen regarding demolition budget

R-108 DEQ Asbestos in Bulk Materials- Polarized Light Microscopy Method (5 pages)

## CERTIFICATE OF SERVICE

I certify that on August 25, 2004, I served the attached Amended Proposed and Final Order by mailing certified and/or first class mail, in a sealed envelope, with first class postage prepaid, a copy thereof addressed as follows:

CYNTHIA K MCNEFF
ATTORNEY AT LAW
4720 NE 21ST ST
PORTLAND OR 97211

**BY FIRST CLASS MAIL AND CERTIFIED MAIL**
**BY CERTIFIED MAIL RECEIPT # 7002 2410 0001 7410 3204**

JACK D PRICE
14314 SW ALLEN BLVD #505
BEAVERTON OR 97005

**BY FIRST CLASS MAIL AND CERTIFIED MAIL**
**BY CERTIFIED MAIL RECEIPT # 7002 2410 0001 7410 3211**

JANE HICKMAN
OREGON DEQ
OFFICE OF COMPLIANCE AND ENFORCEMENT
811 SW 6TH AVE
PORTLAND OR 97204

**BY FIRST CLASS MAIL**

DEBORAH NESBIT
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**BY FIRST CLASS MAIL**

Ann Redding

Ann Redding, Administrative Specialist
Office of Administrative Hearings
Transportation Hearings Division

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

| | |
|---|---|
| IN THE MATTER OF:<br>JACK D. PRICE, formerly doing business as JACKSON ENTERPRISES,<br><br>Respondent. | ) REBUTTAL TO RESPONDENT'S<br>) HEARING MEMORANDUM<br>)<br>) NO. AQ/AB-WR-02-046<br>) YAMHILL COUNTY |

The Department presents the following in rebuttal to Respondent's Hearing Memorandum submitted on April 5, 2004. As a preliminary matter, DEQ objects to statements made by Respondent in its Hearing Memorandum that are not in the evidentiary record in this matter, listed below in the footnote.[1] The Department responds to Respondent's arguments in Sections I and II below.

## I. FACTUAL ELEMENT REQUIREMENTS

1. The Department proved that the materials Respondent removed contained more than 1% asbestos. Respondent states that OAR 340-248-0205(4) requires that "[i]dentification of the ACM must, at a minimum, be determined using the method specified in (EPA) 40 CFR Part 763 Subpart E, Section 1, Polarized Light Microscopy or another method approved by the Department." (Respondent's Hearing Memorandum, p. 4.) This rule became effective February 4, 2002. Liliana Echeverria analyzed the samples from the facility on January 29, 2002, five days before the rule became effective. (Exhibit A-7.) At the time the relevant samples were tested, there was no regulatory requirement that any particular testing methods be used for detecting asbestos.

Nonetheless, DEQ did use a testing protocol that meets the requirements of the current rule to test the samples from the old McMinnville Hospital for asbestos. (Exhibit R-108.) OAR 340-0248-205(4)

[1] The Department objects to the following statements made in Respondent's Hearing Memorandum that are not in the evidentiary record: (1) Page 1: "During the preparation time, Mr. Price discovered that the building contained ACM and started the process of having it abated." (2) Page 2: "The next day Mr. Bartholomew went over the floor tile removal with Jackson Enterprises employee Jesus Lomeli and told him not to touch the 9x9." (3) Page 3: "Mr. Price then evacuated the 3rd floor and made it off limits to everyone." (4) Page 3: "Mr. Price informed all personnel on the job site that the 3rd floor had suspect floor tiles damaged and was therefore off limits. (5) Page 3: "On or about the 15th of January, 2004, Mr. Thomas called DEQ and filed a complaint." (8) Page 3: "The method of analysis is was (sic) EPA Method 600/M4-82-020-PLM." (9) Page 4: "Mr. Lomeli also testified that he was trained to remove the floor tile using water to wet the material before removal." (10) Page 4: "He also testified that the 9x9 tiles were wet at the time of the incident." (11) Page 8: "Mr. Price personally identified the mistaken handling of material, immediately ceased all work and made all personnel leave the area immediately." (12) Page 8: "The area was quarantined and a security guard posted to prevent any access to the area."

requires that "[i]dentification of the ACM must **at a minimum** be determined using the method specified in (EPA) 40 CFR Part 763 subpart E, section 1, Polarized Light Microscopy **or another method approved by the Department**." (emphasis added). The Department has approved a testing protocol contained in a stand-alone document that provides all the information used by DEQ's laboratory on how to analyze samples for asbestos. DEQ's approved protocol states that calibrated visual volume and visual area estimation are the techniques that should be used to quantify most samples. (Exhibit R-108, p.4.) It also provides that "[t]he analyst will decide which techniques are required and in what order they should be performed." (Exhibit R-108, p. 3.) Liliana Echeverria testified that she used a combination of the three different techniques described on page 4 of Exhibit R-108 to determine the amount of asbestos in the floor tile samples: (1) polarized light microscopy (PLM); (2) separation of the asbestos from the sample matrix (i.e., matrix reduction); and, (3) the visual estimation method. In this case, Ms. Echeverria did not consider it necessary to point count the samples. (Testimony of Liliana Echeverria.) This decision was within her discretion to make.

Respondent relies on the Jefferson State Rock Products case for the proposition that DEQ must employ point counting. Jefferson State Rock Products, Inc. v. LRAPA, 163 Or.App. 1, 986 P.2d 1224 (1999). Respondent states that "EPA requires the use of point counting and DEQ must meet or exceed federal standards." (Respondent's Hearing Memorandum, p. 5.) That case does not apply to Respondent's asbestos.

First, the testing method required of LRAPA in that case was specifically for "Determination of Asbestos in Bulk Insulation Samples" and would not apply in this case because the samples in this case are floor tile, not insulation. (Exhibit R-108, p. 1.)

Second, the testing method allegedly required by 40 CFR part 763 Subpart E, Appendix E, Section 1 and attached to Respondent's Hearing Memorandum, states in section 1.7.2.4 that "Asbestos quantitation is performed by a point-counting procedure *or an equivalent estimation method.*" (emphasis added)

The testing method approved for use by DEQ adopts the EPA test method "Method for the Determination of Asbestos in Bulk Building Materials," EPA/600/R-93/116, July 1993. (Exhibit R-108, p. 1.) Ms. Echeverria testified that DEQ's laboratory participates in a proficiency testing program (American

Industrial Hygiene Association Bulk Asbestos Proficiency Analytical Testing Program) that has consistently proved the reliability of DEQ's asbestos testing methods and results. Respondent has presented no evidence that DEQ's testing method is less rigorous than EPA's, or that Ms. Echeverria failed to follow the DEQ-approved protocol. (Testimony of Liliana Echeverria.) DEQ believes its testing method is at least equivalent to the EPA method, though fuller examination of this issue would require that the record be re-opened for further testimony and evidence. However, we do not believe that new evidence would be necessary to resolve this case.

2. The Department proved that Respondent committed the violations intentionally. Respondent presented circumstantial evidence to support his contention that he did not intentionally commit the violations. DEQ presented both circumstantial and direct evidence that Respondent acted intentionally to commit the violations. Respondent admits that he knew the 9x9 floor tile contained asbestos before his workers removed it. Either Respondent or his foreman, Randy Bartholomew, directed the workers to remove all the tile, including the 9x9 tile. Respondent explored the possibility of obtaining a DEQ license to conduct asbestos abatement projects but decided not to. (See pages 4-5 of DEQ's Hearing Memorandum.)

Respondent states in his Hearing Memorandum that he "made it clear" to Randy Bartholomew on January 14, 2002 that the 9x9 tiles were not to be disturbed because they contained asbestos. Assuming that to be true, Randy Bartholomew intentionally conducted an asbestos abatement project without being licensed. After being told by Respondent not to touch the 9x9 asbestos-containing tile, he "worked right alongside" Mr. Lomeli as Mr. Lomeli removed the 9x9 tiles. (Testimony of Jesus Lomeli.) OAR 340-011-0520 provides that Respondent is legally responsible for not only his direct acts but also the acts of his employee when the employee is acting within the scope of the employment relationship, regardless of whether the respondent expressly authorizes the act in question. The mental state of an employee can be imputed to the employer.

Respondent points to the fact that Dottie Boyd, in her enforcement referral (Exhibit A-1), believed that the violation occurred as a result of a miscommunication between Mr. Price and his workers. That initial belief was based on Mr. Price's version of events at the time Ms. Boyd interviewed him and was

contradicted by evidence that was later made available to the Department before it assessed the civil penalties to Respondent. That evidence, much of which was entered into the hearing record, led the Department, including Ms. Boyd, to conclude that the violations did not occur as a result of miscommunication but that the violations were done intentionally.

3. The Department proved that Respondent gained an economic benefit of $442. Respondent claims that because he did not receive a cash refund or "rebate" for his illegal abatement from IRS, he did not receive an economic benefit as a result of conducting the abatement project without being licensed. Yet Respondent did benefit from his violation, because IRS Environmental gave Respondent a price break on account of the ACM already removed when it issued its bid. For a full discussion of this issue, please see page 5 of the Department's Hearing Memorandum.

4. The Department proved that Respondent openly accumulated ACWM for more than one day. Respondent does not dispute that the violation first occurred on January 15, 2002. Respondent testified that after his workers shattered the asbestos-containing tiles, he left the ACWM in place. The shattered tiles remained unpackaged and unlabeled at least until Ms. Boyd's inspection on January 23, 2002. The failure to package and label ACWM in accordance with 340-248-0280 occurred for at least eight days. Therefore, the violation continued for more than one day and an "O" factor of 2 is appropriate.

5. A "C" factor of 0 is appropriate for Violation (3). The reason DEQ's regulations require that ACM be wetted during removal is to minimize fiber dispersal into the air. (Testimony of Dottie Boyd.) While the risk of fiber dispersal continues until the ACM is properly packaged and labeled, the greatest risk of dispersal occurs during the shattering of the tiles. Respondent does not dispute the Department's finding that this violation could not be corrected.

Instead, Respondent cites a DEQ case as support for its claim that DEQ should give Respondent credit for cooperativeness for Violation 3. That case, No. AQ/AB-NWR-03-0-99, is currently pending on appeal to the Environmental Quality Commission and is not a final order. In that case, the administrative law judge gave the respondent credit for cooperativeness because Respondent hired an abatement contractor to dispose of ACWM generated as a result of an illegal abatement project. However, the violation in that case was failure of a facility owner to hire a licensed contractor, *not* failure to wet ACM as

it was being removed. While Respondent in this case also hired a licensed contractor to properly dispose of the ACWM that was openly accumulated, that later cleanup could not ameliorate the impacts of Respondent's failure to wet the ACM as it was being removed. Respondent's arguments regarding the "C" factor for this violation are not relevant or material to whether the violation could be corrected. A value of 0 for the "C" factor is appropriate.

## III. EQUITABLE ARGUMENTS

In its Hearing Memorandum, the Department addressed Respondent's arguments regarding its assessment of civil penalties for three of the five violations for which Respondent was cited. Respondent has not alleged that the Department exercised its enforcement discretion in an arbitrary or capricious manner. Instead, Respondent claims that the Department's civil penalty assessments in this case were inconsistent with formal enforcement actions it has taken in other cases. The evidence Respondent presents to support this argument (press releases and summaries based thereon) is not a reliably definitive summary of agency practice nor relevant to the case at hand. Respondent has not shown that any of the cases he relies on are factually similar to the case at issue. There is no way to determine whether the prior cases have similar facts from reviewing the press releases offered into evidence. Once again, the Department objects to admission of the press releases and summaries thereof on the grounds they are not relevant or material.

Assuming for the sake of argument that the Department's reasons for assessing multiple penalties are relevant, Respondent mischaracterizes the contents of an intra-office email he claims binds the Department's exercise of its enforcement discretion. That email -- not a "memo" as referred to on page 8 of Respondent's Hearing Memorandum -- was not an expression of official agency policy but was an internal advisory communication regarding why several penalties were being recommended for Respondent. The email stated that several penalties were being recommended because "of the severity of the violations *and* the intentional behavior of Mr. Price." (emphasis added)

Based on that email, Respondent speculates that "if DEQ had kept their original conclusion that he had made a mistake, Mr. Price would have been only subject to one fine." Respondent is actually liable for a penalty for each day of each violation according to Oregon statute. Oregon Revised Statute (ORS)

468.140(1) states that any person who violates any air quality statute, rule, order, or permit "shall incur a civil penalty for each day of violation." Then ORS 468.140(2) specifies "Each day of violation under subsection (1) of this section constitutes a separate offense." The statutes also apply this principle to criminal prosecution, making each day of each violation a separate crime punishable by law. The statutes require the Environmental Quality Commission to adopt rules regarding assessment of civil penalties up to $10,000 per day of violation. Under this authority, the Commission reiterated the statutory direction that each day of violation is a separate and distinct offense in Oregon Administrative Rule (OAR) 340-012-0035 which states:

> Notwithstanding that each and every violation is a separate and distinct offense, and in cases of continuing violations, that each day's continuance is a separate and distinct violation, proceedings for the assessment of multiple civil penalties for multiple violations may be consolidated into a single proceeding. (emphasis added)

However, the laws do not require that a penalty be assessed for any particular day or violation and allow the agencies to apply enforcement discretion in not penalizing any given violation or days thereof.

Respondent focuses only on one of the stated grounds for the multiple penalty assessments – the intentional nature of Respondent's conduct. Respondent ignores the other reason stated for issuance of multiple penalties -- "the severity of the violations." Each of the violations for which a civil penalty was assessed is a Class I, major magnitude violation, i.e., a severe violation. The Department acted reasonably in assessing a civil penalty for each of these violations, considering the amount of ACM that was removed without water and that there is a high probability that Mr. Lomeli and any other works involved with the project were exposed to asbestos fibers. (Testimony of Mr. Lomeli that laboratory analysis revealed the presence of asbestos fibers on the clothing he wore during the floor removal.)

## IV. CONCLUSION

Based on the foregoing facts and argument, the Department's Hearing Memorandum and the Memorandum of Law submitted by the Attorney-General's Office and attached thereto, the Department of

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Environmental Quality respectfully requests that its civil penalty assessment issued to Jack Price, formerly doing business as Jackson Enterprises, be upheld in its entirety.

Dated: April 26, 2004.

Jane K. Hickman, Environmental Law Specialist
Department of Environmental Quality
Office of Compliance and Enforcement

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BEFORE THE ENVIRONMENATAL QUALITY COMMISSION

OF THE STATE OF OREGON

| | | |
|---|---|---|
| IN THE MATTER OF: | ) | NOTICE OF ASSESMENT |
| JACK D. PRICE, formerly dba. | ) | OF CIVIL PENALTY |
| JACKSON ENTERPRISES, | ) | NO. AQ/AB—WR-02-046 |
| | ) | |
| Respondent. | ) | YAMHILL COUNTY |

# Hearing Memorandum

## PROCEDURE

This matters stems from an allegation and fines by DEQ that Jack Price violated ORS 468.126 through 468.140, ORS Chapter 183 and OAR Chapter 340, Divisions 11 and 12. Mr. Price was fined for: conducting an abatement project while being unlicensed, open accumulation of Asbestos Containing Material (ACM) and failing to wet the suspect ACM during abatement. Mr. Price has requested a contested hearing for a decision on the following issues:

1. Whether Respondent violated ORS 468A.710 and OAR 340-248-0120(1).
2. Whether Respondent violated OAR 340-248-0250(2).
3. Whether Respondent violated OAR 340-012-248-0270(2).
4. Whether Respondent violated OAR 340-248-0280(2).
5. Whether Respondent violated OAR 340-248-0260(1).
6. Whether the civil penalties assessed for violation (1) through (3) are appropriate.

## FACTS

On or about the 26th of December, 2001 Mr. Price signed a contract to demolish a building at 603 S. Baker Street in McMinnville Oregon. Starting January 2nd and thru the 14th of January, 2004 Mr. Price prepared to start the project by applying for permits, installing fences, setting drop boxes, and other related activities. During the preparation time, Mr. Price discovered that the building contained ACM and started the process of having it abated. He called five different abatement contractors and met with two before the incident.

Prior to the 15th of January, Mr. Price met with Casey Mitchell at the project site. Mr. Mitchell was initially going to be the foreman on the job, but was hired by another company before the project started. The purpose of the meeting was to go over the plan for the project. As part of that discussion Mr. Price pointed at the 9 x 9 tile and other suspect material and told Mr. Mitchell that they were going to be abated.

On the 7th of January 2002, Mr. Price was requested to break out the cost for the environmental clean up of the building (exhibit R-103). Mr. Price responded that it would cost $40,000 to perform the clean up (exhibit R-107).

Prior to the 15th of January 2002, Mr. Price had performed a walk thru with Ken Leahy and Jeff Braun concerning the demolition of the cast in place concrete portions of the building. As part of that job walk, the parties discussed the abatement of the ACM and how that would effect scheduling and cost of the demolition. It cost more to have to stop and start a job waiting for ACM to be removed. Mr. Price received a bid on the 14th of January 2002 from Leahy Construction (exhibit R-101). The bid reads "We understand others will remove all asbestos containing material(s)".

On the 14th of January 2002, Mr. Price and Bruce Korum (an abatement contractor) visited the site to put together a bid for the abatement. As part of that bid, the 9 x 9 tile in question was included the bid. Mr. Price had the tile tested prior to the job walk which came back as positive using EPA Method 600/M4-82-020-PLM, but the sample had not been point counted.

During the walk thru, Mr. Korum did not observe any of the suspect tile having been or being removed, but did notice some 12 x 12 tile being demolished. Mr. Korum took samples of the 12 x 12 to be analyzed which came back negative.

On the 14th of January, Mr. Price and Randy Bartholomew walked the area in question on the 3rd floor. At that time Mr. Price made it very clear that the 9 x 9 floor tile (suspect ACM) was not to be removed, only the 12 x 12 tile. The next day Mr. Bartholomew went over the floor tile removal with Jackson Enterprises employee Jesus Lomeli and told him not to touch the 9 x 9. Prior to this incident, both Mr. Price and Mr. Bartholomew had given Mr. Lomeli direction and those directions were followed. Neither had any reason to believe that Mr. Lomeli did not understand the orders theses orders.

On the 15th of January, 2002 Mr. Price and Wally Thomas (an abatement contractor) performed the same walk thru as with Mr. Korum. During that walk thru, Mr. Price took the abatement contractor to the 3rd floor to show him the 9 x 9 floor tile. It was then that both Mr. Price and the abatement contractor discovered Mr. Price's workers demolishing the 9 x9 floor tile. Mr. Price then evacuated the 3rd floor and made it off limits to everyone. Mr. Price informed all personnel on the job site that the 3rd floor had suspect floor tiles damaged and was therefore off limits.

On the January 16th 2004, first thing in the morning, Mr. Price contracted with IRS to perform the abatement and IRS started the prep work the next day and the abatement on the 26th of January, 2004.

On or about the 15th of January 2004, Mr. Thomas called DEQ and filed a complaint. On the 18th of January, 2002 Dottie Boyd from DEQ made a site visit. She briefly toured the site, but did not observe the 3rd floor, nor did she take any bulk or air samples. Ms. Boyd returned on the 23rd of January 2002. A containment area had been erected around the suspect floor tile on the 3rd floor. Ms. Boyd entered that area and took bulk samples of tile to be analyzed. The method of analysis is was EPA Method 600/M4-82-020-PLM. This testing method does not include point counting. The two samples of floor tile came back positive for chrysotile, one was 5% and one was 3% ACM. The total area involved was 1500 square feet.

Ms. Boyd continued investigating and distilled the information into a report date stamped March 12th 2002. In the Detail Report Ms. Boyd states that the violation occurred because of a miscommunication between Mr. Price and his workers. It also stated that Mr. Price was cooperative in correcting or trying to correct the violation and that he indeed had corrected them. However, between March 2002 and January 2003 DEQ changed its position and claimed Mr. Price had intentionally committed the violations. Due to that change of mind, DEQ fined Mr. Price for more than one violation (exhibit R-100) based on its assertion that Mr. Price acted intentionally. Reviewing the all the published DEQ (asbestos related) press releases covering Oct 23rd 2000-Jan. 29th 2004, the average fine was $6157.18 per incident. Of the 80 incidents, only ~17% of those had more than one fine issued. Of the 80 incidents, only ~6.25% had 3 or more fines issued. This is information is published on the DEQ's website and a copy of the press releases have been supplied for ease of review.

Jesus Lomeli was leading the crew on the 15th of January when the 9 x 9 floor tile was demolished. Mr. Lomeli claims that he was never told to not remove the 9 x 9 tile. Mr. Lomeli also testified that he was trained to remove the floor tile using water to wet the material before removal. He also testified that the 9 x 9 tiles were wet at the time of the incident. It should be noted that Mr. Lomeli still has an open case with SAIF Corp, the workers compensation carrier, for asbestos exposure. Mr. Lomeli's brother also made a claim at the same time and with the same attorney.

The only other witness that DEQ presented to prove that Mr. Price acted intentionally was an EPA investigator who had been an investigator for EPA for over a decade. He claimed that Mr. Price admitted to intentionally removing the 9 x 9 tile. When the investigator was questioned about whether he could have gotten it wrong or had ever made a mistake in reporting an interview, he replied that he had never made a mistake. During that interview, Mr. Price testified that he had been on prescription drugs, but testified that he did not make the statement that he had intentionally removed the 9 x 9 tile.

Factual Element Requirements

In order to prove that there has been a violation of the above rules, DEQ must first show substantial evidence of the three factual predicate elements 1) that the debris contained asbestos in regulated quantities; 2) that the asbestos was friable; and 3) that there was a release of asbestos fibers into the environment.[1] This matter is only concerned with part 1 of the elements.

DEQ defines ACM as any material containing more than one-percent asbestos by weight.[2] Identification of the ACM must, at a minimum, be determined using the method specified in (EPA) 40 CFR Part 763 Subpart E. Appendix E, Section 1, Polarized Light Microscopy or another method approved by the Department.[3] That EPA method uses Point Counting. DEQ only used PLM to identify the asbestos. The main difference between the two methods is that one uses point counting and one does not. Point counting is a process used to determine the quantity of asbestos in materials. In

[1] Jefferson State Rock Products v. LRAPA 163 Ore. App.1, 2, 986 P.2d 1224,1225 (1999)
[2] OAR 340-248-0010 (8)
[3] OAR 340-248-0205 (4), Method attached as exhibit A

Jefferson State Rock[4] the Court overturns the decision that the Respondent violated that entities clean air regulations. The court basis their decision almost solely on LRAPA not having point counted in accordance with the EPA method stated above. The regulations for DEQ and LRAPA are almost identical and therefore this case is applicable to this matter.

DEQ may try to argue that "another method approved by the Department" would mean that DEQ could prove material contains ACM using the less stringent method EPA/600/R-93/116, July 1993. First they have offered no proof that the less stringent method was "approved". It also makes no sense; if DEQ could use a less stringent method then an analyst could just eyeball it and call it asbestos without using further techniques. Last, EPA requires the use of point counting and DEQ must meet or exceed Federal Standards.

DEQ has not presented evidence that the samples of floor tile entered into this matter had been point counted. The sample only states "Asbestos Micro". The EPA Point Counting Method is attached as Exhibit A to this Memo and shows that there is a calculation involved. If DEQ had point counted the sample, it should have presented that information so that Respondent could review the calculations for human error. Given the lack of proof that the 9 x 9 floor tile removed contained more than one percent asbestos, Mr. Price should be relieved of all fines and violations in this matter.

FINES

**Violation I-Non-licensed abatement**

No objections are made for the values determined for BP, P, H, O & C in determining fines. Respondent does object to R and EB values based on the following:

"R" value used for Mr. Price is based on DEQ's claim that Mr. Price acted intentionally. Mr. Price told his foreman to only have the workers remove the 12 x 12 floor tile, not the 9 x 9. One of DEQ's most respected investigators said that she believes the removal of the suspect ACM was due to a mistake in communication. Prior to the incident, Mr. Price continually spoke with individuals concerning the abatement, either in planning or the costs of the abatement. In addition, Mr. Price contacted five abatement contractors and had two walk the project to give a bid for the removal of

[4] Jefferson State Rock Products v. LRAPA 163 Ore. App.1, 986 P.2d 1224 (1999)

asbestos before the 15th. The scope of the work shown to the abatement contractors was to include the suspect tile. If Mr. Price was intentionally trying to abate the project himself, he would not walk one of the abatement contractors right into the illegal act. Mr. Price also had to phase the demolition of the building due to the abatement. The hearing panel should take note that Mr. Price incurred more costs by phasing the razing of the building. All of the evidence in this case shows that Mr. Price's intention was to abate the ACM using a licensed contractor in compliance with the regulation.

ORS 183.450(2) provides, in part, "The burden of presenting evidence to support a position in a contested case rests on the proponent of the fact or position." The burden is on DEQ, as a state agency, to prove the alleged violations.[5] In addition the level of proof is a preponderance of the evidence.[6]

DEQ's main witness is clearly biased because he presently has an open claim for his exposure to the suspect ACM. Mr. Lomeli has a financial interest in Mr. Price having intentionally caused his exposure. He does not fully understand English and his testifying in this matter was difficult. Mr. Lomeli's testimony should be given very little weight.

The EPA investigator testimony should be tempered against the fact the Mr. Price was medicated during the interview and that the investigator is under the belief that he never makes mistakes and therefore could not have made a mistake or misunderstood Mr. Price's statement.

"EB" value is based on the actual money saved by performing the abatement without a contractor. Mr. Price received no actually economic benefit from the demolition of the floor tile. IRS Environmental performed the abatement and had walked the job the day before. During that job walk the contractor was shown the floor tile and had included that area in his bid. IRS Environmental did perform the demolition and did not give Mr. Price any rebate because the floor tile had been

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[5] Garton v. Real Estate Commissioner, 127 OR APP 340, 342 (1994)

[6] Definition: the greater weight of the evidence required in a civil (non-criminal) lawsuit for the trier of fact (jury or judge without a jury) to decide in favor of one side or the other. This preponderance is based on the more convincing evidence and its probable truth or accuracy, and not on the amount of evidence. Thus, one clearly knowledgeable witness may provide a preponderance of evidence over a dozen witnesses with hazy testimony, or a signed agreement with definite terms may outweigh opinions or speculation about what the parties intended. Preponderance of the evidence is required in a civil case and is contrasted with "beyond a reasonable doubt," which is the more severe test of evidence required to convict in a criminal trial. No matter what the definition stated in various legal opinions, the meaning is somewhat subjective.

demolished. DEQ has presented evidence that states what it would have cost to abate 1500 square feet of tile. We have no doubt that is what it cost, but DEQ did not prove that the IRS Environmental contract was reduce by that amount. Therefore, Mr. Price received no actual benefit and EB should be 0.

**Violation II-Open accumulation**

No objections are made for values determined for BP, P, H and C. Respondent does object to O and R values.

"O" values is to be determined as 0 "if the violation existed for one day or less and did not recur on the same day, or if there is insufficient information on which to base a finding"[7]. Ms. Boyd never viewed the area until the 23rd of January which is the day that DEQ claims that the suspect ACM was contained. Ms. Boyd offers no other support for DEQ's contention. Ms. Boyd had an opportunity to discover when the area was contained during her interview of Mr. Chavez, but there was no mentioned of the timing in the report. By the wording of the Rule, DEQ holds the burden to prove the accumulation was for more than one day and DEQ has failed that requirement. Therefore, the "O" factor should be 0.

For "R" value objection, Respondent makes the same argument stated above in Violation I.

**Violation III-Failing to wet during removal**

No objections are made for BP, P, O, H and EB. Respondent does object to R and C based on the following:

For "R" value objection, Respondent makes the same argument as stated in Violation I.

"C" value should be "-2 if Respondent was cooperative and took reasonable efforts to correct a violation, took reasonable affirmative efforts to minimize the effects of the violation, or took extraordinary efforts to ensure the violation would not be repeated."[8] A factor of 0 if the effects could not be corrected[9].

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[7] OAR 340-012-0045 (1) (C)(i)
[8] OAR 340-012-0045 (1) (E) (i)
[9] OAR 340-012-0045 (1) (E) (ii)

Mr. Price received a value of –2 on violations I and II, but a 0 value on Violation III. Mr. Price personally identified the mistaken handling of material, immediately ceased all work and made all personnel leave the area immediately. The area was quarantined and a security guard posted to prevent any access to the area. Mr. Price had the material properly removed by hiring an asbestos abatement contractor as originally planned. Mr. Price worked with all agencies and voluntarily provided all information requested. At no time was Mr. Price unwilling or unable to work with agencies. Finally, DEQ's report states Mr. Price was cooperative.

When the Respondent is cooperative, as here, a value of –2 is used (see OAH No. 110484; Agency Case No. AQ/AB-NWR-03-099; Respondent received –2 value as they were cooperative and made reasonable efforts to minimize the affects of the violation n including the hiring of licensed abatement contractor). Thus a –2 should be assigned for the 'C' value for violation III in the civil penalty determination formula as Respondent cooperated in cleaning the property and took reasonable efforts to minimize the effects of the violation.

**Respondent Waiving Rights to Assertive Defense**

Mr. Price did not waive his right to assert the position contained herein. He broadly denied any violation of all of the assessed violations, including improper assessment of civil penalties. How he proves these issues are to be disclosed at the hearing.

Summary

By DEQ failing to perform the proper analysis on the samples, it has not met its burden of establishing the Prima Facia case against Mr. Price since DEQ has not established the suspect tile contained more than 1% of asbestos. The entire matter should be dismissed and Mr. Price found to have not violated DEQ regulations.

The evidence is clear that Mr. Price did not intentionally abate the 9 x 9 tile. DEQ based its assessing three fines because of the allegation that he intended to abate the 9 x 9 tile. If DEQ had kept their original conclusion that he had made a mistake, Mr. Price would have been only subject to one fine. This is based on DEQ's record of the last three years and even more important and actual memo from DEQ stating that Mr. Price was subject to multiple fines due to the intentional nature of the violation. Therefore, if this Panel finds that my client was not intentional in his violations, it should order DEQ to

treat him in accordance with its past behavior and fine him for one offense. Or in the alternative have DEQ reassess the case based on the findings that Mr. Price's behavior was unintentional.

All other issues in this memo are self concluding and require no further discussion.

6 Apr 04

Submitted by: Cynthia K. McNeff
OSB#98164
Attorney for Respondent

EXHIBIT A
PAGE 1

TITLE 40 -- PROTECTION OF ENVIRONMENT
CHAPTER I -- ENVIRONMENTAL PROTECTION AGENCY
SUBCHAPTER R -- TOXIC SUBSTANCES CONTROL ACT
PART 763 -- **ASBESTOS**
SUBPART E -- **ASBESTOS**-CONTAINING MATERIALS IN SCHOOLS

*40 CFR PART 763 APPENDIX E TO SUBPART E*

# APPENDIX E TO SUBPART E -- INTERIM METHOD OF THE DETERMINATION OF **ASBESTOS** IN BULK INSULATION SAMPLES

## Section 1, Polarized Light Microscopy

### 1.1 Principle and Applicability

Bulk samples of building materials taken for **asbestos** identification are first examined for homogeneity and preliminary fiber identification at low magnification. Positive identification of suspect fibers is made by analysis of subsamples with the polarized light microscope.

The principles of optical mineralogy are well established. n12 A light microscope equipped with two polarizing filters is used to observe specific optical characteristics of a sample. The use of plane polarized light allows the determination of refractive indices along specific crystallographic axes. Morphology and color are also observed. A retardation plate is placed in the polarized light path for determination of the sign of elongation using orthoscopic illumination. Orientation of the two filters such that their vibration planes are perpendicular (crossed polars) allows observation of the birefringence and extinction characteristics of anisotropic particles.

Quantitative analysis involves the use of point counting. Point counting is a standard technique in petrography for determining the relative areas occupied by separate minerals in thin sections of rock. Background information on the use of point counting n2 and the interpretation of point count data n3 is available.

This method is applicable to all bulk samples of friable insulation materials submitted for identification and quantitation of **asbestos** components.

### 1.2 Range

The point counting method may be used for analysis of samples containing from 0 to 100 percent **asbestos.** The upper detection limit is 100 percent. The lower detection limit is less than 1 percent.

### 1.3 Interferences

Fibrous organic and inorganic constitutents of bulk samples may interfere with the identification and quantitation of the **asbestos** mineral content. Spray-on binder materials may coat fibers and affect color or obscure optical characteristics to the extent of masking fiber identity. Fine particles of other materials may also adhere to fibers to an extent sufficient to cause confusion in identification. Procedures that may be used for the removal of interferences are presented in Section 1.7.2.2.

EXHIBIT 4

PAGE 2

1.4 Precision and Accuracy

Adequate data for measuring the accuracy and precision of the method for samples with various matrices are not currently available. Data obtained for samples containing a single **asbestos** type in a simple matrix are available in the EPA report Bulk Sample Analysis for **Asbestos** Content: Evaluation of the Tentative Method. n4

1.7.1 Sampling

Samples for analysis of **asbestos** content shall be taken in the manner prescribed in Reference 5 and information on design of sampling and analysis programs may be found in Reference 6. If there are any questions about the representative nature of the sample, another sample should be requested before proceeding with the analysis.

1.7.2 Analysis

1.7.2.1 Gross Examination

Bulk samples of building materials taken for the identification and quantitation of **asbestos** are first examined for homogeneity at low magnification with the aid of a stereomicroscope. The core sample may be examined in its container or carefully removed from the container onto a glassine transfer paper or clean glass plate. If possible, note is made of the top and bottom orientation. When discrete strata are identified, each is treated as a separate material so that fibers are first identified and quantified in that layer only, and then the results for each layer are combined to yield an estimate of **asbestos** content for the whole sample.

1.7.2.4 Quantitation of **Asbestos** Content

**Asbestos** quantitation is performed by a point-counting procedure or an equivalent estimation method. An ocular reticle (cross-hair or point array) is used to visually superimpose a point or points on the microscope field of view. Record the number of points positioned directly above each kind of particle of fiber of interest. Score only points directly over **asbestos** fibers or nonasbestos matrix material. Do not score empty points for the closest particle. If an **asbestos** fiber and a matrix particle overlap so that a point is superimposed on their visual intersection, a point is scored for both categories. Point counting provides a determination of the area percent **asbestos.** Reliable conversion of area percent to percent of dry weight is not currently feasible unless the specific gravities and relative volumes of the materials are known.

For the purpose of this method, "**asbestos** fibers" are defined as having an aspect ratio greater than 3:1 and being positively identified as one of the minerals in Table 1-1.

A total of 400 points superimposed on either **asbestos** fibers or nonasbestos matrix material must be counted over at least eight different preparations of representative subsamples. Take eight forcep samples and mount each separately with the appropriate refractive index liquid. The preparation should not be heavily loaded. The sample should be uniformly dispersed to avoid overlapping particles and allow 25-50 percent empty area within the fields of view. Count 50 nonempty points on each preparation, using either.

-- A cross-hair reticle and mechanical stage; or

-- A reticle with 25 points (Chalkley Point Array) and counting at least 2 randomly selected fields.

For samples with mixtures of isotropic and anisotropic materials present, viewing the sample with slightly uncrossed polars or the addition of the compensator plate to the polarized light path will allow simultaneous discrimination of both particle types. Quantitation should be performed at 100X or at the lowest magnification of the polarized light microscope that can effectively distinguish the sample components. Confirmation of the quantitation result by a second analyst on some percentage of analyzed samples should be used as standard quality control procedure.

The percent **asbestos** is calculated as follows:

% **asbestos**=(a ) 100%

where

a=number of **asbestos** counts,

n=number of nonempty points counted (400).

If a=0, report "No **asbestos** detected." If 0<a </=3, report "< 1% as **asbestos**".

The value reported should be rounded to the nearest percent.

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

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| IN THE MATTER OF:<br>JACK D. PRICE, formerly doing business as<br>JACKSON ENTERPRISES,<br><br>Respondent. | ) HEARING MEMORANDUM<br>) NO. AQ/AB-WR-02-046<br>)<br>)<br>) YAMHILL COUNTY |

This Hearing Memorandum is offered in support of Notice of Assessment of Civil Penalty No. AQ/AB-WR-02-046 (Notice) issued on April 17, 2003, by the Department of Environmental Quality (the Department or DEQ) to Jack D. Price, formerly doing business as Jackson Enterprises (Jack Price or Respondent). A contested case hearing was held on this matter on February 25, 2004.

## I. BACKGROUND

On December 26, 2001, Jack Price, doing business at the time as Jackson Enterprises, entered into a lump sum contract with the owners of the vacant former McMinnville Hospital (the facility), to demolish the facility. (Exhibit A-9.) Mr. Price is a contractor licensed by the Construction Contractors Board but is not licensed by DEQ as an asbestos abatement contractor. (Testimony of Jack Price.) The facility contained various asbestos-containing materials, and the contract required Mr. Price to have surveys conducted and to have any hazardous materials abated in accordance with state law. (Exhibits A-9, A-3, A-7, A-8.) On approximately January 25, 2002, two men working for Jack Price removed approximately 1,500 square feet of floor tiles that contained asbestos, shattering the tiles in the process. (Exhibit A-1, A-2, A-6 through A-8, A-12 through A-21, A-25, A-25; testimony of Dottie Boyd, Jack Price, Dan Sekerak and Jesus Lomeli.) The tile fragments remained in open piles and scattered in several rooms and corridors until at least January 23, 2002, when Mr. Price had a licensed asbestos contractor come in to properly dispose of the asbestos-containing waste material (ACWM). (Exhibits A-12 through A-21, A-2, testimony of Dottie Boyd.) Dottie Boyd, a natural resource specialist in the Air Quality Program, conducted an investigation of the unlicensed abatement project and referred the matter to DEQ's Office of Compliance and Enforcement for formal enforcement action. (Exhibit A-1, A-2; testimony of Dottie Boyd.) On April 17, 2003, the Department cited Jack Price for five violations of state asbestos management laws and

assessed civil penalties totaling $28,042 for three of those violations. (The original civil penalties totaled $30,042, but prior to the hearing, the parties stipulated that the penalties should be reduced as reflected in the civil penalty determinations attached as Exhibits 1A, 2 and 3A to the Notice.)

## II. ISSUES

Pursuant to OAR 340-011-0570, the scope of the contested case hearing is limited to those matters that are relevant and material to either proving or disproving the matters alleged in the Department's Notice and Respondent's request for hearing. In his Answer, Respondent stated a general denial of the Department's allegations. Thus, the issues stated in the Notice of Hearing, which the parties confirmed at the hearing are correctly stated, are identical to those asserted in the Department's Notice:

(1) Whether Respondent violated ORS 468A.710(1) and OAR 340-248-0120(1) by working on an asbestos abatement project without being licensed to do so;

(2) Whether Respondent openly accumulated asbestos-containing waste materials (ACWM) in violation of OAR 340-248-0250(2);

(3) Whether Respondent violated OAR 340-012-248-0270(2) by failing to adequately wet asbestos-containing material (ACM) when it was being removed;

(4) Whether Respondent violated OAR 340-248-0280(2) by failing to adequately wet ACWM to ensure that they remained wet until disposed of.

(5) Whether Respondent violated OAR 340-248-0260(1) by failing to provide notification to the Department of its intent to conduct a friable asbestos abatement project, and;

(6) Whether the civil penalties assessed for violations (1) through (3) are appropriate.

## III. FACTS SUPPORTING VIOLATION CITATIONS AND CIVIL PENALTY ASSESSMENTS

1. Violation (1) - Respondent worked on an asbestos abatement project without being licensed to do so. To support this violation, the Department showed that, at the time of the violation, Respondent (a) was a contractor (b) who worked on an asbestos project (c) without a license. ORS 468A.710(1) and OAR 340-248-0120(1). Respondent meets the statutory definition of "contractor" because he undertook for

compensation an asbestos abatement project for another person. Respondent entered into a demolition contract with the Hendgens, who owned the old McMinnville Hospital (the facility), for a specified amount of money. (See Exhibit A-9.) Demolition is one of the activities specifically listed in the statutory definition of "asbestos abatement contract."

Also included in the definition of "asbestos abatement project" is the "handling or disposal of any material with the potential of releasing asbestos fibers from ACM into the air." ORS 468A.700(4). When Respondent's workers removed and shattered the 9x9 tiles on or about January 15, 2002, they handled ACM in a manner that created the potential of releasing fibers from ACM into the air. The tiles removed by Respondent contained asbestos. "Asbestos-containing material" is any material containing more than one percent asbestos by weight." ORS 468A.700(5). There were two colors of 9x9 tiles: pink and green, with the majority of the tile pieces being green. (Testimony of Dottie Boyd; Exhibit A-2, p. 4; Exhibits A-12 through A-21.) Liliana Echeverria, a DEQ chemist who has analyzed thousands of asbestos samples, found that the green floor tile contained 5% chrysotile asbestos (in both the tile and the mastic) and that the pink floor tile contained 3% chrysotile asbestos (found in the tile only). (Exhibit A-7; testimony of Liliana Echeverria.) Aside from DEQ's lab test, Mr. Price provided a copy of a lab test conducted by Chemoptrix dated January 16, 2002 that showed that the green tile (with a "trace of mastic") from the "third floor east" contained 3% chrysotile asbestos. (Exhibit A-8.) Jack Price submitted that sample to Chemoptrix on January 15, 2002. (Testimony of Dottie Boyd; Exhibit A-2, p. 7.)

Respondent's demolition activities and handling of the 9x9 asbestos-containing floor tiles had the potential of releasing asbestos fibers into the air because the workers shattered and crushed the tiles, rendering them friable. (Testimony of Dottie Boyd; Exhibit A-2, p. 4; Exhibits A-12 through A-21.) In fact, the DEQ laboratory found asbestos fibers on the clothes of the worker who removed the 9x9 tiles. (Testimony of Jesus Lomeli.)

Mr. Price is not licensed to work on asbestos abatement projects. (Exhibit A-2, p. 2; testimony of Dottie Boyd and Jack Price.)

2. The civil penalty assessed for Violation (1) is appropriate. Each of the civil penalties assessed against Jack Price was calculated pursuant to the formula set forth in OAR 340-012-0045. The base

penalty for any violation depends upon the classification and magnitude of the violation. OAR 340-012-0045(1)(a). OAR 340-012-0050(1)(s) specifies that conduct of an asbestos abatement project by a person not licensed as an asbestos abatement contractor is a Class I violation. The magnitude for this violation (and the other two for which the Department assessed a penalty) is major, because OAR 340-012-0090(1)(d)(A) provides a selected magnitude of major when the violation involves more than 160 square feet of asbestos-containing material. Based upon her measurements of the area abated, Ms.Boyd estimated the amount of asbestos-containing material illegally removed was 1,278 square feet. (Exhibit A-1, p. 4; testimony of Dottie Boyd.) Because each of the violations is Class I, major magnitude, the base penalty for each is $6,000. OAR 340-012-0042(1)(b)(A); OAR 340-012-0042(1)(a)(A)(i).

The Department gave Respondent credit for cooperativeness for Violation (1) because he hired a licensed contractor to remove and dispose of the ACWM (reducing the base penalty by a factor of -2). (Exhibit A-2, p. 2; testimony of Jack Price, Bruce Korum and Dottie Boyd.)

The base penalty was aggravated by an "R" factor (causation or mental state) of 6 (intentional). Respondent is legally responsible for not only his direct acts but also the acts of his employee when the employee is acting within the scope of the employment relationship, regardless of whether the respondent expressly authorizes the act in question. The mental state of an employee can be imputed to the employer. OAR 340-011-0520.

According to OAR 340-012-0030(9), the Department must support its finding of "intentional" with evidence showing Respondent (or his employee) acted with a conscious objective to cause the result of the conduct. The result of the conduct was that Respondent worked on an asbestos abatement project without being licensed to do so. Respondent or his foreman, Randy Bartholomew, directed the workers to remove all the tiles. (Exhibit A-25, p. 2; Exhibit A-26, p. 2; Testimony of Jesus Lomeli and Dan Sekerak.) Respondent knew that 9x9 tiles commonly contain asbestos. (Exhibit A-2, p. 4; testimony of Jack Price and Dottie Boyd.) Prior to the time his workers illegally removed the 9x9 tiles, Respondent had a licensed abatement contractor prepare a bid to remove the remaining 9x9 tiles. (Exhibit A-2, p. 5; Testimony of Jack Price.) Respondent does not dispute that he knew before their removal that the 9x9 tiles contained asbestos. Jack Price took no steps to ensure his workers did not remove ACM. He did not inform them

any of the materials at the facility contained asbestos; he posted no warning signs. (Testimony of Jack Price.) Randy Bartholomew knew the workers were removing 9x9 asbestos-containing floor tiles; he worked "right alongside" them as they did so. (Testimony of Jesus Lomeli.) Mr. Price knew he was not licensed to conduct asbestos abatement projects. In fact, he explored the possibility of obtained a license to conduct asbestos abatement projects and decided against doing so. (Exhibit A-2, p. 2; testimony of Jack Price.) In directing his employees to remove all tiles, regardless of whether they contained asbestos, Mr. Price had the conscious objective to work on an asbestos abatement project without being licensed to do so. The evidence supports an "R" factor of 6. For further argument on this issue, see the attached Memorandum from the Department of Justice.

Added to the $8,400 ($6,000 + $2,400) civil penalty for Violation (1) was $442 in economic benefit gained by Respondent as a result of his noncompliance. (See Exhibit 1A to the Notice of Civil Penalty Assessment.) Bruce Korum, who prepared IRS Environmental's bid to finish the asbestos abatement at the facility, told Ms. Boyd that if they had been hired to properly abate the area illegally abated by Mr. Price, they would have charged approximately $1,500. He charged Mr. Price $700 to clean up the broken tiles. This amount is consistent with the price quoted by IRS Environmental in its January 17, 2002 bid ($.52 per square feet x 1,504 square feet = $782). (Exhibit A-1, p. 5; Exhibit A-28; testimony of Dottie Boyd.) In calculating the economic benefit gained by Mr. Price, the Department subtracted the delayed cost of cleanup from the avoided cost of abatement. (See Exhibits A-23 and A-24.) The Department did not subtract the wages Mr. Price presumably paid to the two workers for their removal of the 9x9 tiles, as the goal of recouping economic benefit is *not* to reward the violator for his illegal conduct. The crux of this violation was that Mr. Price hired unlicensed workers to do an abatement project he should have hired a licensed contractor to do. The Department does not give the violator credit for the money he spent in violation of its regulations. The economic benefit amount of $442 is supported by the evidence in the record.

3. Violation (2) - Respondent openly accumulated ACWM. Any accumulation of ACM or ACWM is prohibited. OAR 340-248-0280. Failure to meet the packaging, labeling and storage requirements of OAR 340-248-0280 constitutes "open accumulation." OAR 340-248-0010(30).

Respondent did not package the ACWM generated by his asbestos abatement project in properly labeled, leak-tight containers as required by OAR 340-248-0280. The shattered tiles were completely unpackaged, located in open piles and also scattered throughout several rooms and corridors of the facility. (Testimony of Dottie Boyd; Exhibit A-2, p. 4; Exhibits A-12 through A-21.)

4. The civil penalty assessed for Violation (2) is appropriate. The selected magnitude of major for this violation, like the others penalized, is based upon the quantity of ACWM involved, which was well over 160 square feet. (See discussion in paragraph 2. of Section III.) The Department found Respondent's open accumulation of ACWM to be a Class I violation pursuant to OAR 340-012-0050(1)(q), because the violation caused a potential for public exposure to asbestos or release of asbestos into the environment. Respondent's failure to properly package and label the ACWM created the potential for public exposure to asbestos because the fibers from the friable tile fragments were not sealed from the atmosphere and thus could migrate into the environment. (Testimony of Dottie Boyd.)

The base penalty for Violation (2) was aggravated by an "R" factor of 6 (intentional). The evidence shows Respondent knew his workers generated ACWM as a result of their removal of the 9x9 tiles, but he did not package, label and dispose of the ACWM until sometime after January 23, 2002, when IRS Environmental came to the facility to clean up the ACWM. (Exhibits 12 through 21; Exhibit A-2, p. 4; testimony of Dottie Boyd and Jack Price.) This time lapse also supports an "O" (occurrence) factor of 2, since the violation was continuous for at least a week. The Department gave Respondent credit for cooperativeness (-2), because Respondent eventually had the ACWM cleaned up by a licensed abatement contractor. The civil penalty for Violation (2) of $9,600 ($6,000 + $3,600) is appropriate.

5. Violation (3) - Respondent failed to adequately wet ACM when it was being removed. During her inspection of January 23, 2002, Ms. Boyd observed that the area where the tile had been removed was dry, and there was no evidence that water had been used during removal. (Exhibit A-2, p. 4; testimony of Dottie Boyd.) She did not see any evidence of a water source at the facility. (Exhibit A-2, p. 4; Testimony of Dottie Boyd. The workers did not use any water while removing the tiles, though at some point after the tile was removed, the workers used chemicals and a water hose to remove the mastic remaining on the floor. (Exhibit A-26, p. 3; Testimony of Jesus Lomeli.) In fact, the clothes that Mr. Lomeli wore during

the asbestos abatement project were found by the DEQ laboratory to be contaminated with asbestos fibers. (Testimony of Jesus Lomeli.) Even if the workers had used water during their removal of the tiles, it wasn't adequate to keep asbestos fibers from dispersing into the air.

6. The civil penalty assessed for Violation (3) is appropriate. The Department found this to be a Class I violation because the failure to wet the ACM during removal caused the potential for public exposure to asbestos or release of asbestos into the environment. OAR 340-012-0050(1)(p). The reason workers are required to wet ACM during removal is to minimize migration of asbestos fibers. (Testimony of Dottie Boyd.) As previously stated, the clothes Mr. Lomeli wore while he removed the tiles contained asbestos fibers, so the potential for public exposure was certainly created by his failure to wet the tiles as he removed them. The selected magnitude for this violation is major, as discussed in paragraph 2 of Section III.

The base penalty of $6,000 for Violation (3) was aggravated only by an "R" factor of 6. Respondent had the conscious objective that his workers not use water during their removal of the ACM. Respondent's foreman was present during the workers' removal of the 9x9 tiles but did not provide them water to use during removal of the tiles. (Testimony of Jesus Lomeli; Exhibit A-26, p. 3; Exhibit A-2, p. 4.) It was possible for water to be provided, because apparently the workers used a hose with water and chemicals to later remove the remaining mastic from the floor. (Testimony of Jesus Lomeli.) By failing to ensure the workers used water while removing the 9x9 tiles, Respondent acted with a conscious objective to have the workers remove the tile while it was dry. The civil penalty assessed for Violation (3) ($6,000 + $3,600 = $9,600) is appropriate.

7. Respondent failed to adequately wet ACWM to ensure that the materials remained wet until disposed of. Not only did Respondent fail to wet the ACM as it was being removed; he also failed to wet it after removal to keep it wet until it was disposed of. Ms. Boyd observed that the shattered tiles were dry on January 23, 2002. (Exhibit A-2, p. 4; testimony of Dottie Boyd.) At the time that she observed the dry tile fragments, the tile had not yet been disposed of; it was still in open piles and scattered in several rooms and corridors of the facility. (Exhibit A-2, p. 4; testimony of Dottie Boyd.)

8. Respondent did not provide notification to the Department that he intended to conduct a friable asbestos abatement project. As the custodian of asbestos abatement project notifications, Ms. Boyd did not receive any notification of an asbestos abatement project for the facility until January 18, 2002, several days after Respondent shattered the asbestos-containing tiles. (Exhibit A-10; testimony of Dottie Boyd.)

## IV. CONCLUSION

Based on the foregoing facts and argument, and the attached Memorandum of Law submitted by the Attorney-General's Office, the Department of Environmental Quality respectfully requests that its civil penalty assessment issued to Jack Price, formerly doing business as Jackson Enterprises, be upheld.

Dated: March 19, 2004..

Jane K Hickman

Jane K. Hickman, Environmental Law Specialist
Department of Environmental Quality
Office of Compliance and Enforcement

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

| | |
|---|---|
| IN THE MATTER OF:<br>JACK D. PRICE, formerly doing business as<br>JACKSON ENTERPRISES,<br><br>Respondent. | ) DEQ MEMORANDUM OF LAW<br>)<br>) Hearing Panel No.<br>)<br>) DEQ No. AQ/AB-WR-02-046 |

## I. INTRODUCTION

This memorandum addresses three legal issues raised by Respondent during the contested case hearing in this matter and is intended to supplement DEQ's closing brief.

## II. DISCUSSION

### A. Respondent waived its right to assert any affirmative defense not included in its Answer.

Respondent raised certain affirmative defenses at the contested case hearing that were not raised in its Answer. At the hearing, Respondent argued that the cited violations were not intentional and for that reason, should be withdrawn. Respondent also sought to introduce a binder of press releases and other materials summarizing earlier DEQ asbestos-related enforcement actions. Respondent apparently intends to introduce these materials as evidence in support of Respondent's position that the number or size of the penalties assessed by DEQ in this matter is different than in other enforcement matters.

Respondent waived these issues by failing to raise them in his Answer. OAR 340-011-0530(2) provides in relevant part as follows:

> "The request for hearing must include a written response to the formal enforcement action that admits or denies all factual matters alleged therein, and alleges any and all affirmative defenses and the reasoning in support thereof. Factual matters not denied will be considered admitted, *and failure to raise a defense will be a waiver of the defense.*" (Emphasis added.)

DEQ's Notice of Civil Penalty Assessment in this matter also advised Respondent that its answer needed to specifically state all affirmative defenses and that the contested case hearing would be limited to those matters raised in the Notice and Answer. (Notice at 3.)

Respondent's Answer did not include any affirmative defenses and Respondent has never moved to amend its Answer. Under these circumstances, the defenses and legal arguments raised for the first time at hearing are waived and should not be considered. *In the Matter of American Exchange Services, Inc.*, 2003 Ore ENV LEXIS 7, *22 (April 24, 2003).

Further, given that these defenses are waived and should not be considered, the additional materials Respondent sought to introduce at hearing in support of these new defenses do not bear on any issue properly within the scope of this hearing. For that reason, they should also be excluded as irrelevant and immaterial. OAR 137-003-0610.

Respondent's waiver effectively disposes of the two substantive issues. DEQ has nonetheless responded to them for purposes of completeness.

**B. Respondent's assertion that the cited violations were not intentional goes only to penalty amount.**

DEQ assessed penalties for three of the five asbestos-related violations for which Respondent was cited:

(1) Working on an asbestos abatement project without a license in violation of ORS 468A.710(1);

(2) Openly accumulating asbestos-containing waste materials in violation of OAR 340-248-0250(2); and

(3) Failing to adequately wet asbestos-containing materials during removal in violation of OAR 340-248-0270(2).

Respondent does not contest the fact that these violations occurred, but challenges DEQ's finding that the violations were "intentional." Respondent asserts that if DEQ is unable to establish that these violations were intentional, the violations should be dismissed. This assertion is incorrect as a matter of law.

As an initial matter, intent is not an element of the cited violations. The violation is complete without showing intent. Further, DEQ need not establish that Respondent intended to violate the law or that Respondent intended to cause harm to establish an intentional violation. DEQ need only establish that Respondent acted with a conscious objective to (1) perform the work, (2) accumulate the materials, and (3) remove the materials without wetting them. *See, In the Matter of Harry Slevecove, dba A Haul of Fame,* 2002 Ore ENV LEXIS 12, *17 (May 1, 2002); *In the Matter of the City of Scappoose,* 2001 Ore ENV LEXIS 11, *18 (September 21, 2001).[1] DEQ has provided ample evidence in this regard.

If, however, the hearing officer determines that DEQ has not established by a preponderance of the evidence that a violation was the result of an intentional act, the hearing officer need only recalculate the penalty assessed for that violation. The Hearing Officer need not (and should not) dismiss the violation altogether.

The penalties for the three violations were calculated using the penalty formula found in OAR 340-012-0045:

$$BP + [(.1 \times BP) \times (P + H + O + R + C)] + EB.$$

The formula requires DEQ to determine the base penalty (BP) for each violation by reference to the Class and Magnitude of that violation. The base penalty is then adjusted up or down based on the application of five factors: P, H, O, R, and C.[2] Only the "R" factor is relevant here.

The "R" factor reflects the cause of the violation: an unavoidable accident, or a negligent, intentional, or flagrant act of Respondent. OAR 340-012-0045(1)(c)(D). "R" is assigned a value of 0 if the violation was caused by an unavoidable accident (or if DEQ does not have enough information to make a finding as to the R value); a value of 2 if the violation was caused by a

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[1] See also OAR 340-012-0030(9).

[2] EB represents the economic benefit realized by the Respondent by virtue of its noncompliance. OAR 340-012-0045(1)(c).

negligent act; a value of 6 if the violation was caused by an intentional act; and a value of 10 if the violation was caused by a flagrant act. OAR 340-012-0045(1)(c)(D).

DEQ assigned the "R" factor a value of 6 for each of the three penalties assessed in this matter, finding that the violation was caused by Respondent's intentional act. Given the base penalty of $6,000, this caused each penalty to be adjusted upward by $600. If the hearing officer determines that the evidence in the record does not support DEQ's finding regarding the cause of the violation, the hearing officer need only modify the "R" value to that supported by the evidence (e.g. 0 for an unavoidable accident or insufficient information, or 2 for a negligent act of the Respondent) and adjust the penalty accordingly. *In the Matter of City of Scappoose*, 2001 Ore ENV LEXIS 11, *19-23 (September 21, 2001) (Hearing Officer adjusted "R" value based on evidence presented at hearing, reducing it from 10 to 6).[3] There is, however, no basis for the hearing officer to dismiss or withdraw the cited violations if the evidence in the record otherwise supports DEQ's conclusion that the cited violations occurred.

### C. DEQ did not abuse its discretion in assessing the number or amount of penalties assessed in this matter.

Respondent seeks to introduce into evidence materials that summarize past DEQ enforcement actions (press releases and a one-page summary of those press releases).[4] The materials should be excluded as irrelevant and immaterial because the materials address issues that have been waived and are, therefore, outside the scope of this hearing. Even if admitted into evidence, however, the materials do not demonstrate an abuse of discretion on DEQ's part.

DEQ cited Respondent for five violations and assessed penalties for three of those violations. Respondent does not appear to contest the fact that the violations occurred.

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[3] See also, *In the Matter of Elkai Management, L.L.C*, 2003 Ore ENV LEXIS 4, *8-9 (February 10, 2003)(Hearing Officer adjusted "R" value based on evidence presented at hearing, reducing it from 2 to 0); *In the Matter of the Assessment of a Civil Penalty against David Fricke D.B.A. Hot Shot Espresso,* 2002 Ore ENV LEXIS 20, *12 (August 16,2002) (Hearing Officer adjusted "R" value based on evidence presented at hearing, reducing it from 10 to 6); *In the Matter of Reggie D. Huff,* 2001 Ore ENV LEXIS 6, *23-24 (April 27, 2001)(Hearing Officer adjusted "R" value based on evidence presented at hearing, reducing it from 2 to 0).

[4] Respondent has apparently prepared a longer, 17-page summary since the hearing. The record was not left open. Respondent is not at liberty to introduce additional evidence now that the record is closed. If offered, the 17-page summary should not be admitted.

Respondent does not allege that DEQ exceeded its authority by citing it for multiple violations or by assessing multiple penalties. In fact, with the possible exception of the "R" factor, Respondent does not appear to take issue with DEQ's penalty calculation.

As DEQ understands it, the gist of Responent's argument is two-fold: (1) DEQ did not assess three penalties in most of the other enforcement actions compiled by Respondent, and (2) the penalty assessed here is higher than the "average" penalty gleaned from the press releases. As the proponent of this position, Respondent has the burden of establishing in the first instance that DEQ's exercise of discretion was actually inconsistent with prior agency practice. OAR 340-011-0545(1). Respondent has not done so.[5]

Well-considered penalty assessments *should* differ, often substantially. Each penalty assessment decision is driven by the unique facts of that particular case in the larger context of the agency's enforcement priorities and objectives at the time. The fact that DEQ assessed one penalty in one case, two in another, or three in a third says nothing about whether DEQ has been consistent in its enforcement.

Information on the average penalty amount is similarly unhelpful. Individual penalties are a function of both the class and magnitude of the particular violation and the application of the penalty factors, which are themselves unique to the specific violation and violator. By its very nature, an "average" penalty indicates that half of the penalties assessed were higher.

Moreover, the press releases Respondent seeks introduce do not include the information needed to make the type of comparison Respondent is asking the hearing officer to make. For example, the press releases include the total penalty amount but do not include any discussion of the aggravating or mitigating factors DEQ applied in calculating the penalty, such as the "R" factor at issue here.

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[5] Further, inconsistency with past agency practice is not enough to establish an abuse of discretion. It must be an inconsistency that is not explained by the agency. See e.g. ORS 183.482(8)(b). Taking Respondent's assertions at the hearing at face value, however, Respondent has not met its own burden of showing an inconsistency and, for that reason, the burden has not shifted to DEQ to explain one.

But even ignoring the fact-specific nature of penalty assessments (and the incomplete information found in the set of press releases), Respondent's own summary shows that DEQ assessed more than one penalty in 17.5 percent of the asbestos-related cases and *more than three penalties* in over six percent of such cases.[6] In short, DEQ's exercise of discretion in this case yielded a result within the same range as the other asbestos-related cases. Respondent has not established an inconsistency, much less an abuse of discretion. DEQ properly applied its rules in citing the violations and applying its penalty formula, and was well within its discretion in electing to assess three penalties.

## III. CONCLUSION

The affirmative defenses raised by Respondent at the hearing have been waived and should not be considered further. Those defenses also fail on the merits for the reasons described herein.

DATED this 18th day of March, 2004.

Respectfully submitted,

HARDY MYERS
Attorney General

Lynne Perry #90456
Assistant Attorney General
Of Attorneys for Department of
Environmental Quality
State of Oregon

[6] The one-page summary does not indicate the percentage of cases in which three penalties were assessed, as was the case here.

Attachment V

**Jackson Enterprises**
**Jack Price**
**14314 SW Allen Blvd. #505**
**Beaverton, OR**
**503-643-0605 Ph/fax 503-204-8024 pager**
**CCB# 106431**

5/12/03

Oregon State
Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204

Attn: Jane Hickman
Compliance and Enforcement

RE: Case No. AQ/ AB-WR-02-046

I respectfully request an informal discussion on the above case.

In response to the section II Violations listed on the Notice of Civil Penalty. I deny allegations of the listed violations 1 through 5. I also reserve the right to amend this pending discussion with legal representation.

Thank you.

Jack Price

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

April 17, 2003

CERTIFIED MAIL No. 7001 1140 0002 3546 3849

Jack D. Price
14314 S.W. Allen Boulevard, #505
Beaverton, Oregon 97005

Re: Notice of Assessment of Civil Penalty
No. AQ/AB-WR-02-046
Yamhill County

On January 18, 2002, Dottie Boyd, Natural Resource Specialist with the Department's Salem office, inspected the old McMinnville Hospital, located at 603 S. Baker Street. Ms. Boyd observed that demolition activities were underway and arranged to come back when you could be on site to accompany her. She returned to the site on January 23, 2002 and you walked through the facility with Ms. Boyd.

You explained to Ms. Boyd that you had been hired by the building's owner to demolish the facility and that your workers had been conducting demolition activities during the previous two weeks. Ms. Boyd observed that the southeast corner of the east wing, the older wing of the former hospital, was separated by polyvinyl sheeting. The sheeting had been installed by an asbestos abatement contractor you had recently hired to finish removing asbestos-containing materials that your workers had been removing the previous two weeks.

Ms. Boyd observed that the floor outside the enclosed area of the east wing was covered with 9" x 9" vinyl floor tile, which is almost always found to contain asbestos. The vinyl asbestos tile (VAT), which was later found to contain 3-5% chrysotile asbestos, was old and weathered. Ms. Boyd asked if your workers had removed the VAT in the rooms behind the poly barrier. You explained that the VAT in those rooms had been removed when your workers pulled up the carpet in that area. Ms. Boyd entered the containment area and observed shattered, friable VAT scattered throughout several rooms and in the corridor.

Your workers removed approximately 1,504 square feet of the VAT. Approximately 85%, or 1,278 square feet, of this VAT was shattered and rendered friable when the workers scraped it from the floors with shovels. There was no water on site, and the workers did not wet the VAT as they removed it. These activities make the handling of the asbestos more likely to release asbestos fibers into the air.

Asbestos is a danger to public health and a hazardous air contaminant for which there is no known safe level of exposure. Asbestos fibers are a respiratory hazard proven to

cause lung cancer, mesothelioma, and asbestosis. To protect the public from asbestos exposure, the Department requires training and licensing for those who handle asbestos-containing material. These worker certification and licensing requirements are intended to safeguard the public and environment from asbestos exposure resulting from the mishandling of asbestos-containing material. Although neither you nor your employees have a license, you instructed them to remove the asbestos tiles.

By working on an asbestos abatement project without being licensed, you have committed a Class I violation of Oregon law. Class I violations are the most serious category of violations. By failing to have your workers wet the asbestos-containing tiles during removal, and by failing to properly package and label and keep them wet until disposal, you committed additional Class I violations of the Department's work practice requirements for asbestos removal.

You are liable for a civil penalty assessment because you violated Oregon's environmental law. In the enclosed Notice, I have assessed a total civil penalty of $30,042: $10,042 for conducting an asbestos abatement project without being licensed; $10,000 for open accumulation of asbestos-containing waste material; and $10,000 for failing to wet the asbestos-containing material during removal. In determining the amount of the penalty, I used the procedures set forth in Oregon Administrative Rule (OAR) 340-012-0045. The Department's findings and civil penalty determination are attached to the Notice as Exhibit Nos. 1-3.

The steps you must follow to request a review of the Department's allegations and determinations in this matter are set forth in Section IV of the enclosed Notice. If you wish to have a hearing on this matter, you must specifically request a hearing in writing. Attached to the hearing request must be your Answer in which you admit or deny each of the facts alleged in Section II, paragraphs 1-5 of the Notice. In your Answer, you should also allege all affirmative claims or defenses and provide reasons why they apply in this matter. You will not be allowed to raise these issues at a later time, unless you can later show good cause for your failure to raise them.

The applicable rules are enclosed for your review. You need to follow the rules to ensure that you do not lose your opportunity to dispute the Department's findings. If the Department does not receive your request for a hearing and Answer within 20 calendar days from the date you received the Notice, a Default Order will be entered against you and the civil penalty will become due at that time. You can fax your request for hearing and Answer to the Department at (503) 229-6762.

If you wish to discuss this matter, or if you believe there are mitigating factors which the Department might not have considered in assessing the civil penalty, you may request an informal discussion by attaching your request to your appeal. Your request to discuss this matter with the Department will not waive your right to a contested case hearing.

I look forward to your cooperation in complying with Oregon environmental law in the future. However, if any additional violations occur, you may be assessed additional civil penalties.

Copies of referenced rules are enclosed. Also enclosed is a copy of the Department's internal management directive regarding civil penalty mitigation for Supplemental Environmental Projects (SEPs). If you are interested in having a portion of the civil penalty fund an SEP, please review the enclosed SEP directive. Exceptional pollution prevention could result in partial penalty mitigation.

If you have any questions about this action, please contact Jane Hickman with the Department's Office of Compliance and Enforcement in Portland at (503) 229-5555 or toll-free at 1-800-452-4011, extension 5555.

Sincerely,

Stephanie Hallock

Stephanie Hallock
Director

(GC.1 10/31/02)
Enclosures
cc: Dottie Boyd, Western Region, Salem Office, DEQ
Air Quality Division, HQ, DEQ
Department of Justice
Environmental Protection Agency
Environmental Quality Commission
Yamhill County District Attorney

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

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|---|---|
| IN THE MATTER OF:<br>JACK D. PRICE, formerly doing business as JACKSON ENTERPRISES,<br><br>Respondent. | ) NOTICE OF ASSESSMENT<br>) OF CIVIL PENALTY<br>) NO. AQ/AB-WR-02-046<br>)<br>) YAMHILL COUNTY |

## I. AUTHORITY

This Notice of Assessment of Civil Penalty (Notice) is issued to Jack D. Price, formerly doing business as Jackson Enterprises (Respondent), by the Department of Environmental Quality (Department) pursuant to Oregon Revised Statutes (ORS) 468.126 through 468.140, ORS Chapter 183 and Oregon Administrative Rules (OAR) Chapter 340, Divisions 11 and 12.

## II. VIOLATIONS

1. On or about January 15, 2002, Respondent violated ORS 468A.710(1) and OAR 340-248-0120(1) by working on an asbestos abatement project without being licensed to do so. Specifically, Respondent removed friable vinyl asbestos tile from a facility located at 875 Union Street N.E., in McMinnville, Oregon (the Facility), although Respondent does not have a license to conduct asbestos abatement projects. According to OAR 340-012-0050(1)(s), this is a Class I violation.

2. During the period of approximately January 15, 2002 until approximately January 26, 2002, Respondent openly accumulated asbestos-containing waste materials (ACWM) in violation of OAR 340-248-0250(2). Specifically, Respondent did not package ACWM it removed from the Facility in properly labeled, leak-tight containers. Instead, Respondent left shattered vinyl asbestos tile its workers removed scattered on the floors in several rooms of the Facility. This is a Class I violation according to 340-012-0050(1)(q), because such storage or accumulation of ACWM caused a potential for public exposure to asbestos or release of asbestos into the environment.

3. During the period of approximately January 15, 2002 until approximately January 26, 2002, Respondent violated OAR 340-012-248-0270(2) by failing to adequately wet ACM

when it was being removed. Specifically, Respondent's employees removed asbestos-containing vinyl floor tiles from the facility without using any moisture. This is a Class I violation according to OAR 340-012-0050(1)(p), because Respondent's violation of this work practice requirement caused a potential for public exposure to asbestos or release of asbestos into the environment.

4. On or about January 15, 2002, Respondent violated OAR 340-248-0280(2) by failing to adequately wet ACWM to ensure that they remained wet until disposed of. Specifically, Respondent shattered VAT while removing it from the Facility and did not keep the ACWM wet until disposal. According to OAR 340-012-0050(1)(t), this is a Class I violation because violation of this disposal requirement caused a potential for public exposure to asbestos or release of asbestos into the environment.

5. On or about January 5, 2002, Respondent violated OAR 340-248-0260(1) by failing to provide notification to the Department of its intent to conduct a friable asbestos abatement project. Specifically, Respondent removed asbestos-containing material in a friable manner at the Facility on or about January 15, 2002 without first providing notification to the Department. According to OAR 340-012-0050(2)(j), this is a Class II violation.

## III. ASSESSMENT OF CIVIL PENALTIES

The Director imposes civil penalties totaling $30,042 for violation nos. 1 through 3 cited in Section II, as follows:

| Violation | Penalty Amount |
|---|---|
| 1 | $10,042 |
| 2 | $10,000 |
| 3 | $10,000 |

The findings and determination of Respondent's civil penalty, pursuant to OAR 340-012-0045, are attached and incorporated as Exhibit Nos. 1 through 3.

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## IV. OPPORTUNITY FOR CONTESTED CASE HEARING

Respondent has the right to have a contested case hearing before the Environmental Quality Commission (Commission) or its hearings officer regarding the matters contained in this Notice, provided Respondent files a written request for a hearing and an Answer within twenty (20) calendar days from the date of service of this Notice. If Respondent fails to file a timely request for a hearing, a late filing will not be allowed unless the reason for the late filing was beyond Respondent's reasonable control. If Respondent fails to file a timely Answer, the late filing will not be allowed unless Respondent can show good cause for the late filing.

The request for a hearing must either specifically request a hearing or state that Respondent wishes to appeal this Notice. In the written Answer, Respondent shall admit or deny each allegation of fact contained in this Notice, and shall specifically state all affirmative claims or defenses to the assessment of the civil penalty that Respondent may have and the reasoning in support of any claims or defenses. The contested case hearing will be limited to those issues raised in this Notice and in the Answer. Unless Respondent is able to show good cause:

1. Factual matters not disputed in a timely manner shall be presumed to be admitted;

2. Failure to timely raise a claim or defense will waive the ability to raise that claim or defense at a later time;

3. New matters alleged in the Answer will be presumed to be denied by the Department unless admitted in subsequent pleading or stipulation by the Department or Commission.

Send the request for hearing and Answer to: Deborah Nesbit, Oregon Department of Environmental Quality, 811 S.W. 6th Avenue, Portland, Oregon 97204 or via fax at (503) 229-6762. Following the Department's receipt of a request for hearing and an Answer, Respondent will be notified of the date, time and place of the hearing.

Failure to file a timely request for hearing or an Answer may result in the entry of a Default Order for the relief sought in this Notice.

Failure to appear at a scheduled hearing may result in an entry of a Default Order.

The Department's case file at the time this Notice was issued may serve as the record for purposes of entering a Default Order.

## V. OPPORTUNITY FOR INFORMAL DISCUSSION

In addition to filing a request for a contested case hearing, Respondent may also request an informal discussion with the Department by attaching a written request to the hearing request and Answer.

## VI. PAYMENT OF CIVIL PENALTY

The civil penalty is due and payable ten (10) days after an Order imposing the civil penalty becomes final by operation of law or on appeal. Respondent may pay the penalty before that time. Respondent's check or money order in the amount of $30,042 should be made payable to "State Treasurer, State of Oregon" and sent to the Business Office, Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, Oregon 97204.

4-17-03
Date

Stephanie Hallock
Stephanie Hallock, Director

**EXHIBIT 1**

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY
PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 1: Working on an asbestos abatement project without being licensed, in violation of Oregon Revised Statute 468A.710(1) and OAR 340-248-0120(1).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0050(1)(s).

MAGNITUDE: The magnitude of the violation is major pursuant to OAR 340-012-0090(1)(d)(A), because the amount of asbestos-containing material (ACM) removed was more than 160 square feet.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:

$$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$$

"BP" is the base penalty which is $6,000 for a Class I, major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a)(A)(i) and made applicable by OAR 340-012-0042(1)(b)(A).

"P" is Respondents' prior significant actions as defined in OAR 340-012-0030(14) and receives a value of 0, because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0, because Respondent has no prior significant actions.

"O" is whether or not the violation was repeated or continuous and receives a value of 2 pursuant to OAR 340-012-0045(1)(c)(C)(ii), because the violation existed for more than one day. Respondent conducted the asbestos abatement project without being licensed from approximately January 15, 2002 until approximately January 23, 2002.

"R" is the cause of the violation and receives a value of 6 pursuant to OAR 340-012-0045(1)(c)(D)(iii) because Respondent acted intentionally. Respondent obtained a bid from a licensed abatement contractor to remove the ACM before his employees removed the ACM. Respondent knew the material its employees removed contained asbestos and that a licensed contractor is required to remove ACM, yet Respondent, who was not licensed to do so, removed the ACM.

"C" is Respondents' cooperativeness in correcting the violation and receives a value of -2 according to OAR 340-012-0045(1)(c)(E)(i), because Respondent hired a licensed contractor to remove and dispose of the asbestos-containing waste material when notified by the Department to do so.

"EB" is the approximate dollar sum of the economic benefit pursuant to OAR 340-012-0045(1)(c)(F) that Respondent gained through noncompliance and receives a value of $442. By avoiding the $1,500 cost of hiring a licensed contractor to conduct his asbestos abatement project and delaying for approximately 25 days the $700 cost of cleaning up the ACWM generated by his illegal abatement, Respondent gained approximately $442 in economic benefit.

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 2 + 6 - 2)] + $442
= $6,000 + ($600 x 6) + $442
= $6,000 + $3,600 + $442
= $10,042*

*ORS 468.130(1) provides that the Department shall not impose a civil penalty exceeding $10,000 per day of violation. However, OAR 340-012-0045(1)(c)(F)(iv) provides that when a violation has extended over more than one day, for determining the maximum penalty allowed, the Director may treat the violation as extending over at least as many days as necessary to recover the economic benefit of noncompliance. The Department is exercising its discretion granted in that section to recover the economic benefit portion of the civil penalty based on the violation which occurred every day during the period of approximately January 15, 2002 until approximately January 26, 2002, but is imposing the gravity and magnitude-based portion of the penalty only for the violation which occurred on approximately January 15, 2002.

**EXHIBIT 2**

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY
PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 2: Open accumulation of asbestos-containing waste material (ACWM), in violation of OAR 340-248-0250(2).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0050(1)(q), because the open accumulation of ACWM from the asbestos abatement project caused a potential for public exposure to asbestos or release of asbestos into the environment.

MAGNITUDE: The magnitude of the violation is major according to OAR 340-012-0090(1)(d)(A), because more than 160 square feet of ACWM was openly accumulated.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:
$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$

"BP" is the base penalty which is $6,000 for a Class I major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a)(A)(i) and made applicable by OAR 340-012-0042(1)(b)(A).

"P" is Respondent's prior significant actions and receives a value of 0 according to OAR 340-012-0045(1)(c)(A)(i), because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0 according to OAR 340-012-0045(1)(c)(B)(ii), because Respondent has no prior history.

"O" is whether or not the violation was a single occurrence or was repeated or continuous and receives a value of 2 according to OAR 340-012-0045(1)(c)(C)(ii), because the violation existed for more than one day. The ACWM was openly accumulated for the period of approximately January 15, 2002 until approximately January 26, 2000.

"R" is the cause of the violation and receives a value of 6 according to OAR 340-012-0045(1)(c)(D)(iv), because Respondent's conduct was intentional. Respondent knew that the flooring its employees removed from the facility contained asbestos yet consciously kept the asbestos-containing waste material in open, unlabeled piles in the facility. Respondent did not direct his employees to properly label and securely package the ACWM generated by his employees.

"C" is Respondents' cooperativeness in correcting the violation and receives a value of -2 according to OAR 340-012-0045(1)(c)(E)(i), because Respondent had the openly accumulated ACWM removed by a licensed contractor upon being notified by the Department to do so.

"EB" is the approximate dollar sum of the economic benefit that the Respondent gained through noncompliance according to OAR 340-012-0045(1)(c)(F) and receives a value of 0, because the Department included the benefit obtained by Respondent's open accumulation in its calculation of EB for violation 1.

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 2 + 6 + 0)] + $0
= $6,000 + ($600 x 8) + $0
= $6,000 + $4,800 + $0
= $10,800
= $10,000*

*ORS 468.130(1) provides that the Department shall not impose a civil penalty exceeding $10,000 per day of violation. The Department therefore adjusts the civil penalty to $10,000 to reflect the maximum daily penalty for any one day occurring between January 15, 2000 and January 26, 2000.

**EXHIBIT 3**

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY
PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 3: Failing to adequately wet asbestos-containing materials (ACM) during removal, in violation of OAR 340-248-0270(2).

CLASSIFICATION: This is a Class I violation according to OAR 340-012-0050(1)(p), because Respondent's violation of this work practice requirement caused a potential for public exposure to asbestos or release of asbestos into the environment.

MAGNITUDE: The magnitude of the violation is major pursuant to OAR 340-012-0090(1)(d)(A), because the amount of ACM involved was more than 160 square feet.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:
$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$

"BP" is the base penalty which is $6,000 for a Class I, major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a)(A)(i) and made applicable by OAR 340-012-0042(1)(b)(A).

"P" is Respondents' prior significant actions as defined in OAR 340-012-0030(14) and receives a value of 0, because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0, because Respondent has no prior significant actions.

"O" is whether or not the violation was repeated or continuous and receives a value of 2 pursuant to OAR 340-012-0045(1)(c)(C)(ii), because the violation existed for more than one day. Respondent did not wet the ACM on any of the days his employees removed the ACM during the period of approximately January 15, 2002 until January 26, 2002.

"R" is the cause of the violation and receives a value of 6 pursuant to OAR 340-012-0045(1)(c)(D)(iii) because Respondent acted intentionally. Respondent did not provide any water at the Facility during the abatement project and had the conscious objective to cause his employees to remove the ACM without any moisture.

"C" is Respondents' cooperativeness and efforts to correct the violation and receives a value of 0 according to OAR 340-012-0045(1)(c)(E)(ii), because the violation could not be corrected.

"EB" is the approximate dollar sum of the economic benefit pursuant to OAR 340-012-0045(1)(c)(F) that the Respondent gained through noncompliance and receives a value of 0, because the economic benefit obtained by Respondent is included in the civil penalty assessment for violation no. 1.

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 2 + 6 + 0)] + 0
= $6,000 + ($600 x 8) + 0
= $6,000 + $4,800 + 0
= $10,800
= $10,000*

*ORS 468.130(1) provides that the Department shall not impose a civil penalty exceeding $10,000 per day of violation. Therefore, the amount of the civil penalty is adjusted to reflect this limitation.

EXHIBIT
A-1

RECEIVED
MAR 12 2002
OFFICE OF COMPLIANCE AND ENFORCEMENT
DEPARTMENT OF ENVIRONMENTAL QUALITY

Attachment X

To: DEQ ENFORCEMENT SECTION
Enforcement Referral for violations of open burning, on-site sewage disposal, and AQ, WQ, SW violators who are not permittees.

Violator: dba Jackson Enterprises Price, Jack D

County: Yamhill

Program: AQ Region: WR

Recommended Enforcement Action: CP

Attachments:

| | | |
|---|---|---|
| ☒ NON | ☒ Diagrams | ☒ Inspection Reports |
| ☒ Permit | ☐ Addendum's | ☐ Witness Statements |
| ☒ Letters | ☒ Sample Results | ☐ Smoke Certification |
| ☒ Memos | ☒ Original Photos | ☒ Chain of Custody Form |
| ☐ E-mails | ☐ Complaint Forms | |

CLEARANCES:

Dottie Boyd — Prepared by Dottie Boyd — 2-26-02 Date

Claudia Davis for — Manager John J. Ruscigno — 2-27-02 Date

Administrator Kerri L. Nelson — Date

**ENFORCEMENT SECTION USE ONLY**

Case Number: AQ/AB-WR-02-046

Review By & Date: PRICE 4/4/02

Assigned to & Date: Hickman 4/4/02

Investigation Completion Date: 2/12/02

NON Date: 2/26/02

Violation(s): Various asbestos violations

Location: McMinnville, Yamhill Co.

Comments:

## INVESTIGATION DETAILS:

1. Who is the responsible party? If the violator is a corporation list the registered agent's name and address. If the violator is an assumed business name list all parties of interest and their addresses. If the violator is an individual give complete name and address.

   Jackson Enterprises
   Jack D. Price II
   14314 SW Allen Blvd. #505
   Beaverton, OR 97005
   (Copy of Corporation Division business name search included, attachment 12).

2. In general, what are the violations?

   The rule violations were conducting an abatement without being licensed, failing to submit a project notification, accumulation of ACWM, work practice and disposal violations.

3. What did you observe?

   See Inspector Memo (attachment 1).

4. When did the violation(s) occur?

   1. Conducting an abatement without being licensed - on or around January 15, 2002.
   2. Accumulation of ACWM - on or around January 15, 2002-January 23, 2002.
   3. Failure to adequately wet during removal - On or around January 15, 2002.
   4. Failure to properly package & keep wet the ACWM - On or around January 15, 2002 - January 26, 2002.
   5. Failure to notify the Department - January 5, 2002.

5. Where did the violation(s) occur?

   Old McMinnville Hospital
   603 S. Baker Street
   McMinnville, OR 97128

6. Where did the violation occur on the property?

   East wing of the old section of the hospital, 3rd floor, SE corner. See map and diagrams (attachment 6).

7. Why did the violation(s) occur?

Ultimately, I think that there was miscommunication between Mr. Price and his workers that caused the 9x9 VAT to be improperly removed and the subsequent rule violations (work practice, disposal & notification) to occur. Mr. Price has stated in our conversations that he was aware that 9x9 vinyl floor tile commonly contains asbestos and that he knew this before ever starting on this project. Mr. Price had stated during one of our conversations that he had instructed his workers to pull up the carpet and if there was tile underneath, he assumed that it was the negative 12x12 tile. I am not sure why he assumed that if there was floor tile underneath the carpet (I never did see any carpet or pieces of carpet during my inspection) it would be 12x12 and negative. I point this out because on all three stories of the east wing, which is the old section of the hospital, I observed 9x9 VAT on the floors. It was only the newer sections of the hospital that had 12x12 VAT.

Around the time the VAT was improperly abated (January 15, 2002) several things happened. Mr. Price had submitted a sample of green floor tile that he had collected from the 3rd floor, east wing of the hospital to Chemoptix lab on January 15, 2002. On January 16, 2002, Mr. Price had received documentation from Chemoptix that the sample of the floor tile did indeed contain 3% chrysotile asbestos. In addition, Mr. Price had called IRS Environmental and had Bruce Korum visit the site on January 14, 2002, to give a bid to abate ACM, which included the 9x9 VAT. During that meeting Mr. Korum gave Mr. Price a copy of a survey summary he had from prior bids. In that survey summary it lists green 9x9 floor tile on the 2nd & 3rd floors as ACM (see attachment 5, Asbestos Survey Summary, page 2). See Inspector Memo (attachment 1, page 5) for Mr. Korum's description of that visit.

8. List the primary statutes and OARs that were violated.

OAR 340-248-0110(3), 340-248-01250(2), 340-248-0270(2), 340-248-0280(2) & 340-248-0260.

9. List and briefly describe the evidence in support of the above violations.

Notice of Noncompliance (attachment x).

Attachment 1 - Inspector Memo - There are three separate Memos, two that are marked CONFIDENTIAL. The Memos record interviews, site inspections, documentation of the violations and issues relating to the exterior surfacing material, which are not related to the violations cited in the NON.
Attachment 2 - Photos and photo documentation comment sheet - supporting documentation.
Attachment 3 - DEQ laboratory analysis - supporting documentation.
Attachment 4 - Chemoptix laboratory analysis - supporting documentation.

Attachment 5 - Asbestos Survey Summary - document given to Mr. Price by Bruce Korum of IRS Environmental on January 14, 2002.
Attachment 6 - Diagram of abatement location on the 3rd floor, SE corner and Map of 3rd floor of facility.
Attachment 7 - Letter of Transmittal from Jack Price listing workers that performed the improper abatement of the VAT.
Attachment 8 - Fax from Hans Hendgen that includes Demolition Contract between him and Jackson Enterprises (Jack Price).
Attachment 9 - Demolition Permit issued by City of McMinnville.
Attachment 10 - IRS Environmental asbestos abatement bid.
Attachment 11 - ASN-1 notification & revisions for friable asbestos abatement at facility.
Attachment 12 - Corporation Division Business Registry information & CCB information.
Attachment 13 - Referral to OR-OSHA.

10. What were the impacts of the violation(s) on people, the environment, property, or wildlife. Describe the amounts of the materials involved, toxicity of the materials, duration of the violation(s), opacity, etc.

The quantity of 9x9 VAT improperly removed from the east wing, 3rd floor, SE corner was approximately 1,504 square feet. I calculated this from measurements taken during the inspection I conducted on January 23, 2002. I estimated at the time of my inspection that approximately 85% of the 1,504 square feet, or approximately 1,278 square feet, were rendered friable by the removal techniques used. I also determined that the VAT was probably in friable condition to begin with, before it was abated. I based this determination on my observations of the condition of the VAT I observed throughout the east wing of the hospital. The quantity of VAT that was rendered friable was shattered and in some instances crushed, see photos (attachment 2).

Laboratory analysis of samples I collected on January 23, 2002, identified that the green 9x9 VAT contained 5% chrysotile asbestos and the pink colored VAT contained 3% chrysotile asbestos. The VAT asbestos content was greater than 1% and therefore is a regulated material according to the Department's rules.

There was potential release and exposure of asbestos fibers during the improper removal of the VAT, on or around January 15, 2002, and up until the area was closed off with plastic barriers on January 23, 2002. Exposure to asbestos fibers potentially affected the workers who abated the material, anyone who walked through or near the abatement area and potentially outside the building. There are windows in all of the rooms and most of them did not have any glass. The asbestos fibers could have migrated outside of the building (see photo # 30, attachment 2).

The duration of the violations were as follows:

OAR 340-248-0110(3) - conducting an abatement without being licensed - one day, on or around January 15, 2002.
OAR 340-248-0250(2) - accumulation of asbestos-containing waste material - nine days, from the improper abatement that occurred on or around January 15, 2002, until the plastic barriers were erected by IRS Environmental on January 23, 2002.
OAR 340-248-0270(2) - failure to adequately wet the ACM during removal - one day, on or around January 15, 2002.
OAR 340-248-0280(2) - Failure to package the ACWM and keep the waste adequately wet - 12 days, from on or around January 15, 2002 when the material was removed until IRS Environmental began abatement (see ASN-1, attachment 11).
OAR 340-248-0260 - Failure to notify the Department before conducting an asbestos abatement project - one day (January 5, 2002, a friable notification must be submitted to the DEQ 10 days before beginning the abatement).

11. Did you interview the violator or one of its employees? Describe your interview and the violator's statements. Did the violator admit to the violations?

Yes, see Inspector Memo.

12. Was the violator cooperative in correcting or trying to correct the violation(s)? Explain.

Yes. By the time I documented the violations, Jack Price had hired IRS Environmental to conduct an asbestos abatement and clean-up.

13. Has the violation(s) been corrected? Explain which violations have and which have not been corrected.

Yes, the violations have been corrected.

14. Did the violator gain an economic benefit as a result of the violation(s)? If yes, state how much and show in detail how you determined that amount.

I called IRS Environmental and spoke with Bruce Korum on February 26, 2002. Mr. Korum estimated that if they would have abated the approximate 1,504 square feet of VAT involved in the violations it would have cost approximately $1,500.00. Mr. Korum stated that for them to clean up that same quantity of VAT that had already been chipped up, the cost was approximately $700.00. According to Mr. Korum all they had to do was contain the area and pick up the broken tile versus having to also remove the VAT from the floor. Based on this information, there was an economic benefit of approximately $800.00.

15. Do you have any information concerning the economic condition (hardship) of the violator?

No.

16. Is there any specific compliance request you want to have stated in the cover letter? If this action includes an Order, list what you want ordered and give the time frames within which you would like submissions and/or compliance from the date the Order is issued.

No.

17. Has there been any previous civil penalties or orders issued to this violator?

None known.

18. Comments or additional information which you believe will help us in reviewing this case:

- - - - -

X:/DBoyd/Price ENF
ENFNOP (5/97)

EXHIBIT tabbies A-2

State of Oregon
# Department of Environmental Quality Memorandum

**To:** Jack Price/Hans Hendgen
Enforcement File

**Date:** February 19, 2002

**From:** Dottie Boyd
AQ WR-Salem

**Subject:** Old McMinnville Hospital Demolition

On January 18, 2002, at approximately 9:15 a.m., I made a site visit to the old McMinnville hospital located at 603 SW Baker Street in McMinnville. Security officer, Arthur Zour, with Crimes Security Company, was on site. The general contractor, Jackson Enterprises, had three workers on site. However the GC owner, Jack Price was not on site. I explained to Mr. Zour that I was there to investigate possible asbestos rule violations. I asked Mr. Zour if he was aware of an asbestos building survey? Mr. Zour stated that he had been told there was one, but had not seen a copy. Mr. Zour stated that there had been someone there about a week ago who collected some samples to find out if the material had asbestos.

Mr. Zour and I walked through portions of the hospital. According to Mr. Zour the old part of the building was constructed in the 1930's and there had been additions to the hospital in the 1980's. Mr. Zour thought that the hospital had been vacant since 1996. I asked Mr. Zour if he knew if there had been any bids for the asbestos abatement? Mr. Zour replied that he thought that there had been bids.

At approximately 9:30 a.m., Randy Bartholomew arrived on site. Mr. Bartholomew is Mr. Price's second in charge and Mr. Price's neighbor who is helping out. I asked what the names were of the three workers who were removing copper pipes? Mr. Bartholomew had a paper with the first names of the three workers written down: Andres, Jose Luis and Jesus. I asked Mr. Bartholomew when work started and what the work schedule was? Mr. Bartholomew replied that they started work two weeks ago on Saturday (5th) and they were working 7 days a week from 8-4:30.

During the walk through, which was primarily the ground floor and some of the second floor (old & new addition), I observed the following suspect materials: 9x9 & 12x12 vinyl asbestos tile (VAT), sheet vinyl, black mastic, ceiling tiles, pipe insulation (aircell), hard fittings, furnace wrap, and sprayed on condensate material. Mr. Bartholomew stated that some demolition had occurred previously (last couple of years) such as the removal of walls, equipment, and some of the carpets. I asked what materials they had removed since starting two weeks ago? Mr. Bartholomew stated that they had been pulling copper wire, removed all the doors (400), removed some interior walls (new addition), removed telephone lines, pulled some of the carpets in the new section (reception, 2nd floor) where most of the 12x12 VAT had come up with the carpet, and had removed the suspended ceiling in the ground floor reception area. I asked if there had been any removal of materials, including floor tile from any area of the old section of the

hospital? Mr. Bartholomew replied that only the doors, cabinets, telephone and copper wires had been removed.

I asked Mr. Bartholomew when Mr. Price was expected back on the site? Mr. Bartholomew stated that he didn't expect him until later in the afternoon. Before leaving the site, I asked if they had Mr. Price's phone number. Mr. Zour gave me Mr. Price's business card. I called Mr. Price and left a message on his phone (503-643-0605) explaining that I was looking into asbestos related issues at the old hospital in McMinnville. I asked that he give me a phone call back and left my office phone number.

Mr. Price left a voicemail message for me on January 18, 2002, at approximately 3:40 p.m. Mr. Price stated that he had hired IRS Environmental to conduct the asbestos abatement and had also retained the services of Certified Environmental to do a survey.

On January 22, 2002, at approximately 11:20 a.m., I returned the phone call to Mr. Price (503-781-6652 cell #). I asked if there was an asbestos survey of the old hospital? Mr. Price stated the he had an old survey from 1996. Mr. Price stated that he had hired IRS Environmental to conduct the asbestos abatement and also hired Certified Environmental Consultants (CEC) to perform an updated survey. I asked Mr. Price when the demolition project had started? Mr. Price stated that it had begun about two weeks ago. I asked what they had done during the past two weeks? Mr. Price stated that they had done some general clean-up because there was lots of junk, cabinets, etc., inside the building. In addition, they had removed doors, removed the window AC units, removed light fixtures, removed copper pipe and wire and pulled up carpet which had 12x12 VAT underneath that had tested negative for asbestos. I asked who the building owner is and Mr. Price replied that the owner is Hans Hendgen.

Mr. Price stated that he had talked with someone in the Portland DEQ office months ago (thought in June) requesting information on what credentials are needed to become a licensed asbestos abatement contractor. Mr. Price stated that he had received an information packet, looked at the information and decided that was something he didn't want to get into.

Mr. Price stated that they were trying to complete the demolition by February 15, 2002, and requested an emergency waiver for scheduling purposes only. I stated that I would be coming to the site the next day (1-23-02) and would let him know at that time. I explained the rules and regulations for abatement before demolition. I also explained that after the asbestos abatement and during demolition they would need to watch for discoverable suspect materials. I requested a copy of the 1996 survey and any recent sample analysis results. I asked if he could have a copy at the site the following day. We had arranged to meet at approximately 11:30 a.m. and Mr. Price stated he would have copies available the next day.

I arrived at the old hospital in McMinnville at approximately 11:30 a.m. on January 23, 2002. Renee Garrett and Tom Thompson of Certified Environmental Consultants (CEC) were on site. They were just getting ready to leave the site. They had collected an additional 30 samples (appr.) to supplement the 1996 survey. They were not conducting a new full building survey. They stated that they had collected samples of suspect materials not identified in the survey or subsequent sample analysis, i.e., furnace tape, roofing materials, tape and mud, plaster and

patching compound. IRS Environmental was on site doing prep work. I spoke with the supervisor, Vince Chavez, and he stated that they were hanging poly and glove bags where materials were in poor condition or had been disturbed. I asked if there was a location where some 9x9 VAT had been removed? Mr. Chavez replied that they had installed two barrier walls on the 3rd floor, SE corner where some 9x9 VAT had been removed. Shortly thereafter Mr. Price arrived on site. I introduced myself and Mr. Price gave me a folder with copies of the survey and recent sample analysis. Before CEC left the site I asked Mr. Price if he was agreeable to have CEC fax me copies of their sample results? Mr. Price stated that was fine and Mr. Garrett stated he would fax the results to me once the analysis was completed.

I started to review the 1996 survey and noticed that it was actually the survey summary and only four pages long. I asked Mr. Price where the rest of the survey was and Mr. Price stated that is all he had. Mr. Price stated that he had actually received a copy of the survey summary from Bruce Korum of IRS Environmental. Apparently Mr. Korum had bid on the hospital in 1996 and this summary is what he had bid from.

I reviewed the survey summary and sample analysis during my lunch break. The survey summary identified air cell insulation, mudded joints, flooring materials, vapor barrier mastic (not black mastic) and five sinks with a vapor barrier. No black mastic was identified. The recent bulk sample results are listed as being received at Chemoptix Microanalysis on August 8, 2001, however at the top of the sample description pages the date is listed as January 16, 2002. Did Chemoptix list the incorrect date they received the sample or is this the correct date?

At approximately 12:45 p.m. (1-23-02) I met with Mr. Price again. I asked if he would take me through the entire hospital, starting at the ground floor and moving up to the third floor. I asked that he point out the newer additions to the hospital and the old section of the hospital. We entered at the hospital's main reception entrance (north side), which was a recent addition. This is one of the areas that had sprayed on condensate material on the support beams. Mr. Price stated that the material had been tested and did not have any asbestos. Just past the reception area was an area that has sheet vinyl. I had recalled a wall at the north part of this room, which was now removed. I asked Mr. Price if he had removed the wall? Mr. Price stated that he had removed it and called it a stress release (tearing something down). I asked about the sheet vinyl in this room and he stated that is was asbestos-containing. I explained that all ACM must be abated before any demolition activity begins. I noted that the sheet vinyl had not been disturbed. I observed several glovebags hanging from pipe in this area. IRS Environmental had placed the glovebags because of deterioration to the pipe insulation. We finished walking through the lower floor and moved onto the second floor. The west wing is a newer section and the carpet had been removed along with the 12x12 VAT. Mr. Price stated that he had the 12x12 VAT tested and it was negative for asbestos. We moved into the east wing, which is the old section of the hospital. The floors in this area were all 9x9 VAT. None had been removed, however, the VAT was in very poor condition. We moved to the third floor and I noted that the west wing carpets and 12x12 VAT had been removed. We then walked to the east wing. I observed 9x9 VAT flooring in this wing and noted that it was in very poor condition. At the SE corner of this wing there was a poly barrier.

I asked Mr. Price if 9x9 floor tile had been removed in that area? Mr. Price stated that the tile had come up when they pulled the carpet. I asked if at anytime they tried to also remove the VAT after removing the carpet? Mr. Price again stated that they were only trying to pull up the carpet and the tile came up too. I asked how many workers had removed the carpet and tile? Mr. Price replied that there had been two workers. I asked for their names and Mr. Price stated he would have to check and get back to me. Mr. Price faxed over the names of the two individuals and they were: Jesus Lomeli 503-474-0410 and Jose Lomeli 503-864-3074. I asked when the tile had been removed? Mr. Price replied that he thought it was January 15th or 16th. I asked Mr. Price if he knew before the workers started that 9x9 vinyl tile generally contains asbestos? Mr. Price stated that he did know that 9x9 VAT generally contains asbestos. Mr. Price stated that he didn't think there was tile under the carpet and that if there was he presumed that it would be 12x12. Mr. Price stated that once he came up and saw that the workers were removing 9x9 floor tile, he had them stop.

I suited up and went inside the area cordoned off with plastic sheeting. IRS had placed poly sheeting at each entrance to this area that morning (1/23/02). This was done to barricade this area off from entrance until they were able to begin abatement. When I entered the containment, there were three IRS Environmental workers prepping this area (placing poly over windows, AC holes, etc.). I observed 9x9 vinyl floor tile, in predominately shattered condition. I estimated that approximately 85% of the removed VAT were shattered. There were two colors of VAT; green and a salmon pink. The majority of the tile was green. There were five rooms, one long corridor and the east entrance (where I entered the containment) corridor where tile had been removed. There were two rooms that the tile was still in place. I noted that the tile had black mastic on the bottom and a yellow mastic on the top of the tile. I collected three samples; one of the green colored VAT (Z3676), one of the pink colored VAT (Z3695) and one of a piece of ceiling tile (Z3670). See diagram for sample collection location and abatement area layout. I measured each of the rooms and the corridors. Laboratory analysis later identified that sample Z3676 (green tile) contained 5% chrysotile asbestos, sample Z3695 (pink tile) contained 3% chrysotile asbestos and sample Z3670 (ceiling tile) did not contain asbestos. The approximate quantity of VAT removed was 1,504 square feet (see diagram for measurements of rooms and corridors). I observed that the area was dry and there was no evidence that any water was used during removal. The floor tile was shattered and in some instances crushed (see photos). There were piles of broken VAT in the rooms and in the corridors. There was a small amount (15% of total) of removed VAT that were either in whole pieces or broken into less than 4 pieces per tile. I also noted that there was black mastic on the concrete throughout.

After leaving the containment area, I explained to Mr. Price that I had collected samples and would have them analyzed at the Department's Laboratory. I stated that the floor tile was in shattered condition and friable. I again explained the rules and regulations regarding ACM removal prior to demolition and that only a licensed asbestos abatement contractor can abate friable asbestos-containing materials. I explained to Mr. Price that I would approve an emergency waiver to begin the abatement immediately. Mr. Price replied that with the 10 day friable notification IRS Environmental had already submitted, they could start on January 26th and that he would just wait until then because he didn't want to pay the 50% fee increase. I gave Mr. Price a copy of Division 248 and a copy of the construction contractors asbestos advisory.

On January 29, 2002, at approximately 2:05 p.m., Mr. Price left a voicemail message stating he knew he was supposed to send me some information, but couldn't remember what, so please call back. I called Mr. Price on his cell phone (503-781-6652). I asked Mr. Price which lab had done the sample analysis for the recent lab results he had given me copies of on January 23rd? Mr. Price replied that it was Chemoptix Micro Analysis out of West Linn. I asked Mr. Price if he had spoken with Chemoptix regarding the dates received listed (August 8, 2001) on the analysis? Mr. Price replied that the August 8, 2001 date listed as the receiving date was incorrect. Mr. Price hadn't talked with the lab yet, but would find out the correct date. I reminded Mr. Price that the items I had requested during my site visit were a copy of a map of the facility and the names of the two workers who had removed the VAT. Mr. Price stated he would fax over a map of the hospital and would include the names of the two workers and their phone numbers. I asked Mr. Price if he had tested the stucco on the outside of the facility, noting that it was not included in the survey summary or recent lab analysis he had given me? Mr. Price replied that he had collected several samples himself and the analysis had been negative for asbestos. I requested that Mr. Price also fax over a copy of this lab analysis.

Note: None of the Chemoptix lab analysis forms have a facility address listed. Many of the forms do not have where in the facility the sample was collected.

On January 30, 2002, at approximately 8:25 a.m., I spoke with Bruce Korum with IRS Environmental. I asked Mr. Korum what date was he first called by Mr. Price? Mr. Korum stated that Mr. Price had first contacted him on January 14, 2002 and it was to give a bid to conduct an asbestos abatement. Mr. Korum visited the site to put together a bid on January 14, 2002. I asked Mr. Korum if Mr. Price had a copy of an asbestos survey? Mr. Price stated that he had asked Mr. Price during their first phone call if there was an asbestos survey and Mr. Price had told him he did not have a survey. Mr. Korum stated that he had told Mr. Price that he had done abatement bids on this facility in the past and had a survey summary still in the files. Mr. Korum stated he gave Mr. Price a copy of the 1996 survey summary. I asked Mr. Korum if he had been aware that some 9x9 VAT had been removed by Mr. Price's workers? Mr. Korum replied that Mr. Price had walked him through the building, told him that the 12x12 VAT had been removed and that he observed some men removing some 12x12 VAT at this time. According to Mr. Korum, Mr. Price told him that they hadn't touched any of the 9x9 VAT because he knew it contained asbestos. Mr. Price explained to Mr. Korum that he wanted IRS to look at removing the 9x9 VAT as part of their bid. Mr. Korum stated that his bid included the removal of the 9x9 and sheet vinyl. Mr. Korum also stated that he had picked up a piece of the gray colored 12x12 VAT, had it analyzed, and it did come back negative. In conclusion I stated that I had heard that the exterior surfacing material might contain asbestos, but noted that it was not included in the survey or recent sample analysis. Mr. Korum stated that he would check with CEC about collecting a sample.

On January 31, 2002, at approximately 3:00 p.m., I was talking with Darren Watts with Performance Abatement Services, a licensed asbestos abatement contractor, regarding some other projects. Mr. Watts asked what IRS was doing at the old McMinnville Hospital? I stated that they were performing an asbestos abatement. Mr. Watts stated that months ago he had been asked by Northwest Demolition to review a survey and give a bid estimate for the asbestos abatement. Mr. Watts stated that the survey he had looked at was new and showed the exterior surfacing material as being ACM. Mr. Watts recalled that the surfacing material was asbestos-

containing, and thought it had contained 3-5% asbestos. Mr. Watts stated that his rough estimate was that the asbestos abatement would cost approximately 1/4 of a million dollars. Mr. Watts stated that he had given the estimate to Richard Wayper of Northwest Demolition and never heard anything back.

On Monday February 4, 2002, I had a voicemail from Dave Wall, DEQ asbestos inspector in the NW Region. Mr. Wall had left the voicemail on Thursday, January 31, 2002, at approximately 2:00 p.m. Mr. Wall wanted to let me know that he had received a call from Brian with Northwest Demolition regarding the old McMinnville hospital. According to Mr. Wall, Brian stated that a contractor was getting ready to knock it down, that the exterior surfacing material was positive for asbestos and that the owner had told them that it didn't need to be dealt with. Mr. Wall stated that the owner's name was Han Hendgen (503) 550-1400. Mr. Wall stated that Ken Leahy Construction was hired to tear down the exterior walls. Mr. Leahy's phone number(s) are: 778-0417 or 519-4619 or his office number is (503) 357-2193.

On February 4, 2002, at approximately 8:10 a.m., I called Northwest Demolition (503-638-6900). The receptionist stated that I could contact Richard Wayper on his cell phone, (503) 519-8214. I called Mr. Wayper on his cell phone and asked him if several months ago they had done a demolition bid on the old McMinnville hospital? Mr. Wayper stated that the owner, Hans Hendgen, approached them 4-5 months ago. Mr. Wayper stated that they had done bids on this structure in the past and had an older survey (3-4 years old). Mr. Wayper stated that the outside material was not an issue in this survey, but that the owner mentioned the exterior surfacing material and had analytical documents that showed the material was ACM. According to Mr. Wayper, Mr. Hendgen gave him copies of the analysis results. Mr. Wayper then spoke with Darren Watts at Performance Abatement Services to get a rough idea what the cost of the asbestos abatement would be. Mr. Wayper stated that he recalls that the lab analysis indicated that the exterior surfacing material contained 3-4%. Mr. Wayper stated that he recalled that the quote for the asbestos abatement was approximately $200,000 (specifically recalls $5/square foot). Mr. Wayper stated that he recalls telling Mr. Hendgen the estimate and that it was a high cost because it would have to be dealt with as friable. Mr. Wayper stated that Mr. Hendgen wanted to get around this and wanted NW Demolition to wet the concrete down and take the building down. Mr. Wayper stated that he explained to Mr. Hendgen that Performance Abatement considered the material friable. Mr. Wayper stated that Mr. Hendgen had talked with other demolition contractors and had mentioned Staton Contractors. Mr. Wayper stated that once Mr. Hendgen was told that the material would have to be dealt with as friable, he came and collected all the documents and never called back. Mr. Wayper also stated that Mr. Hendgen did not want any copies of the analysis kept by Northwest Demolition.

On February 4, 2002, at approximately 9:20 a.m., I called Ken Leahy Construction and spoke with Mr. Leahy. Mr. Leahy stated that he had spoken with Mr. Price and was told that the outside material was negative for containing asbestos. Mr. Leahy stated that he had been hired to crush the concrete and haul off the steal. I explained that there were still questions as to if the exterior surfacing material did have asbestos. I stated that other contractors had seen lab analysis showing that the outside materials was ACM. I stated that until a final determination was made, no demolition should occur. Mr. Leahy stated that he might have GRI collect additional samples.

Mr. Leahy stated that they were to start tearing down the concrete as soon as the abatement was completed.

On February 4, 2002, I called (503-636-9251) and spoke with Stan Cassell of Chemoptix Microanalysis, LLC. I asked Mr. Cassell if he had analyzed sample materials that Mr. Jack Price had brought to him? Mr. Cassell stated that he had analyzed sample materials for Mr. Price. I asked Mr. Price about the date August 8, 2001 listed on him analysis pages as a received date and asked if this was the correct date that he had received the samples from Mr. Price? Mr. Cassell replied that it was the incorrect date, he had just forgotten to change the date on the form. I asked what the correct date was and Mr. Cassell replied that the date he received the bulk of the samples was on January 15, 2002. I also asked about the date listed for the samples of the exterior material dated October 15, 2001. Mr. Cassell stated that August 8 was incorrect and that the date he had received those samples was on October 15, 2001.

I asked Mr. Price if he had collected the samples? Mr. Cassell replied that he had only done the lab analysis. I stated that on the lab analysis forms he had given to Mr. Price there is no address listed as to where the samples were collected. Mr. Cassell replied that there had been no chain of custody and that he had never been told where the samples had come from. I stated that on many of the sample analysis there is no description as to where in the building the sample came from. Mr. Cassell replied that on some of the sample bags there was a room, such as "2nd floor 202", but there was no address on the bags or chain of custody. I asked Mr. Cassell if he knew that the samples may have come from the old McMinnville Hospital? Mr. Cassell replied that he didn't know where the samples came from. Mr. Cassell stated that he doesn't often analyze samples for asbestos.

On February 4, 2002, at approximately 11:15 a.m., I called Staton Companies and spoke with John Pingle (503-543-5294). I asked Mr. Pingle if he had bid a demolition job at the old hospital in McMinnville? Mr. Pingle stated that he had bid to demolish the hospital years ago and actually he had contacted Mr. Hendgen on March 31, 2001 and submitted a bid. Mr. Pingle stated that his bid did not include hazardous materials, including asbestos. Mr. Pingle stated that he had told Mr. Hendgen that he would have to get a survey done. Mr. Pingle stated that Mr. Hendgen had told him that he already had a survey and that there was no asbestos. Mr. Pingle stated that when he had walked through the facility he had observed materials he presumed to contain asbestos, such as 9x9 floor tile and pipe insulation. Mr. Pingle stated he had never heard back from Mr. Hendgen.

On February 4, 2002, I called the Yamhill County Assessor's Office (503-434-7521) and asked for the listed property owner for 603 Baker Street in McMinnville. The property owners are listed as: Hans & Shauna L. Hendgen at a mailing address of 16825 SW Delashmutt Lane in McMinnville, OR. The property was recorded in August of 2000.

On February 4, 2002, at approximately 12:00 Noon, I received a phone call from Jack Price. Mr. Price stated that he had received a call from Ken Leahy. Mr. Price stated that Mr. Leahy had called him regarding my phone call to Mr. Leahy about the exterior surfacing material. I explained to Mr. Price that I had spoken with another demolition contractor who had bid on this job months ago and had seen lab analysis identifying that the exterior surfacing material

contained asbestos. I explained to Mr. Price that he needed to make sure that the surfacing material was not hot (non-ACM) before Mr. Leahy starts demolition of the concrete. I explained that if one sample came back positive, the material would have to be considered ACM. I stated that I would be on site at approximately 1:30 to collect samples of the exterior walls.

I arrived at the old McMinnville hospital at approximately 1:30 p.m., on February 4, 2002. I met Mr. Price there and asked what was going to be built on site? Mr. Price replied that it was going to be a Walgreens. Mr. Price stated that he was going to have Certified Environmental Consultants there in the morning to collect samples of the exterior walls. I asked Mr. Price if he would let me know what those results were. I asked Mr. Price if he was a partner with the owner? Mr. Price stated that no, he was only the demolition contractor.

IRS Environmental was on site and continuing the asbestos abatement. I spoke with the supervisor, Vince Chavez, and conducted a standard inspection on the abatement (reviewed what had been abated, what was left to be abated, what area air clearance was running, checked worker cards, etc. - see inspection report). Mr. Price, Mr. Chavez and I walked to the 3rd floor, SE corner, where the 9x9 had been improperly removed by Mr. Price's employees. IRS had completed abatement and air clearance in this area. I asked Mr. Price if he had taken any of the 9x9 vinyl tile they had removed out of the building and/or disposed of it? Mr. Price replied that what they had removed, they had left in place. As we walked through this area, Mr. Chavez pointed out an area where some additional AC pipe insulation had been located. After Mr. Price and I walked to the outside of the structure, Mr. Price stated that he had not had any asbestos abatement bids before being awarded the contract. Mr. Price stated that he had included a set amount of money to cover the asbestos abatement in his bid, but now didn't know if that amount would cover everything.

I collected four samples of the exterior surfacing material of the hospital from both the old section and the new additions. The first sample I collected was from the east side of the second story, old section of the hospital. I climbed a stepladder to get on the roof of a newer edition on the east side to access the exterior wall on the east side. One of Mr. Price's workers, Randy Bartholomew, climbed up with me. I used the stepladder to collect a sample (3295) of the exterior surfacing material that was peeling away, below and to the side of a window. I walked around this newer section, east side and Mr. Price was waiting there. Mr. Price stated that he had collected one of his samples that came back negative from the outside wall of this single story new addition. Mr. Price went to this area and pulled off a piece (part of this newer section had already been torn down). I collected this material as a sample (Z3722) that Mr. Price had pulled off. I explained that this material was from the new addition and that may be why his analysis came back negative. I asked Mr. Price if he had collected any samples of the surfacing material from the old section of the hospital? Mr. Price stated that he did, but didn't remember exactly where. I stated that the exterior surface on the newer editions has a rougher texture and appears more like a mortar material. I stated that the old section has a smoother finish and doesn't look the same as the mortar material on the new addition. I walked around to the south side of the hospital and noticed that the surface was smooth but may be an add on, I was not sure. I collected a sample (3297) of the surfacing material again in an area that was peeling away from the wall. I walked to the east side of the structure, which is a new addition. I collected a sample (Z3722) of the same mortar material as noted in sample Z3722. I also noted that the newer

addition had large rectangular mortar/concrete sections, see photos, whereas the old section is all one smooth surface. I took photos of the samples in situ and in addition took photos from each side of the hospital.

On February 6, 2002, at approximately 1:30 p.m., I spoke with Liliana Echeverria from the Department's laboratory. Ms. Echeverria was in the process of analyzing the samples of the exterior surfacing material I had sent. Ms. Echeverria stated that the two samples from the newer section of the hospital did not contain any asbestos. Ms. Echeverria stated that she was in the process of analyzing one of the samples collected from the old section of the hospital and so far had identified asbestos (2-8%) in an aluminum paint layer. Ms. Echeverria stated that there were several other none ACM paint layers on top of the aluminum layer that she was trying to remove and thought she would be done with the analysis late in the afternoon. Ms. Echeverria stated she was also working on the last sample, but thought it looked different.

On February 6, 2002, at approximately 2:15 p.m., I called and spoke with Jack Price. I explained that so far preliminary results for the samples I had collected of the exterior surfacing material had identified one sample with asbestos in the aluminum paint layer. I stated that our lab was not finished with the analysis, but so far estimated that the paint layer contained 2-8% chrysotile asbestos. Mr. Price replied that Certified Environmental Consultants (CEC) had collected several samples and all of them had come back negative. I stated that I would call CEC and find out where their samples were collected from the hospital. I explained that the samples I had collected from the new sections of the hospital had not had any asbestos. I again stated that no demolition should occur. I stated that when I had final results from our Lab I would let him know.

On February 6, 2002, at approximately 2:30 p.m., I called the property owner, Hans Hendgen (503-472-8739) and left a call back message with his wife.

On February 6, 2002, at approximately 2:35 p.m., I spoke with Renee Garrett of CEC. Mr. Garrett stated that he had collected three samples of the exterior surfacing material and all of them had come back negative. I asked where he had collected his samples? Mr. Garrett replied that one was collected from the 3rd floor of the old section on the east side, another on the ground floor of the new section on the north side and the last sample was collected on the ground floor on the east side (? on if from new or old section). I stated that I had collected four samples, two from the new additions and two from the older section. I stated that so far our Lab had identified asbestos in an aluminum paint layer in one of the samples collected from the old section. Mr. Garrett asked if I had possibly collected this sample from a patch repair area? I replied that I didn't know which sample the lab had found the asbestos paint layer. I stated that our lab had not finished analysis of the other sample and would have results either late this afternoon or tomorrow. I stated that if both samples contained asbestos, there would be no question that the aluminum paint layer on the old section was asbestos containing. I stated that if only one sample contained asbestos, I suggested we meet on site and collect additional samples, taking them side by side. Mr. Garrett agreed that that would be a good idea.

I received sample results from our Lab on February 7, 2002. The results identified only one sample as containing asbestos. The sample identified 2% chrysotile asbestos in the metallic paint

layer and in the mortar. The sample with asbestos was collected from the old section along the east side and from the second story of the hospital.

On February 7, 2002, at approximately 10:30 a.m., I called and spoke with Jack Price. I explained that I had received analysis results from our laboratory and that one of the samples had contained asbestos in a metallic paint layer and in the mortar. I explained where I had collected this ACM sample. I explained to Mr. Price that there were a couple options. One option was for more samples to be collected and analyzed. I suggested that CEC and I collect samples at the same time, and side by side samples. This would help determine if the ACM was elsewhere on the old section or if by some coincidence I had sampled a patch repair area. I stated that the other option is if he did not want more samples collected, then the exterior surfacing material would have to be treated as friable ACM. I explained that sampling surfacing materials from either a sprayed on or troweled on application process could have different analysis results. The application process can have different thickness and also due to the mixture of the material, one area sampled can have 5% asbestos, one foot away can have 2% asbestos and several more feet can have no asbestos. I explained that once there is a sample result that identifies asbestos, the entire material has to be considered ACM or more sampling must be done to determine if an area can be defined. I requested that Mr. Price talk with CEC and decide what they wanted to do regarding additional samples and then have CEC give me a call.

On February 7, 2002, at approximately 11:30 a.m., I spoke with Hans Hendgen. I explained that I was looking into asbestos issues and potential rule violations pertaining to the old McMinnville hospital demolition job. Mr. Hendgen stated that he didn't think he could add anything that Jack Price hadn't already told me. I asked Mr. Hendgen if he was the property owner? Mr. Hendgen replied that he was the property owner. I stated that I had some questions because he was the property owner and property owners have a responsibility when it comes to asbestos abatement. I asked if he had an asbestos building survey done? Mr. Hendgen stated that no he did not, that he had included that responsibility for the building survey in his contract with Mr. Price. Mr. Hendgen then went on to read the portion of this contract that talked about environmental surveys and assessments. Mr. Hendgen denied that he had any responsibility and that he made sure that his contract would "cover his back". I asked for a copy of this contract and Mr. Hendgen stated he would fax over a copy. I gave Mr. Hendgen my fax number.

Mr. Hendgen stated that he had bought this property from Columbia HCA, they own a lot of hospitals, and at that time had received all their environmental documents. Mr. Hendgen stated that at one time he was selling the property to a Chuck Sykes and at that time gave him all the environmental surveys. According to Mr. Hendgen, Mr. Sykes had started to demo inside the hospital, but then ended up pulling out of the deal. Mr. Hendgen stated that he never got any of the environmental reports back from Mr. Sykes. Mr. Hendgen then asked if I was on a witch hunt, because if I was he was not going to assist the DEQ if that was what we were doing. I stated that my job was to find out what had happened and the circumstances related to this case and that talking with the parties involved was one means in doing this.

I asked Mr. Hendgen if he had consulted with other demolition contractors 4-6 months ago and was asbestos discussed, specifically on the exterior surfacing material? Mr. Hendgen replied that he had talked with other demo contractors months ago and yes he did know that there was a

concern that the exterior surface could possibly have asbestos. I stated that I had talked with two contractors who had both seen lab analysis identifying that the exterior surfacing material was asbestos containing? I asked Mr. Hendgen if he knew about this and if he wanted to share this information with me? Mr. Hendgen replied that he had never taken any samples (I never asked him if he had taken a sample) and that he did not know anything about any analysis showing that the surfacing material contained asbestos. Mr. Hendgen stated that he had Mr. Price take samples of the exterior sometime in October and they had come back negative. I again asked if he knew about the lab analysis showing the surfacing material had asbestos? Mr. Hendgen replied that he had already answered that question.

Mr. Hendgen stated that "a friend of mine" had come by the hospital, one that they had invited to do a bid, and that was Wally Thomas. I replied that Mr. Thomas is an asbestos abatement contractor. Mr. Hendgen stated that Mr. Thomas had walked around the facility for three hours, telling them things they couldn't do and he thought Mr. Thomas was a raving lunatic. Mr. Hendgen stated that Mr. Thomas had mentioned my name numerous times and that he thought there must be some kind of "personal relationship between us". I stated that the reason Mr. Thomas mentioned my name is because I am the DEQ asbestos inspector for Yamhill County and that if this project were in Portland another inspector's name would have been mentioned. I asked Mr. Hendgen if he was implying something? Mr. Hendgen then said no he wasn't. Mr. Hendgen stated that Mr. Thomas had called his contact with Walgreens and told them that there was zero chance that DEQ wouldn't be showing up on the hospital's doorstep. Mr. Hendgen stated that he thought Mr. Thomas was just trying to stir up trouble.

Mr. Hendgen stated that he had owned the building for five years and has heard all sorts of stories, such as lead paint, PCB's, asbestos, etc. Mr. Hendgen stated that most of what he has heard is false.

I explained the rules and regulations regarding asbestos abatement prior to any demolition activities and that the responsibility is with the property owner to hire a licensed asbestos abatement contractor. Mr. Hendgen replied that as far as he was concerned that he was doing everything by the book. Mr. Hendgen stated that he knew that Mr. Price had chipped up some asbestos floor tile, but that was his problem.

At some point in our conversation Mr. Hendgen commented that he had watched the asbestos abatement workers scraping up the mastic from the floor. Mr. Hendgen stated that he thought it was ridiculous and couldn't understand why they couldn't just use water sprays on the material when it was crushed. Mr. Hendgen stated that all of the rags used to wipe up the mastic would end up in the landfill anyway, that the asbestos would get into the groundwater and end up in the Yamhill River. I explained waste packaging and disposal requirements.

I asked Mr. Hendgen when he had hired Mr. Price to do the demolition of the hospital? Mr. Hendgen replied that they had signed the contract on December 26, 2001. I explained that I had collected samples of the exterior surfacing materials on Monday (2-4-02) and that one had identified asbestos in a paint layer and mortar. Mr. Hendgen asked if I was coordinating with Mr. Price to have more samples collected? I stated that I had talked with Mr. Price and had explained the rules and options regarding the asbestos-containing sample. Mr. Hendgen stated he didn't

have anything more to say. I again asked for a copy of his contract with Mr. Price. Mr. Hendgen replied that he would fax it right over. I stated that if I had any further questions I would give him a call.

On February 8, 2002, at approximately 3:40 p.m., Mr. Hendgen called and asked if I had received the fax? I stated that I had received the fax that included their contract and a copy of a lab analysis from the samples Mr. Price had collected of the exterior surface. Mr. Hendgen asked if these answered my questions? I stated that if I had any further questions I would give him a call. Mr. Hendgen asked if I was going back out to the site? I stated that I was scheduled to meet CEC on Tuesday (2-12-02). Mr. Hendgen asked what we would be doing? I stated that we would be collecting more samples of the exterior surface. Mr. Hendgen asked what time we would be there because he wanted to be there. I stated we were scheduled to meet there at 10:00 a.m.

On February 12, 2002, I met Dave Wall (DEQ NW Region) & Renee Garret (CEC) on site to collect additional samples of the exterior surfacing material. The following samples were collected:

3298 – silver paint sample collected from the interior wall, west side of east wing, ground floor. Lab results identified 2% chrysotile asbestos.
3300 – silver paint sample collected from the exterior wall, north side of the south wing, 2nd floor. Lab analysis identified no asbestos.
3302 – silver paint sample collected from the exterior wall, west side of the east wing, 2nd floor. Lab analysis identified no asbestos.
3301 – silver paint sample collected from the exterior wall, west side of east wing, 2nd floor. Lab analysis identified no asbestos.
3296 – silver paint sample collected from the exterior wall, east side of the east wing, 3rd floor (under window). Lab analysis identified 3% chrysotile asbestos.
3305 – silver paint sample collected from the exterior wall, east side of the east wing, 3rd floor (right of window). Lab analysis identified 3% chrysotile asbestos.
3304 – silver paint sample collected from the exterior wall, east side of the east wing, ground floor. Lab analysis identified no asbestos.
3303 – silver paint sample collected from the exterior wall, east side, ground floor. Lab analysis identified 3% chrysotile asbestos.

I spoke with Renee Garrett on February 19, 2002, at approximately 9:00 a.m., regarding their analysis results for the paint surface material collected on 2-12-02. Mr. Garrett stated that three of their samples came back as 2-3% asbestos. Mr. Garrett stated that he had sent in one sample that was borderline ACM (1%) in their estimate for TEM analysis. Mr. Garrett called me back later in the morning to let me know that the TEM analysis identified the paint at 2 ½% asbestos. I explained that he would need to speak with Jack Price and let me know when they had a proposal(s) for removing the paint from the old section of the hospital. Mr. Garrett asked if they used a chemical to remove the paint, would they have to be licensed to do the nonfriable abatement? I explained to Mr. Garrett that the paint is considered friable and yes a licensed asbestos abatement contractor would have to remove it, no matter what their proposal. Mr. Garrett stated he would speak with Mr. Price and let me know when they had a proposal.

EXHIBIT tabbies A-3

## 3. ASBESTOS SURVEY SUMMARY

GHP conducted the walk-through on October 23 through October 25, 1996. A total of thirty-five (35) samples were collected during the investigation.

Samples were delivered to GHP Laboratories in Nashville, Tennessee, for analysis. GHP Laboratories is a NVLAP-accredited laboratory (ID # 102098-0). Analysis was conducted by polarized light microscopy (PLM), EPA Method 600/R-93/116.

The site inspection was conducted by Mr. Scott Anderson, under the supervision of Mr. Peter Cappel.

Cost estimates for removal of ACM are provided in **Appendix A** and in the Conclusion of the report.

The materials listed below were either assumed to be ACM or verified as ACM through bulk sampling and analysis.

*Pipe Insulation (Pre-form or "Air Cell")*

ACM pipe insulation in the form of pre-form or "air-cell" insulation was present primarily in the ceiling cavity of the first floor corridors. The ACM pipe insulation was in good condition at the time of inspection.

Total Estimated ACM Pipe Insulation:

| | |
|---|---|
| First Floor: | |
| E.R., Lab, and corridors | 250 linear feet |
| Boiler Room - flue insulation | 250 square feet 21'X 16"Ø |
| TOTAL QUANTITIES | 250 linear feet<br>250 square feet |

*Pipe Joint Insulation (Mudded Joints)*

ACM pipe joint insulation was present primarily in the mechanical rooms and corridor ceiling cavities. The pipe joints were in good condition at the time of inspection.

Total Estimated ACM Pipe Joint Insulation:

| | | |
|---|---|---|
| First Floor: | | |
| Boiler Room | 42 joints | 6" |
| Chiller Room | 10 joints | 8" |
| Ceiling Cavities | 150 joints | |
| Main Mechanical Room | 42 joints | |
| Mechanical Room | 25 joints | |
| Second Floor: | | |
| Ceiling Cavities | 50 joints | |
| Third Floor: | | |
| Ceiling Cavities | 20 joints | |
| Roof: | | |
| Mechanical Room | 65 joints | |
| TOTAL QUANTITIES | 241 joints | |

*Flooring*

Suspect floor covering material were found in all areas of the hospital. GHP was informed that the majority of the newly installed floor materials were installed over existing floor material. It is GHP's understanding from a conversation with staff members that most of the existing floor materials are ACM.

The following floor materials were assumed to be ACM or may be covering other ACM floor materials:

| | |
|---|---|
| Tan/gray | 3rd Floor |
| Tan 12" floor tile | 3rd Floor |
| Salmon 12" floor tile | 3rd Floor |
| Gray 12" floor tile | 2nd and 3rd Floors |
| Cream/tan 12" floor tile | 1st, 2nd, and 3rd Floors |
| Tan cobblestone vinyl floor sheeting | 3rd Floor |
| Tan cubed vinyl floor sheeting | 3rd Floor |
| Tan streaked 12" floor tile | 3rd Floor |
| Yellow vinyl floor sheeting | 2nd Floor |
| Brown cubed vinyl floor sheeting | 2nd Floor |
| Tan/blue/pink cubed vinyl floor sheeting | 3rd Floor |
| Green 9" x 9" floor tile | 2nd and 3rd Floors |
| Tan cubed vinyl floor sheeting | 1st Floor. |
| Total Estimated ACM Floor Tile | 51,250 square feet |

No friable floor tile was noted at this facility. ?

*Vapor Barrier Mastic*

Vapor barrier mastic is a white sealant used to cover fiberglass pipe insulation, there is a possibility that more of this material is present on piping in concealed areas.

| | |
|---|---|
| 1st Floor - Main Mechanical Room | 100 square feet |
| Roof - Mechanical Room | 20 square feet |

*Other Suspect ACM*

| | |
|---|---|
| Vapor Barrier Mastic on sinks | |
| Throughout hospital | 5 sinks |

None of the above miscellaneous materials were noted to be friable or in an unstable condition, therefore no separate repair quantities are provided.

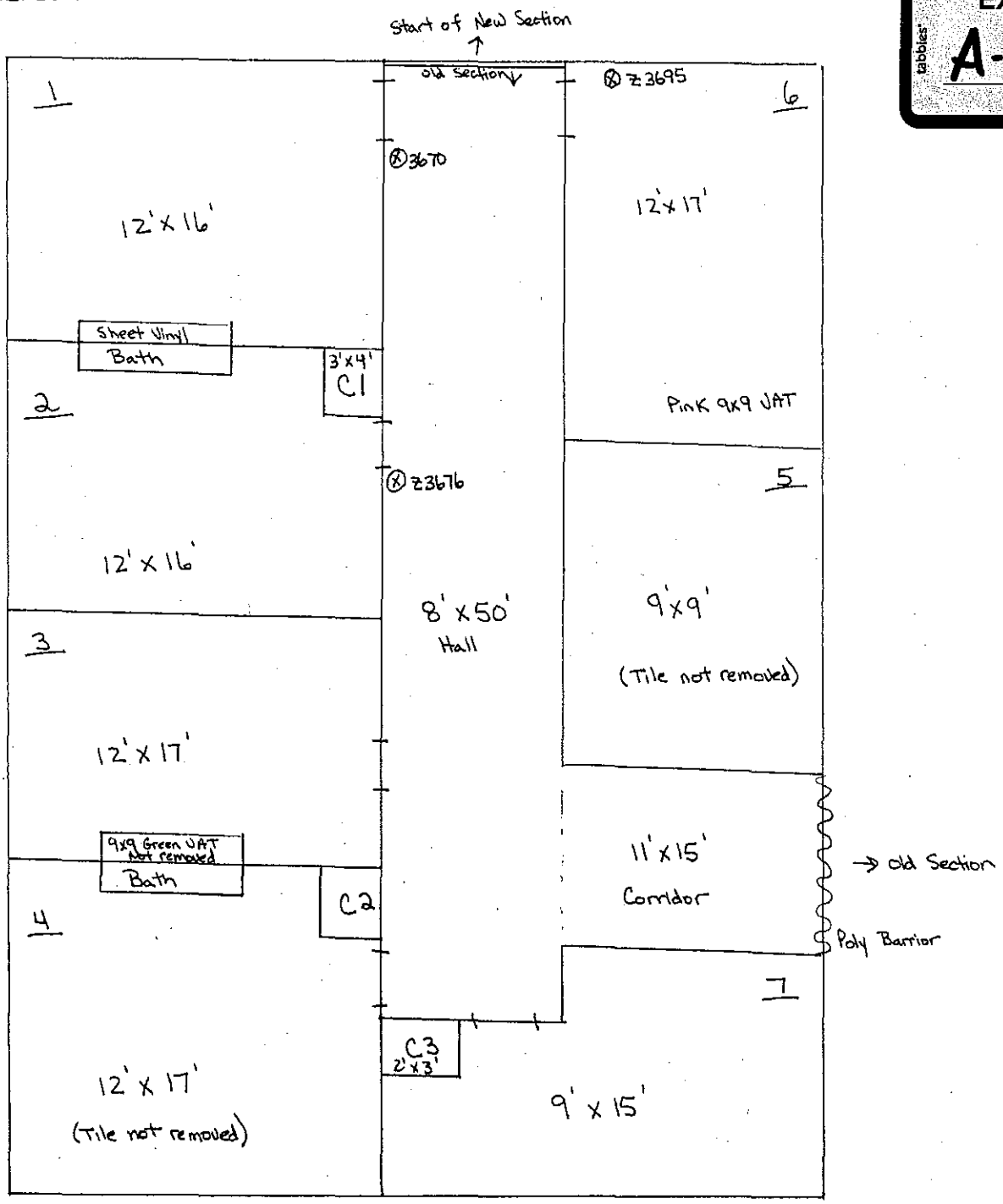
SUMMARY OF ASBESTOS SURVEY FOR MCMINNVILLE C
HOSPITAL
Survey Performed: October 23-25, 1996

| Material | Location | Estimated Quantity |
|---|---|---|
| Pipe insulation | First Floor-E.R., Lab, Corridors<br>First Floor-Boiler Room | 500 l.f.<br>250 s.f. |
| Pipe Joint Insulation | First Floor<br>Second Floor<br>Third Floor<br>Roof - Mechanical Room | 369 Joints<br>100 Joints<br>70 Joints<br>65 Joints |
| Vapor Barrier Mastic | First Floor<br>Roof - Mechanical Room | 100 s.f.<br>20 s.f. |
| *TSI SUBTOTAL* | | |
| Flooring | First, Second, and Third Floors | 51,250 s.f. |
| *FLOORING SUBTOTAL* | | |
| TOTAL ESTIMATED ACM REMOVAL COST | | |

* Does not include mastic or carpet Removal

EXHIBIT
tabbies
A-4

3rd Floor, SE Corner
Old Section
9x9 VAT Removal Area




Old McMinnville Hospital
603 SW Baker Street
McMinnville, OR

1 - Room #
⊗ - Sample Collected
C - Closet

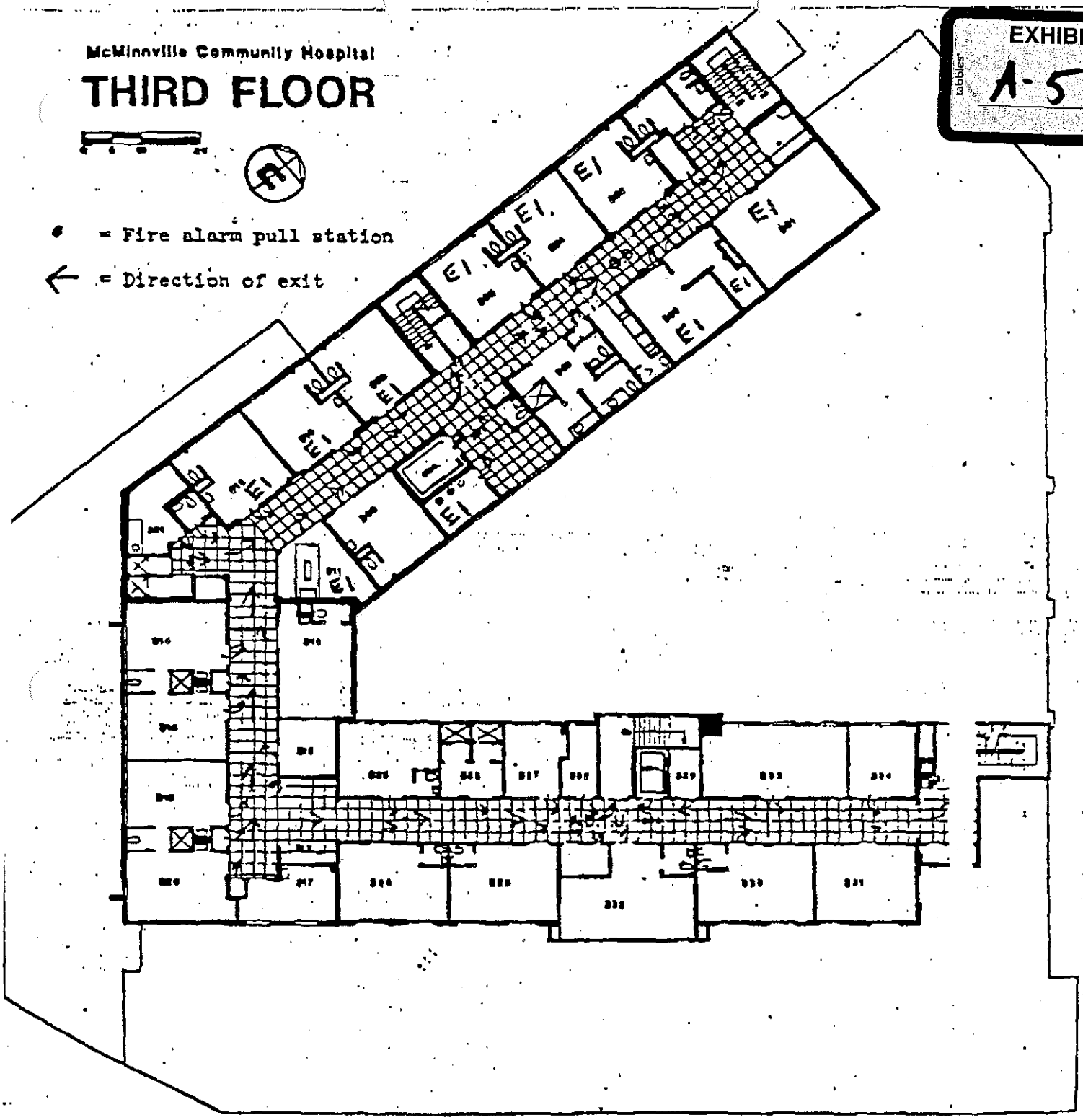
EXHIBIT tabbies 1-5

McMinnville Community Hospital

# THIRD FLOOR

● = Fire alarm pull station

← = Direction of exit



| | | |
|---|---|---|
| 301 Delivery Rm | 313 Patient Rm | 324 Patient Rm |
| 302 Patient Rm | 314 Patient Rm | 325 Patient Rm |
| 303 Nursery | 315 Utility | 327 Office |
| 304 Patient Rm | 316 Patient Rm | 328 Patient Rm |
| 305 Obstetrics | 317 Obstetrics Unit Coordinator | 329 Storage |
| 306 Patient Rm | 318 Patient Rm | 330 Patient Rm |
| 307 Waiting | 319 Nurses Station | 331 Patient Rm |
| 308 Patient Rm | 320 Patient Rm | 332 Storage |
| 309 Patient Rm | 321 Diet Kitchen | 333 Conference Rm |
| 310 Patient Rm | 322 Alcohol & Drug Unit | 334 Office |
| 311 Nurses Station | 325 Showers | |
| 312 Patient Rm | 326 Patient Rm | |

NURSS. CALL SYSTEM PANEL T-1

DEPARTMENT OF ENV[illegible]NMENTAL QUALITY
Laboratory [illegible]sion

Sampling Event #: 20020282

EXHIBIT
tabbies A-6

Survey: Hospital 603 Baker St. McMinnville
Sampling Subproject (fund code): 26302
Collected by: Dottie Boyd

Date Received in Lab:
Date Reported: FEB 15 2002
Report Data to: Dottie Boyd

| Item # | LASAR # (required) | SITE NAME lat/long (in decimal degrees)* | Nutrient Basic | DO BOD | Metals Organics | | Date Time | Temp (Deg. C) | Ph (SU) | Cond. (Umhos/cm) | ELEV RM | Tests Required |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | Pink colored 9x9 VAT w/ Black mastic (both sides) | | | | Z3695 | 1-23-02 14:00 ~~2:00pm~~ | | | | | Asbestos Micro |
| 2 | | Green colored 9x9 VAT w/ Black mastic on bottom top & yellow mastic on top | | | | Z3676 | 1-23-02 14:00 ~~2:00pm~~ | | | | | Asbestos Micro |
| 3 | | Fragment of ceiling tile | | | | Z3677 | 1-23-02 14:00 ~~2:00pm~~ | | | | | Asbestos Micro |
| 4 | | | | | | | | | | | | RECEIVED FEB 21 2002 DEQ - SALEM OFFICE |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |

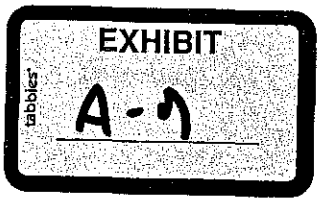
* lat/long only required if station is new

**LEGAL SAMPLE: Chain of Custody Record**

Total # of containers received: 3 Initial placement in refrigerator #:
Relinquished by: Dottie Boyd Received By:
Date/Time: 1-24-02 Date/Time:

Comments: If possible, have results by middle of next week (1-30-02). Thanks

Meter #'s:




# DEPARTMENT OF ENVIRONMENTAL QUALITY

LABORATORIES AND APPLIED RESEARCH
INORGANIC/NONMETALS SECTION
MICROSCOPIC TEST RESULTS

| | |
|---|---|
| Site: Hospital, 603 Baker St. McMinnville, OR | Laboratory No: 20020082 |
| Collected by: Dottie Boyd | Program Code: 26302 |
| Date collected: 01-23-02 | Date Completed: 01-29-2002 |
| | Analyst: LE |

1. Z3695
   Macro: Pink flooring material with black mastic on both sides.
   Micro: 3% chrysotile asbestos (found in tile only)
   Minerals
   Mastic

2. Z3676
   Macro: Green flooring material with black mastic on one surface and yellow mastic on another.
   Micro: 5% chrysotile asbestos
   Minerals
   Mastic

3. Z3677
   Macro: Gray, fibrous acoustic tile with one surface painted white.
   Micro: No asbestos found
   Glass fiber
   Binders

Comments: Preliminary results by E-mail 01-29-02. LE

Asb20020082

EXHIBIT
tabbies
A-8

Attachment 4
Chemoptix Lab Results

DATE: January 16, 2002

BULK ASBESTOS ANALYSIS REPORT

The Following sample(s), received ~~August 8, 2001~~ January 15, 2002, have been analyzed for asbestos via EPA Method 600/M4-82-020, using polarized light and phase contrast microscopy. The fiber results are reported on a weight/weight basis and apply only to the sample material submitted.

ANALYST: S. Cassell

| *Sample ID* | *Chemoptix ID* | *Result* |
|---|---|---|
| 3rd Floor East | G-ASB-4151 | *Layer 1 (tile):*<br>**3% Chrysotile asbestos**<br><1% Cellulose<br><1% Glass wool<br><br>*Layer 2 (black backing):*<br>40% Cellulose<br>10% Hair<br><br>*Total:*<br>**2% Chrysotile asbestos**<br>15% Cellulose<br><1% Glass wool<br>4% Hair |

A dark green tile with black asphalt-like backing. Sample also contained calcium carbonate, other minerals, binders, and a trace of mastic.

Thank you for this interesting project. If you have questions, feel free to call me at (503) 636-9251.

Sincerely,

Stan Cassell,

EXHIBIT
tables
A-9

# DEMOLITION CONTRACT - LUMP SUM

THIS CONTRACT, MADE BETWEEN, JACKSON ENTERPRISES AND JACK PRICE II, (CONTRACTOR) AND HANS A HENDGEN, AND SHAUNA L HENDGEN (OWNERS), FOR THE PURPOSE OF DEMOLISHING THE (2) BUILDINGS LOCATED AT: 603 S BAKER ST MCMINNVILLE, OREGON. DATED THIS 26TH OF DECEMBER, 2001.

## DEMOLITION

THE DEMOLITION SCOPE OF WORK IS AS FOLLOWS:

1. COMPLETE ENVIRONMENTAL SURVEY (DEQ APPROVED CONTRACTOR) OF BOTH, THE MAIN HOSPITAL BUILDING (APPROX 50,000SQ FT) AND THE SMALLER GAS STATION BUILDING. THESE SURVEYS ARE FOR BUILDINGS ONLY.
2. UPON COMPLETION OF THE SURVEY, IF ANY HAZARDOUS MATERIAL IS FOUND, REMEDIATE AND ABATE ALL MATERIALS, AND DISPOSE OF AT A APPROVED LANDFILL OF DISPOSAL SITE. (REQUIRING A DEQ APPROVED CONTRACTOR).
3. OBTAIN AND PURCHASE A DEMOLITION PERMIT FROM THE CITY OF MCMINNVILLE, OREGON.
4. REMOVE ALL DEBRIS FROM SITE EXCEPT CONCRETE SUITABLE FOR CRUSHING TO ENGINEER'S SPECIFICATIONS FOR SUITABLE FILL MATERIAL, CRUSH AND STOCKPILE CONCRETE AT A LOCATION SPECIFIED BY THE OWNERS OR ENGINEER.
5. THE DEMOLITION IS TO INCLUDE ALL FOOTINGS, FOUNDATIONS, SLABS, AND ASPHALT.
6. ALL WORK DONE BY (CONTRACTOR) OR ANY PERSON EMPLOYED BY (CONTRACTOR), OR ANY SUB-CONTRACTOR HIRED BY (CONTRACTOR), IS TO BE LICENSED, BONDED, QUALIFIED, AND INSURED EITHER BY (CONTRACTOR) OR THEMSELVES.
7. THE (CONTRACTOR) MUST ADHERE TO THE STRICT GUIDELINES OF ALL GOVERNING AGENCY'S INCLUDING: DEQ, CITY, COUNTY, STATE AND ANY OTHER AUTHORITY.
8. COORDINATE WITH THE CITY TO SHUT-OFF, AND CAP ALL UTILITIES TO THE SITE.
9. SECURE THE SITE WITH THE USE OF FENCES AND BARRICADES, AND HAVE PROPER SIGNAGE REQUIRED BY THE CITY.
10. IMPLEMENT PROPER DUST CONTROL MEASURES AS REQUIRED BY DEQ, AND THE CITY.

11. ADHERE TO ALL OSHA PRACTICES AND STANDARDS CONCERNING HEALTH AND SAFETY ISSUES.
12. THE (CONTRACTOR) IS NOT RESPONSIBLE FOR UNDERGROUND TANKS, AND TO THE KNOWLEDGE OF THE (OWNERS) ALL UNDERGROUND TANKS HAVE BEEN REMOVED.

## INSURANCE AND INDEMNIFICATION

THE (CONTRACTOR) PRIOR TO SIGNING THIS CONTRACT IS TO SUPPLY THE FOLLOWING:

1. A CURRENT COPY OF AN OREGON CONTRACTORS LICENSE.
2. A CERTIFICATE OF INSURANCE IN THE AMOUNT OF $1,000,000.00
3. A BOND IN THE AMOUNT OF $15,000.00

THE (CONTRACTOR) WILL INDEMNIFY AND HOLD HARMLESS THE (OWNERS), FROM ANY AND ALL LIABILITY CONNECTED WITH THE ACTIONS OF THE (CONTRACTOR), AND ANY EMPLOYEE, OR SUB- CONTRACTOR OF THE (CONTRACTOR).

## TIME IS OF THE ESSENCE

THE (CONTRACTOR), UNDERSTANDS THAT THE SITE MUST BE CLEAN WITH EXCEPTION OF THE CRUSHED CONCRETE STOCKPILES, BY FEBRUARY 28, 2002. IF THE WORK IS NOT COMPLETED BY THIS TIME IT WILL CAUSE A FINANCIAL HARDSHIP ON THE (OWNERS). THEREFORE IF THE (CONTRACTOR) FAILS TO COMPLETE THIS CONTRACT BY THAT DATE THERE WILL BE A PENALTY OF [redacted] PER DAY ASSESSED AGAINST THE (CONTRACTOR), UNTIL THIS CONTRACT IS COMPLETE.

## CONTRACT AMOUNT

TO COMPLETE THIS CONTRACT OF: ABATEMENT, DEMOLITION, HAULING, CRUSHING, RECYCLING, SURVEYS, FEES, FINES, LABOR, SUB-CONTRACTING, TESTING, ETC. COMPENSATION FOR THESE SERVICES AND ANY OTHERS REQUIRED TO FULFILL THIS CONTRACT IS: [redacted] LESS [redacted] FOR THE RENTAL OF THE (OWNERS) NEW HOLLAND 160 EXCAVATOR. THIS AMOUNT IS DUE AND PAYABLE UPON US BANKS APPROVAL OF THE DEMOLITION, AND CLEAN UP, WITH THE EXCEPTION OF [redacted], WHICH WILL BE DISPERSED WHEN NEEDED BY THE

(CONTRACTOR). FURTHERMORE IF (CONTRACTOR) COMPLETES THE DEMOLITION BY FEBRUARY 15 2002 HE WILL RECEIVE A [redacted] BONUS.

## RECYCLING AND SALVAGE

ALL SALVAGEABLE MATERIALS WITH THE EXCEPTION OF THE CONCRETE AND THE (2) BOILERS ARE THE PROPERTY OF (CONTRACTOR). ANY AND ALL MONIES RECEIVED FROM THOSE MATERIALS ARE TO BE THE (CONTRACTORS).

## REPRESENTATIONS

ALL INFORMATION THAT HAS BEEN FORWARDED TO THE (CONTRACTOR) BY THE (OWNERS), HAS BEEN DONE SO FOR THE (CONTRACTORS) BENEFIT, AND IS BELIEVED TO BE RELIABLE. THE (CONTRACTOR) MUST MAKE HIS OWN INDEPENDENT DETERMINATION AS TO THE FACTORS SURROUNDING THIS DEMOLITION, AND THE (OWNERS) MAKE NO REPRESENTATION OF FACTS REGARDING THE DEMOLITION. TO THE BEST OF THE (OWNERS) KNOWLEDGE THERE IS NO HISTORICAL DESIGNATION TO THIS PROPERTY. THIS CONTRACT IS THE EXCLUSIVE UNDERSTANDING OF THE PARTIES AND NOTHING SUPERCEDES THIS AGREEMENT.

12/26/01

JACK PRICE II, (CONTRACTOR)

12-26-01

HANS A HENDGEN (OWNER)

12-26-01

SHAUNA L HENDGEN (OWNER)

Attachment 1

EXHIBIT
tabbies A-10

NWS

ASN-1

# OREGON DEQ NOTICE OF INTENT TO REMOVE OR ENCAPSULATE FRIABLE ASBESTOS-CONTAINING MATERIAL

For DEQ use only
Date Received JAN 18 2002
Amount Received 1200
Check Number 1784
Project Number 26131

ATTENTION! This notification must be complete and received by DEQ at least 10 days before the start date of any asbestos abatement project and accompanied by the notification fee. (PLEASE TYPE OR PRINT CLEARLY)

## PROJECT CATEGORY AND NOTIFICATION FEE

____ Emergency (Emergency notifications require a 50% fee increase)
A.____ $35 for each project with less than 40 linear or 80 square feet of asbestos-containing material and for each residential abatement project.
B.____ $70 for projects from 40 to 259 linear feet or 80 to 159 square feet of asbestos-containing material.
C.____ $275 for projects from 260 to 1299 linear feet or 160 to 799 square feet of asbestos-containing material.
D.____ $375 for projects from 1300 to 2599 linear feet or 800 to 1599 square feet of asbestos-containing material.
E.____ $650 for projects from 2600 to 4999 linear feet or 1600 to 3499 square feet of asbestos-containing material.
F.____ $750 for projects from 5000 to 9999 linear feet or 3500 to 5999 square feet of asbestos-containing material.
G.X $1,200 for projects from 10,000 to 25,999 linear feet or 6000 to 15,999 square feet of asbestos-containing material.
H.____ $2,000 for projects from 26,000 to 259,999 linear feet or 16,000 to 159,999 square feet of asbestos-containing material.
I.____ $2,500 for projects 260,000 linear feet or more or 160,000 square feet or more of asbestos-containing material.

JAN 28 2002

1. Is this a revision to a previous notification? Yes _____ No X
2. Asbestos abatement project starting date: 1-26-02 Completion date: 2-10-02
3. Project site name: OLD HOSPITAL Address: 603 BAKER st (Street) McMINNVILLE (City) YAMHILL (County) (ZIP)
4. Property Owner: JACKSON ENTERPRISES
   Address: SAME (City) (State) (ZIP)
5. Site Contact: JACK PRICE Phone: 781-6652
6. Describe physical structure of facility: 3 STORY CONCRETE
7. Give present and prior use of facility: VACANT MEDICAL BLDG.
8. Will this be a complete demolition? Yes: X No: _____
   If yes, give demolition start date: 2-15-02
9. Describe type and percentage of asbestos material and where it is located in facility: FLOORTILE AND PIPE INSULATION THROUGHOUT 10-20% CHRYSOTILE
10. Quantity of asbestos material to be removed or encapsulated:
    Linear feet: 260 Square feet: 12,210
11. Abatement Contractor Name:
    IRS Environmental of Portland, LLC
    Address: 755 SW Dennis Ave., Hillsboro, OR 97123 (City) (State) (ZIP)
    Phone: (503) 693-6388
    DEQ license number: ASC 525
12. Describe method of removal or encapsulation:
    Full encl., decon, neg-air, wet methods
13. Days of week and hours of day to be worked:
    Mon. - Sunday 8Am - 4:30 pm
14. Oregon Certified Supervisor on this project:
    Bob Novak
    Oregon Certification #: 09264
15. Asbestos disposal site: Hillsboro Landfill
    Address: 3205 Minter Bridge Rd, Hillsboro, OR
16. Waste Hauler: IRS Environmental of Portland, LLC
    Phone: (503) 693-6388
17. Name of owner, operator, or abatement contractor: IRS Environmental of Portland, LLC
    Signature: Bruce Korum Date: 1-17-02 Phone: 693-6388
    BRUCE KORUM, President

**Sign this form and mail with the fee to the DEQ Business Office, 811 SW 6th, Portland, OR 97204. Make checks payable to "DEQ". Revisions to notifications may be faxed to the appropriate DEQ regional office at: Portland NWR (503) 229-5265, Bend ER (541) 388-8283, and Medford WR (541) 776-6262.**

(Revised5/98)

ASN-1

# OREGON DEQ NOTICE OF INTENT TO REMOVE OR ENCAPSULATE FRIABLE ASBESTOS-CONTAINING MATERIAL

REV#1

For DEQ use only
Date Received JAN 18 2002
Amount Received 1200-
Check Number 1784
Project Number

ATTENTION! This notification must be complete and received by DEQ at least 10 days before the start date of any asbestos abatement project and accompanied by the notification fee. (PLEASE TYPE OR PRINT CLEARLY)

## PROJECT CATEGORY AND NOTIFICATION FEE

___ Emergency (Emergency notifications require a 50% fee increase)
A. ___ $35 for each project with less than 40 linear or 80 square feet of asbestos-containing material and for each residential abatement project.
B. ___ $70 for projects from 40 to 259 linear feet or 80 to 159 square feet of asbestos-containing material.
C. ___ $275 for projects from 260 to 1299 linear feet or 160 to 799 square feet of asbestos-containing material.
D. ___ $375 for projects from 1300 to 2599 linear feet or 800 to 1599 square feet of asbestos-containing material.
E. ___ $650 for projects from 2600 to 4999 linear feet or 1600 to 3499 square feet of asbestos-containing material.
F. ___ $750 for projects from 5000 to 9999 linear feet or 3500 to 5999 square feet of asbestos-containing material.
G. X $1,200 for projects from 10,000 to 25,999 linear feet or 6000 to 15,999 square feet of asbestos-containing material.
H. ___ $2,000 for projects from 26,000 to 259,999 linear feet or 16,000 to 159,999 square feet of asbestos-containing material.
I. ___ $2,500 for projects 260,000 linear feet or more or 160,000 square feet or more of asbestos-containing material.

1. Is this a revision to a previous notification? Yes X No ___
2. Asbestos abatement project starting date: 1-27-02 Completion date: 2-10-02
3. Project site name: OLD HOSPITAL Address: 603 BAKER st (Street) McMINNVILLE (City) YAMHILL (County) (ZIP)
4. Property Owner: JACKSON ENTERPRISES
   Address: SAME (City) (State) (ZIP)
5. Site Contact: JACK PRICE Phone: 781-6652
6. Describe physical structure of facility: 3 STORY CONCRETE
7. Give present and prior use of facility: VACANT MEDICAL BLDG.
8. Will this be a complete demolition? Yes: X No: ___
   If yes, give demolition start date: 2-15-02
9. Describe type and percentage of asbestos material and where it is located in facility: FLOORTILE AND PIPE INSULATION THROUGHOUT 10-20% CHRYSOTILE
10. Quantity of asbestos material to be removed or encapsulated:
    Linear feet: 260 Square feet: 12,210
11. Abatement Contractor Name:
    IRS Environmental of Portland, LLC
    Address: 755 SW Dennis Ave., Hillsboro, OR 97123 (City) (State) (ZIP)
    Phone: (503) 693-6388
    DEQ license number FSC 525
12. Describe method of removal or encapsulation:
    Full encl., decon, neg-air, wet methods
13. Days of week and hours of day to be worked:
    Mon. - Sunday 8Am - 4:30 pm
14. Oregon Certified Supervisor on this project:
    Bob Novak
    Oregon Certification #: 09264
15. Asbestos disposal site: Hillsboro Landfill
    Address: 3205 Minter Bridge Rd, Hillsboro, OR
16. Waste Hauler: IRS Environmental of Portland, LLC
    Phone: (503) 693-6388
17. Name of owner, operator, or abatement contractor: IRS Environmental of Portland, LLC
18. Signature: Bruce Korum Date: 1-17-02 Phone: 693-6388
    BRUCE KORUM, President

Sign this form and mail with the fee to the DEQ Business Office, 811 SW 6th, Portland, OR 97204. Make checks payable to "DEQ". Revisions to notifications may be faxed to the appropriate DEQ regional office at: Portland NWR (503) 229-5263, Bend ER (541) 388-8283, and Medford WR (541) 776-6262.

FAXED 1.22.02 DOTTIE

(Revised 5/98)

ASN-1

# OREGON DEQ NOTICE OF INTENT TO REMOVE OR ENCAPSULATE FRIABLE ASBESTOS-CONTAINING MATERIAL

REV#2

For DEQ use only
Date Received JAN 18 2002
Amount Received 1200-
Check Number 1784
Project Number

9751

ATTENTION! This notification must be complete and received by DEQ at least 10 days before the start date of any asbestos abatement project and accompanied by the notification fee. (PLEASE TYPE OR PRINT CLEARLY)

## PROJECT CATEGORY AND NOTIFICATION FEE

___ Emergency (Emergency notifications require a 50% fee increase)
A. ___ $35 for each project with less than 40 linear or 80 square feet of asbestos-containing material and for each residential abatement project.
B. ___ $70 for projects from 40 to 259 linear feet or 80 to 159 square feet of asbestos-containing material.
C. ___ $275 for projects from 260 to 1299 linear feet or 160 to 799 square feet of asbestos-containing material.
D. ___ $375 for projects from 1300 to 2599 linear feet or 800 to 1599 square feet of asbestos-containing material.
E. ___ $650 for projects from 2600 to 4999 linear feet or 1600 to 3499 square feet of asbestos-containing material.
F. ___ $750 for projects from 5000 to 9999 linear feet or 3500 to 5999 square feet of asbestos-containing material.
G. X $1,200 for projects from 10,000 to 23,999 linear feet or 6000 to 15,999 square feet of asbestos-containing material.
H. ___ $2,000 for projects from 26,000 to 259,999 linear feet or 16,000 to 159,999 square feet of asbestos-containing material.
I. ___ $2,500 for projects 260,000 linear feet or more or 160,000 square feet or more of asbestos-containing material.

1. Is this a revision to a previous notification? Yes X No ___
2. Asbestos abatement project starting date: 1-27-02 Completion date: 2-10-02
3. Project site name: OLD HOSPITAL Address: 603 BAKER st (Street) McMINNVILLE (City) YAMHILL (County) (ZIP)
4. Property Owner: JACKSON ENTERPRISES
   Address: SAME (City) (State) (ZIP)
5. Site Contact: JACK PRICE Phone: 781-6652
6. Describe physical structure of facility: 3 STORY CONCRETE
7. Give present and prior use of facility: VACANT MEDICAL BLDG.
8. Will this be a complete demolition? Yes: X No: ___
   If yes, give demolition start date: 2-15-02
9. Describe type and percentage of asbestos material and where it is located in facility: FLOOR TILE AND PIPE INSULATION THROUGHOUT 10-20% chrysotile, LINOLEUM
10. Quantity of asbestos material to be removed or encapsulated:
    Linear feet: 260 Square feet: 12,210
11. Abatement Contractor Name:
    IRS Environmental of Portland, LLC
    Address: 755 SW Dennis Ave., Hillsboro, OR 97123 (City) (State) (ZIP)
    Phone: (503) 693-6388
    DEQ license number FSC 525
12. Describe method of removal or encapsulation:
    Full encl., decon, neg-air, wet methods
13. Days of week and hours of day to be worked:
    Mon. - Sunday 7:30AM - 4:00PM
14. Oregon Certified Supervisor on this project:
    VINCE CHAVEZ
    Oregon Certification #: 09208
15. Asbestos disposal site: Hillsboro Landfill
    Address: 3205 Minter Bridge Rd, Hillsboro, OR
16. Waste Hauler: IRS Environmental of Portland, LLC
    Phone: (503) 693-6388
17. Name of owner, operator, or abatement contractor: IRS Environmental of Portland, LLC
    Signature: [signature] Date: 1-17-02 Phone: 693-6388
    BRUCE KORUN, President

Sign this form and mail with the fee to the DEQ Business Office, 811 SW 6th, Portland, OR 97204. Make checks payable to "DEQ". Revisions to notifications may be faxed to the appropriate DEQ regional office at: Portland NWR (503) 229-5265, Bend ER (541) 388-8283, and Medford WR (541) 776-6262.

FAXED 1-29-02 DOTTIE

(Revised 5/98)

ASN-1

# OREGON DEQ NOTICE OF INTENT TO REMOVE OR ENCAPSULATE FRIABLE ASBESTOS-CONTAINING MATERIAL

REV#3

For DEQ use only
Date Received JAN 18 2002
Amount Received 1200
Check Number 1784
Project Number

9751

ATTENTION! This notification must be complete and received by DEQ at least 10 days before the start date of any asbestos abatement project and accompanied by the notification fee. (PLEASE TYPE OR PRINT CLEARLY)

## PROJECT CATEGORY AND NOTIFICATION FEE

___ Emergency (Emergency notifications require a 50% fee increase)
A. ___ $35 for each project with less than 40 linear or 80 square feet of asbestos-containing material and for each residential abatement project.
B. ___ $70 for projects from 40 to 259 linear feet or 80 to 159 square feet of asbestos-containing material.
C. ___ $275 for projects from 260 to 1299 linear feet or 160 to 799 square feet of asbestos-containing material.
D. ___ $375 for projects from 1300 to 2599 linear feet or 800 to 1599 square feet of asbestos-containing material.
E. ___ $650 for projects from 2600 to 4999 linear feet or 1600 to 3499 square feet of asbestos-containing material.
F. ___ $750 for projects from 5000 to 9999 linear feet or 3500 to 5999 square feet of asbestos-containing material.
G. X $1,200 for projects from 10,000 to 25,999 linear feet or 6000 to 15,999 square feet of asbestos-containing material.
H. ___ $2,000 for projects from 26,000 to 259,999 linear feet or 16,000 to 159,999 square feet of asbestos-containing material.
I. ___ $2,500 for projects 260,000 linear feet or more or 160,000 square feet or more of asbestos-containing material.

1. Is this a revision to a previous notification? Yes X No ___
2. Asbestos abatement project starting date: 1-27-02 Completion date: 2-10-02
3. Project site name: OLD HOSPITAL Address: 603 BAKER st (Street) McMINNVILLE (City) YAMHILL (County) (ZIP)
4. Property Owner: JACKSON ENTERPRISES
   Address: SAME (City) (State) (ZIP)
5. Site Contact: JACK PRICE Phone: 781-6652
6. Describe physical structure of facility: 3 STORY CONCRETE
7. Give present and prior use of facility: VACANT MEDICAL BLDG.
8. Will this be a complete demolition? Yes: X No: ___
   If yes, give demolition start date: 2-15-02
9. Describe type and percentage of asbestos material and where it is located in facility: FLOORTILE AND PIPE INSULATION THROUGHOUT 10-20% CHRYSOTILE, LINOLEUM
10. Quantity of asbestos material to be removed or encapsulated:
    Linear feet: 260 Square feet: 12,210
11. Abatement Contractor Name:
    IRS Environmental of Portland, LLC
    Address: 755 SW Dennis Ave., Hillsboro, OR 97123 (City) (State) (ZIP)
    Phone: (503) 693-6388
    DEQ license number: ESC 525
12. Describe method of removal or encapsulation:
    Full encl., decon, neg-air, wet methods
13. Days of week and hours of day to be worked:
    Mon. - Sunday 7:30AM - 4:00PM
    NO WORK THURS. 1/31/02
14. Oregon Certified Supervisor on this project:
    VINCE CHAVEZ
    Oregon Certification #: 09208
15. Asbestos disposal site: Hillsboro Landfill
    Address: 3205 Hinter Bridge Rd, Hillsboro, OR
16. Waste Hauler: IRS Environmental of Portland, LLC
    Phone: (503) 693-6388

17. Name of owner, operator, or abatement contractor: IRS Environmental of Portland, LLC
18. Signature: Bruce Korum Date: 1-17-02 Phone: 693-6388
    BRUCE KORUM, President

Sign this form and mail with the fee to the DEQ Business Office, 811 SW 6th, Portland, OR 97204. Make checks payable to "DEQ". Revisions to notifications may be faxed to the appropriate DEQ regional office at: Portland NWR (503) 229-5263, Bend ER (541) 388-8283, and Medford WR (541) 776-6262.

FAXED (1-31-02) DOTTE

(Revised 5/98)

SN-1

# OREGON DEQ NOTICE OF INTENT TO REMOVE OR ENCAPSULATE FRIABLE ASBESTOS-CONTAINING MATERIAL

9757

REV#4

For DEQ use only
Date Received JAN 18 2002
Amount Received 1200
Check Number 1784
Project Number

ATTENTION! This notification must be complete and received by DEQ at least 10 days before the start date of any asbestos abatement project and accompanied by the notification fee. (PLEASE TYPE OR PRINT CLEARLY)

## PROJECT CATEGORY AND NOTIFICATION FEE

___ Emergency (Emergency notifications require a 50% fee increase)
A. ___ $35 for each project with less than 40 linear or 80 square feet of asbestos-containing material and for each residential abatement project.
B ___ $70 for projects from 40 to 259 linear feet or 80 to 159 square feet of asbestos-containing material.
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H ___ $2,000 for projects from 26,000 to 259,999 linear feet or 16,000 to 159,999 square feet of asbestos-containing material
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1. Is this a revision to a previous notification? Yes X No ___
2. Asbestos abatement project starting date: 1-27-02 Completion date: 3-1-02
3. Project site name: OLD HOSPITAL Address: 603 BAKER st (Street) McMINNVILLE (City) YAMHILL (County) (ZIP)
4. Property Owner: JACKSON Enterprises
   Address: SAME (City) (State) (ZIP)
5. Site Contact: JACK PRICE Phone: 781-6652
6. Describe physical structure of facility: 3 STORY CONCRETE
7. Give present and prior use of facility: VACANT MEDICAL BLDG.
8. Will this be a complete demolition? Yes: X No: ___
   If yes, give demolition start date: 2-15-02
9. Describe type and percentage of asbestos material and where it is located in facility: FLOOR TILE AND PIPE INSULATION THROUGHOUT 10-20% CHRYSOTILE, LINOLEUM
10. Quantity of asbestos material to be removed or encapsulated:
    Linear feet: 260 Square feet: 12,210
11. Abatement Contractor Name:
    IRS Environmental of Portland, LLC
    Address: 755 SW Dennis Ave., Hillsboro, OR 97123 (City) (State) (ZIP)
    Phone (503) 693-6388
    DEQ license number FSC 525
12. Describe method of removal or encapsulation:
    Full encl., decon, neg-air, wet methods
13. Days of week and hours of day to be worked:
    Mon. — Sunday 7:30AM - 4:00PM
    ON HOLD AFTER 2/8 - TESTING MATERIALS
14. Oregon Certified Supervisor on this project:
    VINCE CHAVEZ
    Oregon Certification #: 09208
15. Asbestos disposal site: Hillsboro Landfill
    Address: 3205 Minter Bridge Rd, Hillsboro, OR
16. Waste Hauler: IRS Environmental of Portland, LLC
    Phone: (503) 693-6388

17. Name of owner, operator, or abatement contractor: IRS Environmental of Portland, LLC
    Signature: Bruce Korun Date: 1-17-02 Phone: 693-6388
    BRUCE KORUN, President

Sign this form and mail with the fee to the DEQ Business Office, 811 SW 6th, Portland, OR 97204. Make checks payable to "DEQ". Revisions to notifications may be faxed to the appropriate DEQ regional office at: Portland HQVR (503) 229-5263, Bend ER (541) 388-8283, and Medford WR (541) 776-6262.

FAXED 2-8-02 DO ITE

(Revised 5/98)

Attachment 2

EXHIBIT
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PHOTO DOCUMENTATION
COMMENT SHEET

Date: 01-23-02
Time: p.m.

Site Name: Old McMinnville Hospital
Site Location: 603 S Baker Street McMinnville
3rd floor, SE corner
Photographer: Dottie Boyd

Photo #1: Sample Z3695 of pink colored 9x9 VAT, collected in room #6 (see diagram) near door. Lab analysis identified 3% chrysotile asbestos (tile only). The VAT had been removed from room #6 and for the most part swept into the hallway. The dimensions for room #6 were measured at 12'x17'.

Photo #2: Sample Z3676 of green colored 9x9 VAT, collected from the hallway near the doorway into room #2 (see diagram). Lab analysis identified 5% chrysotile asbestos (tile only).

Photo #3: Sample Z3677 of a piece of ceiling tile, collected in the hall near the doorway into room #1 (see diagram). Lab analysis identified that this material did not contain any asbestos.

Photo #4: Drawn line on photo is division from the old section, going into the new addition of the hospital. The new section had 12x12 vinyl tile, whereas the old section contained 9x9 vinyl asbestos tile.

Photo #5: Looking from new addition down hallway into the old section of the 3rd floor, SE corner. The VAT was removed from the hallway. Black mastic throughout. The dimensions of the hallway were measured at 8'x50'.

Photo #6: View into room #1 (see diagram). VAT had been removed from this room and swept into a pile near the doorway. The dimensions of room #1 were measured at 12'x16'.

Photo #7: Closer view of pile of shattered VAT at the doorway into room #1 (see diagram). VAT had black mastic on the bottom of the tile and yellow mastic on the top.

Photo #8: Photo of closet C1 (see diagram) where VAT had been piled. The dimensions of C1 were measured at 3'x4'.

Photo #9: View into room #2 (see diagram). VAT had been removed from this room and was in very shattered condition. Pieces of VAT where scattered through this room and there was a pile near the AC unit opening. The dimensions of room #2 were measured at

12'x16'.

Photo #10: Closer view of pile of shattered VAT located in room #2 (see diagram) near the AC unit opening in outside wall. White material in photo is pieces and crushed ceiling tile material.

Photo#11: Photo taken in the hall just outside the doorway into room #2 (see diagram). A pile of VAT was piled along this wall

Photo #12: View into room #3 (see diagram). VAT was removed from this room. Shattered VAT was scattered throughout this room and just outside the doorway into the hall. The dimensions of room #3 were measured at 12'x17'.

Photo #13: Another view into room #3 (see diagram).

Photo #14: View into room #4 (see diagram). VAT was not removed from this room. The white pieces of material near the doorway are sheet rock. The dimensions of room #4 were measured at 12'17'.

Photo #15: View into entrance of room #7 (see diagram). VAT had been removed from this room and had been swept from this room into the hallway. The dimensions of room #7 were measured at 9'x15'.

Photo #16: View of hallway from the entrance of room #7 (see diagram). VAT had been removed from the hallway and there were piles of shattered VAT throughout the hallway.

Photo #17: View from hallway to corridor that leads to the east wing, old section of the hospital. Poly had been hung by IRS Environmental that morning (1-23-02) to barricade the area where the 9x9 VAT had been improperly removed. The dimensions of the corridor were measured at 11'x15'. This is where I entered the barricaded area.

Photo #18: View of a pile of broken VAT located in the corridor near the poly barricade. Some tile was still in place on the floor (estimate <20 floor tiles).

Photo #19: View into room #5 (see diagram). VAT had not been removed from this room. Dimensions of this room were measured at 9'x9'.

Photo #20: View of hallway, the doorway into room #5 (see diagram) visible on the right side of photo. A pile of shattered VAT was located along the south wall in the hallway.

Photo #21: Another view into room #3 (see diagram) from hallway.

Photo #22: View from hallway at entrance of room #3 (see diagram). The light reflecting into the room picks up the quantity of shattered tile.

Photo #23: Close up view of very small fragments of VAT, with a pen for size comparison. The white material is sheet rock, however there was some VAT that was crushed mixed with the fragments.

Photo #24: Close up view of VAT broken into small fragments and also crushed. The white material is sheet rock. A tape measurer was placed in the photo for size comparison.

Photo #25: Close up view of a pile of shattered VAT located in the hallway. A tape measurer was placed in the photo was size reference.

Photo #26: Another close up view of another pile of shattered VAT located in the hallway. A tape measurer was placed in the photo for a size reference.

Photo #27: A close up photo of another pile of broken VAT located in the hallway. A tape measurer was placed in the photo for size reference.

Photo #28: A close up photo of a pile of shattered VAT located in the hallway. A tape measurer was placed in the photo for size comparison.

Photo #29: View of old hospital facing SE. See marks on photo indicating old section and new section.

Photo #30: View of south end of hospital, old section of the hospital. The third floor where the improper abatement of the 9x9 VAT is noted on the photo.

EXHIBIT
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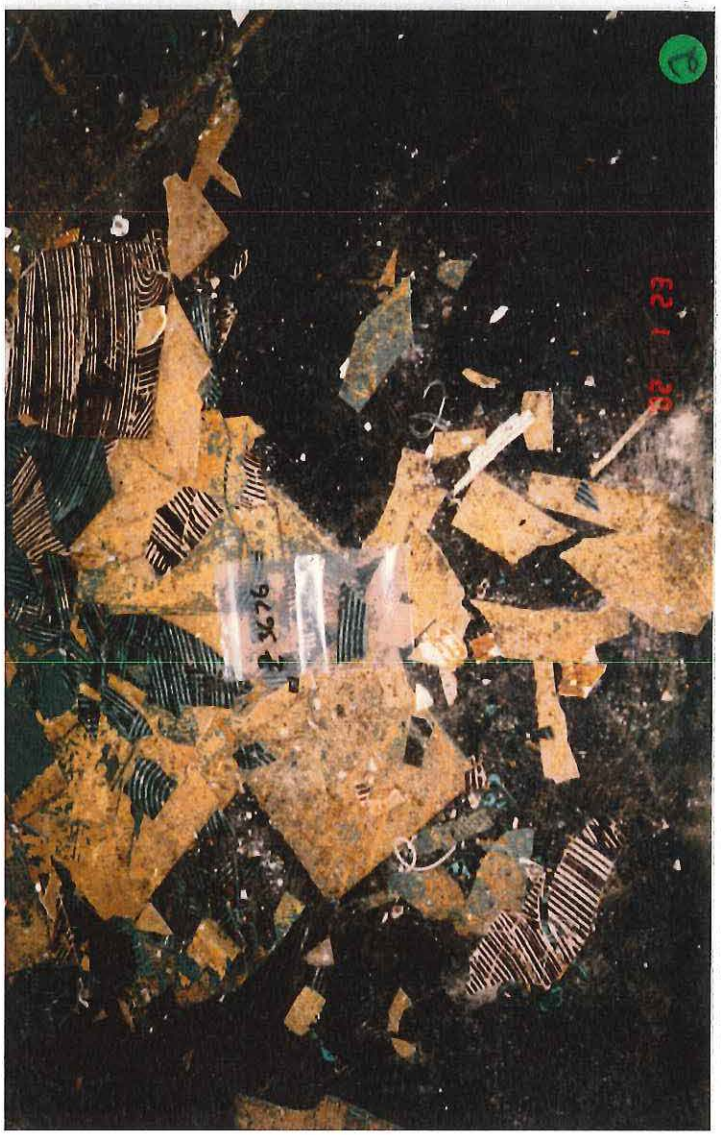






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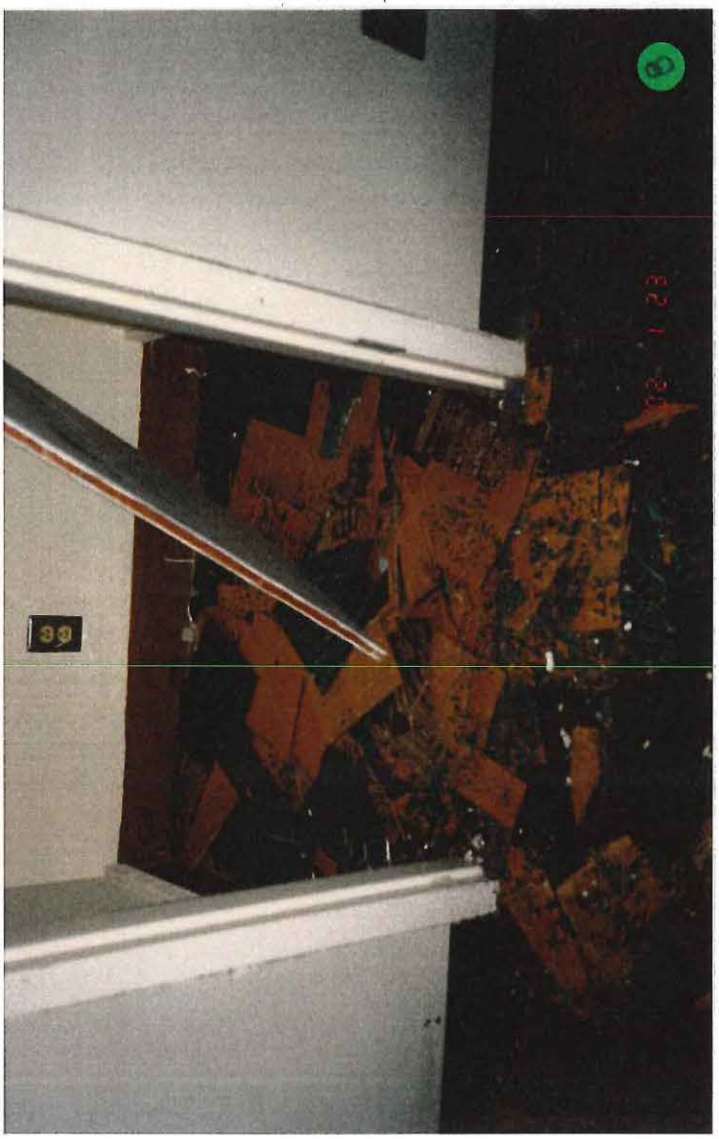


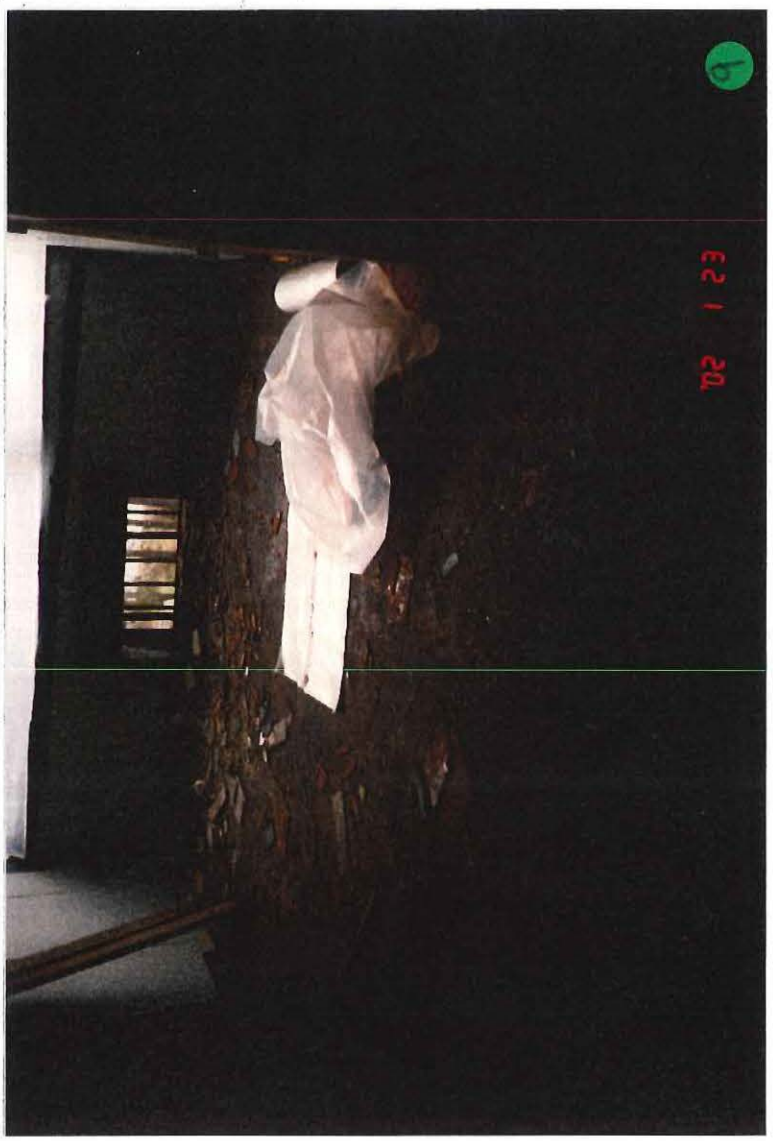




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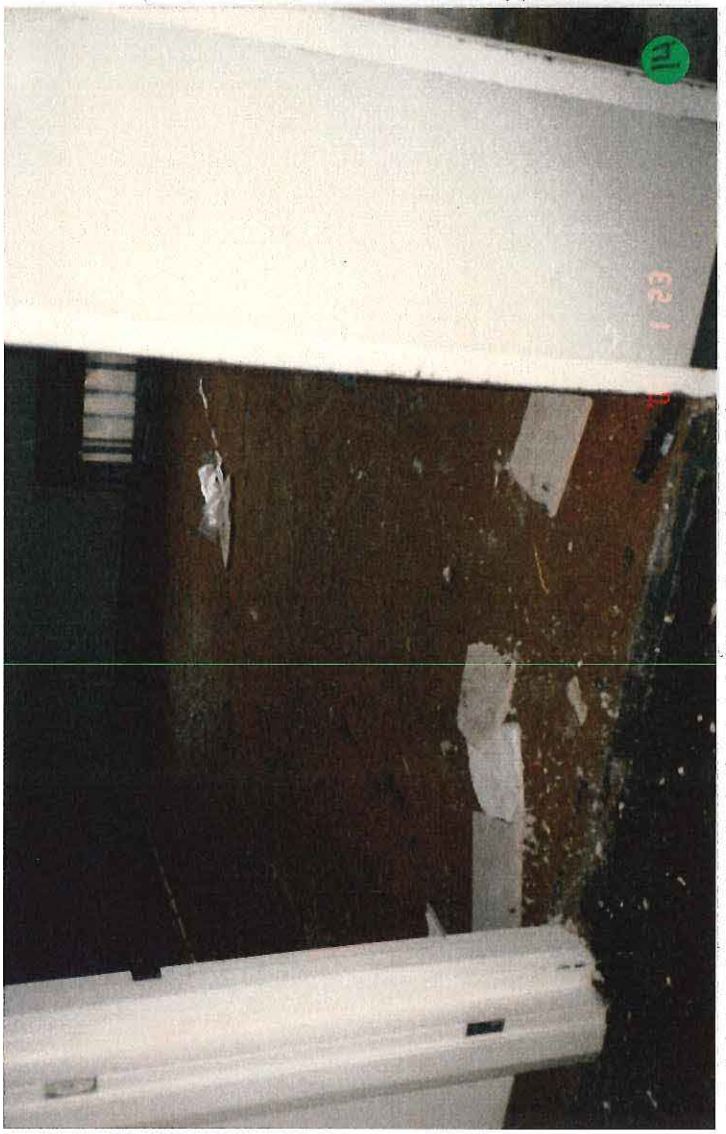






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EXHIBIT
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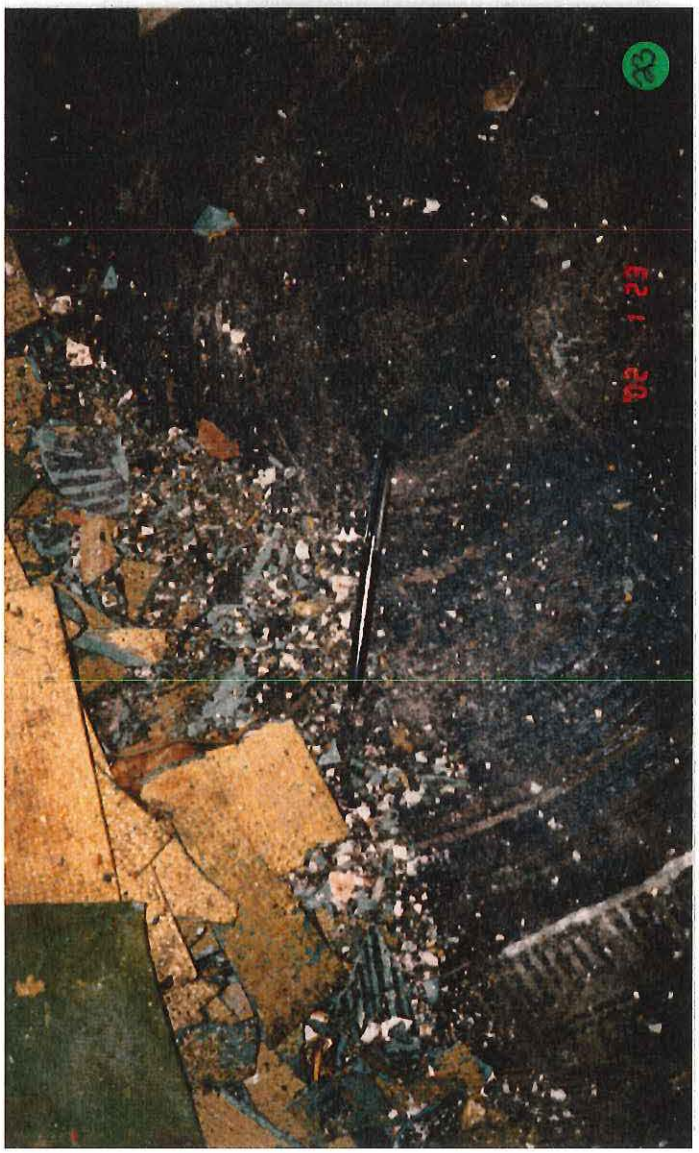


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EXHIBIT

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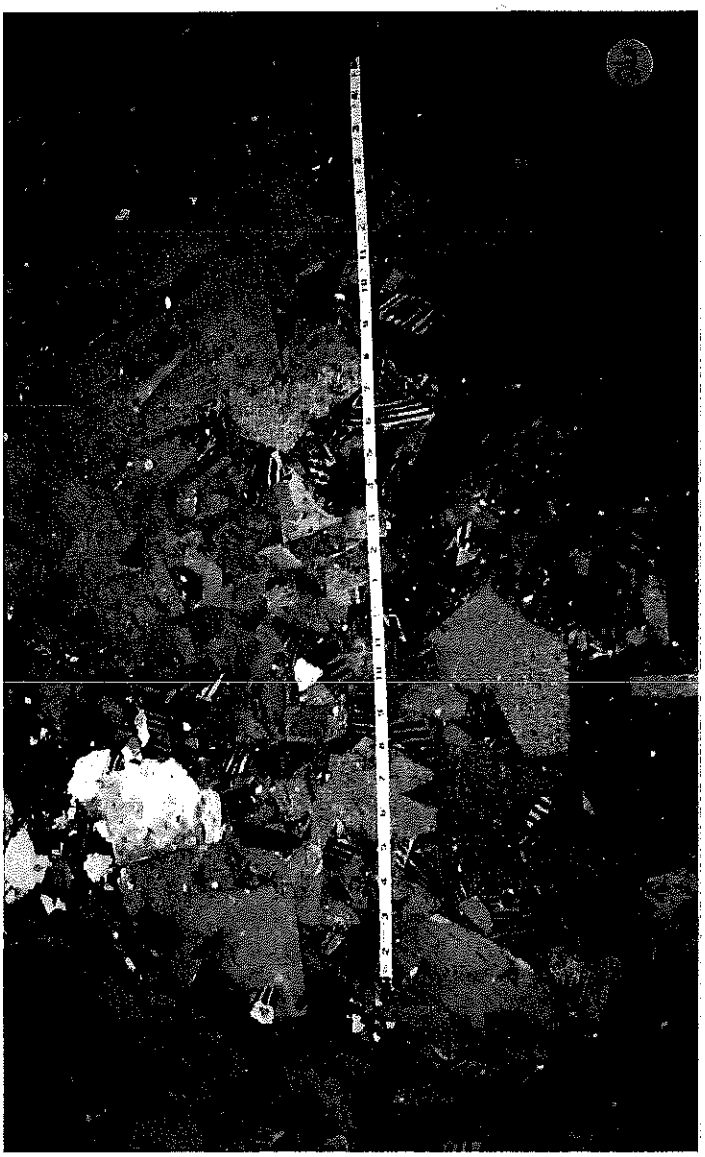
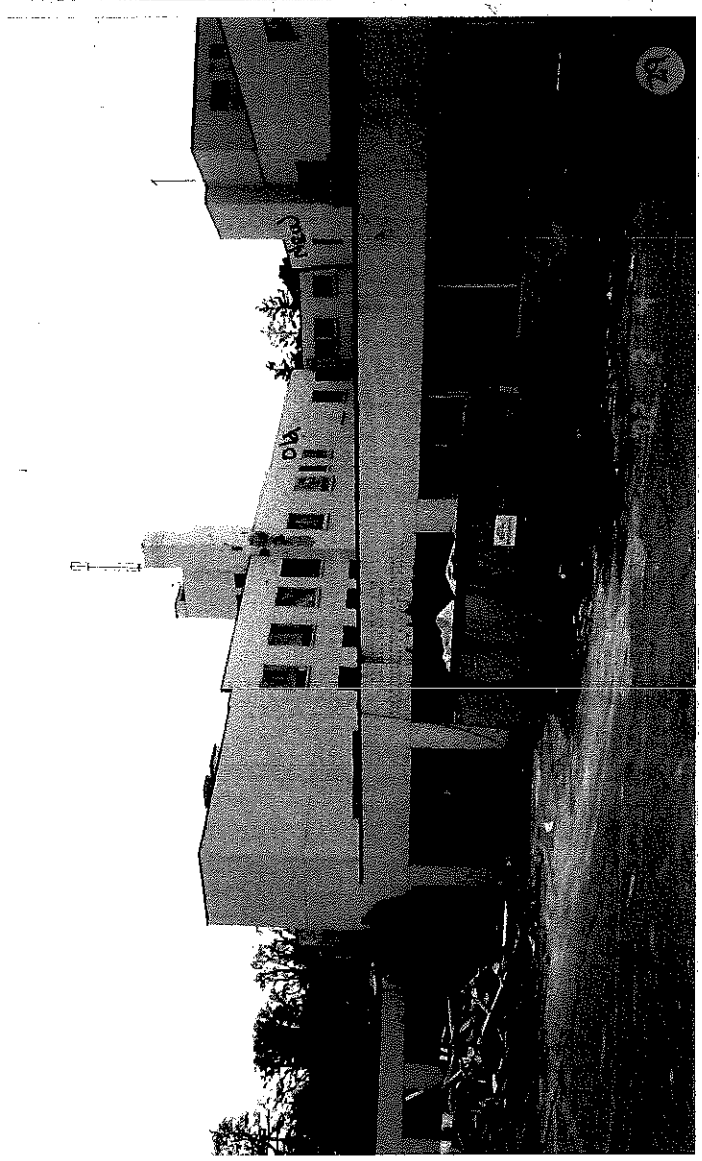




EXHIBIT
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A-21








Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Western Region
Salem Office
750 Front St. NE
Suite 120
Salem, OR 97310
(503) 378-8240
(503) 378-3684 TTY

EXHIBIT
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A-22

February 26, 2002

Jackson Enterprises
Attention: Jack Price
14314 SW Allen Blvd. #505
Beaverton, OR 97005

RE: **NOTICE OF NONCOMPLIANCE**
ENF-AQ-AB-WRS-02-069
Yamhill County

Dear Mr. Price:

On January 23, 2002, I visited the Old McMinnville Hospital located at 603 S. Baker Street in McMinnville, OR. During this site visit I documented that approximately 1,504 square feet of 9x9 vinyl asbestos tile (VAT) had been improperly abated by several of your employees. The improper abatement of the VAT occurred on or around January 15, 2002, from the SE corner of the third floor of the old section of the hospital. During my inspection I estimated that approximately 85% of the removed VAT was shattered and friable. During my inspection I collected several samples of the VAT and sent them to the Department's laboratory in Portland for analysis. Subsequent sample analysis identified that the VAT contained 3-5% chrysotile asbestos.

The Department has completed its investigation and found you are in violation of Oregon Administrative Rule(s) OAR 340-248-0110(3), 340-248-0250(2), 340-248-0270(2), and 340-248-0280(2), which are all Class I violations, and OAR 340-248-0260, which is a Class II violation.

1. 340-248-0110(3) states:
"Each contractor engaged in an asbestos abatement project must be licensed by the Department under the provisions of OAR 340-248-0120."

2. 340-248-0250(2) states:
"Accumulation of asbestos-containing material or asbestos-containing waste material is prohibited."

3. 340-248-0270(2) states:
"Asbestos-containing materials shall be adequately wetted when they are being removed."

4. 340-248-0280(2) states:
(2) "All asbestos-containing waste materials shall be adequately wetted to ensure that they remain wet until disposed of, and:
(b) Packaged in leak-tight containers such as two plastic bags with a minimum thickness of 6 mil., or fiber or metal drums. Containers are to be labeled as follows:
(A) The name of the asbestos waste generator and the location at which the waste was generated: and
(B) A warning label that states:

**DANGER**
**Contains Asbestos Fibers**
**Avoid Creating Dust**
**Cancer and Lung Disease Hazard**
**Avoid Breathing Airborne**
**Asbestos Fibers"**

5. 340-248-0260 states:
"Written notification of any asbestos abatement project shall be provided to the Department on a Department form. The notification must be submitted by the facility owner or operator or by the contractor in accordance with one of the procedures specified . . . ."

Class I violations are considered to be serious violations of Oregon Environmental law. Therefore, we are referring these violations to the Department's Enforcement Section with a recommendation to initiate a formal enforcement action. A formal enforcement action may include a civil penalty assessment for each day of violation.

The work that occurred potentially released asbestos fibers into the air and exposed workers, the public and the environment to asbestos. Asbestos fibers are a respiratory hazard proven to cause lung cancer, mesothelioma and asbestosis. Asbestos is a danger to public health and a hazardous air contaminant for which there is no known safe level of exposure. To protect the public from asbestos exposure, the Department requires training and licensing for those who handle asbestos-containing material. These worker certification and licensing requirements are intended to safeguard the public and environment from asbestos exposure resulting from the mishandling of asbestos-containing material.

Copies of the above mentioned rules are enclosed. In addition, I have enclosed a copy of the revised asbestos rules that became effective on February 1, 2002, for future reference.

4. 340-248-0280(2) states:
(2) "All asbestos-containing waste materials shall be adequately wetted to ensure that they remain wet until disposed of, and:
(b) Packaged in leak-tight containers such as two plastic bags with a minimum thickness of 6 mil., or fiber or metal drums. Containers are to be labeled as follows:
(A) The name of the asbestos waste generator and the location at which the waste was generated: and
(B) A warning label that states:

**DANGER**
**Contains Asbestos Fibers**
**Avoid Creating Dust**
**Cancer and Lung Disease Hazard**
**Avoid Breathing Airborne**
**Asbestos Fibers"**

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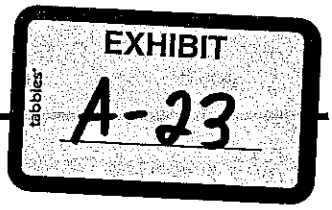
If you have any questions, please call me at (503) 378-8240, extension 272.

Sincerely,

Dottie Boyd
Natural Resource Specialist
Western Region

DFB:pah
X:\Dboyd\PriceNON
Enclosure

cc: Enforcement Section
File
OSHA




## HICKMAN Jane

**From:** HICKMAN Jane
**Sent:** Wednesday, December 11, 2002 10:05 AM
**To:** CARLOUGH Les
**Cc:** HICKMAN Jane
**Subject:** FW: Request for EB Determination - Jack Price, Case No. AQ/AB-WR-02-046

-----Original Message-----
**From:** HICKMAN Jane
**Sent:** Tuesday, December 10, 2002 11:42 AM
**To:** CARLOUGH Les
**Subject:** Request for EB Determination - Jack Price, Case No. AQ/AB-WR-02-046

Les, Could you please calculate the economic benefit obtained by Jack Price, who at the time of the violation was doing business as Jackson Enterprises, when he conducted an asbestos abatement project without being licensed to do so. Mr. Price was paid to demolish a facility in a lump sum, which included any abatement costs. A licensed abatement contractor states it would have charged $1,500 to abate the floors at issue which were improperly abated approximately January 15-23, 2002. On approximately February 10, 2002, it is likely Mr. Price paid $700 to clean up the same flooring after it was illegally abated by Mr. Price. Therefore, Mr. Price avoided approximately $800 in abatement costs by removing the flooring himself.

Please let me know if you need additional information, and thanks for your help.

EXHIBIT
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State of Oregon
Department of Environmental Quality

# Memorandum

**Date:** December 11, 2002
**To:** File
**From:** Les Carlough, Senior Policy Advisor, Office of Compliance and Enforcement
**Subject:** Ben calculation for Jack Price.

## General Purpose and Authority

The economic benefit portion of the civil penalty formula is simply the monetary benefit that an entity gained by not complying with the law. It is designed to "level the playing field" by taking away any economic advantage the entity gained and to deter potential violators from deciding it is cheaper to violate and pay the penalty than to pay the costs of compliance.

Oregon Revised Statute 468.130(2)(c,h) directs the Environmental Quality Commission to consider economic conditions of the entity in assessing a penalty as well as other factors that Commission makes relevant by rule. Accordingly, the Commission specified in Oregon Administrative Rule (OAR) 340-012-0045(1)(c)(F) that the penalty will contain an "approximated dollar sum of the economic benefit." That rule also specifies that, "[i]n determining the economic benefit component of a civil penalty, the Department may use the U.S. Environmental Protection Agency's BEN computer model . . ." and must use it on request of a respondent.

## Theory of Economic Benefit

Compliance with environmental regulations may require an entity to expend financial resources. These expenditures support the public goal of better environmental quality, but often do not yield direct financial return to the entity. "Economic benefit" represents the financial gain that a violating entity accrues by delaying and/or avoiding such expenditures. Funds not spent on environmental compliance are available for other profit-making activities or, alternatively, the entity avoids the costs associated with obtaining additional funds for environmental compliance (opportunity cost). Economic benefit is the amount by which an entity is financially better off from not having complied with environmental requirements in a timely manner.

Economic benefit is "no fault" in nature. An entity need not have deliberately chosen to delay compliance (for financial or any other reasons), or in fact even have been aware of its noncompliance, for it to have accrued the economic benefit of noncompliance.

An appropriate economic benefit calculation represents the amount of money that would make the entity indifferent between compliance and noncompliance. If DEQ does not recover, through a civil penalty, at least this economic benefit, then the entity will retain a gain.

Because of the precedent of this retained gain, other regulated companies may see an economic advantage in similar noncompliance, and the penalty will fail to deter potential violators. Economic benefit is designed to be neither punitive nor tort damage, but instead is the minimum amount by which the entity must be penalized so as to return it to the position it would have been in had it complied on time.

**Basis of the Costs Considered**

Jack Price conducted an asbestos abatement project between January 15 and 23, 2002 without being licensed to do so and without taking the steps necessary to do the work properly. Mr. Price should have obtained the services of a licensed abatement contractor which would have cost $1,500 for the floor. On approximately February 10, 2002, it is likely Mr. Price paid $700 to clean up the same flooring. By avoiding $800 in abatement costs completely and by delaying $700 in costs from January 15 to February 10, 2002, Mr. Price benefited by $442.

**Applicability of Standard Rates Presumed by Rule**

The BEN model relies on income tax rates, inflation rates, and discount rates. The model allows the operator to input particular rates, but in the absence of operator input, the BEN model uses standard values based on the entity's corporate status, whether it acted for profit, and the state where the violations occurred. It calculates inflation rates from the Plant Cost Index published by the magazine *Chemical Engineering* and from the Consumer Price Index. EPA updates the standard values annually.

Pursuant to OAR 340-012-0045(1)(c)(F)(iii), the "model's standard values for income tax rates, inflation rate and discount rate shall be presumed to apply to all Respondents unless a specific Respondent can demonstrate that the standard value does not reflect the Respondent's actual circumstance."

**Description of the Attached Run**

BEN calculates the economic benefits gained from delaying and avoiding required environmental expenditures. Such expenditures can include: (1) capital investments (*e.g.*, larger pollution control or monitoring equipment, costs of design and installation), (2) one-time nondepreciable expenditures (*e.g.*, permit fees, clean-up costs, setting up a reporting system, acquiring land needed for a capital improvement), (3) annually recurring costs (*e.g.*, routine operating and maintenance costs, utilities). Each of these expenditures can be either delayed or avoided. BEN's baseline assumption is that capital investments and one-time nondepreciable expenditures are merely delayed over the period of noncompliance, whereas annual costs are avoided entirely over this period.

The calculation incorporates the economic concept of the "time value of money." Stated simply, a dollar today is worth more than a dollar tomorrow, because you can invest today's dollar to start earning a return immediately. Thus, the further in the future the dollar is, the less it is worth in "present-value" terms. Similarly, the greater the time value of money (*i.e.*, the greater the "discount" or "compound" rate used to derive the present value), the lower the present value of future costs. To calculate an entity's economic benefit, BEN uses standard financial cash flow and net-present-value analysis techniques based on modern and generally accepted financial principles, which were subjected to extensive national notice-and-comment processes.[1]

Inputs to the model include costs specific to the situation of the entity as well as the presumed standard indexes and rates described in the section above. These values are listed in the lower three-quarters of the table. Using these values, BEN makes a series of calculations listed at the top of the table as follows:

A) On-Time Capital & One-Time Costs. What compliance would have cost had the entity complied on-time, adjusted for inflation and tax deductibility. The number is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period.
B) Delay Capital & One Time Costs. What late compliance did cost, adjusted for inflation and tax deductibility. The number is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period. This value will be zero if the costs were avoided.
C) Avoided Annually Recurring Costs. This sum is a present value as of the date of initial noncompliance. BEN derives this value by discounting the annual cash flows at an average of the cost of capital throughout this time period.
D) Initial Economic Benefit (A – B+C). The delayed-case present value is subtracted from the on-time-case present value plus the sum of the avoided costs to determine the initial economic benefit as of the noncompliance date.

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[1] *See* Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Request for comment, 61 Fed. Reg. 53025-53030 (Oct. 9, 1996); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Extension of time for request for comment, 61 Fed. Reg. 65391 (Dec. 12, 1996); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Advance notice of proposed action, response to comment, and request for additional comment, 64 Fed. Reg. 32947-32972 (June 18, 1999); Calculation of the Economic Benefit of Noncompliance in EPA's Civil Penalty Enforcement Cases, Advance notice of proposed action, response to comment, and request for additional comment, 64 Fed. Reg. 39135-39136 (July 21, 1999).

E) Final Economic Benefit at Penalty Payment Date. BEN compounds the initial economic benefit forward to the penalty payment date at the same cost of capital to determine the final economic benefit of noncompliance.

**Calculated Economic Benefit Likely an Underestimate**

The economic benefit calculated above may underestimate the total economic benefit that the respondent received to date because it does not address uncertain indirect financial benefits, including:

- *Advantage-of-risk* – the value of (1) the risk of never getting caught and (2) keeping future options open by delaying a decision to institute a process or purchase capital.
- *Competitive advantage* – (1) beginning production earlier than would be possible if in compliance; (2) attracting clients by avoiding compliance costs, having a higher profit margin and therefore being able to offer goods or services at a lower cost than competitors; (3) keeping those clients attracted by lower prices because of brand loyalty or high switching costs; or (4) using the time or money saved to increase production.
- *Illegal profits* – selling illegal products or services.

However, I consider these other economic benefits to be "de minimis" in light of the difficulties in calculation. Pursuant to OAR 340-012-0045(1)(c)(F)(ii), the Department need not calculate an economic benefit if that benefit is de minimis.

| Run Name = | 800 |
|---|---|
| Present Values as of Noncompliance Date (NCD), | 15-Jan-2002 |
| A) On-Time Capital & One-Time Costs | $440 |
| B) Delay Capital & One-Time Costs | $0 |
| C) Avoided Annually Recurring Costs | $0 |
| D) Initial Economic Benefit (A-B+C) | $440 |
| **E) Final Econ. Ben. at Penalty Payment Date,** | |
| ***15-Jan-2002*** | **$440** |
| ***Ec. ben. from illegal competitive advantage*** | |
| ***may also be present: see detailed printouts.*** | |
| *For-Profit (not C-Corp.) w/ OR tax rates* | |
| Discount/Compound Rate | 10.8% |
| Discount/Compound Rate Calculated By: | BEN |
| Compliance Date | 15-Jan-2003 |
| Capital Investment: | |
| Cost Estimate | $0 |
| Cost Estimate Date | N/A |
| Cost Index for Inflation | N/A |
| # of Replacement Cycles; Useful Life | N/A; N/A |
| Projected Rate for Future Inflation | N/A |
| One-Time, Nondepreciable Expenditure: | avoided |
| Cost Estimate | $800 |
| Cost Estimate Date | 15-Jan-2002 |
| Cost Index for Inflation | PCI |
| Tax Deductible? | Y |
| Annually Recurring Costs: | |
| Cost Estimate | $0 |
| Cost Estimate Date | N/A |
| Cost Index for Inflation | N/A |
| User-Customized Specific Cost Estimates: | N/A |
| On-Time Compliance Capital Investment | |
| Delay Compliance Capital Investment | |
| On-Time Compliance Replacement Capital | |
| Delay Compliance Replacement Capital | |
| One-Time Compliance Nondepreciable | |
| Delay Compliance Nondepreciable | |

| Run Name = | 700 |
|---|---|
| Present Values as of Noncompliance Date (NCD), | 15-Jan-2002 |
| A) On-Time Capital & One-Time Costs | $384 |
| B) Delay Capital & One-Time Costs | $382 |
| C) Avoided Annually Recurring Costs | $0 |
| D) Initial Economic Benefit (A-B+C) | $2 |
| **E) Final Econ. Ben. at Penalty Payment Date,** | |
| ***15-Jan-2002*** | **$2** |
| ***Ec. ben. from illegal competitive advantage*** | |
| ***may also be present: see detailed printouts.*** | |
| *For-Profit (not C-Corp.) w/ OR tax rates* | |
| Discount/Compound Rate | 10.8% |
| Discount/Compound Rate Calculated By: | BEN |
| Compliance Date | 10-Feb-2002 |
| Capital Investment: | |
| Cost Estimate | $0 |
| Cost Estimate Date | N/A |
| Cost Index for Inflation | N/A |
| # of Replacement Cycles; Useful Life | N/A; N/A |
| Projected Rate for Future Inflation | N/A |
| One-Time, Nondepreciable Expenditure: | |
| Cost Estimate | $700 |
| Cost Estimate Date | 10-Feb-2002 |
| Cost Index for Inflation | PCI |
| Tax Deductible? | Y |
| Annually Recurring Costs: | |
| Cost Estimate | $0 |
| Cost Estimate Date | N/A |
| Cost Index for Inflation | N/A |
| User-Customized Specific Cost Estimates: | N/A |
| On-Time Compliance Capital Investment | |
| Delay Compliance Capital Investment | |
| On-Time Compliance Replacement Capital | |
| Delay Compliance Replacement Capital | |
| One-Time Compliance Nondepreciable | |
| Delay Compliance Nondepreciable | |

A-25

United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number

Case Title:
Jackson Enterprises

Reporting Office:
Portland RO

Subject of Report:
Interview of Jack Dell Price, II, on February 27, 2002

Copies to:

Related Files:

Reporting Official and Date:
3/19/02
Daniel C. Sekerak, SA

Approving Official and Date:
3/21/02
Donald P. Sims, Acting SAC

SYNOPSIS

Special Agent (S/A) Daniel Sekerak and S/A Nick Torres interviewed Jack Dell Price, II, concerning an allegation that he instructed his employees to illegally remove approximately 1,504 square feet of vinyl asbestos tile (VAT) from the third floor of an old hospital located at 603 SW Baker Street in McMinnville, OR. Price was originally interviewed by S/A Sekerak and S/A Anne Sturgill on February 12, 2002. Price made the following statements.

DETAILS

Price is the owner of Jackson Enterprises, Inc. (Jackson Enterprises). His work address is 14314 SW Allen Blvd., Beaverton, OR 97005. His work telephone number is (503) 204-8024 and cellular number is (503) 781-6652. Price's date of birth is [redacted] and Construction Contractor's Board (CCB) license number is 106431.

In January 2002, Price was hired by Hans Hendgen to demolish the old McMinnville hospital to make way for a new Walgreens store. Jose and Jesus Lomeli work for Price as laborers. Price stated there were 9X9" asbestos-containing tiles located on the third floor of the old hospital. Price said he was seeking bids from asbestos abatement contractors to remove the 9X9" tiles and any other asbestos located in the building. Price initially denied instructing the Lomeli's to remove the 9X9" asbestos-containing tiles from the third floor. However, after further questioning, Price informed the Agents that, around

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this time in January 2002, he was going through some "very tough times." [redacted] Price stated he "might have" and "probably" told Jesus and Jose Lomeli to remove all tiles from the building. Price could not remember the date when he had this conversation, however, he could almost guarantee that he told them to remove all the tiles.

After further questioning, Price stated he "definitely - 100%" told Jesus and Jose Lomeli to remove all the tiles, including the 9X9" asbestos-containing floor tiles and a large amount of 12X12" non-asbestos tile. Price reiterated that he was going through a tough time when he told the Lomeli's to remove the tiles. Price said it took about 5-6 days to remove all the tiles. His workers removed the tiles on approximately January 16, 2002, shortly after receiving an asbestos abatement bid from IRS Environmental, Inc. (IRS). Price explained that, even though he instructed the Lomeli's to remove all of the tiles, he did not "intend" that they remove the asbestos-containing tiles. Price restated that he was going through a very difficult time with his wife at this time. Price stated he was aware that asbestos is a regulated material and that only licensed abatement contractors can legally remove it.

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EXHIBIT
tabbies
A-26

United States Environmental Protection Agency
Criminal Investigation Division
Investigative Activity Report

Case Number

Case Title:
Jackson Enterprises

Reporting Office:
Portland RO

Subject of Report:
Interview of Jesus Lomeli on February 27, 2002

Copies to:

Related Files:

Reporting Official and Date:
3/19/02
Daniel C. Sekerak, SA

Approving Official and Date:
3/21/02
Donald P. Sims, Acting SAC

SYNOPSIS

Special Agent (S/A) Daniel Sekerak and Oregon State Police (OSP) Trooper Bridget Taylor interviewed Jesus Lomeli concerning an allegation that Jackson Enterprises owner Jack Price instructed his employees, including Lomeli, to illegally remove approximately 1,504 square feet of vinyl asbestos tile (VAT) from the third floor of an old hospital located at 603 SW Baker Street in McMinnville, OR. Lomeli's brother, Jose (DOB: 8/28/68), was also present during the interview. Lomeli made the following statements through Trooper Taylor, who acted as an interpreter.

DETAILS

Lomeli's home address is [redacted], OR [redacted]. His date of birth is [redacted] Lomeli's home telephone number is [redacted] and cellular number is [redacted]

Lomeli said he and 13 other Hispanic workers, including his brother Jose, have worked for Jack Price at the hospital site from the beginning of January 2002 until February 22, 2002, when Price informed them he no longer required their services. Lomeli said Price has been paying them about $8/hour to assist in demolishing the building "under the table." Lomeli explained that they are paid in cash for their work. Lomeli wondered why they were paid in cash when they are all legally within the United States. Price and another Jackson Enterprises employee, Randy (last name unknown), informed Lomeli and the other workers,

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upon beginning work at the site, that they would get paid after removing copper pipe from the building. Lomeli and his crew would then provide the copper piping to Randy and Jack, who recycled it for cash. Lomeli and his crew were paid with the money Randy and Jack obtained from the recycling company. Lomeli said that Randy works for Price.

Lomeli stated, since he spoke the best English, he was the lead worker for the crew when dealing with Price and Randy. Shortly after arriving at the work site in January 2002, Price instructed Lomeli and his workers to remove all the tiles from the building. This included all the tiles located on the third floor. This floor contained both 12X12' AND 9x9' tiles. Price instructed Lomeli to remove the tiles, including all the little pieces that remained after they shoveled them up, and place them into black trash bags. Price told them to dispose of the trash bags into their dumpsters. Jackson Enterprises had four dumpsters on site. Price wanted Lomeli and his workers to dispose of some of the tile-containing bags into each dumpster. Lomeli did not understand the reason for this. Randy instructed Lomeli and his crew to rip out the piping from the corners and to remove the pipe wrap. Randy told them to take the pipe wrap and place it into bags. Randy then instructed Lomeli and his crew to throw the bags into a closet and leave it there. Randy said the bags would remain in the closet when the building was torn down.

Lomeli said that no one from Jackson Enterprises, neither Price nor Randy, informed them that the building contained asbestos until after the arrival of an abatement contractor. Lomeli explained that sometime in January 2002, an abatement contractor's (name unknown) workers began setting up containments in several areas of the building. The abatement contractor also set up glove bag containments to remove asbestos containing pipe insulation from the pipes located in the corners of each wall. The corner pipes were contained inside the walls. The rest of the piping was outside the walls and located all throughout the building. A representative of the abatement contractor (name unrecalled) told Lomeli that the tile and corner piping contained asbestos. Lomeli explained that shortly after his conversation with abatement contractor, Randy informed Lomeli that the 9X9 tiles located on the third floor contained asbestos. In addition, Randy informed Lomeli that the pipes were wrapped with asbestos in certain areas. At this point, Randy instructed

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Lomeli and his crew to stop any further removal of tiles and pipes.

Lomeli said Randy made cloth masks, gloves, and goggles available to his crew only during inspections. Tyvek suits were not available at the work site. As soon as the inspections were concluded, Randy took away the masks and gloves. Randy told Lomeli that they "didn't need them." Lomeli said that prior to an inspection by the Occupational Safety & Health Administration (OSHA), Price instructed Lomeli and his crew to "get lost" and go spend a couple of hours at the 7-11 until OSHA left the site. Lomeli said this occurred at least twice during their work at the hospital.

Lomeli said that the asbestos-containing tile and pipe insulation was removed by his crew dry. The tiles were scraped off with shovels and the pipes were cut down and the insulation removed by hand. There was no water whatsoever on site. There was no water supply for even hand washing. Jackson Enterprises provided only a portable toilet for the workers.

Lomeli said that, while working at the hospital, he and his workers have experienced skin irritation, headaches, and trouble breathing. They have been sick often times during this project. At this point, if Price or Randy contact him, he will refuse to go back to work at the old hospital.

Lomeli stated that, when S/A Sekerak and S/A Anne Sturgill visited the site last week, Price told Lomeli to lie to the agents concerning the VAT. Price instructed Lomeli to tell the agents that Price never instructed him or his workers to remove the VAT and that Lomeli removed the tiles by mistake.

Lomeli stated that he never met the hospital's owner, Hans Hendgen.

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BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

| | | |
|---|---|---|
| IN THE MATTER OF:<br>JACK D. PRICE, formerly doing business as<br>JACKSON ENTERPRISES,<br><br>Respondent. | ) STIPULATION<br>)<br>)<br>) NO. AQ/AB-WR-02-046<br>) YAMHILL COUNTY |

STIPULATION

The Oregon Department of Environmental Quality and Jack D. Price, formerly doing business as Jackson Enterprises, stipulate that the Department will reduce the "P" factor from 2 to 0 for Violations 1 and 3 cited in the Notice of Assessment of Civil Penalty ("Notice") issued in the above-referenced matter. This results in a civil penalty for Violation 1 of $8,842 and a civil penalty of $9,600 for Violation 3. The amended Findings and Determination of Respondent's Civil Penalty for Violations 1 and 3 are incorporated into the Notice and are attached hereto as Exhibits 1A and 3A.

2/25/04
Date

Les Carlough, Acting Administrator
Oregon Department of Environmental Quality
Office of Compliance and Enforcement

2/25/04
Date

Cynthia K. McNeff, Law Office of Cynthia McNeff
Attorney for Respondent

EXHIBIT A-27

**EXHIBIT 1A**

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY
PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 1: Working on an asbestos abatement project without being licensed, in violation of Oregon Revised Statute 468A.710(1) and OAR 340-248-0120(1).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0050(1)(s).

MAGNITUDE: The magnitude of the violation is major pursuant to OAR 340-012-0090(1)(d)(A), because the amount of asbestos-containing material (ACM) removed was more than 160 square feet.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:

$$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$$

"BP" is the base penalty which is $6,000 for a Class I, major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a)(A)(i) and made applicable by OAR 340-012-0042(1)(b)(A).

"P" is Respondents' prior significant actions as defined in OAR 340-012-0030(14) and receives a value of 0, because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0, because Respondent has no prior significant actions.

"O" is whether or not the violation was repeated or continuous and receives a value of 0 pursuant to OAR 340-012-0045(1)(c)(C)(i), because there is insufficient information on which to base a finding.

"R" is the cause of the violation and receives a value of 6 pursuant to OAR 340-012-0045(1)(c)(D)(iii) because Respondent acted intentionally. Respondent obtained a bid from a licensed abatement contractor to remove the ACM before his employees removed the ACM. Respondent knew the material its employees removed contained asbestos and that a licensed contractor is required to remove ACM, yet Respondent, who was not licensed to do so, removed the ACM.

"C" is Respondents' cooperativeness in correcting the violation and receives a value of -2 according to OAR 340-012-0045(1)(c)(E)(i), because Respondent hired a licensed contractor to remove and dispose of the asbestos-containing waste material when notified by the Department to do so.

"EB" is the approximate dollar sum of the economic benefit pursuant to OAR 340-012-0045(1)(c)(F) that Respondent gained through noncompliance and receives a value of $442. By avoiding the $1,500 cost of hiring a licensed contractor to conduct his asbestos abatement project and delaying for approximately 25 days the $700 cost of cleaning up the ACWM generated by his illegal abatement, Respondent gained approximately $442 in economic benefit.

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 0 + 6 - 2)] + $442
= $6,000 + ($600 x 4) + $442
= $6,000 + $2,400 + $442
= $8,842

# EXHIBIT 2

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY
PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 2: Open accumulation of asbestos-containing waste material (ACWM), in violation of OAR 340-248-0250(2).

CLASSIFICATION: This is a Class I violation pursuant to OAR 340-012-0050(1)(q), because the open accumulation of ACWM from the asbestos abatement project caused a potential for public exposure to asbestos or release of asbestos into the environment.

MAGNITUDE: The magnitude of the violation is major according to OAR 340-012-0090(1)(d)(A), because more than 160 square feet of ACWM was openly accumulated.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:

$$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$$

"BP" is the base penalty which is $6,000 for a Class I major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a)(A)(i) and made applicable by OAR 340-012-0042(1)(b)(A).

"P" is Respondent's prior significant actions and receives a value of 0 according to OAR 340-012-0045(1)(c)(A)(i), because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0 according to OAR 340-012-0045(1)(c)(B)(ii), because Respondent has no prior history.

"O" is whether or not the violation was a single occurrence or was repeated or continuous and receives a value of 2 according to OAR 340-012-0045(1)(c)(C)(ii), because the violation existed for more than one day. The ACWM was openly accumulated for the period of approximately January 15, 2002 until approximately January 26, 2000.

"R" is the cause of the violation and receives a value of 6 according to OAR 340-012-0045(1)(c)(D)(iv), because Respondent's conduct was intentional. Respondent knew that the flooring its employees removed from the facility contained asbestos yet consciously kept the asbestos-containing waste material in open, unlabeled piles in the facility. Respondent did not direct his employees to properly label and securely package the ACWM generated by his employees.

"C" is Respondents' cooperativeness in correcting the violation and receives a value of -2 according to OAR 340-012-0045(1)(c)(E)(i), because Respondent had the openly accumulated ACWM removed by a licensed contractor upon being notified by the Department to do so.

"EB" is the approximate dollar sum of the economic benefit that the Respondent gained through noncompliance according to OAR 340-012-0045(1)(c)(F) and receives a value of 0, because the Department included the benefit obtained by Respondent's open accumulation in its calculation of EB for violation 1.

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 2 + 6 -2)] + $0
= $6,000 + ($600 x 6) + $0
= $6,000 + $3,600 + $0
= $9,600

**EXHIBIT 3A**

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-012-0045

VIOLATION 3: Failing to adequately wet asbestos-containing materials (ACM) during removal, in violation of OAR 340-248-0270(2).

CLASSIFICATION: This is a Class I violation according to OAR 340-012-0050(1)(p), because Respondent's violation of this work practice requirement caused a potential for public exposure to asbestos or release of asbestos into the environment.

MAGNITUDE: The magnitude of the violation is major pursuant to OAR 340-012-0090(1)(d)(A), because the amount of ACM involved was more than 160 square feet.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:
$BP + [(0.1 \times BP) \times (P + H + O + R + C)] + EB$

"BP" is the base penalty which is $6,000 for a Class I, major magnitude violation in the matrix listed in OAR 340-012-0042(1)(a)(A)(i) and made applicable by OAR 340-012-0042(1)(b)(A).

"P" is Respondents' prior significant actions as defined in OAR 340-012-0030(14) and receives a value of 0, because Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant actions and receives a value of 0, because Respondent has no prior significant actions.

"O" is whether or not the violation was repeated or continuous and receives a value of 0 pursuant to OAR 340-012-0045(1)(c)(C)(i), because there is insufficient information on which to base a finding.

"R" is the cause of the violation and receives a value of 6 pursuant to OAR 340-012-0045(1)(c)(D)(iii) because Respondent acted intentionally. Respondent did not provide any water at the Facility during the abatement project and had the conscious objective to cause his employees to remove the ACM without any moisture.

"C" is Respondents' cooperativeness and efforts to correct the violation and receives a value of 0 according to OAR 340-012-0045(1)(c)(E)(ii), because the violation could not be corrected.

"EB" is the approximate dollar sum of the economic benefit pursuant to OAR 340-012-0045(1)(c)(F) that the Respondent gained through noncompliance and receives a value of 0, because the economic benefit obtained by Respondent is included in the civil penalty assessment for violation no. 1.

PENALTY CALCULATION:

Penalty= BP + [(0.1 x BP) x (P + H + O + R + C)] + EB
= $6,000 + [(0.1 x $6,000) x (0 + 0 + 0 + 6 + 0)] + 0
= $6,000 + ($600 x 6) + 0
= $6,000 + $3,600 + 0
= $9,600

Attachment 10

FAXED 1.17.02

OREGON * WASHINGTON
755 S.W. DENNIS AVENUE * HILLSBORO, OREGON 97123
(503) 693-6388 FAX (503) 693-7221

IRS ENVIRONMENTAL OF PORTLAND, LLC

ASBESTOS * LEAD ENVIRONMENTAL SERVICES

CCB#143016

**FAX 503-643-0605**

**PROPOSAL**

**January 17, 2002**

**TO:** JACKSON ENTERPRISES
ATTN: JACK D. PRICE, II

**PROJECT:** OLD McMINNVILLE HOSPITAL
603 SOUTH BAKER STREET

IRS Environmental proposes to furnish all materials and perform all labor necessary to complete the following:

1. Removal of all remaining asbestos materials as identified in Survey.

| | |
|---|---|
| **REMOVAL** | **$32,570.00** |
| **DEQ PERMIT** | **1,200.00** |
| **AIR MONITORING** | **680.00** |
| **TOTAL** | **$34,450.00** |

- Additional mastic under tile previously abated will be removed at a cost of **$0.52 per sq.ft.**
- PCB light ballasts will be properly disposed of at a cost of **$485.00 per 55 gal drum.** (80 ballasts per drum).
- **Price includes all permits, fees, disposal and air monitoring required by State and Federal Agencies.**

Work will be completed by Oregon Certified Asbestos Workers and a Certified Supervisor will be on site at all times. All rules and regulations pertaining to the safe removal of asbestos will be complied to at all times.

SUBMITTED BY: IRS ENVIRONMENTAL OF PORTLAND, LLC

Bruce Korum DATED: 1.17.02

BRUCE KORUM
D.E.Q. Permit FSC525/Contractor License 143016

You are hereby authorized to furnish all materials and labor required to complete the work in the above proposal, for which _____ agrees to pay the amount mentioned in said proposal. Full amount due within thirty (30) days from date of invoice (1-1/2% service charge on balance after 30 days).

ACCEPTED BY: _____ DATED: _____

EXHIBIT A-28
RECD 2/25

Fact Sheet

# Asbestos Advisory

## Important information you need to know before you demolish a building

The Department of Environmental Quality (DEQ) and Lane Regional Air Pollution Authority (LRAPA) have specific rules regarding the handling and disposal of asbestos-containing materials (ACM). DEQ/LRAPA regulates the removal and disposal of asbestos-containing materials to prevent asbestos fiber release and exposure. Asbestos fibers in the air pose a significant health threat to employees, the public, and the environment. Before any public or private facility is demolished, all asbestos-containing materials must be properly removed, handled and disposed.

The Environmental Protection Agency (EPA) and the Oregon Occupational Safety and Health Administration (OSHA) require that an asbestos survey be performed to determine the presence of asbestos-containing materials in or on a structure prior to any demolition work.

In general, there are two types of asbestos-containing materials:

- **Friable** asbestos-containing materials will easily release fibers when crushed. Only DEQ licensed asbestos abatement contractors and certified asbestos workers can remove and dispose of friable ACM. DEQ has specific training courses available that meet these certification needs. A list of DEQ licensed asbestos abatement contractors and training information can be obtained by contacting a regional office listed below. Examples of friable ACM can include, but are not limited to the following: sheet vinyl flooring, insulation on piping, duct and boilers, fireproofing, ceiling texture and panel products, and soundproofing.

- **Non-friable** asbestos-containing materials have a binder that holds the asbestos fibers within a solid matrix and will not allow asbestos fibers to release easily, unless mishandled, damaged, or in badly worn or weathered condition. You do not need to be a DEQ licensed asbestos abatement contractor or a certified asbestos worker to perform non-friable asbestos abatement. **However, the non-friable materials must remain in non-friable condition (predominantly whole pieces) during the removal and disposal process.** Examples of non-friable ACM can include, but are not limited to the following: vinyl floor tile, AC water pipe, and cement (transite) siding or roofing. If you remove non-friable asbestos-containing materials, follow the instructions in the DEQ guidance documents. In addition, a non-friable project notification and fee are required to be submitted to the Department five (5) days prior to the start date of the project. All non-friable ACM must be disposed of at an authorized landfill. A copy of the guidance document, project notification and list of authorized landfills can be obtained by contacting a regional office listed below.

If you disturb or mishandle asbestos-containing materials and cause employees, the public or the environment to be potentially exposed to asbestos fibers, you can be liable for clean-up costs and an enforcement action for rule violations. An enforcement action may include a civil penalty assessment.

For further information about the asbestos regulations, contact a regional office.

*For Clackamas, Clatsop, Columbia, Multnomah, Tillamook and Washington Counties, call the Portland office at (503) 229-5364, (503) 229-5473 or (800) 452-4011*

*For Benton, Lincoln, Linn, Marion, Polk and Yamhill Counties, call the Salem office at (503) 378-8240, ext. 272 or (800) 379-7677.*

*For Lane County call Lane Regional Air Pollution Authority at (541) 736-1056.*

*For Jackson, Josephine and Eastern Douglas Counties, call the Medford office at (541) 776-6010, ext. 235 or (877) 823-3216.*

*For Coos, Curry and Western Douglas Counties call the Coos Bay office at (541) 269-2721, ext. 22.*

*For all areas east of the Cascades, call the Bend office at (541) 388-6146, ext. 226, or the Pendleton office at (541) 278-4626.*

State of Oregon
Department of Environmental Quality

Air Quality
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5359
(800) 452-4011
Fax: (503) 229-5675
*www.deq.state.or.us*

Last Updated: 05/15/01

A-29

EXHIBIT R100
PAGE 1

**HICKMAN Jane**

**From:** HICKMAN Jane
**Sent:** Monday, February 03, 2003 9:29 AM
**To:** NELSON Kerri
**Subject:** RE: Jack Price Enforcement Documents

Yes, I will. Thanks, Kerri. Jane

-----Original Message-----
**From:** NELSON Kerri
**Sent:** Friday, January 31, 2003 3:51 PM
**To:** HICKMAN Jane
**Cc:** BOYD Dottie; RUSCIGNO John
**Subject:** RE: Jack Price Enforcement Documents

This looks fine to me. I understand that this was held up because of a pending decision on a criminal investigation and other work load. I assume that you'll prepare a memo for SH about this.

Kerri

-----Original Message-----
**From:** HICKMAN Jane
**Sent:** Friday, January 31, 2003 11:56 AM
**To:** RUSCIGNO John; NELSON Kerri
**Cc:** BOYD Dottie
**Subject:** Jack Price Enforcement Documents

Hi, After a long delay, here are the Jack Price enforcement documents for your review and comment. I was told to hold off on the case for several months while the criminal folks looked at it. Then after they gave me the go-ahead for the civil case, I was held up by other cases with ongoing violations and by Division 12 work. Dottie has signed off so far. We issued several penalties because of the severity of the violations and the intentional behavior of Mr. Price.

I appreciate your input. Jane

<< File: Pricecoverltr.doc >> << File: Price.ncp.doc >> << File: Price.exh.doc >> << File: Price.exh2.doc >> << File: Price.exh3.doc >>

EXHIBIT R 101
PAGE 1

Ken Leahy Construction, Inc.
P.O. Box 489 • 915 S 12th Ave • Cornelius, Oregon 97113 • (503) 357-2193 • FAX (503) 357-3649

January 14, 2002

Jack Price
Jackson Enterprise
14314 SW Allen Blvd #505
Beaverton, OR 97005

**Re: Demolition for Old McMinnville Hospital**

Dear Jack:

Ken Leahy Construction, Inc. is pleased to provide the following proposal for demolition of the old McMinnville Community Hospital, located between Baker Street and Adams Street in McMinnville. Our proposal is based on demolition of approximately 42500 SF of three-story structure and 17000 SF of single story. We understand others will remove all asbestos containing material. Also we have not included any below grade demolition (Fuel tanks, footings, etc...) or disposal of any hazardous material.

Our price is $140,000. This price includes $42,500 for on site crushing of approximately 5000 to 7000 CY of concrete and masonry debris to about a 4-6" minus material and $32,800 for processing the concrete prior to crushing. If no or very little rebar was used in the structure this may not be required. If you want to provide labor required to source separate materials for recycling deduct $18,500. We appreciate being considered for this project and look forward to working with you on this project and others. If you have any questions, or wish to discuss our scope or pricing, please let us know.

Sincerely,

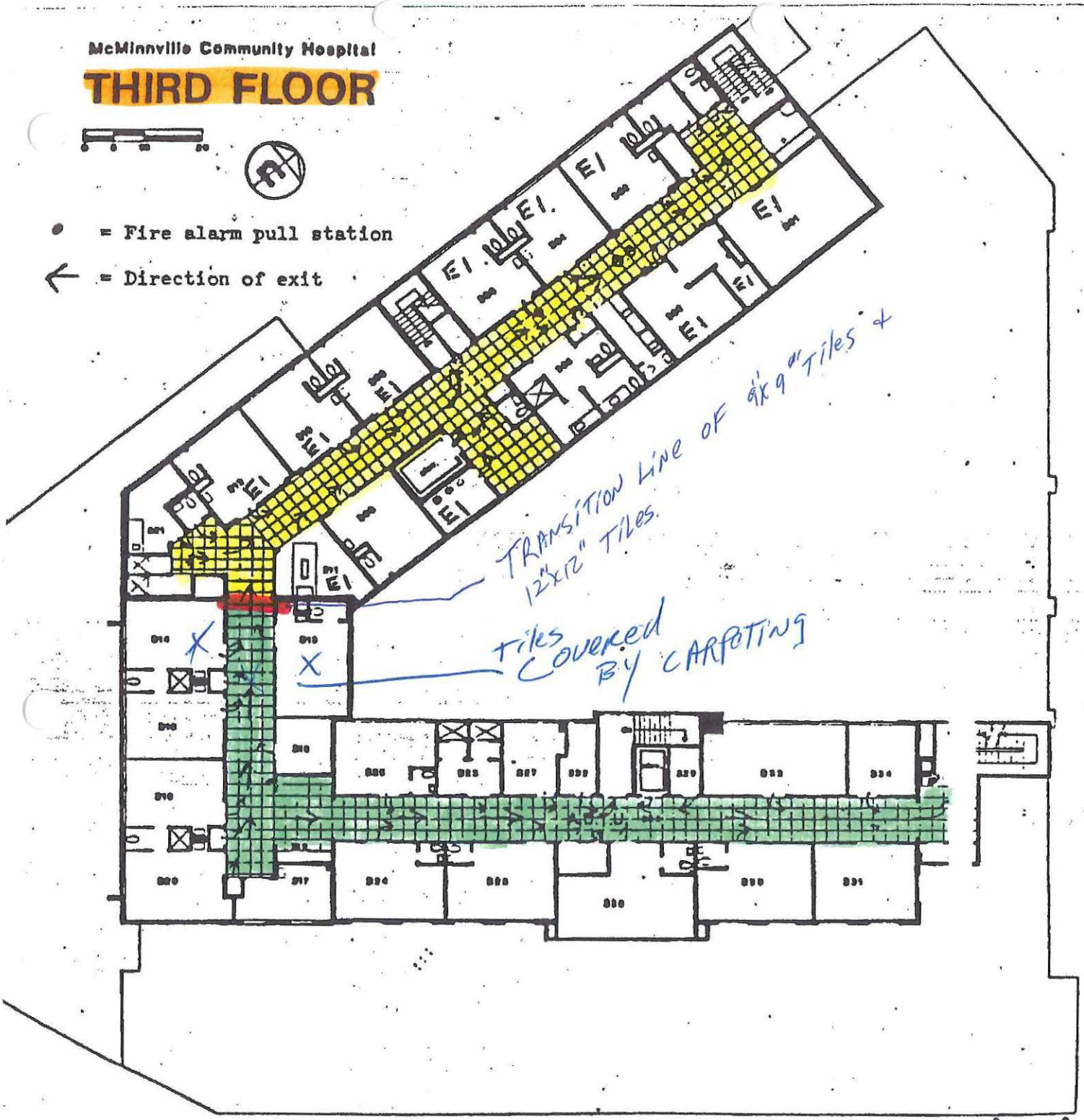
Jeff Braun
Senior Estimator

McMinnville Community Hospital

# THIRD FLOOR

● = Fire alarm pull station

← = Direction of exit




301 Delivery Rm
302 Patient Rm
303 Nursery
304 Patient Rm
305 Obstetrics
306 Patient Rm
307 Waiting
308 Patient Rm
309 Patient Rm
310 Patient Rm
311 Nurses Station
312 Patient Rm
313 Patient Rm
314 Patient Rm
315 Utility
316 Patient Rm
317 Obstetrics Unit Coordinator
318 Patient Rm
319 Nurses Station
320 Patient Rm
321 Diet Kitchen
322 Alcohol & Drug Unit
323 Showers
324 Patient Rm
325 Patient Rm
326 Patient Rm
327 Office
328 Patient Rm
329 Storage
330 Patient Rm
331 Patient Rm
332 Storage
333 Conference Rm
334 Office

12"x12" NON-ACM TILES

9"x9" SUSPECT TILES

R-102

NURSE CALL SYSTEM PANEL T-1

**RPS DEVELOPMENT COMPANY, INC.**
*Retail Property Solutions*

EXHIBIT R103
PAGE 1

**Memorandum**

**Date:** January 7. 2002

**TO:** Hans Hendgen, Hand Delivery and Email

**From:** Alan Roodhouse

**Re:** Walgreen's: Response to Jack Price's Questions, etc.

**CC:** Peter Powell, Mike Brehm

---

Hans:

In follow-up to our meeting last week with Jack Price about the demolition contract and some questions he had, please note the following:

1. The floor tiles (but not the mastic) should be completely removed from the building before demo and crushing is begun.
2. The underground nitrous oxide and oxygen lines from the tank enclosure to the main building should be removed.
3. When the service station improvements are demolished, pipes and other underground improvements, if any, leading from the above ground improvements to the area of the removed tanks should be removed as well.
4. The old monitoring wells at the service station site should be decommissioned in accordance with applicable regulations.
5. 3" minus is fine for the crushing size, but fines should be kept to a minimum.
6. Please stockpile the crushings on the Autozone site area.
7. The waterline will have to be relocated, but that will be part of the sitework contract after closing.

Would you please have Jack provide a line item and category breakdown of the costs reflected in the demolition contract? The detail should include at least the following items: environmental cleanup, building demo for the hospital and the service station, site demo for the parking lot, haul off and disposal of materials, shutdown and capping of utilities, crushing of suitable building and parking lot materials, placement of crushed materials on the Autozone site, and general conditions and profit.

Mike Brehm, Powell Development's construction manager, will give you the information he will need about your company when the time to bid on the sitework contract(s) comes.

Your understanding of the closing events is correct. When we get closer to closing, I will have Western Title (formerly Yamhill Title and Escrow) prepare a proforma closing statement. In addition to the usual closing costs, it will show US Bank funding the land draw along with the balance of the purchase funds (to replace the letter of credit or like instrument

*2653 High Heaven Road*
*McMinnville, OR 97128*
*Office Phone: 503.435.4907*
*Fax. : 503.435.4909*

January 7, 2002

which will already be in escrow to back up the $680,000 obligation in the Purchase Agreement).

Call me with any questions, or we can get together today or tomorrow afternoon.

Alan R.

EXHIBIT R105
PAGE 1

BEFORE THE WORKERS' COMPENSATION BOARD

OF THE STATE OF OREGON

HEARINGS DIVISION

| | |
|---|---|
| In the Matter of the Compensation | WCB Case No. 02-06028 |
| | SAIF Claim No. 7423943J |
| | Hearing Date: November 5, 2002 |
| Of | Hearing Location: Salem, OR |
| | Administrative Law Judge: Brazeau |
| JESUS ANTONIO LOMELI, Claimant | STIPULATION AND DISPUTED CLAIM SETTLEMENT AGREEMENT |

IT IS HEREBY STIPULATED by claimant, claimant's attorney, Vance D. Day, and the employer, Jack D Price II, through its insurer, SAIF Corporation, by Dianna Fedorko, Adjuster, and James Booth, Trial Counsel, as follows:

Claimant filed a claim for low back injury and asbestos exposure sustained on or about February 24, 2002. SAIF Corporation denied the claim on June 12, 2002. Claimant filed a Request for Hearing to appeal the denial and raise other issues.

**Stipulation:**

The parties agree that claimant's asbestos exposure claim was filed prematurely as claimant does not currently have an asbestosis condition that requires medical treatment or results in disability as required by the statute for an occupational injury or disease claim. Claimant hereby withdraws his claim for asbestos exposure. The denial of June 12, 2002 only denied the asbestos exposure on the basis that the claim was prematurely filed and did not address the merits of compensability of the condition. Therefore, if at some future date claimant does develop an asbestosis condition, he shall not be precluded from filing a new claim for such condition. SAIF Corporation and the employer retain full rights under



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High Street Building
400 High Street SE
Salem, OR 97312-1000
(503) 373-8000

Feb 24 04 10:30a Jack Price 503-526-0899 p.1

the statute to process any future claim but may not raise any claim preclusion, issue preclusion or timeliness defenses based on the June 12, 2002 denial or this stipulation. The Request for Hearing as to the asbestos exposure claim is dismissed without prejudice.

**Disputed Claim Settlement:**

The parties now proceed to resolve the issue of claimant's low back injury claim through this Disputed Claim Settlement.

Claimant's Position

Claimant contends that he sustained a low back injury on or about February 24, 2002 as a result of his work for the employer. Claimant relies on his knowledge of his work activities and medical condition as well as certain medical reports to support this contention.

Employer and Insurer's Position

The employer and SAIF Corporation contend that claimant does not have a low back injury as a result of a work injury or his work exposure with the employer. This contention is supported by certain medical reports.

The parties agree that a bona fide dispute exists between them as to the compensability of the condition(s) and/or services which have been denied. All parties have substantial evidence to support their contentions and each desires to settle all issues raised or raisable at this time by entering into a disputed claim settlement under the provisions of ORS 656.289(4) for the total sum of $5,000.00.

Attorney Fees

Claimant agrees that claimant's attorney should be paid a reasonable fee for services in the amount set forth below which is consistent with OAR 438-015-0050.

///

///

///



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400 High Street SE
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Feb 24 04 10:31a Jack Price 503-526-0899 p.2

Date of Settlement

As used in this settlement agreement, the "date of the settlement" means the date on which the parties agreed to the terms of the settlement as specified in this settlement document. The date of the settlement is November 1, 2002.

Medical Provider Reimbursement

On and before the date of the settlement, SAIF Corporation received billings from claimant's medical service provider(s). Each bill was reviewed for partial payment by other payors, audited to the Oregon Workers' Compensation fee schedule, and adjusted pursuant to ORS 656.313 and ORS 656.247. Medical billings subject to ORS 656.247 shall be processed by SAIF Corporation separate from this Disputed Claims Settlement Agreement. With that understanding, and with respect to all other medical billings, claimant consents to and authorizes SAIF to pay to each of the providers, in the manner prescribed below, sums equal to or in excess of the minimum reimbursement required by ORS 656.313.

Distribution of Settlement Proceeds

The parties agree that settlement proceeds should be distributed as follows:

| | SAIF TO DISBURSE |
|---|---|
| Claimant | $2,682.53 |
| Claimant's Attorney | $1,250.00 |
| Cascade Medical Center | $481.97 |
| Diagnostic Imaging Assoc. | $126.64 |
| Oregon Open MRI | $458.86 |
| TOTAL | $5,000.00 |

Declaration Regarding Claim Disposition Agreement

A separate Claim Disposition Agreement in the claim has not been filed for approval by the Board.



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Feb 24 04 10:31a Jack Price 503-526-0899 p.3

Settlement of Claim

Claimant understands that if the administrative law judge approves this agreement, SAIF Corporation's denial for a low back injury, as supplemented by the contentions of the employer/SAIF Corporation stated in this agreement, shall remain in full force and effect. The parties agree to waive any procedural defects caused by the denial or settlement of this claim. Claimant shall have no further entitlement to compensation for the denied treatment, condition(s), disability, or for the denied injury or occupational disease; and claimant releases SAIF and the employer from any claim or legal action of whatever kind arising out of the claimed injury or disease.

In consideration of the promise to pay the agreed sum, claimant hereby accepts the payment of this sum in full settlement of all issues raised or raisable arising out of the denied treatment, condition(s), disability, injury or occupational disease including interest accrued on benefits pending appeal, if any, and agrees that the Request for Hearing shall be dismissed with prejudice.

Complete Understanding

The claimant certifies that the claimant has been orally advised that:

a. The claimant has the right to request a hearing concerning the claim, after which an administrative law judge will determine whether the claimant will receive workers' compensation benefits;

b. If, following the hearing, the claim is finally determined compensable, the claimant would be entitled to workers' compensation benefits, which could include temporary disability, permanent disability, medical treatment, and vocational rehabilitation;

c. If, following the hearing, the claim is finally determined not compensable, the claimant would not be entitled to workers' compensation benefits;



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Salem, OR 97312-1000
(503) 373-8000

p.4 503-526-0899 Jack Price Feb 24 04 10:31a

d. As a result of this agreement, the claimant's rights to seek workers' compensation benefits concerning this claim would be extinguished;

e. Both parties agree that the terms of the agreement are reasonable; and

f. The agreement shall not be binding upon the parties unless and until the agreement is signed by an administrative law judge or the Board, depending upon which forum is considering the dispute.

Claimant certifies that claimant has read the entirety of this document and fully understands the meaning and effect, present and future, of this Disputed Claim Settlement, and that claimant's questions in this regard, if any, have been fully and completely answered by claimant's attorney, and that no further questions remain.

Nothing in this document affects or impairs any rights or remedies of SAIF or the employer, including those arising under ORS 656.576 to 656.595, except as expressly stated in the agreement.

Dianna Fedorko
SAIF Corporation

James Booth
Trial Counsel
for SAIF Corporation

Jesus Antonio Lomeli
Claimant

Vance D. Day
Attorney for Claimant

IT IS ORDERED that the Disputed Claim Settlement agreement regarding claimant's low back injury claim is approved, and the matter is dismissed with prejudice. Settlement proceeds shall be distributed in the manner provided in this agreement.

DATED: DEC 2 2002

ROBERT BRAZEAU
Administrative Law Judge



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400 High Street St.
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Feb 24 04 10:31a Jack Price 503-526-0899 p.5

EXHIBIT R106
PAGE 1

BEFORE THE WORKERS' COMPENSATION BOARD

OF THE STATE OF OREGON

HEARINGS DIVISION

| | |
|---|---|
| In the Matter of the Compensation | WCB Case No. 02-04978 |
| | SAIF Claim No. 7423940D |
| | Hearing Date: September 26, 2002 |
| of | Hearing Location: Salem, OR |
| | Administrative Law Judge: Johnson |
| JOSE L. LOMELI FLORES, Claimant | STIPULATION AND DISPUTED CLAIM SETTLEMENT AGREEMENT |

IT IS HEREBY STIPULATED by claimant, claimant's attorney, Vance Day, and the employer, Jack D Price II, through its insurer, SAIF Corporation, by Dianna Fedorko, Adjuster, and Janelle Irving, Trial Counsel, as follows:

Claimant filed a claim for low back pain and contact dermatitis sustained on or about February 24, 2002.

SAIF Corporation has reviewed the medical information in your file and hereby issues a denial of low back strain and contact dermatitis on the basis that there is insufficient evidence that either condition arose from your work exposure with the employer.

This denial is based upon an insurer medical examination. Your attending physician partially agreed with the conclusions of the insurer medical examination. You may have the right to request a worker medical examination as set forth below.

**IF YOU THINK THIS DENIAL IS NOT RIGHT, WITHIN 60 DAYS AFTER THE MAILING OF THIS DENIAL YOU MUST FILE A LETTER WITH THE WORKERS' COMPENSATION BOARD, 2601 25TH STREET SE, SUITE 150, SALEM OREGON 97302-1282. YOUR LETTER MUST STATE THAT YOU WANT A HEARING, YOUR**



SAIF Corporation
High Street Building
400 High Street SE
Salem, OR 97312-1000
(503) 373-8000

p.1 6688-925-503 Jack Price Feb 24 04 10:34a

ADDRESS AND THE DATE OF YOUR ACCIDENT IF YOU KNOW THE DATE. IF YOUR CLAIM QUALIFIES, YOU MAY RECEIVE AN EXPEDITED HEARING WITHIN 30 DAYS. YOUR REQUEST CANNOT, BY LAW, AFFECT YOUR EMPLOYMENT. IF YOU DO NOT FILE A REQUEST WITHIN 60 DAYS, YOU WILL LOSE ANY RIGHT YOU MAY HAVE TO COMPENSATION UNLESS YOU CAN SHOW GOOD CAUSE FOR DELAY BEYOND 60 DAYS. AFTER 180 DAYS ALL YOUR RIGHTS WILL BE LOST. YOU MAY BE REPRESENTED BY AN ATTORNEY OF YOUR CHOICE AT NO COST TO YOU FOR ATTORNEY FEES.

IF YOU MAKE A TIMELY REQUEST FOR HEARING ON A DENIAL OF COMPENSABILITY OF YOUR CLAIM AS REQUIRED BY ORS 656.319(1)(a) THAT IS BASED ON ONE OR MORE REPORTS OF EXAMINATIONS CONDUCTED AT THE REQUEST OF THE INSURER OR SELF-INSURED EMPLOYER UNDER ORS 656.325(1)(a) AND YOUR ATTENDING PHYSICIAN DOES NOT CONCUR WITH THE REPORT OR REPORTS, YOU MAY REQUEST AN EXAMINATION TO BE CONDUCTED BY A PHYSICIAN SELECTED BY THE DIRECTOR. THE COST OF THE EXAMINATION AND THE EXAMINATION REPORT SHALL BE PAID BY THE INSURER OR SELF-INSURED EMPLOYER. IF YOU HAVE QUESTIONS YOU MAY CALL THE BENEFITS SECTION TOLL FREE IN OREGON 1-800-452-0288 OR IN SALEM OR FROM OUTSIDE OREGON AT (503) 947-7585.

Claimant waives any defect as to form or notice, waives his right to a workers requested IME, and hereby files a Request for Hearing to appeal the denial. The parties agree that no claim has been made for alleged asbestos exposure while employed with Jackson Enterprises. Claimant is free to make a claim at some future date for alleged asbestos exposure and SAIF will process the claim when it is made.



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(503) 373-8000

Feb 24 04 10:35a Jack Price 503-526-0899 p.2

Claimant's Position

Claimant contends that his low back condition and contact dermatitis conditions were caused by his work exposure. In support of his position, claimant relies upon the opinion of Dr. Day.

Employer and Insurer's Position

The employer and SAIF Corporation contend that claimant's employment is neither a material nor the major contributing cause of any low back sprain or strain or any dermatological condition. In support of their position, the employer and SAIF rely upon the results of their investigation.

The parties agree that a bona fide dispute exists between them as to the compensability of the condition(s) and/or services which have been denied. All parties have substantial evidence to support their contentions and each desires to settle all issues raised or raisable at this time by entering into a disputed claim settlement under the provisions of ORS 656.289(4) for the total sum of $5000.00.

Attorney Fees

Claimant agrees that claimant's attorney should be paid a reasonable fee for services in the amount set forth below which is consistent with OAR 438-015-0050.

Date of Settlement

As used in this settlement agreement, the "date of the settlement" means the date on which the parties agreed to the terms of the settlement as specified in this settlement document. The date of the settlement is September 26,2002.

Medical Provider Reimbursement

On and before the date of the settlement, SAIF Corporation received billings from claimant's medical service provider(s). Each bill was reviewed for partial payment by other payors, audited to the Oregon Workers' Compensation fee schedule, and adjusted pursuant



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400 High Street SE
Salem, OR 97312-1000
(503) 373 8000

Feb 24 04 10:35a Jack Price 503-526-0899 p.3

to ORS 656.313 and ORS 656.247. Medical billings subject to ORS 656.247 shall be processed by SAIF Corporation separate from this Disputed Claims Settlement Agreement. With that understanding, and with respect to all other medical billings, claimant consents to and authorizes SAIF to pay to each of the providers, in the manner prescribed below, sums equal to or in excess of the minimum reimbursement required by ORS 656.313.

Distribution of Settlement Proceeds

The parties agree that settlement proceeds should be distributed as follows:

| | SAIF TO DISBURSE |
|---|---|
| Claimant | $2,353.58 |
| Claimant's Attorney | $1,250.00 |
| Cascade Medical Center | $402.65 |
| Costs to claimant's attorney | $95.00 |
| Diagnostic Imaging Associates | $126.64 |
| Newberg Urgent Care | $204.70 |
| Open Advanced MRI of Portland | $108.57 |
| Oregon Open MRI | $458.86 |
| TOTAL | $5,000.00 |

Declaration Regarding Claim Disposition Agreement

A separate Claim Disposition Agreement in the claim has not been filed for approval by the Board.

Settlement of Claim

Claimant understands that if the administrative law judge approves this agreement, SAIF Corporation's denial, as supplemented by the contentions of the employer/SAIF Corporation stated in this agreement, shall remain in full force and effect. The parties agree to waive any procedural defects caused by the denial or settlement of this claim. Claimant



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400 High Street SE
Salem, OR 97312-1000
(503) 373-8000

Feb 24 04 10:35a Jack Price 503-526-0898 p.4

shall have no further entitlement to compensation for the denied treatment, condition(s), disability, or for the denied injury or occupational disease; and claimant releases SAIF and the employer from any claim or legal action of whatever kind arising out of the claimed injury or disease.

In consideration of the promise to pay the agreed sum, claimant hereby accepts the payment of this sum in full settlement of all issues raised or raisable arising out of the denied treatment, condition(s), disability, injury or occupational disease including interest accrued on benefits pending appeal, if any, and agrees that the Request for Hearing shall be dismissed with prejudice.

Complete Understanding

The claimant certifies that the claimant has been orally advised that:

a. The claimant has the right to request a hearing concerning the claim, after which an administrative law judge will determine whether the claimant will receive workers' compensation benefits;

b. If, following the hearing, the claim is finally determined compensable, the claimant would be entitled to workers' compensation benefits, which could include temporary disability, permanent disability, medical treatment, and vocational rehabilitation;

c. If, following the hearing, the claim is finally determined not compensable, the claimant would not be entitled to workers' compensation benefits;

d. As a result of this agreement, the claimant's rights to seek workers' compensation benefits concerning this claim would be extinguished;

e. Both parties agree that the terms of the agreement are reasonable; and

f. The agreement shall not be binding upon the parties unless and until the agreement is signed by an administrative law judge or the Board, depending upon which forum is considering the dispute.



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(503) 373-0000

Feb 24 04 10:35a Jack Price 503-526-0899 p.5

Claimant certifies that claimant has read the entirety of this document and fully understands the meaning and effect, present and future, of this Disputed Claim Settlement, and that claimant's questions in this regard, if any, have been fully and completely answered by claimant's attorney, and that no further questions remain.

Nothing in this document affects or impairs any rights or remedies of SAIF or the employer, including those arising under ORS 656.576 to 656.595, except as expressly stated in the agreement.

Dianna Fedorko
SAIF Corporation

Janelle Irving 11/15/02
Janelle Irving
Trial Counsel
for SAIF Corporation

Jose L. Lomeli Flores
Claimant

Vance Day
Attorney for Claimant

IT IS ORDERED that the Disputed Claim Settlement agreement is approved, and the matter is dismissed with prejudice. Settlement proceeds shall be distributed in the manner provided in this agreement.

DATED: DEC 10 2002

Michael V. Johnson
Administrative Law Judge



SAIF Corporation
High Street Building
400 High Street SE
Salem, OR 97312-1000
(503) 373-8000

Feb 24 04 10:35a Jack Price 503-526-0899 p.6

**Jackson Enterprises**
**Jack Price**
**14314 SW Allen Blvd. #505**
**Beaverton, OR**
**503-643-0605 Ph/fax 503-204-8024 pager**
**CCB# 106431**

EXHIBIT R107
PAGE 1

1/9/02

To: Hans Hendgen

From: Jack Price

RE: Budget for Alan Roodhouse.

Hello,
Here is the budget that we had talked about.

Jackson Enterprises
hospital demo worksheet and budget

| | |
|---|---|
| permits | 2500 |
| environmental consulting | 2000 |
| environmental abatement | 40000 |
| Salvage Labor | 15000 |
| Demo and crushing subcontract | 115000 |
| Disposal | 10000 |
| Utilities Capping | 1000 |
| Equipment Rental | 14000 |
| Equipment Purchase | 1000 |
| Safety Equipment | 500 |
| Contingency | 2000 |
| Profit | 12000 |
| | 215000 |

Thank you.

Jack Price

Document Date November 7, 1994

Approval _____

State of Oregon
Department of Environmental Quality
Laboratories and Applied Research
Inorganic Section

# ASBESTOS IN BULK MATERIALS

Polarized Light Microscopy Method

## Principle:

Samples are examined by a microscopist trained in asbestos identification using stereomicroscopy and polarized light microscopy (PLM) techniques. The results of these examinations are generally sufficient for identification and quantitation of major concentrations of asbestos. However, during these examinations, the analyst may judge that additional properties of the sample should be examined. The properties may include solubilities, reactivity to acids, and refractivity under high temperatures.

Guidance for many of the decisions made by the analyst comes from the EPA test method "Method for the Determination of Asbestos in Bulk Building Materials," EPA/600/R-93/116, July 1993. This will be referred to as the "EPA Bulk Asbestos Method" when referenced in this method.

## Scope and Application:

This method is used to determine the asbestos content of a variety of bulk materials, including loose-fill insulations, acoustic and thermal sprays, pipe and boiler wraps, paints, flooring products, roofing materials and cementitious products. It cannot be used to determine the asbestos content of drinking water nor the level of asbestos suspended in air.

## Sample Handling and Preservation:

Samples are submitted in a container which will not introduce any significant contamination to the sample and which will safely contain the sample. Routinely, samples are submitted in labelled ziplock bags and/or screw top jars. There are no



R-108

special temperature/preservation storage requirements for asbestos samples.

## Interferences:

The training of the analyst will introduce them to possible positive and negative interferents. The EPA Bulk Asbestos Method describes many of the possible interferences.

The techniques used in this method are generally sufficient for identification and quantitation of one percent or greater concentrations of asbestos in bulk material samples. However, during these stereomicroscopic and PLM analyses, it may be found that additional techniques are needed to: 1) attain a positive identification of asbestos; or 2) attain an accurate quantitation of the asbestos in the sample. Whenever the analyst judges that analysis of the sample requires instrumentation which is not available at the DEQ laboratory, the analyst will inform the inorganic manager and the submitter, and the results will be qualified in the report. Such instrumentation may include x-ray diffraction and analytical electron microscopy.

## Equipment:

In addition to equipment commonly available in an analytical laboratory, this method specifically requires:
a. polarized light microscope
b. central stop objective
c. simple stereomicroscope
d. high efficiency air particulate (HEPA) filtered hood

## Reagents:

In addition to reagents commonly available in an analytical laboratory, this method specifically requires:
a. Cargille refractive index solutions

## Chemical Safety:

Handle all samples as if they contain asbestos until analysis has shown otherwise. As stated in the EPA Bulk Asbestos Method:
**"NOTE: Exposure to airborne asbestos fibers is a health hazard. Bulk samples submitted for anlysis are oftentimes friable and may release fibers during handling or matrix reduction steps. All sampling handling and examination must be carried out in a HEPA-filtered hood, a class 1 biohazard hood or a glove box with**

**continuous airflow (negative pressure). Handling of samples without these precautions may result in exposure of the analyst to and contamination of samples by airborne fibers."**

Avoid contact with Cargille refractive index solutions. Clean up all spills promptly.

## Standards:

Standards are used to calibrate the analyst for both asbestos identification and asbestos quantitation. The need to examine standards concurrently with the samples is determined by the difficulty of the sample and by the analyst's experience. The following materials can be used as comparative standards:

1. Samples from previous American Industrial Hygene Association Bulk Asbestos Quality Assurance Program test rounds. The results of Research Triangle Institute are used as the valid concentrations for these standards.

2. Generated standards prepared by mixing known quantities of asbestos and known quantities of asbestos-free matrix materials.

3. Photographs found in:
a. The Particle Atlas, Walter C. McCrone and John Custav Delly, Ann Arbor Science Publishers, 1973.
b. The Asbestos Particle Atlas, Walter C. McCrone, Ann Arbor Science Publishers, 1980.

## Analysis Procedure:

The analyst will decide which techniques are required and in what order they should be performed. The techniques listed below are listed in a stepwise manner for clarity in describing this method. But in practice, the techniques, such as stereo examination, may be performed more than once as the analysis is performed; that is, the analysis can be an iterative process. Record the observations in a laboratory notebook during the analysis. Note: The results of several repetitions of a technique may be recorded as a single observation.

**Perform a preliminary examination of the sample:**
When possible, examine the sample while in the sample container. Then, using as a workspace a negative flow HEPA filtered hood, remove the sample or a representative aliquot of the sample into a more convenient container for viewing and manipulation. A representative aliquot of a sample, and not the entire sample, should only be used unless the sample is too large to fit and manipulate in a 3 inch

petri dish. Record a description of the gross sample.

**Examine the sample by steromicroscope:**
The sample may be probed and teased apart during this examination. Characterists of the fibers, such as color, flexibility, fineness, and shape are used to make the initial assessment of probable asbestos content. A preliminary percentage of asbestos content can be made at this time.

**Examine the sample by polarized light microscope:**
Representative sample mounts, such as pinch mounts, are made to quantify as well as identify the sample components. Non-representative sample mounts may be made of suspected asbestos fibers to ensure the qualitative certainty of the fiber identification. Mounts are made in the refractive index solution appropriate for the fibers found during previous microscopic examinations. Morphology, birefringence, angle of extinction, sign of elongation, and central stop dispersion staining colors are characteristics used in identifying asbestos fibers.

**Separate the asbestos from the sample matrix:**
As the analyst judges necessary for the sample being examined, use techniques to separate the asbestos from the sample matrix material. Ashing the sample at less than 500° C may be used to reduce the organic fractions of the sample while leaving the asbestos fibers intact. Hydrochloric acid may be used to dissolve calcite, gypsum, magnesite, brucite, bassanite, portlandite, and dolomite components of the sample. Weighing the sample prior to and following any matrix reduction technique can be helpful in quantifying the sample components, including asbestos. As stated previously, additional stereoscopic and microscopic examination may follow any matrix reduction steps.

**Quantify the asbestos content of the sample:**
Quantify the asbestos content based on the results of all the techniques used in examining the sample. The units of quantitation are weight percent of an air dried (less than 60° C) sample, unless stated otherwise. Calibrated visual volume and visual area estimation are the techniques used to quantify most samples, but gravimetry and point counting are used when the analyst judges these techniques are necessary to determine if the sample is an asbestos containing material (ACM), that is, a material with an asbestos content greater than 1%. The analyst may request examination by other trained analysts prior to making final conclusions as to the asbestos content.

**Report the data:**
Write a summary report which states the asbestos content of the sample. Store a copy of this report in the Microscopic Reports book and give the original report to

the Lead Chemist. Send the submitter of the samples a preliminary report and sign off samples on LIMS.

## Quality Assurance:

All analysts must participate in the AIHA Bulk Asbestos Quality Assurance Program test rounds.

At least 10% of the samples will be re-analyzed by a different analyst.

## References:

1. EPA Test Method: Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993.

2. The Particle Atlas, Walter C. McCrone and John Custav Delly, Ann Arbor Science Publishers, 1973.

3. The Asbestos Particle Atlas, Walter C. McCrone, Ann Arbor Science Publishers, 1980.

4. Oregon Administrative Rules, ~~340-25-455~~. 340-0248-0250 11/22/99 BJ

State of Oregon
Department of
Environmental
Quality

# Umatilla Chemical Demilitarization Program
# Status Update
# Environmental Quality Commission
# June 24, 2005
## (Agenda Item H)

**Umatilla Chemical Demilitarization Program**

**Permit Modification Requests (PMRs) for the Umatilla Chemical Agent Disposal Facility (UMCDF) and the Umatilla Chemical Depot (UMCD)**

Since the last update, the Department has received the following UMCDF PMRs of note:

- Class 2 PMR UMCDF-05-017-WAP(2) – proposes to establish "agent-free" concentrations for chemical agents VX and HD based on the results of Method Detection Limit (MDL) studies completed by UMCDF in October 2003. (Agent-free concentrations for chemical agent GB were previously approved in December 2001.) Waste residues from the various incinerators must be determined to be agent-free before they can be shipped offsite to a hazardous waste disposal facility. This PMR was submitted on April 26 and the public comment period ends June 27.

- Class 1 PMR UMCDF-05-019-WAP(1R), submitted May 6 – proposes to revise sampling and analysis requirements for liquid waste generated by UMCDF laboratory activities, prior to transfer of the liquid to the spent decontamination solution (SDS) tanks for processing in the liquid incinerators. The Department desires UMCDF to process this waste in the liquid incinerator(s), but the HW Permit currently prohibits the processing of waste contaminated by multiple chemical agents, and UMCDF laboratory operations involve all three chemical agents (GB, VX and HD). This PMR proposes to establish the criteria that will be used to determine when the laboratory liquid waste is not contaminated with multiple chemical agents. Concentrations of the non-campaign chemical agents in this waste stream generally appear to be below detection levels.

The Department has approved the following UMCDF PMRs of note:

- June 9: Class 1 PMR UMCDF-05-027-DFS(1R) – approved a change to the permitted design criteria for the Deactivation Furnace System (DFS) to allow additional water to be fed to the DFS feed chutes. The original design limit was three gallons per minute (gpm). Changes to the deluge spray system in response to the recent rocket fire incidents resulted in additional water flow to the feed chutes. With the existing three gpm limit, UMCDF could only process a maximum of approximately thirty rockets per hour in the DFS without exceeding the limit (higher rocket feed rates need more cooling from additional water). No

new design limit was established. DFS operations will be properly maintained by controlling the exhaust gas temperature and flow rate, which are the two primary parameters impacted by the additional water flow.

- May 12: Class 1 PMR UMCDF-05-020-LIC(1R) – approved UMCDF's request for 300 additional Liquid Incinerator 1 (LIC1) shakedown hours (beyond the initial 720 hours allowed by regulation) to complete preparations for the GB agent trial burn (ATB). (720 additional hours is the maximum allowed by regulation.)

- April 22: Class 2 PMR UMCDF-03-021-LIC(2) – approved the plan that will be used to conduct the GB ATB on the LIC1. The approved plan includes sampling and analysis procedures and the quality assurance/quality control requirements for both emissions and process waste sampling during the LIC1 GB ATB. The plan also details how the results of the trial burn will be used to establish long term operating requirements for the incinerator. Currently, UMCDF is scheduled to conduct the LIC1 GB ATB in July.

In addition, the Department has received the following UMCD PMR (the first since the January 31, 2005 issuance of the separate UMCD hazardous waste storage permit):

- Class 2 PMR UMCD-05-001-MISC(2) – proposes to update the UMCD hazardous waste storage permit and permit application documentation to reflect the significant changes (e.g., relocation of mustard (HD) ton containers, closure of old HD storage building, implementation of new airborne exposure limits, etc.) that occurred between receipt of the final permit application materials and issuance of the final, approved hazardous waste storage permit. This PMR was submitted on May 31 and the public comment period ends August 6.

**Agent Operations at UMCDF**

As of June 16, 2005 the site had processed 16,389 GB rockets and destroyed more than 170,000 lbs. of GB agent. However, in April and May DFS operations were disrupted by rocket fires during the rocket shearing process in the explosive containment rooms (ECRs). Following a three-week shutdown, UMCDF began rocket processing on June 9 and continued its preparatory work in anticipation of performing agent trial burns for the deactivation furnace system (DFS) and the liquid incinerator #1 (LIC1).

While the mechanical systems associated with rocket processing continue to present challenges for sustained operations, the incinerators themselves (DFS and the LIC1) appear to be operating very well in the destruction of GB and drained rockets. The brine reduction area has also been functioning well and has been able to process all brines generated from the processing of rockets and GB agent.

**Response to Fires in Explosive Containment Rooms**

On May 18, the Department ordered UMCDF to cease rocket processing operations in the DFS, just hours after UMCDF experienced a rocket fire in an ECR during rocket shearing operations, the third such event in less than six weeks (previous events occurred on April 7 and April 23, 2005). The three similar events all occurred at the fifth shear (the first cut into the section of the

rocket containing propellant), and each resulted in a low-order explosion followed by a fire. Root cause analyses of the April 7 and April 23 rocket fires had failed to determine the specific cause(s) of the fires, but it appeared increasingly likely that the observed low-order explosions and ignitions of rocket propellant during the shear process were related to the rocket propellant itself. (The propellant from the rockets involved in all three fires was produced by the same manufacturer in October 1962.)

UMCDF provided extensive documentation to the Department in a timely manner regarding its response to the rocket fires. The Department reviewed documents from UMCDF related to:

- investigations regarding the rocket fires and plans for continued investigations;
- adequacy of the ECRs to withstand rocket fires and an evaluation of the public risk posed by a greater-than-anticipated rocket fire frequency;
- measures that have been identified and implemented to reduce the frequency of rocket fires and to mitigate the consequences of future fires; and
- identification of additional prevention and mitigation measures that are still under evaluation.

Following the May 18 fire, a Rocket Task Force was created by the Army's Chemical Materials Agency (CMA) to consolidate and coordinate the response to rocket fires at Umatilla and other chemical demilitarization facilities (rocket fires also occurred at the Pine Bluff Chemical Agent Disposal Facility on May 11 and May 22). The Rocket Task Force includes representatives of the CMA, the Army Corps of Engineers, Washington Group International (parent corporation of the Washington Demilitarization Company and the operations contractor at the Anniston Chemical Agent Disposal Facility and the Pine Bluff Chemical Agent Disposal Facility), EG&G (the operations contractor at the Tooele Chemical Agent Disposal Facility in Utah), and SAIC (a contractor to the Army who has done extensive work in the chemical demilitarization program). The Department reviewed the Task Force scope of work that encompasses six primary areas:

- confirmation of the design basis for the ECRs,
- consequence mitigation,
- minor modifications with the potential to preclude future events,
- major modifications with the potential to preclude future events,
- Army-led rocket propellant assessment, and
- environmental and scheduling support.

Based upon a review of documents concerning the design basis of the ECRs, the Department concluded that 1) the ECRs have been designed and constructed to withstand events of much greater explosive force than have been experienced to date, 2) rocket fire events at the shear machine are unlikely to propagate to the rocket stationed at the agent drain station in the ECR, 3) the ECRs are able to withstand repeated events of this type, and 4) the increase in public risk posed by a greater-than-anticipated rocket fire frequency is negligible. These conclusions are based on the assumption that the ECR and associated ventilation and filter systems are repaired and tested to ensure they have been returned to a fully functional condition after each fire event and that future events do not exceed the maximum temperatures and blast pressures used as the design basis for the ECRs. UMCDF has installed temperature and pressure monitors in the ECRs and has provided the Department with its "Resumption Plan" that identifies the scope of

activities UMCDF will perform after future fires to assure full functionality of the ECRs before the resumption of rocket processing.

Since the April 23 rocket fire, UMCDF has implemented prevention and mitigation measures to reduce the frequency of future fires and/or to mitigate the consequences should such fires occur:

- relocation of detectors to improve fire detection capabilities in the ECRs;
- modifications to the deluge spray and shear blade sprays to deliver additional and better-distributed water/decontamination solution coverage to the shear blade itself and rocket pieces on both sides of the shear blade; and
- activation of the deluge spray system based upon an increase in room pressure in the ECRs (in addition to the detection of fires in the ECRs).

The Department also reviewed numerous documents concerning ongoing and planned evaluations and concluded that planned activities will address the Department's primary concerns, including 1) confirmation and continuing assessments of the ECRs and their ability to contain and control rocket fire events without risk to the public, 2) evaluation of modifications intended to prevent recurrence of rocket propellant ignition events during shearing operations, 3) evaluation of modifications intended to mitigate the consequences of rocket fire events, 4) assessment of rocket propellant condition to obtain information for use in the decision process related to potential effectiveness of modifications being evaluated, and 5) evaluation of the current and future impacts the rocket fire events will have on permitting activities and completion of agent trial burns.

On June 9, the Department gave its written approval for UMCDF to resume rocket processing, because the Department was satisfied that UMCDF had completed the activities necessary to safely resume operations and that resumption of rocket processing did not present unacceptable risks to human health or the environment.

UMCDF will provide the Department with monthly written updates of ongoing activities by the Rocket Task Force. In addition, specific reports related to the evaluation of various minor facility modifications with potential to preclude future events and consequence mitigation measures still under evaluation when rocket processing resumed were provided to the Department on June 13. Additional items of information or clarification were also identified for later submittal to the Department as conditions in the approval letter for resumption of rocket processing.

On June 13, UMCDF sent nine rocket motors to the Army's Picatinny Arsenal in New Jersey for analysis of the rocket propellant. These motors were separated from warheads of rockets in storage at UMCD and were from similar lots as the rocket propellant involved in the fires of April 7, April 23, and May 18. It is hoped that the analyses will provide additional information regarding the cause of the fires, including a determination of any increase in sensitivity of the rocket propellant associated with the fires at UMCDF. It is anticipated that the analyses will not be completed until late July or early August. Additional rocket propellant samples from Pine Bluff also will be sent to Picatinny for analysis.

**Agent Trial Burns**

The rocket fires in the ECRs on April 23 and May 18 occurred during the performance of UMCDF's TSCA (Toxic Substances Control Act) trial burn and resulted in those test runs being aborted. The TSCA trial burn is to demonstrate adequate destruction of PCBs contained in the rocket shipping and firing tubes.

Further attempts to complete the TSCA trial burn are complicated by the fact that the rockets with "matted" shipping and firing tubes that are to be used for the TSCA trial burn (because of their higher PCB content than the rockets with "chopped" shipping and firing tubes) also are associated with the rocket propellant lots that have been involved in the fires. Therefore, it appears that EPA will allow UMCDF to delay the TSCA trial burn until after completion of the agent trial burns for the DFS and LIC1. Therefore, UMCDF's current plans are to proceed with the trial burns in the following timeframes:

- Deactivation furnace system GB agent trial burn for drained rockets – late June
- Liquid incinerator #1 GB agent trial burn – early to mid-July
- TSCA trial burn – September.

This sequence is consistent with the guidance to UMCDF from the Department that the agent trial burn for the DFS is a top priority upon resumption of rocket processing.

**Follow-up on Safety Stand-downs in 2004**

In 2004, safety stand-downs occurred at UMCDF as a result of failures by the work force to demonstrate an adequate regard for chemical agent boundaries at the facility. In February a corporate "Tiger Team" from Washington Group International conducted an independent assessment of the Umatilla project from a broad perspective. The Tiger Team identified a number of issues related to the management and leadership structure of UMCDF that must be addressed for the facility to "achieve its full potential." The Tiger Team submitted a report to UMCDF with recommendations for better planning of the shakedown schedule; filling vacancies in critical project positions; implementation of integrated processes for work control and corrective action reporting; and development of plans for improving the environmental compliance culture and the safety mindset of the workforce.

Washington Demilitarization Company (WDC) has provided information to the Department regarding actions they have taken in each of these areas and further steps they are implementing in response to the Tiger Team recommendations. Significant changes have been made to the WDC leadership team and WDC has incorporated more integrated planning and work control procedures into its operations. WDC also has implemented measures intended to improve the environmental compliance culture by focusing upon actions to maintain environmental compliance at UMCDF and to provide more effective corrective action in response to non-compliances when they occur:

- task training,
- revisions to their process for implementing permit modifications,
- additional checklists and other "operator aids,"
- revitalization of the WDC Environmental Performance Improvement Team, and
- accountability consequences for workers and supervisors.

Additional steps have been taken to enhance the safety mindset of the workforce, such as giving more direct responsibility to the workers for performing their own job hazard analyses, additional training on pre-job briefings, consistent use of safety/compliance messages at worker meetings, and a review and revision of facility signage to clarify its messages and enhance its effectiveness throughout the facility.

WDC will provide the Department with ongoing updates of its actions to address the Tiger Team recommendations.

**Possible Weapons Relocation**
At the May 18 Citizens' Advisory Commission meeting, Michael Parker, Director of the Army's Chemical Materials Agency, stated that he believes the consideration of possible relocation of chemical weapons among stockpile facilities "really is a dead issue at this point." Recent Congressional restrictions included in a supplemental funding bill for the Pentagon seem to validate Mr. Parker's conclusion.

## Umatilla Chemical Depot (UMCD)

**GB Ton Containers**
UMCD has four GB ton containers (TCs) in a storage igloo that they intend to ship to UMCDF for expedited characterization and processing due to the degraded nature of the TCs. For spill containment purposes, the four TCs are in the bottom portion of specially-fabricated stainless steel overpack containers. Previous vapor leaks around plugs in the ends of the TCs have been contained and, if further leaks develop, the TCs will be sealed inside the overpack containers, until they can be transported to UMCDF and processed. The Army and WDC intend to transport the TCs in EONCs (enhanced on-site containers) to the toxic maintenance area of UMCDF, depressurize the TCs (it is assumed that all four TCs have been pressurized by decomposition products), and sample their contents (liquid and sludge, if any). The TCs will then be stored in the buffer storage area at UMCDF pending characterization of their contents and completion of the design, permitting, procurement, installation, and systemization of the processing system that will be used for the contents of these TCs.

## Other Demilitarization Facilities

**Aberdeen Chemical Agent Disposal Facility (ABCDF), Maryland**
After completing destruction of all mustard agent at Aberdeen Proving Ground on March 11, work continues on rinsing out residual agent and solids from the bulk containers, cutting the containers in half, and decontaminating the containers with a high pressure spray. The rinsate is neutralized and the hydrolysate produced from the neutralization process is transported by truck to a wastewater treatment facility operated by DuPont in Deepwater, New Jersey. The Army hopes to complete these activities by the end of the year and begin implementation of closure, including decontamination and dismantling of the plant equipment.

**Anniston Chemical Agent Disposal Facility (ANCDF), Alabama**
ANCDF has destroyed more than 66,000 GB weapons since it began incineration in August 2003. ANCDF has completed its destruction of 8-inch and 155mm GB projectiles, and hopes to complete the destruction of its 105 mm GB projectiles by year's end.

**Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP), Kentucky**
Recent rocket fires at UMCDF and the Pine Bluff Chemical Agent Disposal Facility in Arkansas have prompted a reassessment of previous plans to perform M55 GB rocket destruction at Blue Grass. Although the facility will use chemical neutralization as its agent destruction method, the Army had planned to use the same rocket shearing process and equipment presently in use at Umatilla and Pine Bluff to process the 51,716 M55 GB rockets in storage at Blue Grass. Design teams are currently re-evaluating potential options for rocket shearing before the final design is approved.

**Newport Chemical Agent Disposal Facility (NECDF), Indiana**
Chemical agent destruction of the VX stored in bulk containers at Newport began on May 5, despite continued opposition by state officials in Delaware and New Jersey regarding receipt of VX hydrolysate at DuPont's Deepwater, NJ wastewater treatment facility. At present, VX hydrolysate is being stored in containers onsite at NECDF until the issue of its final treatment and disposal is resolved. NECDF has treated 22 of the 1,690 ton containers of VX stored at the Newport Chemical Depot. Operations at NECDF have been suspended since June 10, when approximately 30 gallons of VX were spilled during transfer of VX into a reactor tank. The spill was captured by containment sumps within an unoccupied toxic area of the facility. No one was exposed and there was no release to the environment.

**Pine Bluff Chemical Agent Disposal Facility (PBCDF), Arkansas**
PBCDF has processed more than 10,000 M55 GB rockets. Rocket fires occurred in an explosive containment room on May 11 and May 22. An unrelated warehouse fire involving 7,500 canisters of white phosphorus, a chemical the Arsenal uses in incendiary devices and in smoke screen and signaling devices, occurred at the Pine Bluff Arsenal on June 6.

**Pueblo Chemical Agent Disposal Facility (PUCDF), Colorado**
Design work is underway for the destruction of the munitions and bulk storage containers of mustard agent in Pueblo.

**Tooele Chemical Agent Disposal Facility (TOCDF), Utah**
On June 3 TOCDF completed its destruction of the last of more than 22,600 land mines filled with the nerve agent, VX, marking the elimination of all VX agent at the Deseret Chemical Depot. Preparations are now underway to begin processing VX hydrolysate and a small amount of GA (tabun) nerve agent. Following that activity, TOCDF will then be decontaminated and prepared for its last chemical agent destruction campaign: processing nearly 125,000 mustard agent-filled munitions and bulk storage containers. The Department is closely following developments related to TOCDF's disposal of mustard because the UMCD stockpile includes 2,635 ton containers of mustard.

State of Oregon
# Department of Environmental Quality Memorandum

**Date:** June 2, 2005

**To:** Environmental Quality Commission

**From:** Stephanie Hallock, Director S. Hallock

**Subject:** Agenda Item I, Rule Adoption: Land Quality Rule Alignment
June 23, 2005 EQC Meeting

**Department Recommendation**

The Department of Environmental Quality (Department) recommends that the Environmental Quality Commission (Commission) amend several existing Land Quality program rules as presented in Attachment A (Appendices A-E).

**Background and Need for Rulemaking**

The proposed rules, if enacted, would align existing Land Quality Division rules with changes previously adopted by the Oregon Legislature or the federal government. The Department believes the proposed changes are all minor and of an "alignment" nature, reflecting legislative or other previously enacted changes. The goal of the current rulemaking is simply to correct existing rules so they are accurate and consistent with Oregon statute and federal requirements.

**Effect of Rule**

If enacted, the proposed amendments would:

1) revise language in OAR 340-102-0065 pertaining to fees paid by generators of hazardous waste, reflecting changes adopted by the 2003 legislature (pages A1-A3);
2) adopt a corrected reference in OAR 340-100-0002 to existing federal regulations pertaining to hazardous waste management (pages A4-A5);
3) incorporate fee changes enacted by the 2001 legislature for a) underground storage tank cleanup service provider registration and licenses in OAR 340-162-0150; and b) certification of home heating oil tank cleanup and decommissioning reports in OAR 340-177-0095 (pages A6-A8);
4) replace an out-of-date name for the federal emergency response system in OAR 340-141 and 340-142, reflecting changes made by the federal Department of Homeland Security, along with incorporating 2003 legislative session fee changes for dredge and passenger vessel trips into OAR 340-141-0010 (pages A9-A31); and
5) amend OAR 340-090-0040 to 0060 pertaining to solid waste recovery goals reflecting changes made by the 2001 legislature (pages A32-A48).

**Commission Authority**

The Commission has authority to take this action under ORS 466.165, 468.020, 465.009, 466.020, 466.505, 465.200 through 465.320, 466.706 through 466.995, 468.020, 468B.345 through 468B.405, 183, 459, 466, 468, 468B.395, 466.625,

468B.010, 459.045, 459A.025, 459A.100 through 459A.120 and 468.020.

**Stakeholder Involvement**

Because of the housekeeping nature of the proposed rule alignments (the proposed rule changes do not involve policy-making or discretionary matters), the Department did not convene an advisory committee to develop or review the proposed changes. The Department did provide advisory committee members and other key stakeholders background information about the proposed changes. The Department also provided public notice consistent with the state's public notice and comment process for rulemaking.

**Public Comment**

A public comment period extended from March 1 through 30, 2005 and included a public hearing in Portland, held on March 23. No-one attended or provided testimony at the public hearing. The Department received two written comments concerning the proposed rule changes, and these comments are summarized in Attachment C.

**Key Issues**

There were no significant policy-making issues in this rulemaking.

**Next Steps**

The proposed rules will be effective upon filing with the Secretary of State. The rules do not require implementation or outreach efforts, nor do they require additional staff resources to implement.

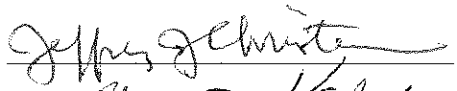
**Attachments**

A. Proposed Rule Revisions (Appendices A-E)
B. Presiding Officer's Report
C. Summary of Public Comments and Agency Responses
D. Relationship to Federal Requirements Questions
E. Statement of Need and Fiscal and Economic Impact
F. Land Use Evaluation Statement

**Available Upon Request**

1. Legal Notice of Hearing
2. Cover Memorandum from Public Notice
3. Written Comments Received
4. Rule Implementation Plan

Approved:

Section: 

Division: 

Report Prepared By: Jeff Christensen
Phone: (503) 229-6391

# Attachment A
# Proposed Land Quality
# Rule Alignment Changes

| | Page |
|---|---|
| **Appendix A—Proposed Rules for Adoption of Fees Established by the Oregon Legislature for Generators of Hazardous Waste** | **1** |
| **Appendix B—Proposed Rules for Correcting a Reference in Federal Regulations Pertaining to Hazardous Waste Management** | **4** |
| **Appendix C—Proposed Rules for Adoption of Fees Established by the Oregon Legislature for Underground Storage Tank Cleanup Service Providers and Home Heating Oil Tank Reports** | **6** |
| **Appendix D—Proposed Rules to Reflect a Name Change for the Federal Emergency Response System and to Adopt Fees Established by the Oregon Legislature for Dredge and Passenger Vessels** | **9** |
| **Appendix E—Proposed Rules for Adoption of Goals for Solid Waste Recovery Established by the Oregon Legislature** | **32** |
| **Appendix F—Statement of Need and Fiscal Impact** | **49** |
| **Appendix G—Land Use Evaluation Statement** | **51** |
| **Appendix H—Response to Questions Addressing Federal Requirements** | **53** |

Appendix A:
Proposed Rules for Adoption of Fees Established by
the Oregon Legislature for Generators of Hazardous Waste

**DIVISION 102**

**STANDARDS APPLICABLE TO GENERATORS OF**

**HAZARDOUS WASTE**

**340-102-0065**
**Hazardous Waste Generator Fees**

(1) Each person generating more than 100 kilograms (220 pounds) of hazardous waste, or more than 1 kilogram (2.2 pounds) of acutely hazardous waste, in any calendar month, or accumulating more than 1,000 kilograms (2,200 pounds) of hazardous waste at any time in a calendar year, shall be subject to an annual hazardous waste generation fee. Fees shall be assessed annually for hazardous waste management activities in the previous year.

(2) A late charge equal to ten percent of the fee due shall be assessed if the fees are not received by the Department by the due date shown on the invoice. An additional late charge of ten percent of the unpaid amount shall also be assessed each 30 days that the invoice remains unpaid. After 90 days no further Department late charges shall be assessed; however, such invoices may be referred to the Department of Revenue for collection or collected in Small Claims Court. Accounts referred to the Department of Revenue for collection or collected in Small Claims Court shall be increased by 20 percent of the unpaid amount or $100, whichever is greater, to recover a portion of the costs for referral or collection.

(3) A base hazardous waste generation fee, expressed in mills per kilogram, shall be fixed by rule by the Commission, based on reports from the Department on the total amount of hazardous waste generated in the state and the methods by which the waste was managed:

(a) The Department may use the base fee, or any lesser fee, to determine annual generation fee invoices. Any increase in the base fee must be fixed by rule by the Commission;

(b) Beginning with hazardous waste generated and managed during ~~1996~~2003, the base fee is fixed at 11090 ~~mills~~ mills per kilogram ($11090 per metric ton).

(4) Each person's hazardous waste generation fee shall be calculated by multiplying the base fee by the weight of each hazardous waste stream and by the fee factors listed below

for the management method reported in the annual generation report (OAR 340-102-0041) as follows:

**Management Method – Fee Factor**
Metals Recovery (For Reuse) – 0.50
Solvents Recovery – 0.50
Other Recovery – 0.50
Hazardous wastewater that is not managed immediately upon generation only in on-site elementary neutralization unit(s) (ENU) or wastewater treatment unit(s) (WWTU) – 0.50
Incineration – 1.00
Energy Recovery (Reuse as Fuel) – 0.75
Fuel Blending – 0.75
Aqueous Inorganic Treatment – 1.00
Aqueous Organic Treatment– 1.00
Aqueous Organic and Inorganic Treatment (Combined) – 1.00
~~Treatment (Combined)~~ Sludge Treatment – 1.00
Other Treatment – 1.00
Stabilization – 1.00
Neutralization (offsite) – 0.75
Land Disposal – 1.50
Management method unknown or not reported – 2.00
RCRA-Exempt Management Elementary Neutralization Unit(s) on-site (Includes only corrosive characteristic hazardous waste that is managed immediately upon generation only in an on-site elementary neutralization unit(s)) – 0.00
Permitted Discharge under Clean Water Act Section 402 or 307b (Includes only hazardous wastewater that is managed immediately upon generation only in an on-site wastewater treatment unit(s)) – 0.00

In order to determine annual hazardous waste generation fees, the Department may use generator reports required by OAR 340-102-041; facility reports required by OAR 340-104-075; information derived from manifests required by 40 CFR 262.20; and any other relevant information. Unless density information is reported, the Department will use the following conversion factors: I metric ton = 1,000 kilograms 2,205 pounds 1.10 short tons = 1.31 cubic yards = 264.23 gallons = 4.80 drums *(55* gallon).

(5) The maximum annual hazardous waste generation fee on any initial fee invoice shall be limited to $27,500~~22,500~~.

(6) Effective January 1, 1997, in addition to the annual hazardous waste generation fee, each hazardous waste generator shall be subject to an annual hazardous waste activity verification fee, upon billing by the Department, as follows:

(a) Large Quantity Generator: $525;

(b) Small Quantity Generator: $300;

(c) Conditionally Exempt Small Quantity Generator: No Fee.

Stat. Auth.: ORS 466.165 & ORS 468.020
Stats. Implemented: ORS 466.165
Hist.: DEQ 8-1985, f. & ef. 7-25-85; DEQ 14-1987, f. & ef. 7-28-87; DEQ 11-1988, f. & cert. ef. 5-19-88; DEQ 19-1989(Temp), f. & cert. ef. 7-31-89 (and corrected 8-3-89); DEQ 33-1989, f. & cert. ef. 12-14-89; DEQ 13-1991, f. & cert. ef. 8-5-91; DEQ 11-1992, f. & cert. ef. 6-9-92; DEQ 2-1994, f. & cert. ef. 2-2-94; DEQ 14-1997, f. & cert. ef. 7-23-97; DEQ 11-1998, f. & cert. ef. 6-26-98

Appendix B:
Proposed Rules for Correcting a Reference in Federal Regulations
Pertaining to Hazardous Waste Management

## DIVISION 100

## HAZARDOUS WASTE MANAGEMENT

### Hazardous Waste Management System: General

**340-100-0002**

**Adoption of United States Environmental Protection Agency Hazardous Waste and Used Oil Management Regulations**

(1) Except as otherwise modified or specified by OAR 340, divisions 100 to 106, 109, 111, 113, 120, 124 and 142 the rules and regulations governing the management of hazardous waste, including its generation, transportation, treatment, storage, recycling and disposal, prescribed by the United States Environmental Protection Agency in **Title 40 Code of Federal Regulations, Parts 260 to 266, 268, 270, 273** and **Subpart A** and **Subpart B** of **Part 124** promulgated through July 1, 2002, and including the rule promulgated July 24, 2002 at 67 Federal Register 48393, except the amendments to **40 CFR Parts 264, 265** and **270** as promulgated at ~~65~~63 Federal Register 56710-56735, October 22, 1998, and **65 Federal Register 30886-30913, May 15, 2000**, are adopted by reference and prescribed by the Commission to be observed by all persons subject to ORS 466.005 to 466.080 and 466.090 to 466.215.

(2) Except as otherwise modified or specified by OAR 340, division 111, the rules and regulations governing the standards for the management of used oil, prescribed by the United States Environmental Protection Agency in **Title 40 Code of Federal Regulations, Part 279** promulgated through July 24, 2002, are adopted by reference into Oregon Administrative Rules and prescribed by the Commission to be observed by all persons subject to ORS 466.005 to 466.080 and 466.090 to 466.215.

**COMMENT:** The Department uses the federal preamble accompanying the federal regulations and federal guidance as a basis for regulatory decision-making.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 465.009, 466.020 & 465.505
Stat. Implemented: ORS 465.003, 465.009, 466.005, 466.075, 466.105, 465.505
Hist.: DEQ 8-1985, f. & ef. 7-25-85; DEQ 10-1987, f. & ef. 6-11-87; DEQ 23-1987, f. & ef. 12-16-87; DEQ 19-1988, f. & cert. ef. 7-13-88; DEQ 12-1989, f. & cert. ef. 6-12-89; DEQ 4-1991, f. & cert. ef. 3-15-91 (and corrected 6-20-91); DEQ 24-1992, f. 10-23-92, cert. ef. 11-1-92; DEQ 11-1993, f. & cert. ef. 7-29-93; DEQ 6-1994, f. & cert. ef. 3-22-

94; DEQ 31-1994(Temp), f. 12-6-94, cert. ef. 12-19-94; DEQ 11-1995, f. & cert. ef. 5-19-95; DEQ 12-1996, f. & cert. ef. 7-31-96; DEQ 14-1997, f. & cert. ef. 7-23-97; DEQ 11-1998, f. & cert. ef. 6-26-98; DEQ 26-1998(Temp), f. & cert. ef. 11-3-98 thru 3-19-99; DEQ 4-1999, f. & cert. ef. 3-19-99; DEQ 10-2000, f. & cert. ef. 7-21-00; DEQ 6-2001, f. 6-18-01, cert. ef. 7-1-01; DEQ 13-2002, f. & cert. ef. 10-9-02; DEQ 13-2003, f. & cert. ef. 10-24-03

Appendix C:
Proposed Rules for Adoption of Fees Established by the Oregon Legislature for Underground Storage Tank Cleanup Service Providers and Home Heating Oil Tank Reports

## DIVISION 162

## REGISTRATION AND LICENSING REQUIREMENTS FOR UNDERGROUND STORAGE TANK SOIL MATRIX

## CLEANUP SERVICE PROVIDERS AND SUPERVISORS

**340-162-0150**

**Fees**

(1) Fees shall be assessed to provide revenues to operate the underground storage tank soil matrix cleanup services licensing program. Fees are assessed for the following:

(a) Underground Storage Tank Soil Matrix Cleanup Service Provider;

~~(b) Underground Storage Tank Soil Matrix Cleanup Supervisors Examination;~~

(b)~~(c)~~ Underground Storage Tank Soil Matrix Cleanup Supervisors License;

(c)~~(d)~~ Underground Storage Tank Soil Matrix Cleanup Examination Study Guides.

(2) Underground Storage Tank Soil Matrix Cleanup service providers shall pay a non-refundable license application fee of ~~$100~~$300 for a ~~24~~12 month license.

~~(3) Individuals taking the underground storage tank soil matrix cleanup supervisor licensing qualifying examination shall pay a nonrefundable examination fee of $25.~~

(3)~~(4)~~ Individuals seeking to obtain an underground storage tank soil matrix cleanup supervisor's license shall pay a non-refundable license application fee of ~~$25~~$150 for a ~~two year~~24 month license.

(4)~~(5)~~ Examination study guides shall be made available to the public for the cost of production.

(5)~~(6)~~ Replacement licenses will be provided by the department for a fee of $10.

Stat. Auth.: ORS 465.200 - ORS 465.320 & ORS 466.706 - ORS 466.995
Stats. Implemented: ORS 466.750
Hist.: DEQ 27-1990, f. & cert. ef. 7-6-90; DEQ 15-1991, f. & cert. ef. 8-14-91

## DIVISION 177

## RESIDENTIAL HEATING OIL UNDERGROUND STORAGE TANKS

**340-177-0095**

**Certified Reports**

(1) The tank owner, or service provider on owner's behalf, must submit certified project reports and receive approval from the Department for heating oil tank services performed at underground heating oil tank sites. This applies to the following projects:

(a) Decommissioning projects where the tank owner voluntarily requests Department approval; and

(b) All underground heating oil tank cleanup projects.

(2) Service providers licensed in accordance with Chapter 340, Division 163 are eligible to submit certified reports.

(3) Certified reports submitted to the Department must be accompanied by the required ~~$50~~ filing fee of $50 for decommissioning of a tank with no confirmed release and $125 for decommissioning of a tank with a confirmed release.; ~~which is~~ Filing fees are non-refundable.

(4) Certified reports must contain specific information as set forth below:

(a) For a voluntary decommissioning performed after March 15, 2000: The decommissioning report as required by OAR 340-177-0025 and decommissioning certification as required by OAR 340-163-0060.

(b) For a voluntary decommissioning performed prior to March 15, 2000:

(A) If the work was performed by a service provider licensed to perform soil matrix cleanup or UST decommissioning at the time the service was provided and two soil samples were collected in general conformity with the requirements of OAR 340-177-0025, a report that meets the general requirements of OAR 340-177-0025(3) is sufficient;

(B) If no soil samples were collected, or if the sampling work was performed by an unlicensed contractor, a licensed service provider must conduct a site assessment that meets the requirements of OAR 340-177-0025(2)(c) and must include a report that meets the requirements OAR 340-177-0025(3).

(c) For all heating oil tank cleanup projects, the cleanup certification provided in accordance with OAR 340-163-0060 must be accompanied by the specific report required by either or both OAR 340-177-0055(4) and (5) and OAR 340-177-0065(2) based on the cleanup option selected for the site.

(5) Department approval will be provided in the form of a letter to the tank owner, with a copy to the certifying service provider, that indicates the certified report has been registered and Department files on the project have been closed.

Stat. Auth.: ORS 466.706
Stats. Implemented: ORS 466.706
Hist.: DEQ 3-2000, f. & cert. ef. 2-17-00

Appendix D:
Proposed Rules to Reflect a Name Change for the Federal Emergency Response System
and to
Adopt Fees Established by the Oregon Legislature for Dredge Vessels and Cargo Vessels

## DIVISION 141

## OIL SPILL CONTINGENCY PLANNING AND FEES

**340-141-0005**

**Definitions as used in this Division**

(1) "Average Most Probable" spill, release or discharge means the probable volume of oil that may spill as defined in a plan considering the history of spills from similar facilities or vessels of the same class operating on the west coast of the United States. It may also be defined as the lesser of one percent of the worst case spill, release or discharge, or 50 barrels, when used as a planning volume.

(2) "Best Achievable Protection" means the highest level of protection that can be achieved through the use of the best achievable technology and those staffing levels, training procedures and operational methods that provide the greatest degree of protection available considering:

(a) The additional protection provided by the measures;

(b) The technological feasibility of the measures; and

(c) The cost of the measures.

(3) "Best Achievable Technology" means the technology that provides the greatest degree of protection, taking into consideration processes that are currently in use, processes that have been developed or processes that could feasibly be developed with reasonable expenditures on research and development. In determining what is best achievable technology, the Director will consider the effectiveness, engineering feasibility and commercial availability of the technology.

(4) "Bulk" means material that is stored or transported in a loose, unpackaged liquid, powder or granular form capable of being conveyed by a pipe, bucket, chute or belt system.

(5) "Cargo vessel" means a self-propelled ship in commerce, other than a tank vessel of 300 or more gross tons. "Cargo vessel" does not include a vessel used solely for commercial fish harvesting.

(6) "Columbia River" means the length of the Columbia River from where it enters the State of Oregon from the State of Washington to the point where it leaves the state at river mile zero at the Pacific Ocean.

(7) "Commercial Fish Harvesting" means taking food fish with any gear unlawful for angling under ORS 506.006, taking food fish in excess of the limits permitted for personal use, or taking food fish with the intent of disposing of such food fish or parts thereof for profit, or by sale, barter or trade, in commercial channels.

(8) "Commission" means the Environmental Quality Commission.

(9) "Contingency Plan" or "Plan" means an oil spill prevention and emergency response plan required under ORS 468B.345.

(10) "Contract or other approved means" in a response or a plan means:

(a) A written contract between a covered vessel or facility owner or operator and an oil spill removal organization that identifies and ensures the availability of specified personnel and equipment within stipulated response times in specified oil spill response Zones;

(b) Certification by the vessel or facility owner or operator that specified personnel and equipment are owned, operated or under the direct control of the vessel or facility owner or operator and are available within stipulated response times in specified oil spill response Zones;

(c) Active membership in a local or regional oil spill removal organization that has identified specified personnel and equipment that are available to respond to an oil spill within stipulated response times in specified oil spill response Zones; or

(d) A written document that:

(A) Identifies personnel, equipment and services capable of being provided by the oil spill removal organization within stipulated response times in specified oil spill response Zones;

(B) Acknowledges that the oil spill removal organization intends to commit the identified resources in the event of an oil spill;

(C) Permits the commission to verify the availability of the identified oil spill removal resources through tests, inspections and exercises; and

(D) Is referenced in an oil spill contingency plan for the vessel or facility.

(11) "Covered vessel" means a tank vessel, self-propelled tank vessel, cargo vessel or passenger vessel.

(12) "Dedicated response vessel" means a vessel that limits service exclusively to recovering and transporting spilled oil, tanker escorting, deploying oil spill response equipment, supplies and personnel, spill response-related training, testing, exercises and research or other oil spill removal and related activities.

(13) "Department" means the Department of Environmental Quality.

(14) "Director" means the Director of the Department of Environmental Quality.

(15) "Discharge" means any emission other than natural seepage of oil, whether intentional or unintentional. "Discharge" includes but is not limited to spilling, leaking, pumping, pouring, emitting, emptying or dumping oil.

(16) "Drill" means the simulated performance of a spill response or task predicted in a plan.

(17) "Effective Daily Recovery Capacity" or "EDRC" means the factor used to estimate limitations on equipment efficiency from variables such as sea state, current velocity or visibility.

(18) "Field Document" means a simplified response plan for onsite use in the event of a spill, summarizing key notification and action elements.

(19) "Facility" means a pipeline or any structure, group of structures, equipment or device, other than a vessel located on or near navigable waters of a state, that is used for producing, storing, handling, transferring, processing or transporting oil in bulk and that is capable of storing or transporting 10,000 or more gallons of oil per day. "Facility" does not include:

(a) A railroad car, motor vehicle or other rolling stock while transporting oil over the highways or rail lines of this state;

(b) An underground storage tank regulated by the Department of Environmental Quality or a local government under ORS 466.706 - 466.882 and 466.994; or

(c) Any structure, group of structures, equipment or device, other than a vessel located on or near navigable waters of a state, that is used for producing, storing, handling, transferring, processing or transporting 10,000 gallons or more of oil per day but does not receive oil from tank vessels, barges or pipelines.

(20) "Initial assessment" is a task assigned to first responders who are participating with the Department in a Unified Command or Incident Command System, and includes the following tasks:

(a) Verifying the spill location;

(b) Establishing the type of incident based on products and conditions;

(c) Confirming or correcting the reported quantity released or area extent of the contamination;

(d) Reporting the efficacy of the initial containment;

(e) Projecting immediate resource needs to control the release; and

(f) Reporting local knowledge about the probable impacts of the release.

(21) "Interim Storage Site" means a site used to temporarily store recovered oil or oily waste until the recovered oil or oily waste is disposed of at a permanent disposal site. Interim storage sites include trucks, barges and other vehicles used to store recovered oil or oily waste until transport begins.

(22) "Maritime Association" means an association or cooperative of marine terminals, facilities, vessel owners, vessel operators, vessel agents or other maritime industry groups that provides oil spill response planning and spill related communications services within the state.

(23) "Maximum Extent Practicable" means the highest level of effectiveness that can be achieved through staffing levels, training procedures and best achievable technology considering the effectiveness, engineering feasibility, commercial availability, safety and cost of the measures.

~~(24) "National Interagency Incident Management System" or "NIIMS" means a style of Incident Command (IC). This is the type of organizational structure adopted by the State of Oregon.~~

(24) "National Incident Management System" or "NIMS", as established by the Homeland Security Presidential Directive 5 of February 28, 2003 is a consistent nationwide template to enable Federal, State, local and tribal governments and private-sector and nongovernmental organizations to work together effectively and efficiently to prepare for, prevent, respond to and recover from domestic incidents, regardless of cause, size or complexity, including acts of catastrophic terrorism.

(25) "Navigable Waters" means the Columbia River, the Willamette River up to Willamette Falls, the Pacific Ocean and estuaries to the head of tide water.

(26) "Non-Persistent Oil" means those petroleum products with physical characteristics less dense than persistent oils, also referred to as Group I petroleum products.

(27) "Northwest Area Contingency Plan" means the regional emergency response plan developed in accordance with federal requirements and adopted as an annex to the State of Oregon all hazard plan as required by ORS 466.620.

(28) "Offshore Facility" means any facility located in, on or under any of the navigable waters of the state.

(29) "Oil" or "Oils" means oil including gasoline, crude oil, fuel oil, diesel oil, lubricating oil, oil sludge, oil refuse, and any other petroleum-related product.

(30) "Oil Spill Contingency Response Planning Standards" means the Department's standards for reviewing oil spill contingency plans. The planning standards represent the Department's best general estimate of types and quantities of personnel and equipment required to ensure adequate response to any location.

(31) "Oil Spill Response Planning Zones" are geographic areas of the State for which the Department has established minimum planning standards. The Oil Spill Planning Zones are as follows:

(a) "Columbia River Zone" includes the Columbia River from where it enters the State of Oregon from the State of Washington to the point where it leaves the state at river mile zero at the Pacific Ocean, and extending 25 miles inland adjacent to the waterway. It is divided into four sub-Zones:

(A) "Columbia River, Upper River sub-Zone" means the Columbia River from the point where it enters Oregon from the State of Washington to the Bonneville Dam;

(B) "Columbia River, Portland sub-Zone" means the Willamette River below Willamette Falls, and the Columbia River between the Bonneville Dam and river mile 85 at St. Helens;

(C) "Columbia River, Rainier sub-Zone" means the Columbia River between river mile 85 at St. Helens and river mile 40 at Bugby Hole; and

(D) "Columbia River, Astoria sub-Zone" means the Columbia River between river mile 40 at Bugby Hole and river mile zero at the Pacific Ocean.

(b) "Coastal Bays Zone" means all ports on the Oregon coast where covered vessels make calls and extending inland 25 miles;

(c) "Open Ocean Zone" is the Pacific Ocean from the mark of average high tide out to the three mile limit of Oregon's authority; and

(d) "Inland Zone" means areas of Oregon where oil spill risks can be reduced through planning and contingency strategies, and not included in another listed Planning Zone.

(32) "Oily Waste" means oil contaminated waste resulting from an oil spill or oil spill response operations.

(33) "Onshore Facility" means any facility, located in, on or under any land of the state, other than submerged land, that, because of its location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters of the state or adjoining shorelines.

(34) "Owner or Operator" means:

(a) In the case of an onshore or offshore facility, any person owning or operating the facility.

(b) In the case of a vessel, any person owning, operating or chartering by demise, the vessel.

(c) In the case of an abandoned onshore or offshore facility, or vessel, the person who owned or operated the facility or vessel immediately before its abandonment.

(35) "Passenger vessel" means a ship of 300 or more gross tons carrying passengers for compensation.

(36) "Persistent Oil" means those petroleum products with environmental degradation resistance or viscosity characteristics equal to and greater than fuel oil having a specific gravity of more than 0.8, also referred to as Group II and higher petroleum products.

(37) "Person" includes individuals, corporations, associations, firms, partnerships, joint stock companies, public and municipal corporations, political subdivisions, the state and any agencies thereof, and the federal government and any agencies thereof.

(38) "Person Having Control Over Oil" includes, but is not limited to, any person using, storing or transporting oil immediately prior to entry of such oil into the navigable waters of the state, and specifically includes carriers and bailees of such oil.

(39) "Pipeline" means a facility, including piping, compressors, pump stations and storage tanks used to transport oil between facilities or between facilities and tank vessels.

(40) "Primary Response Contractor" means a response contractor that is identified in a required plan and is committed to the plan holder by contract or other approved means.

(41) "Region of Operation" with respect to the holder of a contingency plan means the area where the operations that require a contingency plan are located.

(42) "Resident" means that the resource is kept ready for use at an address within the planning Zone (or sub-Zone if planning standards specify) in which the facility or vessel is located.

(43) "Response Contractor" means an individual, organization, association, or cooperative that provides or intends to provide equipment, personnel for oil spill containment, cleanup or removal activities.

(44) "Self-propelled tank vessel" means a tank vessel that is capable of moving under its own power.

(45) "Ship" means any boat, ship, vessel, barge or other floating craft of any kind.

(46) "Spill or release" means the discharge, deposit, injection, dumping, spilling, emitting, releasing, leaking or placing of any oil or hazardous material into the air or into or on any land or waters of the state, as defined in ORS 468B.005, except as authorized by a permit issued under ORS chapter 454, 459, 459A, 468, 468A, 468B or 469, 466.005 to 466.385, 466.990(1) and (2) or 466.992 or federal law or while being stored or used for its intended purpose.

(47) "Tank vessel" means a ship that is constructed or adapted to carry, or that carries, oil in bulk as cargo or cargo residue. "Tank vessel" does not include:

(a) A vessel carrying oil in drums, barrels or other packages;

(b) A vessel carrying oil as fuel or stores for that vessel; or

(c) An oil spill response barge or vessel.

(48) "Trip" means travel to the appointed destination and return travel to the point of origin within the navigable waters of the State of Oregon.

(49) "Waters of the State" includes lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

(50) "Worst case spill" means:

(a) In the case of a vessel, a spill of the entire cargo and fuel of the tank vessel complicated by adverse weather conditions.

(b) In the case of an onshore or offshore facility, the largest foreseeable spill in adverse weather conditions.

Stat. Auth.: ORS 468.020, ORS 468B.345 - ORS 468B.405
Stats. Implemented: ORS 468B.300 - ORS 468B.500
Hist.: DEQ 2-2003, f. & cert. ef. 1-31-03

**340-141-0010**

**Program Administration and Compliance Fees**

(1) All offshore and onshore facilities required to develop oil spill prevention and emergency response plans under ORS 468B.345 will be assessed an annual fee of $4,500. The fee is due in July, and covers the 12 month period commencing July 1.

(2) Covered vessels and facilities are subject to the following fees:

(a) Self-propelled tank vessels of more than 300 gross tons: $836 per trip;

(b) Self-propelled tank vessels of 300 gross tons or less: $42 per trip;

(c) Tank vessels and barges that are not self-propelled: $42 per trip; ~~and~~

(d) Cargo and passenger vessels: $48 per trip; and~~.~~

(e) Dredge vessels: $24 per day when operating in the navigable waters of the state.

(3) Fees assessed under section (2) must be remitted to the Department within 30 days of the conclusion of each trip.

(4) Moneys collected under this rule will be deposited in the State Treasury to the credit of the Oil Spill Prevention Fund established by ORS 468B.410.

Stat. Auth.: ORS 468.020, ORS 468B.345 - ORS 468B.500
Stats. Implemented: ORS 468B.405
Hist.: DEQ 2-2003, f. & cert. ef. 1-31-03

**340-141-0140**

**Plan Content Requirements**

(1) Submittal Agreement. Each plan must contain a submittal agreement that:

(a) Includes the name, address and phone number of the submitting party;

(b) Verifies acceptance of the plan, including any incorporated contingency plans, by the owner or operator of the facility or covered vessel by either signature of the owner or operator or a person with authority to bind the corporation that owns or operates the facility or covered vessel;

(c) Commits to execution of the plan, including any incorporated contingency plans, by the owner or operator of the facility or covered vessel, and verifies authority for the plan holder to make appropriate expenditures in order to execute plan provisions; and

(d) Includes:

(A) In the case of a facility, the name, location including latitude, longitude and river mile, and address of the facility, type of facility, starting date of operations, types of oils (see definition of oil) handled, volume of oil stored and maximum volume of oil capable of being stored.

(B) In the case of a covered vessel, the vessel's name, the name, location and address of the owner or operator, official identification code or call sign, country of registry, common ports of call in Oregon, type of oils (see definition of oil) handled, volume of oil transported as fuel and expected period of operation in state waters.

(C) In the case of a covered vessel enrolled in a cooperative or maritime association plan, the vessel may provide evidence of coverage in lieu of paragraph (B) of this subsection.

(2) Amendments. Each plan must include a log sheet to record amendments to the plan. The log sheet must be placed at the front of the plan. The log sheet must provide for a record of the section amended, the date that the old section was replaced with the amended section, verification that the Department was notified of the amendment pursuant to OAR 340-141-0220(3) and the initials of the individual making the change. A description of the amendment and its purpose must also be included in the log sheet, or filed in the form of an amendment letter immediately after the log sheet.

(3) Table of Contents. Each plan must include a detailed table of contents based on chapter, section, appendix numbers and titles and tables and figures. If the plan is an integrated plan used to also satisfy USCG and USEPA requirements, a cross reference must be included.

(4) Purpose and Scope. Each plan must describe the purpose and scope of that plan, including:

(a) The region of operation covered by the plan;

(b) The onshore facility, offshore facility or covered vessel operations covered by the plan; and

(c) The size and type of the average most probable spill and the worst case spill from the facility or covered vessel.

(5) Updates. Each plan must describe the events or time periods that will trigger updates of the plan.

(6) Implementation Strategy. Each plan must present a strategy for ensuring use of the plan for spill response and cleanup operations as required by OAR 340-141-0210.

(7) Spill Response System. Each plan must describe the organization of the spill response system, including all task assignments anticipated by the end of the first full operational period, or necessary to manage the resources required by the 12 hour planning standard, given a response to an Average Most Probable Discharge. Plans must use a National ~~Interagency~~ Incident Management System ~~(NIIMS)~~ (NIMS) incident management system, as described in the Northwest Area Contingency Plan (NWACP).

(8) Contractor Identification. Each plan must identify the primary response contractor and subcontractors (except equipment rentals or supply vendors) whose services are bound to the plan by a contract or other approved means:

(a) If a plan holder is a member of an oil spill response cooperative and relies on that cooperative to perform or supplement its response operations within the regions of operations covered by the plan, the plan must state the cooperative's name, address, phone number and response capability. The plan must also include proof of cooperative membership; or

(b) If a plan holder is not a member of an oil spill response cooperative, for each contractor, the plan must state that contractor's name, address, phone number or other means of contact at any time of the day, and response capability (e.g., land spills only). For each contractor, the plan must include a letter of intent signed by the contractor which indicates the contractor's commitment to respond within the specified time period, with personnel and equipment listed in (12) and (13) of this section. Copies of written contracts or agreements with contractors must be available for inspection, if requested by the Department.

(9) Relationship to Other Plans. Each plan must briefly describe its relation to all applicable local, state, regional and federal government spill response plans. The plan must describe how the plan holder's response organization will be integrated into the Northwest Area Contingency Plan.

(10) Spill Detection. Each plan must list procedures that will be used to detect and document the presence and size of a spill, including methods which are effective during

low visibility conditions. The plan must also describe the use of mechanical or electronic monitoring or alarm systems (including threshold sensitivities) used to detect oil discharges into adjacent land or water from tanks, pipes, manifolds and other transfer or storage equipment.

(11) Notifications. Each plan must describe procedures that will be taken to immediately notify appropriate parties that a spill has occurred.

(a) The plan holder must maintain a notification call out list that must be available for inspection upon the request of the Department, and that:

(A) Provides a contact at any time of the day for all spill response personnel identified under section (7) of this rule, including the contact's name, position title, phone number or other means of contact for any time of the day, and an alternate contact in the event the individual is unavailable;

(B) Lists the name and phone number of all government agencies that must be notified in the event of an oil spill pursuant to requirements under ORS 466.635; and

(C) Establishes a clear order of priority for immediate notifications.

(b) The plan must identify a central reporting office or individual who is responsible for implementing the call out process.

(12) Response Personnel. Each plan must describe the personnel, including contract personnel available, to respond to an oil spill, including:

(a) A job description for each type of spill response position needed as indicated in the spill response organization scheme addressed in section (7) of this rule, or a reference to a recognized ~~NIIMS~~ NIMS position;

(b) The number of personnel available to perform the duties of each type of spill response position;

(A) This number must be equal to or greater than the number of persons necessary to sustain a response to the worst case spill defined in the plan.

(B) If 24 hour operations are expected, the number of persons available to staff the ICS must be multiplied by the proposed number of operational periods (shifts).

(c) Arrangements for pre-positioning personnel at strategic locations that will meet criteria pursuant to OAR 340-141-0190(3)(d); and

(d) The type and frequency of spill response operations and safety training that each individual in a spill response position receives to attain the level of qualification demanded by their job description.

(13) Equipment and spill response resources. Each plan must describe equipment and spill resources as follows:

(a) Each plan must list all resident equipment and resident dedicated response vessels used for oil containment, recovery, removal, shoreline and adjacent lands cleanup and wildlife rescue and rehabilitation. Each plan must also list all relied upon communication tools. The Department will accept information about equipment by reference if the equipment is being provided through a primary response contractor as part of the plan. The Department may request information about the condition and date of manufacture of any listed and referenced equipment to further evaluate its applicability to the planning standards or a response.

(b) For resident equipment and vessels listed under subsection (a) of this section that are not owned by or available exclusively to the plan holder, the plan must also estimate the extent that other contingency plans rely on the same equipment.

(c) For all resident oil containment and recovery equipment, the plan also must include equipment make and model, the manufacturer's nameplate capacity of the response equipment, the EDRC (in barrels per day) and applicable design limits (e.g., maximum wave height capability, suitability for inland waters or open ocean).

(d) Based on information described in subsection (c) of this section, the plan must state the maximum amount of oil that could be recovered per 24-hour period with the equipment used as it is designed.

(e) For purposes of determining plan adequacy under OAR 340-141-0190, and to assess realistic capabilities based on potential limitations by weather, sea state, and other variables, the Department will use the data presented in subsections (c) and (d) of this section to apply a higher efficiency factor for equipment listed in a plan if that plan holder provides adequate evidence that the higher efficiency factor is warranted for particular equipment or if the United States Coast Guard has approved a higher efficiency rating.

(f) The plan must provide arrangements for pre-positioning of oil spill response equipment at strategic locations that will meet response time criteria pursuant to OAR 340-141-0190(3)(d).

(g) When calculating the delivery time of equipment to a spill staging area, the plan must use travel speeds consistent with federal speed predictions for the equipment being moved.

(14) Communications. Each plan must describe the communication systems used for spill notification and response operations, including:

(a) Communication procedures that identify who will be responsible for the function, to whom and from whom communication will be established and any special instructions;

(b) The communication function (e.g., ground-to-air) assigned to each channel or frequency used;

(c) The maximum geographic range for each type of communications equipment used; and

(d) The communication system compatibility with key spill response agencies.

(15) Response Operation Sites. Each plan must describe the process used by the plan holder to establish sites needed for spill response operations, including location or location selection criteria for an incident command post, a communications center if located away from the command post and equipment and personnel staging areas.

(16) Response Flow Chart or Timeline. Each plan must describe the response process by:

(a) Presenting a flowchart or decision tree describing the procession of each major stage of spill response operations from spill discovery to completion of cleanup. The flowchart or decision tree must describe the general order and priority in which key spill response activities are performed; and

(b) Describing all key spill response operations in checklist forms, to be used by spill response managers in the event of an oil spill.

(17) Authorities. Each plan must describe responsible authorities by:

(a) Listing the local, state and other government authorities responsible for the emergency procedures peripheral to spill containment and cleanup; and

(b) Describing the plan holder's role in these emergency operation procedures before the proper authorities arrive, including but not limited to, control of fires and explosions, rescue activities, access restriction to the spill impact area and site security.

(18) Damage Control. Each plan must describe equipment and procedures to be used by the facility or covered vessel personnel to minimize the magnitude of the spill and minimize structural damage that could increase the quantity of oil spilled.

(a) For facilities, damage control procedures must include methods to slow or stop pipeline, storage tank, and other leaks, and methods to achieve immediate emergency shutdown.

(b) For tank vessels, damage control procedures must include methods and onboard equipment to achieve vessel stability and prevent further vessel damage, slow or stop pipe, tank, and other leaks and achieve emergency shutdown during oil transfer.

(c) For other covered vessels, damage control procedures must address methods to achieve vessel stability and slow or stop leaks from fuel tanks and lines.

(19) Containment. Each plan must describe, in detail, any nonstandard methods specific to the plan to contain spilled oil and recover it from the environment. When a plan calls for the use of methods that have not been expressly approved by the Department, the description of the proposed options must include:

(a) The surveillance methods expected to be used to detect and track the extent and movement of the spill; and

(b) A description of methods to be used to contain and remove oil that will be effective for environmentally sensitive locations included in the Zone, or Zones, for which the plan is written.

(20) Response Time. Each plan must briefly describe initial equipment and personnel deployment activities that will accomplish the response standard listed in OAR 340-141-0190(e)(d) and provide:

(a) An estimate of the actual execution time;

(b) The specific location in the Zone where the resident required response equipment is stored; and

(c) The source and management of personnel to deploy the initial response equipment.

(21) Chemical Agents. If the plan holder proposes to use dispersants, coagulants, bioremediants or other chemical agents for response operations under certain conditions, the plan must describe:

(a) Type and toxicity of chemicals, supplemented with material safety data sheets (MSDS) for each product;

(b) The conditions under which the chemicals will be applied, in conformance with all applicable local, state and federal requirements, including the Northwest Area Contingency plan and OAR 340-141-0020;

(c) Methods of deployment; and

(d) Location and accessibility of supplies and deployment equipment.

(22) In Situ-Burning. If the plan holder proposes to use in-situ burning for response operations, the plan must describe:

(a) Type of burning operations;

(b) Conditions under which burning will be applied in conformance with all applicable local, state and federal requirements, including the Northwest Area Contingency plan and OAR 340-264-0030 to 0040;

(c) Methods of application; and

(d) Location and accessibility of supplies and deployment equipment.

(23) Environmental Protection. Each plan must describe how environmental protection will be achieved, including:

(a) Protection of sensitive shoreline and island habitat by diverting or blocking oil movement;

(b) Priorities for sensitive area protection in the region of operation covered by the plan as provided in a Geographic Response Strategy of the Northwest Area Contingency Plan, or designated by the Department;

(c) Rescue and rehabilitation of birds, marine mammals and other wildlife contaminated or otherwise affected by the oil spill; and

(d) Measures taken to reduce damages to the environment caused by shoreline and adjacent land cleanup operations.

(24) Interim Storage. Each plan that has identified that oil will be recovered must plan for the storage of the oil and combined oily waste material potentially created.

(a) Each plan must describe site criteria and methods used for interim storage of oil recovered and oily wastes generated during response and cleanup operations, including sites available within the facility. Interim storage methods and sites must be designed to prevent contamination of the storage area by recovered oil and oily wastes.

(b) If use of interim storage sites will require approval by local, state or federal officials, the plan must include information that could expedite the approval process, including a list of appropriate contacts and a brief description of procedures to follow for each applicable approval process.

(c) Interim storage and permanent disposal methods and sites must be sufficient to sustain support for oil recovery operations and manage the entire volume of oil recovered and oily wastes generated.

(d) Interim storage and permanent disposal methods and sites must comply with all applicable local, state and federal requirements.

(25) Health and Safety. Each plan must describe procedures to protect the health and safety of oil spill response workers, and other individuals on-site. Provisions for training, decontamination facilities, safety gear and a safety officer position must be addressed.

(26) Post Spill Review. Each plan must explain post-spill review procedures, including methods to review both the effectiveness of the plan and the need for plan amendments. Post-spill procedures must provide for a debriefing with the Department that will include any newly recognized need to amend the plan and list of any other lessons learned.

(27) Drills and Exercises. All approved plans must be verified by drills and exercises. Each plan must describe the schedule and type of drills and other exercises that will be practiced to ensure readiness of the plan elements, including drills that satisfy OAR 340-141-0200 (3).

(a) The plan holder must test and document internal call out procedures at least once every 90 calendar days. The plan holder must retain records of these drills for at least three years and make them available for Department review upon request.

(b) The plan holder must notify the Department of drills and exercises, at least 60 days before full deployment and tabletop drills, and 10 days prior to equipment exercises. Prior notice to the Department is not required before notification drills and internal phone number verification exercises.

(c) The plan holder must send post drill reports for all tabletop exercises or deployment drills to the Department no later than 60 days after the completion of the drill or exercise. The executive summary from a National Preparedness for Response Exercise Program (N-PREP) report may be submitted to meet this requirement when the exercise has been designed by the N-PREP staff.

(28) Risk Variables. Each plan must list the spill risk variables within the region of operation covered by the plan, including:

(a) Each plan for a facility must list the following:

(A) Types, physical properties and amounts of oil handled;

(B) A written description and map indicating site topography, stormwater and other drainage systems, mooring areas, pipelines, tanks, and other oil processing, storage and transfer sites and operations;

(C) A written description of sites or operations with a history of or high potential for oil spills, including key areas that pose significant navigation risk within the region of operation covered by the plan; and

(D) Methods to reduce spills during transfer operations, including overfill prevention.

(b) Each plan for a covered vessel must list the following:

(A) Types, physical properties and amounts of oil handled;

(B) A written description and diagram showing cargo, fuel and ballast tanks; and piping, power plants and other oil storage and transfer sites and operations; and

(C) A written description of operations with a history of or high potential for oil spills, including key areas that pose significant navigation risks within the region of operation covered by the plan.

(29) Environmental Variables. Each plan must list the environmental variables within the region of operation covered by the plan. Facility plans required to include river or coastal areas must identify the environmental variables from the probable point of release to the point the oil could travel in 24 hours in a current of four knots. Vessel contingency plans must encompass the entire length of the Oregon waterway in the Zone or sub-Zone entered. All plans must describe:

(a) Natural resources, including coastal and aquatic habitat types and sensitivity by season, breeding sites, presence of state or federally listed endangered or threatened species and presence of commercial and recreational species;

(b) Public resources, including public beaches, water intakes, drinking water supplies and marinas;

(c) Seasonal hydrographic and climatic conditions; and

(d) Physical geographic features, including relative isolation of coastal regions, beach types, and other geological characteristics. Plans may reference numbered Geographic Response Plan strategies (GRPs) in the Northwest Area Contingency Plan when identifying individual environmental features.

(30) Logistical Resources. Each plan must list the logistical resources within the region of operation covered by the plan, including facilities for fire services, medical services and accommodations; and shoreline access areas, including boat launches.

(31) Response Strategy Outline. Each plan must include a statement of the intended response activities. This statement must describe how the plan resources must be applied to adequately respond during the initial phase of the response to an average most

probable and worst case spill, release or discharge. The Response Strategy Outline must begin with a description of the situation to be managed, and must describe:

(a) Deployment of resources and estimates of response times;

(b) The intended result of the activity for each person listed in section (7) and (12) of this section;

(c) Command and control arrangements;

(d) Required coordination; and

(e) Probable obstacles and an estimate of oil movement during the first 72 hours.

(32) Financial Responsibility. Each plan must provide evidence that the facility or vessel is in compliance with federal financial responsibility requirements pursuant to ORS 468B.390.

(33) Technical Terms Glossary. Each plan must include a glossary of technical terms and abbreviations used in the plan.

Stat. Auth.: ORS 468.020, ORS 468B.395
Stats. Implemented: ORS 468B.345 - ORS 468B.390
Hist.: DEQ 2-2003, f. & cert. ef. 1-31-03

## DIVISION 142

## OIL AND HAZARDOUS MATERIALS EMERGENCY RESPONSE REQUIREMENTS

**340-142-0005**

**Definitions as Used in This Division Unless Otherwise Specified**

(1) "Barrel" means 42 U.S. gallons at 60 degrees Fahrenheit.

(2) "Cleanup" means the containment, collection, removal, treatment or disposal of oil or hazardous material; site restoration; and any investigations, monitoring, surveys, testing and other information gathering required or conducted by the Department.

(3) "Cleanup Costs" means all costs associated with the cleanup of a spill or release incurred by the state, its political subdivision or any person with written approval from the Department when implementing ORS 466.205, 466.605 to 466.680, 468B.990(3) and (4) and 466.995 or 468B.320.

(4) "Commission" means the Environmental Quality Commission.

(5) "Department" means the Department of Environmental Quality.

(6) "Director" means the Director of the Department of Environmental Quality.

(7) "Dry cleaning facility" means any active or inactive facility located in this state that is or was engaged in dry cleaning apparel and household fabrics for the general public, and dry stores, other than a:

(a) Facility located on a United States military base;

(b) Uniform service or linen supply facility;

(c) Prison or other penal institution; or

(d) Facility engaged in dry cleaning operations only as a dry store and selling less than $50,000 per year of dry cleaning services.

(8) "Having Control Over Any Oil or Hazardous Material" includes, but is not limited to using, handling, processing, manufacturing, storing, treating, disposing or transporting oil or hazardous material. During transport this also includes oil or hazardous materials that are cargo, fuel, or a part or fluid in the transporting vessel, vehicle, aircraft, or railcar.

(9) "Hazardous material" means one of the following:

(a) Hazardous waste as defined in ORS 466.005.

(b) Radioactive waste as defined in ORS 469.300, radioactive material identified by the Energy Facility Siting Council under ORS 469.605 and radioactive substances as defined in ORS 453.005.

(c) Communicable disease agents as regulated by the Health Division under ORS chapter 431 and ORS 433.010 to 433.045 and 433.106 to 433.990.

(d) Hazardous substances designated by the United States Environmental Protection Agency under section 311 of the Federal Water Pollution Control Act, P.L. 92-500, as amended.

(e) Substances listed by the United States Environmental Protection Agency in 40 Code of Federal Regulations Part 302 - Table 302.4 (List of Hazardous Substances and Reportable Quantities) and amendments.

(f) Material regulated as a Chemical Agent under ORS 465.550.

(g) Material used as a weapon of mass destruction, or biological weapon.

(h) Pesticide residue.

(i) Dry cleaning solvent as defined by ORS 465.200(9).

(10) "Immediately" in relation to a response to a spill means that the actions necessary to protect human health and the environment take priority over all other concerns of the responsible person.

(11) "Incident Commander" means the individual under the National ~~Interagency~~ Incident Management System ~~(NIIMS)~~ (NIMS) Incident Command System that is responsible for the overall management and control of responding entities. The first emergency responder to arrive at the scene becomes the incident commander until relieved, or the incident is over. The Department is the Lead Agency of the State of Oregon during the cleanup phase of oil and hazardous material incidents, and relieves the Incident Commander when the life safety portion of the emergency response is complete and the focus of the effort is on containment and cleanup of oil or hazardous materials.

(12) "Initial assessment" includes, but is not limited to, the following tasks:

(a) Verifying the spill location;

(b) Establishing of the type of incident based on products and conditions;

(c) Confirming or correcting the reported quantity released or areal extent of the contamination;

(d) Reporting the efficacy of the initial containment;

(e) Projecting immediate resource needs to control the release;

(f) Reporting local knowledge about the probable impacts of the release;

(g) Providing the Department with information necessary to the Department's preliminary risk evaluation for the incident and characterizing of the release; and

(h) Other tasks as necessary to collect ephemeral data and information ascertainable only at the time of the release.

(13) "Lead Agency" means the designated representative authority of either the state or federal government. The Department is the Lead Agency of the State of Oregon for oil and hazardous materials incidents. The Environmental Protection Agency and the United States Coast Guard are the Lead agencies of the federal government for oil and hazardous

materials incidents. The Lead Agency appoints the State or Federal On-Scene Coordinator.

(14) "Non-petroleum oils" includes synthetic lubricants, edible oil, vegetable oils, and animal oils.

(15) "Oils" or "Oil" includes gasoline, crude oil, fuel oil, diesel oil, lubricating oil, sludge, oil refuse and any other petroleum related product.

(16) "Person" includes, but is not limited to, an individual, trust, firm, joint stock company, corporation, partnership, association, municipal corporation, political subdivision, interstate body, the state and any agency or commission thereof and the federal government and any agency thereof.

(17) "Pesticide" has the meaning given in ORS 634.006.

(18) "Pesticide Residue" means a hazardous waste that is generated from pesticide operations and pesticide management, such as, from pesticide use (except household use), manufacturing, repackaging, formulation, bulking and mixing, and spills. Pesticide residue includes, but is not limited to, unused commercial pesticides, tank or container bottoms or sludges, pesticide spray mixture, container rinsings and pesticide equipment washings, and substances generated from pesticide treatment, recycling, disposal, and rinsing spray and pesticide equipment. Pesticide residue does not include pesticide-containing materials that are used according to label instructions, and substances such as, but not limited to treated soil, treated wood, foodstuff, water, vegetation, and treated seeds where pesticides were applied according to label instructions.

(19) "Plan" as used in this Division, means any spill prevention, contingency, or emergency response document prepared in compliance with the requirements of a federal, state, or local government authority.

(20) "Reportable quantity" is an amount of oil or hazardous material which if spilled or released, or threatens to spill or release, in quantities equal to or greater than those specified in OAR 340-142-0050 must be reported pursuant to OAR 340-142-0040

(21) "Respond" or "response" means:

(a) Actions taken to monitor, assess and evaluate a spill or release or threatened spill or release of oil or hazardous material;

(b) First aid, rescue or medical services, and fire suppression; or

(c) Containment or other actions appropriate to prevent, minimize or mitigate damage to the public health, safety, welfare or the environment which may result from a spill or release or threatened spill or release if action is not taken.

(22) "Responsible Person" means any person owning or having control over any oil or hazardous material spilled or released or threatening to spill or release.

(23) "SOSC" means State On-Scene Coordinator, the state official appointed by the Department when serving as the lead agency to represent the interests of the Department and the State of Oregon in response to an oil or hazardous material spill or release or threatened spill or release. The SOSC coordinates the interests of other state and local agencies within a unified command. Before assuming an incident command role under the National ~~Interagency~~ Incident Management System ~~(NIIMS)~~ (NIMS) Incident Command System, the SOSC may provide technical advice to police, fire and other first responders, and coordinate a cleanup response with state and local agencies.

(24) "Spill or Release" means the discharge, deposit, injection, dumping, spilling, emitting, releasing, leaking or placing of any oil or hazardous material into the air or into or on any land or waters of the state, as defined in 468B.005, except as authorized by a permit issued under ORS Chapter 454, 459, 459A, 468. 468A, 468B or 469, ORS 466.005 to 466.385, 466.990(1) and (2), 466.992 or federal law or while being stored or used for its intended purpose.

(25) "Threatened Spill or Release" means oil or hazardous material is likely to escape or be carried into the air or into or on any land or waters of the state

(26) "Unified Command" means the combined representatives of the Lead Agencies, responsible person, and others with the authority to make ultimate decisions as part of a National ~~Interagency~~ Incident Management System ~~(NIIMS)~~(NIMS)-style Incident Command System during an emergency response.

(27) "Waters of the State" includes lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

[Publications: Publications referenced are available from the agency.]

Stat. Auth: ORS 183, ORS 459, ORS 466 & ORS 468B
Stats. Implemented: ORS 466.605 & ORS 466.630
Hist.: DEQ 3-2003, f. & cert. ef. 1-31-03

**340-142-0130**

**Incident Management and Emergency Operations**

(1) Any person required by an approved plan or a rule, contract, permit or formal agreement to coordinate activity with the Department during an emergency involving a spill or release of oil or hazardous material must follow a protocol of organization consistent with the National ~~Interagency~~ Incident Management System ~~(NIIMS)~~(NIMS).

(2) Any person required by an approved plan or a rule, contract, permit or formal agreement to coordinate activity with the Department during an emergency involving a spill or release of oil or hazardous material must accept the Department as the Lead Agency of the State for cleanup at oil and hazardous materials incidents. The Department will assign a State On-Scene Coordinator (SOSC). The SOSC will represent all state agencies responding to the incident. The SOSC will be the point of contact through which the Director will delegate assignments in an emergency. The SOSC will assume the ~~NIIMS~~ NIMS command role from any local Incident Commander when the incident requires state or federal management.

(3) Any person required to coordinate with the Department must do so regardless of whether or not the Department staff responding to the spill or other emergency is available at the site of the spill or other emergency. The Department may provide services from a remote location. Telephone communication, electronically transmitted data, facsimile transmission, or other communication with responders constitutes a presence at an incident command location or spill site and carries the full authority of the Department.

Stat. Auth: ORS 466.625, ORS 468B.010
Stats. Implemented: ORS 466.610, ORS 466.620, and ORS 468B.395
Hist.: DEQ 3-2003, f. & cert. ef. 1-31-03

Appendix E:
Proposed Rules for Adoption of Solid Waste Recovery Goals
Established by the Oregon Legislature

## DIVISION 90

## RECYCLING AND WASTE REDUCTION

**340-090-0040**

**Local Government Recycling Program Elements**

In addition to the minimum requirements in OAR 340-090-0030 each city with a population of 4,000 or more and any county responsible for the area between the city limits and the urban growth boundary shall implement additional recycling program requirements selected from section (3) of this rule in accordance with the following requirements:

(1) Each city with a population of at least 4,000 but not more than 10,000 that is not within a Metropolitan Service District and any county responsible for the area between the city limits and the urban growth boundary of such city shall implement one of the following, except where otherwise indicated:

(a) Implement subsections (3)(a), (b), and (c) of this rule; or

(b) Select and implement at least three program elements listed in section (3) of this rule; or

(c) Implement an alternative method that is approved by the Department in accordance with the requirements of OAR 340-090-0080.

(2) Each city with a population of more than 10,000 or that is within a Metropolitan Service District and any county responsible for the area within a Metropolitan Service District or the area between the city limits and the urban growth boundary of such city shall implement one of the following, except where otherwise indicated:

(a) Implement subsections (3)(a), (b), and (c) of this rule and one additional element in section (3) of this rule; or

(b) Select and implement at least five program elements listed in section (3) of this rule; or

(c) Implement an alternative method that is approved by the Department in accordance with the requirements of OAR 340-090-0080.

(3) Program elements:

(a) Deliver to each residential collection service customer at least one durable recycling container. For purposes of this program element a durable container shall be a rigid box or bucket with a volume of at least 12 gallons made of material that holds up under all weather conditions for at least five years, and is easily handled by the resident and the collector;

(b) Provide on-route collection at least once each week of source separated recyclable materials, excluding yard debris, to residential collection service customers provided on the same day that solid waste is collected from each customer;

(c) Provide a recycling education and promotion program that is expanded from the minimum requirements described in OAR 340-090-0030(3), and supports the management of solid waste in the following priority order: first preventing the generation of waste, then reusing materials, then recycling materials, then composting materials, then recovering energy, and finally safely disposing of solid waste that cannot be prevented, reused, recycled, composted or used for energy recovery.

(A) The expanded program:

(i) Shall inform all solid waste generators of how to prevent waste, reuse, recycle and compost material;

(ii) Shall inform all solid waste generators of the benefits of preventing waste, reusing, recycling and composting materials;

(iii) Shall promote the use of available recycling services; and

(iv) Shall target educational and promotional materials provided to commercial customers to meet the needs of various types of businesses and should include reasons to recycle, including economic benefits, common barriers to recycling and solutions, additional resources for commercial generators of solid waste, and other information designed to assist and encourage recycling efforts. These materials shall encourage each commercial collection customer to have a goal to achieve 50 percent recovery from its solid waste stream by the year 20009.

(B) The expanded program shall be provided in one of the two following ways:

(i) A "Specified Action" program, which shall include at a minimum the following elements:

(I) All new residential and commercial collection service customers shall each receive a packet of educational materials that contain information listing the materials collected, the schedule for collection, proper method of preparing materials for collection and an

explanation of the reasons why source separation of materials for recycling should be done;

(II) Existing residential and commercial collection service customers shall be provided information identified in OAR 340-090-0040(3)(c)(B)(i)(I) at least four times a calendar year through a written notice or effective alternative to reach various solid waste generators, or combination of both;

(III) At least annually information regarding the benefits of recycling and the type and amount of materials recycled during the past year shall be provided directly to the collection service customer in written form and shall include additional information including the procedure for preparing materials for collection;

(IV) Targeting of at least one community or media event per year to promote waste prevention, reuse, recycling and composting, although not every media event needs to promote all of those activities;

(V) Utilizing a variety of materials and media formats to disseminate the information in the expanded program in order to reach the maximum number of collection service customers and residential and commercial generators of solid waste; or

(ii) Development and implementation of an "Expanded Education and Promotion Plan." The Plan shall:

(I) Include actions to effectively reach solid waste generators and all new and existing collection service customers;

(II) Include such actions as necessary to fulfill the intent of this subsection;

(III) Include a timetable for implementation, which shall be implemented; and

(IV) Be submitted to the Department:

(i) By February 28 of the first year that the Plan is to be in effect; or

(ii) Within 30 days of the beginning of the local government's fiscal year in which the Plan is first put into effect.

(d) Establish and implement a recycling collection program through local ordinance, contract or any other means enforceable by the appropriate city or county for each multi-family dwelling complex having five or more units. The collection program shall meet the following requirements:

(A) Collect at least four principal recyclable materials or the number of materials required to be collected under the residential on-route collection program, whichever is less;

(B) Provide educational and promotional information directed toward the residents of multi-family dwelling units periodically as necessary to be effective in reaching new residents and reminding existing residents of the opportunity to recycle including the types of materials to be recycled and the method for properly preparing those materials.

(e) Establish and implement an effective residential yard debris program for the collection and composting of residential yard debris. The program shall include the following elements:

(A) Promotion of home composting of yard debris through written material or some other effective media form that is directed at the residential generator of yard debris; and either

(B) At least monthly on-route collection of yard debris from residences for production of compost or other marketable products; or

(C) System of residential yard debris collection depots, for the production of compost or other marketable products, located such that there is at least one conveniently located depot for every 25,000 population and open to the public at least once a week.

(f) Taking into account material generation rates, establish and implement regular, on-site collection of source separated principal recyclable materials from commercial entities, taking into consideration how the generator could achieve 50 percent recovery. This program element does not apply to manufacturing, business or processing activities in residential dwellings or to the generation of industrial solid waste. At a minimum the commercial recycling program:

(A) Shall be provided to commercial entities that employ 10 or more persons and occupy 1,000 square feet or more in a single location;

(B) Shall include an education and promotion program which:

(i) Uses materials and messages specifically designed for commercial generators of solid waste; and

(ii) Informs all commercial generators of solid waste of the benefits of recycling, the recycling opportunities available to them and how to recycle; and

(iii) If the local government is providing the expanded education and promotion program element, includes any additional requirements needed to meet OAR 340-090-0040(3)(c);

(iv) Includes information on the benefits of waste prevention to commercial generators.

(C) Shall be conducted to effectively promote the commercial recycling program to commercial generators of solid waste;

(D) Shall encourage commercial generators to strive to achieve 50 percent recovery from their solid waste stream by the year 20009;

(E) Should provide other elements including but not limited to:

(i) Provision of waste assessments to businesses;

(ii) Provision of recycling receptacles to businesses at no or low cost;

(iii) Waste prevention and recycling recognition programs. Local governments are encouraged to involve local business organizations in publicly recognizing outstanding waste prevention and recycling efforts by commercial generators of solid waste. The recognition may include awards designed to provide additional incentives to increase waste prevention and recycling efforts.

(g) Establish depots for recycling collection of all principal recyclable materials listed in OAR 340-090-0070, and where feasible, additional materials. This program shall provide at least one (1) recycling depot in addition to the depot(s), if any, required by OAR 340-090-0030(1) and shall result in at least one (1) conveniently located depot for every 25,000 population. The expanded program shall include promotion and education that maximizes the use of the expanded depot program. The depots shall operate as follows:

(A) Have regular and convenient hours for residential generators of solid waste; and

(B) Open on the weekend days; and

(C) Be established in location(s) such that it is convenient for residential generators of solid waste to use the depot(s).

(h) Establish collection rates for residential solid waste from single family residences and single residential units in complexes of less than five units, that encourage waste prevention, reuse and recycling. The rates at a minimum, shall include the following elements:

(A) At least one rate for a container that is 21 gallons or less in size and costs less than larger containers; and

(B) Rates shall be based on the average weight, as determined in paragraph (E) of this subsection, of solid waste disposed per container for various sizes of containers; and

(C) Rates, as calculated on a per pound disposed basis shall not decrease per pound with the increasing size of the container or the number of containers; and

(D) Rates per container service shall be established such that each additional container beyond the first container for each residential unit shall have a fee charged that is at least the same fee and no less than the first container; and

(E) Rates, calculated on a per pound disposed basis, shall be established by the city or county through development of their own per pound average weights for various container sizes by sampling and calculating the average weights for a cross section of containers within their residential service area.

(i) An on-going system to collect food waste, paper that is not recyclable because of contamination, and other compostable waste from commercial and institutional entities that generate large amounts of such wastes, and compost it at facilities in compliance with Department composting facility rules and local government regulations:

(A) Before diverting edible (unwanted) foods to be composted, a local government should consider how to encourage making them available:

(i) To charity for human consumption;

(ii) Or if charity channels are not available, to farmers for animal feed.

(B) A commercial composting program shall include the following elements:

(i) On-going promotion of the commercial compost program through written material or other effective formats directed to targeted commercial and institutional generators within the local government (e.g., grocery stores, restaurants, wholesale flower warehouses, hotels, businesses and institutions with food service);

(ii) To avoid problems relating to human health and the environment, periodic collection of food wastes and other compostable materials is required from commercial and institutional generators on an appropriate schedule.

(C) Any composting facility to which collected compostable material is taken shall comply with Department composting facility rules;

(D) On-site commercial and institutional composting should be considered if the location is appropriate, space is available and the entity is in compliance with Department composting facility rules and local government regulations.

(4) ~~Effective January 1, 1996, i~~In addition to the requirements in sections (1) and (2) of this rule, each city with a population of 4,000 or more and any county responsible for the area within a Metropolitan Service District or the area between the city limits and the urban growth boundary of such city in any of the following wastesheds ~~that is required to meet a 25, 30, 40 or 45 percent recovery rate in OAR 340-090-0050~~ shall provide the

opportunity to recycle rigid plastic containers if the conditions set forth in section (5) of this rule are met.:

(a) Clackamas, Multnomah and Washington Counties, in aggregate, as a single wasteshed;

(b) Benton wasteshed;

(c) Clatsop wasteshed;

(d) Columbia wasteshed;

(e) Deschutes wasteshed;

(f) Douglas wasteshed;

(g) Hood River wasteshed;

(h) Jackson wasteshed;

(i) Josephine wasteshed;

(j) Lane wasteshed;

(k) Linn wasteshed;

(l) Marion wasteshed;

(m) Polk wasteshed;

(n) Wasco wasteshed; and

(o) Yamhill wasteshed.

(5) The opportunity to recycle rigid plastic containers is required within a wasteshed when a stable market price for rigid plastic containers, that equals or exceeds 75 percent of the necessary and reasonable collection costs for those containers, exists for such wasteshed.

(6) ~~If a wasteshed fails to achieve in any calendar year the recovery rate set forth in OAR 340-090-0050, any city with a population of 4,000 or more, or a county responsible for the area between the city limits and the urban growth boundary of such city shall implement two additional program elements selected from section (3) of this rule. The Department shall notify a wasteshed if it failed to meet the recovery rate in OAR 340-090-0050 for any given calendar year. The notification shall be made no later than~~

~~November 1 of the year following the calendar year in which the rate is not met. The two additional program elements shall be implemented by July 1 of the calendar year following the year in which the Department so notifies a wasteshed.~~ Each wasteshed shall prepare an individualized plan that identifies policies or programs specific to the wasteshed's local conditions to achieve the required recovery goals. The plan shall be available to the department upon the department's request. The plan shall be updated by December 31, 2006 and again by December 31, 2010. Clackamas, Multnomah and Washington Counties, in aggregate, may meet this requirement through the programs under ORS 459.340, 459.345, 459.350, and 459A.050.

(7) ~~Notwithstanding section (6) of this rule, even if a wasteshed fails for more than one year to meet its recovery rate, a city or county within the wasteshed shall not be required to implement more than two additional program elements beyond those required in sections (1) and (2) of this rule, provided that the chosen program elements are being effectively implemented.~~ If a wasteshed does not achieve its 2005 or 2009 waste recovery goal, the wasteshed shall conduct a technical review of existing policies or programs and determine revisions to meet the recovery goal. The department shall, upon the request of the wasteshed, assist in the technical review. The wasteshed may request, and may assist the department in conducting, a technical review to determine whether the wasteshed goal is valid.

Stat. Auth.: ORS 459.045, ORS 459A.025, ORS 459A.100 - ORS 459A.120 & ORS 468.020
Stats. Implemented: ORS 459A.005, ORS 459A.010 & ORS 459A.665
Hist.: DEQ 31-1992, f. & cert. ef. 12-18-92 (and corrected 1-5-93); DEQ 10-1994, f. & cert. ef. 5-4-94; DEQ 9-1996, f. & cert. ef. 7-10-96; DEQ 27-1998, f. & cert. ef. 11-13-98

**340-090-0045**

**Wasteshed Programs for Two Percent Recovery Rate Credit**

A wasteshed may implement one or more of the three following programs. For each program implemented, the wasteshed shall receive a two percent credit on the wasteshed's recovery rate, pursuant to OAR 340-090-0060(3).

(1) Waste Prevention Program. This program shall include:

(a) A wasteshed-wide program to provide general educational materials to residents about waste prevention and examples of things residents can do to prevent generation of waste; and

(b) Two of the following:

(A) Reduce the wasteshed annual per capita waste generation by two percent each year;

(B) Conduct a waste prevention media promotion campaign targeted at residential generators;

(C) Expand the education program in primary and secondary schools to include waste prevention and reuse;

(D) Household hazardous waste prevention education program;

(E) Local governments will conduct waste prevention assessments of their operations, or provide waste prevention assessments for businesses and institutions and document any waste prevention measures implemented;

(F) Conduct a material-specific waste prevention campaign for businesses throughout the wasteshed; ~~or~~

(G) Implement a Resource Efficiency Model City program;~~.~~

(H) Conduct a material-specific waste prevention education campaign that focuses on a toxic or energy-intensive material;

(I) Local governments will implement programs to buy recycled-content products for their operations, consistent with procurement guidelines issued by the United States Environmental Protection Agency; or

(J) Local governments will implement programs for new construction and remodeling of local government buildings that incorporate recycled-content materials, energy conservation features, water conservation and stormwater management features and other elements to increase the resource efficiency and lower the environmental impact of these buildings.

(2) Reuse Program. This program shall include:

(a) A promotion and education campaign on the benefits and opportunities for reuse available to the public in the wasteshed; and

(b) Two of the following:

(A) Operate construction and demolition debris salvage programs with depots;

(B) Promote reuse programs offered by local resale businesses, thrift stores and equipment vendors, such as computer and photocopier refurbishers, to the public and businesses;

(C) Identify and promote local businesses that will take back white goods for refurbishing and resale to the public;

(D) Develop and promote use of waste exchange programs for the public and private sectors;

(E) Site accommodation for recovery of reusable material at transfer stations and landfills; or

(F) Sidewalk pickup or community fair program in cities over 4,000 population in the wasteshed.

(3) Residential Composting Program. This program shall include:

(a) Promotion of the residential composting program through public information and demonstration site or sites; and

(b) Two of the following:

(A) A program to encourage leaving grass clippings generated by lawn mowing on-site rather than bagging the clippings for disposal or composting;

(B) A composting program for local schools;

(C) An increase in availability of compost bins for residents; or

(D) Another program increasing a household's ability to manage yard trimmings or food wastes.

(4) A wasteshed may receive, upon application to the Department of Environmental Quality, a recovery credit greater than two percent for a residential composting program. To receive the recovery credit under this paragraph, the wasteshed must provide quantitatively verifiable documentation of residential composting tonnage to the department. The documentation must show that more than two percent of the wasteshed's generated tonnage of solid waste is diverted from the wastestream by residential composting.

Stat. Auth.: ORS 459A.025 & ORS 468.020
Stats. Implemented: ORS 459A.010
Hist.: DEQ 27-1998, f. & cert. ef. 11-13-98

**340-090-0050**

**Wasteshed Designation and Recovery Rates**

The purpose of this rule is to define the wastesheds as designated in ORS 459A.010, and state ~~the~~ recovery rates that each wasteshed shall achieve ~~by calendar year 1995~~ and maintain:

(1) Baker wasteshed is all of the area within Baker County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 25 percent; ~~recovery rate of 15 percent~~.

(2) Benton wasteshed is all of the area within Benton County excluding the City of Albany and shall achieve a recovery rate of 45 percent for calendar years 2005 through 2008 and 50 percent for calendar year 2009 and subsequent years; ~~recovery rate of 30 percent~~.

(3) Clatsop wasteshed is all of the area within Clatsop County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 25 percent; ~~recovery rate of 25 percent~~.

(4) Columbia wasteshed is all of the area within Columbia County and shall achieve a recovery rate of 28 percent for calendar years 2005 through 2008 and 32 percent for calendar year 2009 and subsequent years; ~~recovery rate of 25 percent~~.

(5) Coos wasteshed is all of the area within Coos County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 30 percent; ~~recovery rate of 15 percent~~.

(6) Crook wasteshed is all of the area within Crook County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 20 percent; ~~recovery rate of 15 percent~~.

(7) Curry wasteshed is all of the area within Curry County and shall achieve and maintain a recovery rate for calendar year 2005 and subsequent years of 30 percent; ~~recovery rate of 15 percent~~.

(8) Deschutes wasteshed is all of the area within Deschutes County and shall achieve a recovery rate of 32 percent for calendar years 2005 through 2008 and 45 percent for calendar year 2009 and subsequent years; ~~recovery rate of 25 percent~~.

(9) Douglas wasteshed is all of the area within Douglas County and shall achieve a recovery rate of 35 percent for calendar years 2005 through 2008 and 40 percent for calendar year 2009 and subsequent years; ~~recovery rate of 25 percent~~.

(10) Gilliam wasteshed is all of the area within Gilliam County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 20 percent~~; recovery rate of 7 percent~~.

(11) Grant wasteshed is all of the area within Grant County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 19 percent~~; recovery rate of 7 percent~~.

(12) Harney wasteshed is all of the area within Harney County and shall achieve a recovery rate of 30 percent for calendar years 2005 through 2008 and 40 percent for calendar year 2009 and subsequent years~~; recovery rate of 7 percent~~.

(13) Hood River wasteshed is all of the area within Hood River County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 25 percent~~; recovery rate of 25 percent~~.

(14) Jackson wasteshed is all of the area within Jackson County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 40 percent~~; recovery rate of 25 percent~~.

(15) Jefferson wasteshed is all of the area within Jefferson County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 25 percent~~; recovery rate of 7 percent~~.

(16) Josephine wasteshed is all of the area within Josephine County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 38 percent~~; recovery rate of 25 percent~~.

(17) Klamath wasteshed is all of the area within Klamath County and shall achieve a recovery rate of 15 percent for calendar years 2005 through 2008 and 20 percent for calendar year 2009 and subsequent years~~; recovery rate of 15 percent~~.

(18) Lake wasteshed is all of the area within Lake County and shall achieve a recovery rate of 8 percent for calendar years 2005 through 2008 and 10 percent for calendar year 2009 and subsequent years~~; recovery rate of 7 percent~~.

(19) Lane wasteshed is all of the area within Lane County and shall achieve a recovery rate of 45 percent for calendar years 2005 through 2008 and 54 percent for calendar year 2009 and subsequent years~~; recovery rate of 30 percent~~.

(20) Lincoln wasteshed is all of the area within Lincoln County and shall achieve a recovery rate of 19 percent for calendar years 2005 through 2008 and 20 percent for calendar year 2009 and subsequent years~~; recovery rate of 15 percent~~.

(21) Linn wasteshed is all of the area within Linn County, including the Cities of Albany and Mill City, and excluding the area within

~~(a) T~~the City of Gates and ~~;~~

~~(b) T~~the City of Idanha, and shall achieve a recovery rate of 40 percent for calendar year 2005 and subsequent years~~;~~

~~(c) Recovery rate of 30 percent~~.

(22) Malheur wasteshed is all of the area within Malheur County and shall achieve a recovery rate of 21 percent for calendar years 2005 through 2008 and 22 percent for calendar year 2009 and subsequent years~~; recovery rate of 15 percent~~.

(23) Marion wasteshed is all of the area within Marion County and all of the area within the Cities of Gates, Idanha, and the city of Salem excluding the area within West Salem and Mill City and shall achieve a recovery rate of 37 percent for calendar years 2005 through 2008 and 54 percent for calendar year 2009 and subsequent years~~; recovery rate of 25 percent until the solid waste disposed of generated from within the wasteshed exceeds 180,000 tons. Any solid waste disposed of by the wasteshed in excess of 180,000 tons shall achieve a recovery rate of 30 percent~~.

(24) Milton-Freewater wasteshed is all the area within the urban growth boundary of the City of Milton-Freewater and shall achieve a recovery rate of 22 percent for calendar years 2005 through 2008 and 25 percent for calendar year 2009 and subsequent years~~; recovery rate of 15 percent~~.

(25) Morrow wasteshed is all of the area within Morrow County and shall achieve a recovery rate of 18 percent for calendar years 2005 through 2008 and 20 percent for calendar year 2009 and subsequent years~~; recovery rate of 7 percent~~.

(26) Polk wasteshed is all the area within Polk County including the area within West Salem and excluding all the City of Willamina and shall achieve a recovery rate of 30 percent for calendar years 2005 through 2008 and 35 percent for calendar year 2009 and subsequent years~~; recovery rate of 30 percent~~.

(27) Sherman wasteshed is all of the area within Sherman County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 20 percent~~; recovery rate of 7 percent~~.

(28) Tillamook wasteshed is all of the area within Tillamook County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 30 percent~~; recovery rate of 15 percent~~.

(29) Umatilla wasteshed is all of the area within Umatilla County excluding the area within~~:~~ the urban growth boundary of the City of Milton-Freewater and shall achieve a recovery rate for calendar year 2005 and subsequent years of 20 percent~~; recovery rate of 15 percent~~.

(30) Union wasteshed is all of the area within Union County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 25 percent~~; recovery rate of 15 percent~~.

(31) Wallowa wasteshed is all of the area within Wallowa County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 20 percent~~; recovery rate of 7 percent~~.

(32) Wasco wasteshed is all of the area in Wasco County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 35 percent~~; recovery rate of 25 percent~~.

(33) Wheeler wasteshed is all of the area within Wheeler County and shall achieve a recovery rate for calendar year 2005 and subsequent years of 20 percent~~; recovery rate of 7 percent~~.

(34) Yamhill wasteshed is all of the area within Yamhill County and all of the area within the City of Willamina and shall achieve a recovery rate of 39 percent for calendar years 2005 through 2008 and 45 percent for calendar year 2009 and subsequent years~~; recovery rate of 30 percent~~.

(35) Clackamas, Multnomah and Washington Counties, in aggregate, as a single wasteshed shall achieve a recovery rate of 62 percent for calendar years 2005 through 2008 and 64 percent for calendar year 2009 and subsequent years~~; a recovery rate of 45 percent. No more than five percent of the recovery rate may be by the processing of mixed municipal solid waste compost. If the Metropolitan Service District does not develop and operate a mixed solid waste composting process for a minimum of six months during calendar year 1995, the recovery rate for Clackamas, Multnomah and Washington Counties in aggregate shall be 40 percent for calendar year 1995~~.

Stat. Auth.: ORS 459A.025, ORS 459.045 & ORS 468.020
Stats. Implemented: ORS 459A.010
Hist.: DEQ 26-1984, f. & ef. 12-26-84; DEQ 1-1986, f. & ef. 2-12-86; DEQ 31-1992, f. & cert. ef. 12-18-92 (and corrected 1-5-93); Renumbered from 340-060-0025; DEQ 27-1998, f. & cert. ef. 11-13-98

**340-090-0060**

**Determination of Recovery Rates**

(1) Recovery rates required in OAR 340-090-0050 shall be determined by the Department by dividing the total weight of material recovered by the sum of the total weight of the material recovered plus the total weight of municipal solid waste disposed that was generated in each respective wasteshed.

(2) Recovery rates shall include the following:

(a) All materials collected for recycling, both source separated or sorted from solid waste, including yard debris;

(b) Beverage containers collected under the requirements of ORS 459A.700 - 459A.740;

(c) Notwithstanding the foregoing, no material shall be counted toward the recovery rate if it is disposed of.

(3) Recovery rates may include a credit ~~of two percentage points~~ for each program listed in OAR 340-090-0045 for a year for which a wasteshed certifies to the Department that the program or programs have been implemented. No ~~two percent~~ credit shall be received for a calendar year prior to 1997. In order for the wasteshed to receive a ~~two percent~~ credit:

(a) All required components of a program must be in place and implemented in the geographic area(s) required by OAR 340-090-0045 during the entire calendar year for which the credit is claimed. If the chosen program component is seasonal, the component must be provided during the appropriate season(s) of the subject calendar year;

(b) On behalf of a wasteshed the county shall submit a report to the Department summarizing how each chosen program was implemented in the wasteshed for the calendar year for which a credit is claimed. The information shall be submitted, on a form provided by the Department, by February 28 of the year subsequent to that calendar year. The report shall include a certification from the county that the chosen program(s) met the requirements in OAR 340-090-0045.

(c) The Metropolitan Service District on behalf of Multnomah, Clackamas, and Washington counties and the cities therein, shall submit a report to the Department summarizing how each chosen program was implemented in the wasteshed for the calendar year for which a credit is claimed. The information shall be submitted to the Department, on a form provided by the Department, by February 28 of the year subsequent to that calendar year. The report shall include a certification from the Metropolitan Service District that the chosen program(s) met the requirements in OAR 340-090-0045;

(4) Recovery rates may include the composting or burning for energy recovery the material collected under sections (1) and (2) of this rule when there is not a viable market for recycling that material, provided that the following conditions are met:

(a) If the material is burned for energy recovery and then included in the recovery rate for Clackamas, Multnomah or Washington Counties in aggregate or for Benton, Lane, Linn, Marion, Polk or Yamhill County wastesheds, the same material, when burned as part of mixed solid waste, may be included in the recovery rate for a wasteshed that burns mixed solid waste for energy recovery. The amount of the material within the mixed solid waste that may be included in the recovery rate for energy recovery shall be determined by a waste composition study performed by the wasteshed at least every four years.

~~(a)~~(b) Mixtures of materials that are composted or burned for energy recovery shall not be included in the recovery rate if more than half of the mixed materials by weight ~~are not comprised of 50 percent or more by weight of materials that~~ could have been recycled if properly source separated; and

~~(b)~~(c) A place does not exist within a wasteshed that will pay for the material or accept it for free or a place does not exist outside of the wasteshed that will pay a price for the material that, at ~~a~~ minimum, covers the cost of transportation of the material to market; and

~~(c)~~(d) The appropriate county or Metropolitan Service District in the report required under OAR 340-090-0100 provides data on the weight, type of material and method of material recovery for material to be counted in the recovery rate under this section and written explanation of the basis for determining that a viable market did not exist for the wasteshed, including markets available within and outside of the wasteshed, transportation distances and costs, and market prices for the material if it were to be recycled as source separated material.

(5) Recovery rates shall not include the following:

(a) Industrial and manufacturing wastes such as boxboard clippings and metal trim that are recycled before becoming part of a product that has entered the wholesale or retail market, or any preconsumer waste;

(b) Metal demolition debris in which arrangements are made to sell or give the material to processors before demolition such that it does not enter the solid waste stream;

(c) Discarded vehicles or parts of vehicles that do not routinely enter the solid waste stream. Discarded vehicle parts that are received at recycling dropoff facilities operated as part of the general solid waste management system are not excluded from the recovery rate calculation;

(d) Commercial, industrial and demolition scrap metal, vehicles, major equipment and home or industrial appliances that are handled or processed for use in manufacturing new products and that do not routinely enter the solid waste stream through land disposal facilities, transfer stations, recycling depots or on-route collection programs;

(e) Material recovered for composting or energy recovery from mixed solid waste, except as provided in subsection (2)(a) and section (4) of this rule ~~and OAR 340-090-0050(35)~~;

(f) Mixed solid waste burned for energy recovery, except as provided by subsection (4)(a) of this rule.

(6) For the purposes of calculating the recovery rate the following shall not be included in the total solid waste disposed:

(a) Sewage sludge or septic tank and cesspool pumpings;

(b) Solid waste disposed of at an industrial solid waste disposal site;

(c) Industrial waste, ash, inert rock, dirt, plaster, asphalt and similar material if delivered to a municipal solid waste disposal site and if the disposal site operator keeps a record of the weight and wasteshed of origin for such materials delivered and reports the weight and appropriate wasteshed in the reports required to be submitted to the Department under OAR 340-090-0100(3);

(d) Solid waste received at an ash monofill from an energy recovery facility; and

(e) Any solid waste not generated within the state of Oregon.

Stat. Auth.: ORS 459.045, ORS 459A.100 - ORS 459A.120 & ORS 468.020
Stats. Implemented: ORS 459A.010
Hist.: DEQ 31-1992, f. & cert. ef. 12-18-92 (and corrected 1-5-93); DEQ 10-1994, f. & cert. ef. 5-4-94; DEQ 27-1998, f. & cert. ef. 11-13-98

State of Oregon
# Department of Environmental Quality Memorandum

**To:** Environmental Quality Commission **Date:** May 16, 2005

**From:** Angela Parker, Administrative Specialist

Land Quality Division

**Subject:** Presiding Officer's Report for Rulemaking Hearing

Title of Proposal: Land Quality Rule Alignment

Hearing Date and Time: March 23, 2005 10:00 AM

Hearing Location: Department of Environmental Quality

811 S.W. 6th Avenue, Room 3 A/B

Portland, Oregon 97204

The Department convened the rulemaking hearing on the proposal referenced above at 10:00 a.m. and closed it at 10:30 a.m.

No one attended the hearing; no one testified. No one submitted written comments.

cc:

## Appendix B:
## Summary of Public Comment and Agency Response

**Title of Rulemaking: Land Quality Rule Alignment**
**Prepared by: Jeff Christensen** **Date: April 18, 2005**

***Comment period***

The public comment period opened on March 1, 2005 and closed at 5:00 p.m. on March 30, 2005. Two written comments were received. DEQ also held a public hearing for the proposed rulemaking on March 23, 10:00 a.m. at DEQ Headquarters in Portland. No-one attended or testified at the hearing.

***Organization of comments and responses***

Summaries of comments and the Department's responses are provided below. A list of the commenters follows.

| ***Summary of Comments and Agency Responses*** | |
|---|---|
| ***Comment 1*** | For the proposed solid waste recycling and waste reduction rule alignment changes pertaining to programs eligible for the "two percent recovery rate credit" (OAR 340-090-0045), recommends adding education programs to prevent waste within the construction sector emphasizing alternative construction materials, recycling opportunities, and hazardous waste prevention. |
| ***Response*** | Adding a new element to the list of wasteshed-wide programs qualifying for a 2% credit for a waste prevention program is beyond the scope of this rulemaking. DEQ's intent has been to propose only those rule changes that are necessary to align Land Quality program rules to adopted Legislative changes in 2001, and the Legislature did not modify the list of eligible programs qualifying for the 2% credit.<br><br>It should also be noted that an education program to prevent waste within the construction sector potentially would qualify under Oregon Administrative Rules 340-090-0045(1)(b)(B), (D), and (F) for the 2% credit allowance, assuming the educational activities have a significant recycling and waste prevention focus to them (an alternative construction materials education program alone might not reduce the volume of waste generated). |

| | |
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| ***Comment 2*** | Requested the department make sure the enabling legislation pertaining to the proposed solid waste recycling and waste reduction rule alignment changes (OAR 340-090-0050) authorizes rules to require that a wasteshed **maintain** specified waste reduction goals, once these goals are achieved by individual wastesheds. |

| | |
|---|---|
| ***Response*** | The Department of Justice advises that adoption of the word "maintain" is well within the authority granted EQC for rulemaking and is implicit from the relevant solid waste statute (ORS 459A.010) because, for example, the statute requires that wasteshed recovery rates are to be ratcheted up for 2009—in other words, it does not seem reasonable to assume the legislature intended recovery rates to "backslide" in the intervening years. DEQ also notes that the word "maintain" exists in current rule as adopted in November 1988; and DEQ's purpose has been to propose only those changes necessary to "align" the existing solid waste rules to legislative changes made by the 2001 Legislature. Nothing in HB 3744, the 2001 Legislative action pertaining to this rulemaking, suggests the Legislature intended to remove requirements for maintenance of solid waste recovery goals. |

Commenter 1: Daniel Moreno, Environmental Health Specialist I, Benton County Health Department

Commenter 2: Max Brittingham, Executive Director, Oregon Refuse & Recycling Association

# Land Quality Rule Alignment
# Relationship to Federal Requirements

**Answers to the following questions identify how the proposed rulemaking relates to federal requirements and potential justification for differing from federal requirements. The questions are required by OAR 340-011-0029.** ***The following narrative discusses the proposed rule changes as presented in the "Notice of Proposed Rulemaking" and related rulemaking documents.***

**1. Are there federal requirements that are applicable to this situation? If so, exactly what are they?**

There are no federal requirements directly applicable to proposed changes concerning previous actions as adopted by the Oregon Legislature (in items 1, 3, 4 and 5) for generators of hazardous waste, underground storage tank service providers, and home heating oil tank decommissioning and cleanup reports, dredge and passenger vessels and adoption in rule of solid waste recovery goals established by the Legislature).

Part 2 of the proposed changes corrects an erroneous reference in current state administrative rules to federal requirements for hazardous waste management.

Part 4 of the proposed changes, in addition to proposed fee changes to incorporate prior Legislative action, would update the name of the national homeland security and emergency response system.

**2. Are the applicable federal requirements performance based, technology based, or both with the most stringent controlling?**

N/A

**3. Do the applicable federal requirements specifically address the issues that are of concern in Oregon? Was data or information that would reasonably reflect Oregon's concern and situation considered in the federal process that established the federal requirements?**

N/A

**4. Will the proposed requirement improve the ability of the regulated community to comply in a more cost effective way by clarifying confusing or potentially conflicting requirements (within or cross-media), increasing certainty, or preventing or reducing the need for costly retrofit to meet more stringent requirements later?**

Yes. Although the practical or substantive impacts of the proposed rule changes are limited in scope, some of the proposed rules (in items 1, 3, 4 and 5) address and correct existing inconsistencies between existing state statute as enacted by the Oregon legislature and administrative rules as adopted by the state's Environmental Quality Commission. In addition, two of the rule changes (in items 2 and 4) correct out-of-date and misleading information.

**5. Is there a timing issue which might justify changing the time frame for implementation of federal requirements?**

Yes, local and state agencies must take the necessary steps towards revising and updating the name change in item 4 concerning the homeland security and emergency response system in order to maintain eligibility for federal homeland security and emergency response grants and related federal assistance.

**6. Will the proposed requirement assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth?**

N/A

**7. Does the proposed requirement establish or maintain reasonable equity in the requirements for various sources? (level the playing field)**

N/A

**8. Would others face increased costs if a more stringent rule is not enacted?**

N/A

**9. Does the proposed requirement include procedural requirements, reporting or monitoring requirements that are different from applicable federal requirements? If so, Why? What is the "compelling reason" for different procedural, reporting or monitoring requirements?**

N/A

**10. Is demonstrated technology available to comply with the proposed requirement?**

N/A

**11. Will the proposed requirement contribute to the prevention of pollution or address a potential problem and represent a more cost effective environmental gain?**

N/A

**DEPARTMENT OF ENVIRONMENTAL QUALITY**
**Chapter 340**
**Proposed Rulemaking**
**STATEMENT OF NEED AND FISCAL AND ECONOMIC IMPACT**
This form accompanies a Notice of Proposed Rulemaking

**DEPARTMENT OF ENVIRONMENTAL QUALITY**
**Chapter 340**
**Proposed Rulemaking**
**STATEMENT OF NEED AND FISCAL AND ECONOMIC IMPACT**
This form accompanies a Notice of Proposed Rulemaking

| | |
|---|---|
| **Title of Proposed Rulemaking:** | *Land Quality Rule Alignment* |
| **Need for the Rule(s)** | *These proposed rules incorporate changes previously adopted by the Oregon Legislature or federal government in the following ways:*<br>1) *revises existing rules pertaining to fees paid by generators of hazardous waste, reflecting fee changes enacted by the 2003 Legislature (SB 196). The relevant fees are already effective and the amendments simply incorporate previously-adopted legislative changes into administrative rule;*<br>2) *adopts a corrected reference to federal requirements pertaining to hazardous waste management (previously adopted state rules inadvertently adopted the wrong reference);*<br>3) *incorporates fee changes previously adopted by the 2001 Legislature (HB 2264 and HB 2883) pertaining to underground storage tank service providers and home heating oil tanks respectively. The fees are already in effect and the amendments simply incorporate previously-adopted legislative changes into existing rules;*<br>4) *replaces a reference to the "National Interagency Incident Response System" with "National Incident Response System" reflecting a name change for the homeland security and emergency response system resulting from a U. S. Presidential directive and incorporates fee changes previously adopted by the 2003 Legislature (HB 2899) for dredge and passenger vessels and*<br>5) *amends solid waste recovery goals to reflect changes made by the 2001 Legislature (HB 3744).* |
| **Documents Relied Upon for Rulemaking** | *Documents relied upon for this rulemaking include relevant enacted bills adopted by the Oregon legislature described above; U. S. federal administrative rules pertaining to hazardous waste management requirements and the associated earlier EQC rulemaking documents, specifically DEQ's September 18, 2003" staff report; and Homeland Security Presidential Directive 5, issued February 28, 2003.* |
| **Fiscal and Economic Impact** | |

| | |
|---|---|
| Overview | *DEQ believes that the rules do not have significant fiscal or economic impacts because they involve changes to administrative rules that are already in effect. For example, the proposed rules align out-of-date fee information with changes adopted by the 2001 and 2003 Legislative Assemblies.*<br><br>*ORS 183.335(2)(b)(G) requests public comment on whether other options should be considered for achieving the rule's substantive goals while reducing negative economic impact of the rule on business.* |
| General public | *No anticipated fiscal or economic impact.* |
| Small Business | *No anticipated fiscal or economic impact.* |
| Large Business | *No anticipated fiscal or economic impact.* |

| | |
|---|---|
| Local Government | *No anticipated fiscal or economic impact. For example, the proposed rules pertaining to solid waste recovery goals reflect previous changes made in 2001 by the Oregon Legislature in HB 3744.* |
| State Agencies | |
| DEQ | *No anticipated fiscal or economic impact.* |
| Other agencies | *No anticipated fiscal or economic impact.* |
| Assumptions | *The proposed amendments only align state rules with previously-adopted state and federal actions and do not present discretionary or substantive policy-making issues.* |
| Housing Costs | *The Department has determined that this proposed rulemaking will have no effect on the cost of development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single family dwelling on that parcel.* |
| **Administrative Rule Advisory Committee** | *The Department has not used an advisory committee for assistance in developing the proposed rules or this fiscal and economic impact statement and believes that the proposed changes can be accurately and fairly represented as "housekeeping" in nature. The proposed rules are simply intended to align the Department rules with previous state and federal actions. Although an advisory committee process was not used to prepare these rules, the Department has contacted members of the Land Quality program's advisory committees and other key stakeholders about the proposed rulemaking.* |

Jeffrey J. Christe
Prepared by

Jeffrey J. Christensen
Printed name

2/10/05
Date

Approved by DEQ Budget Office

James Roys
Printed name

2/10/05
Date

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

# Rulemaking Proposal
for
Land Quality Rule Alignment

# Land Use Evaluation Statement

**1. Explain the purpose of the proposed rules.**

If enacted, the proposed amendments would:

1) revise language in OAR 340-102-0065 pertaining to fees paid by generators of hazardous waste, reflecting changes adopted by the 2003 legislature;
2) adopt a corrected reference in OAR 340-100-0002 to existing federal regulations pertaining to hazardous waste management;
3) incorporate fee changes enacted by the 2001 legislature for a) underground storage tank cleanup service provider registration and licenses in OAR 340-162-0150; and b) certification of home heating oil tank cleanup and decommissioning reports in OAR 340-177-0095;
4) replace an out-of-date name for the federal emergency response system in OAR 340-141 and 340-142 (NIIMS to NIMS), reflecting changes made by the federal Department of Homeland Security and incorporate into OAR 340-141-0010 fee changes enacted by the 2003 legislature pertaining to dredge and passenger vessels; and
5) amend OAR 340-090-0040 to 0060 pertaining to solid waste recovery goals reflecting changes made by the 2001 legislature.

The proposed amendments would align state rules with previously-adopted state and federal actions.

**2. Do the proposed rules affect existing rules, programs or activities that are considered land use programs in the DEQ State Agency Coordination (SAC) Program?**

**Yes___ No_X**

**a. If yes, identify existing program/rule/activity:**

**b. If yes, do the existing statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules?**

**Yes____ No____ (if no, explain):**

**c. If no, apply the following criteria to the proposed rules.**

Staff should refer to Section III, subsection 2 of the SAC document in completing the evaluation form. Statewide Goal 6 - Air, Water and Land Resources is the primary goal that relates to DEQ authorities. However, other goals may apply such as Goal 5 - Open Spaces, Scenic and Historic Areas, and Natural Resources; Goal 11 - Public Facilities and Services; Goal 16 - Estuarine Resources; and Goal 19 - Ocean Resources. DEQ programs and rules that relate to statewide land use goals are considered land use programs if they are:

1. Specifically referenced in the statewide planning goals; or

2. Reasonably expected to have significant effects on
   a. resources, objectives or areas identified in the statewide planning goals, or
   b. present or future land uses identified in acknowledged comprehensive plans.

In applying criterion 2 above, two guidelines should be applied to assess land use significance:
- The land use responsibilities of a program/rule/action that involved more than one agency, are considered the responsibilities of the agency with primary authority.
- A determination of land use significance must consider the Department's mandate to protect public health and safety and the environment.

**In the space below, state if the proposed rules are considered programs affecting land use. State the criteria and reasons for the determination.**

The Department does not believe that the proposed rules affect land use because they align existing rules with previously-adopted Legislative and federal actions, are minor in nature, and do not involve substantive or discretionary policy-making issues.

**3. If the proposed rules have been determined a land use program under 2. above, but are not subject to existing land use compliance and compatibility procedures, explain the new procedures the Department will use to ensure compliance and compatibility.**

State of Oregon

# Department of Environmental Quality Memorandum

**Date:** June 2, 2005

**To:** Environmental Quality Commission

**From:** Stephanie Hallock, Director S Hallock

**Subject:** Agenda Item J, Action Item: Three Basin Rule Findings for Big Valley Woods Water Pollution Control Facilities (WPCF) Permit Modification
June 23-24, 2005, EQC meeting

**Purpose of Item**

The Department requests that the Environmental Quality Commission (Commission or EQC) find that Big Valley Woods LLC's proposal to (1) upgrade the existing wastewater treatment systems (facilities) to serve existing uses for Big Valley Woods (manufactured home park) in the Clackamas River subbasin, and (2) install a new system to serve more units satisfies the requirements of the three basin rule. The three basin rule (OAR 340-041-0350(8)(c)(B)) requires the Commission to make certain findings, described below, before the Department can authorize system improvements or system expansion. While the requirements for approval are the same, the Commission must make separate findings for the upgrade of the existing system and installation of a new system.

**Three Basin Rule Background**

The Commission originally adopted the three basin rule in 1977 to protect the pristine watersheds of the North Santiam, Clackamas, and McKenzie River subbasins, which provide drinking water for over seventeen percent of Oregon's citizens. The rule as amended in 1995 (Attachment A) prohibits new or expanded wastewater discharges to these subbasins except as specifically allowed.

In January 2003, the Department in consultation with the Department of Justice developed a three basin policy (Attachment B) to clarify application of the three basin rule to permits. Before this policy, the Department permitted new or improved domestic sewage treatment facilities in the subbasins if they met groundwater protection requirements of the three basin rule. The new policy interprets the rule to also require for permit issuance a Commission finding that the proposed new, expanded or improved treatment facilities will provide a preferable means of sewage collection, treatment, and disposal as described below. The proposed WPCF permit modification is the fourth permit action brought for Commission review under the three basin policy.

**Big Valley Woods Background**

Big Valley Woods is an existing mobile home park with land use approval for 161 spaces, 68 RV spaces, three laundry buildings, an office and a residence. There is also a small golf course. It is on about 200 acres north of Hwy 211 and

about a mile east of Eagle Creek, Oregon. Deep Creek, a tributary of the Clackamas River, flows through the property. There are five "community septic systems" serving large numbers of homes; and there are around 70 small septic systems each serving one or two homes. The current WPCF permit was issued in 2003 to the park owner so that around 100 rusting septic tanks could be replaced. The need to replace the septic tanks triggered the requirement for a WPCF permit; however the three basin rule and the three basin policy allow for replacement of system components without Commission review. The permit was issued and the permittee began replacing septic tanks.

In the process of replacing septic tanks, the permittee discovered that many of the aging drainfields had reached capacity and would no longer function. The rule and policy require that a proposal to install a treatment plant or to construct new drainfield trenches be reviewed by the Commission. As an interim measure to eliminate the immediate health hazards from surfacing sewage, the Department allowed homes with failed individual septic systems to temporarily connect to a community drainfield. In April of 2004, the permittee petitioned the Commission to allow the option to construct new drainfields at the existing park to replace individual septic systems when they were found to be failing. The Commission granted approval for construction of new drainfields for repair/replacement purposes. However, no new drainfields have been constructed. The Department has continued to allow connection into existing systems as an interim, temporary measure in order to provide the opportunity for the permittee to obtain authorization to build a sewage treatment plant to serve the entire park.

Current Proposal. The permittee received land use approval on December 13, 2004, to expand the facility by adding another 50 manufactured home spaces. The permittee is petitioning the Commission for approval to construct a new sewage treatment plant for the entire expanded park. All septic tank effluent from the existing and expanded park will be directed to the new sewage treatment plant. The treated effluent would be directed back to the five larger community drainfields, and a sixth drainfield of 3,335 lineal feet will also be constructed.

The permittee proposes to construct the upgrade and expansion in two phases. See Attachment C which contains the proposal and site map.

Phase 1 is construction of the full-sized sewage treatment plant, large enough to serve the fully expanded park. In this phase, the designer has calculated that another 660 lineal feet of drainfield will need to be added to community Drainfield A. Ten of the new 50 home spaces will be added to the park during

this phase as "in fill" (between existing spaces, where there is room for another home). Septic tank effluent from all sources in the park will be directed to the new sewage treatment plant.

Phase 2 is the construction of a new, sixth large drainfield of 3,335 lineal feet, and the construction of a new section of park for the final 40 manufactured home spaces of the expansion.

Existing flows are estimated at 44,950 gallons per day. After construction of Phase 1, system design capacity would increase to 50,958 gallons per day. After Phase 2 is built, the full system design flow will be 60,958 gallons per day. The permittee will need an estimated total of 20,779 lineal feet of drainfield (16,784 existing drainfield footage and 660 + 3,335 proposed) to properly dispose of this amount of treated effluent. It is expected that the existing community drainfields will be able to dispose of the treated effluent discharged from the sewage treatment plant.

The permittee has verified through evaluation of soils on the property that there is sufficient area on the property meeting new construction septic system criteria, for the primary drainfields and for a full replacement drainfield or drip field system for the fully expanded facility.

**Public Process**

The Department published the proposed permit modification request from March 18, 2005, through April 18, 2005. The Department received comments from some of the tenants and other interested parties. Monitoring requirements in the draft modification were increased as a result of some of the comments. See Attachment D for the Public Notice, comments, and DEQ Response to Comments Report.

The Permit Evaluation Report and revised, final WPCF permit modification are Attachments E and F respectively.

**Major Issues**

Even with the increased flows from 50 additional homes, the improved treatment of the effluent prior to subsurface discharge would result in an estimated reduction of about 83% in the discharge of actual pounds of 5-Day Biochemical Oxygen Demand ($BOD_5$), which is a measure of the waste strength of the discharge. Total pounds of suspended solids would be similarly reduced. In two other manufactured home parks, the specific treatment system model proposed for this facility (Advantex AX-100 textile filters) has reduced total nitrogen concentrations by over 50 per cent from assumed septic tank effluent values of

57.5 mg/l, to 21 mg/l and 25 mg/l. See the evaluation report, Attachment E. The new facilities will improve wastewater treatment and reduce the potential impact to groundwater.

The major environmental issue is that many of the existing septic systems at the facility are no longer working. As interim measures to protect human health, the permittee has connected some of the homes with failed drainfields to one of the community drainfields. However, a permanent solution is needed. The permittee will connect all homes, RV's and other uses to the new sewage treatment plant.

The proposed location of the sewage treatment plant is on a terrace about 100 feet from Deep Creek. The permittee is confident that there is no potential for the site of the proposed treatment plant to be flooded.

The Department has not identified any other potential environmental impacts from the proposed wastewater treatment facilities.

**Findings Requested**

The Department cannot issue the proposed WPCF permit modification for the new wastewater treatment facilities without a Commission finding that the proposed facilities will provide a means of sewage collection, treatment, and disposal preferable to individual onsite wastewater disposal systems in accordance with the criteria in OAR 340-071-0350(8)(c)(B). To approve the permittee's request, the Commission must make separate findings for (1) the upgrade to serve the existing uses and (2) the system upgrade to serve the expanded facility. Specifically, the Commission must find for each component of the proposal that:

- The proposed wastewater treatment facilities will eliminate a significant number of failing individual on-site sewage disposal systems that cannot be otherwise reliably and cost-effectively repairs; or
- The new sewage treatment facility will treat domestic sewage that would otherwise be treated by individual on-site sewage disposal systems, from which the cumulative impact to groundwater is projected to be greater than that from the new facility (even with the increased number of homes).

The proposed facilities will reduce cumulative impacts on groundwater by improving wastewater treatment. The treatment plant will remove an estimated 83% of $BOD_5$ from wastewater. The drainfield disposal will be more equitably distributed through pressure-assisted distribution of the treated effluent.

The Department has determined that the permittee's application has satisfied all other applicable requirements of the three basin rule, described in OAR 340-041-0350(8)(c)(A) and (C), which do not require Commission findings. The application is for an individual permit; the permit allows only residential-strength discharges, which will not incapacitate the treatment systems; and the permit requires annual certification of operations and maintenance by a properly qualified person. The requirements in subparagraph (8)(c)(C)(iii) of the rule do not apply.

**Analysis of Requested Findings**

As noted above, the proposed facilities will improve wastewater treatment and reduce potential groundwater impacts, compared with the existing facilities. The Department has not identified any negative environmental impacts from the proposed treatment plant.

**Department Recommendation**

The Department has determined that the permittee has satisfied applicable requirements for the proposed permit in the three basin rule at OAR 340-041-0350(8)(c). The Department recommends that the Commission make the finding requested for issuance of the permit modification.

**Attachments**

Attachment A: Three Basin Rule, OAR 340-041-0350
Attachment B: DEQ Policy, 3-Basin Rule Implementation
Attachment C: Permittee's Modification Request and Site Map
Attachment D: Public Notice, Comments on Proposed Upgrade/Expansion Request, Department Response to Comments
Attachment E: Permit Evaluation Report
Attachment F: WPCF Permit Modification

Approved:

Section:

Division:

Report Prepared By: Anne Cox, RS
Phone: (503)229-6653

Attachment A, Item J
June 24, 2005 EQC Meeting

**340-041-0350**

**The Three Basin Rule: Clackamas, McKenzie (above RM 15) & the North Santiam**

(1) In order to preserve or improve the existing high quality water for municipal water supplies, recreation, and preservation of aquatic life, new or increased waste discharges must be prohibited, except as provided by this rule, to the waters of:

(a) The Clackamas River Subbasin;

(b) The McKenzie River Subbasin above the Hayden Bridge (river mile 15);

(c) The North Santiam River Subbasin.

(2) Except as otherwise provided for in this rule, this rule becomes effective and applies to all permits pending or applied for after the date of filing with the Secretary of State.

(3) Special Definitions. The following special definitions apply to this rule:

(a) "Waste Discharges" are defined to mean any discharge that requires and NPDES permit, WPCF permit, or 401 Certification. Individual on-site sewage disposal systems subject to issuance of a construction-installation permit; domestic sewage facilities that discharge less than 5,000 gallons per day under WPCF permit; biosolids land applied within agronomic loading rates pursuant to OAR chapter 340, division 50; and reclaimed domestic waste water land applied at agronomic rates pursuant to OAR chapter 340, division 55 are excluded from this definition.

(b) "Existing Discharges" are defined as those discharges from point sources which existed prior to January 28, 1994;

(c) "Existing Facilities" are defined as those for which construction started prior to January 28, 1994. Where existing facilities are exempted from requirements placed on new facilities, the exemption applies only to the specific permit(s) addressed in the subsection which allows the exemption;

(d) "New" NPDES and WPCF permits are defined to include permits for potential or existing discharges which did not previously have a permit, and existing discharges which have a permit, but request an increased load limitation;

(e) "Agronomic Loading Rate" means the application of biosolids or reclaimed effluent to the land at a rate which is designed to:

(A) Provide the quantity of plant nutrients, usually nitrogen, needed by a food crop, feed crop, fiber crop, cover crop or other vegetation grown on the land; and

(B) Minimize the quantity of nitrogen or other nutrients from land applied materials that pass below the root zone of the crop or vegetation grown on the land to groundwater.

(f) "Biosolids" means solids derived from primary, secondary, or advanced treatment of domestic wastewater which have been treated through one or more controlled processes that significantly reduce pathogens and reduce volatile solids or chemical stabilize solids to the extent that they do not attract vectors. This term refers to domestic wastewater treatment facility solids that have undergone adequate treatment to permit their land application;

(g) "Reclaimed Wastewater" means treated effluent from a domestic wastewater treatment system which, as a result of treatment, is suitable for a direct beneficial purpose or a controlled use that could not otherwise occur.

(4) To respond to emergencies or to otherwise avoid imminent serious danger to public health or welfare, the Director or designee may allow lower water quality on a short-term basis.

(5) The Director or a designee may renew or transfer NPDES and WPCF permits for existing facilities. Existing facilities with NPDES permits may not be granted increases in their permitted mass load limitations. The following restrictions and exceptions apply:

(a) The Department may conduct an inspection prior to permit renewal. Existing sources with general permits that are found not to qualify for a general permit, and who wish to continue discharging, must apply for an individual permit;

(b) Fish hatcheries (General Permit 300) and log ponds (General Permit 400) are required to apply for an individual permit at the time of permit renewal;

(c) Additional industrial, confined animal feeding operations, or domestic waste loads that are irrigated on land at agronomic rates or that otherwise meet the conditions of section (7) of this rule is not be considered to be an increase in the permitted wasteload.

(6) The Director or a designee may issue the following General Permits or Certifications subject to the conditions of the Permit or Certification:

(a) Stormwater construction activities (General Permits 1200C and 1200CA);

(b) Underground storage tank cleanups using best available treatment technology (General Permit 1500);

(c) Non-contact cooling water (General Permit 100);

(d) Filter backwash (General Permit 200);

(e) Boiler blowdown water (General Permit 500);

(f) Suction dredging (General Permit 700) only in portions of the basins that are not designated as Scenic Waterways under ORS 390.805 to 390.925;

(g) Federal Clean Water Act Section 401 water quality certifications.

(7) Long-term general and individual stormwater permits may be allowed as required by State and/or Federal law. The following requirements apply:

(a) New stormwater discharge permit holders must maintain a monitoring and water quality evaluation program that is effective in evaluation of the in-stream water quality impacts of the discharge; and

(b) When sufficient data is available to do so, the Department will assess the water quality impacts of stormwater discharges. Within a subbasin, if the proportion of total degradation that is contributed by the stormwater is determined to be significant compared to that of other permitted sources, or if the Department determines that reducing degradation due to stormwater is cost-effective when compared to other available pollution control options, the Department may institute regulatory mechanisms or modify permit conditions to require control technologies and/or practices that result in protection that is greater than that required Statewide.

(8) Industrial waste discharge sources, confined animal feeding operations, and domestic sewage treatment facilities must meet the following conditions:

(a) No NPDES permits for new industrial or new confined animal feeding operation waste discharges, or new domestic sewage treatment facilities may be issued, except as allowed under sections (3), (4), (5), and (6) of this rule;

(b) The Department may issue WPCF permits for new industrial or confined animal feeding operation waste discharges provided:

(A) There is no waste discharge to surface water; and

(B) All groundwater quality protection requirements of OAR 340-040-0030 are met. Neither the Department nor the Commission may grant a concentration limit variance as provided in OAR 340-040-0030, unless the Commission finds that all appropriate groundwater quality protection requirements and compliance monitoring are met and there will be no measurable change in the water quality of the surface water that would be potentially affected by the proposed facility. For any variance request, a public hearing must be held prior to Commission action on the request.

(c) The Department may issue WPCF permits for new domestic sewage treatment facilities provided there is no waste discharge to surface water and provided:

(A) All groundwater quality protection requirements of OAR 340-040-0030 are met. Neither the Department nor the Commission may grant a concentration limit variance as provided in OAR 340-040-0030, unless the Commission finds that all appropriate groundwater quality protection requirements and compliance monitoring are met and there will be no measurable change in the water quality of the surface water that would be potentially affected by the proposed facility. For any variance request, a public hearing must be held and the permit application will be evaluated according to paragraphs (B) and (C) of this subsection;

(B) The Commission finds that the proposed new domestic sewage treatment facility provides a preferable means of sewage collection, treatment and disposal as compared to individual on-site sewage disposal systems. To be preferable, the Commission must find that one of the following criteria applies:

(i) The new sewage treatment facility will eliminate a significant number of failing individual on-site sewage disposal systems that cannot be otherwise reliably and cost-effectively repaired; or

(ii) The new sewage treatment facility will treat domestic sewage that would otherwise be treated by individual on-site sewage disposal systems, from which the cumulative impact to groundwater is projected to be greater than that from the new facility; or

(iii) If an individual on-site sewage disposal system, or several such systems, would not normally be utilized, a new sewage treatment facility may be allowed if the Commission finds that the social and economic benefits of the discharge outweigh the possible environmental impacts.

(C) Applicants for domestic wastewater WPCF permits must meet the following requirements:

(i) Application must be for an individual permit; and

(ii) The proposed discharge must not include wastes that incapacitate the treatment system; and

(iii) The facility must be operated or supervised by a certified wastewater treatment plant operator as required in OAR 340-049-0015, except as exempted by ORS 448.430; and

(iv) An annual written certification of proper treatment and disposal system operation must be obtained from a qualified Registered Sanitarian, Professional Engineer, or certified wastewater treatment system operator.

(9) The Environmental Quality Commission may investigate, together with any other affected State agencies, the means of maintaining at least existing minimum flow during the summer low flow period.

(10) In order to improve water quality within the Yamhill River subbasin to meet the existing water quality standard for pH, the following special rules for total maximum daily loads, waste load allocations, load allocations and program plans are established:

(a) After completion of wastewater control facilities and program plans approved by the Commission under this rule and no later than June 30, 1994, no activities may be allowed and no wastewater may be discharged to the Yamhill River or its tributaries without the authorization of the Commission that cause the monthly median concentration of total phosphorus to exceed 70 ug/1 as measured during the low flow period between approximately May 1 and October 31*** of each year;

(b) Within 90 days of adoption of these rules, the Cities of McMinnville and Lafayette must submit a program plan and time schedule to the Department describing how and when they will modify their sewerage facility to comply with this rule;

(c) Final program plans will be reviewed and approved by the Commission. The Commission may define alternative compliance dates as program plans are approved. All proposed final program plans must be subject to public hearing prior to consideration for approval by the Commission;

(d) The Department will within 60 days of adoption of these rules distribute initial waste load allocations and load allocations to the point and nonpoint sources in the basin. These allocations are considered interim and may be redistributed based upon the conclusions of the approved program plans. ***Precise dates for complying with this rule may be conditioned on physical conditions (i.e., flow, temperature) of the receiving water and may be specified in individual permits or memorandums of understanding issued by the Department. The Department may consider system design flows, river travel times, and other relevant information when establishing the specific conditions to be inserted in the permits or memorandums of understanding.

Stat. Auth.: ORS 468.020, 468B.030, 468B.035, 468B.048
Stats. Implemented: ORS 468B.030, 468B.035, 468B.048
Hist.: DEQ 17-2003, f. & cert. ef. 12-9-03

The official copy of an Oregon Administrative Rule is contained in the Administrative Order filed at the Archives Division, 800 Summer St. NE, Salem, Oregon 97310. Any discrepancies with the published version are satisfied in favor of the Administrative Order. The Oregon Administrative Rules and the Oregon Bulletin are copyrighted by the Oregon Secretary of State. Terms and Conditions of Use

Attachment B, Agenda Item J.
June 24, 2005 EQC Meeting

# Policy for Three Basin Rule

OAR 340-041-470
1/28/03

## Summary

DEQ has not always implemented the Three Basin Rule (3-B Rule) with respect to permitting of large onsite systems in the Three Basin areas. The rule, as interpreted and consistent with the plain language reading and the informal input from the Assistant Attorney General, requires EQC review of all "new" or expanded or improved WPCF-OS treatment facilities proposals. DEQ has not wanted to take all new or increased on-site systems to the Environmental Quality Commission (EQC) in cases of potential public health hazards and because of the perception that the EQC review process would be time consuming for permits that should have limited or no environmental impact.

## History and Background

The 3-B Rule originally addressed only surface water discharges in the three sub-basins: Clackamas, McKenzie and North Santiam. The rule was substantially rewritten during 1994 and was adopted by the EQC on February 16, 1995. The reworked version included regulations for WPCF as well as NPDES permits.

During the same time period, Division 71 on-site rules were also being extensively rewritten, with a new provision that put large septic systems >2500 gallon per day or combination of systems on the same property with a total flow of >2500, as well as repaired or expanded large septic systems under DEQ operational WPCF permits and it moved WPCF regulations into Division 71. These reworked Division 71 rules took effect on April 1, 1995, two months after the EQC adopted the 3-B Rule. Prior to April 1, 1995, the owners of existing large facilities with multiple systems of <5000 each but with total flows > 5000 gallon per day not under WPCF permit could repair their failing septic systems through a county-issued, construction installation permit. These sewage treatment facilities would not have been subject to the 3-B Rule.

## Discussion

*Renewed or transferred NPDES or WPCF Permits*
The 3-B Rule already allows DEQ to renew or transfer NPDES or WPCF permits without going through EQC review.

*New Expanded or Improved NPDES or WPCF Permits*
The 3-B Rule requires EQC review of all applications for new or expanded or improved domestic sewage treatment facilities large enough (5000 gpd) to be subject to the 3-B rule. The

Assistant Attorney General's informal view was that there is a substantial risk that DEQ would lose in court if the Department were to approve a WPCF system on behalf of the Commission without the benefit of a formal written delegation. However, there may be some latitude available in making a determination of which applicants are subject to the part of the rule requiring EQC review.

The 3-B rule requires EQC review, not necessarily for new WPCF permits, but for new sewage treatment facilities over 5000 gpd. The Assistant Attorney General suggested that existing treatment plants could be placed under WPCF permit without EQC review. He also said that repairs of system components could also be authorized without EQC review. However, a plant upgrade, expansion, or rebuild in another area would require EQC review. Since failed septic systems are normally "repaired" by building new drainfield and/or a treatment plant, most "repair" WPCF applications would in fact require EQC review. Likewise, any improvements to treatment at a WPCF-permitted existing plant would need prior EQC review.

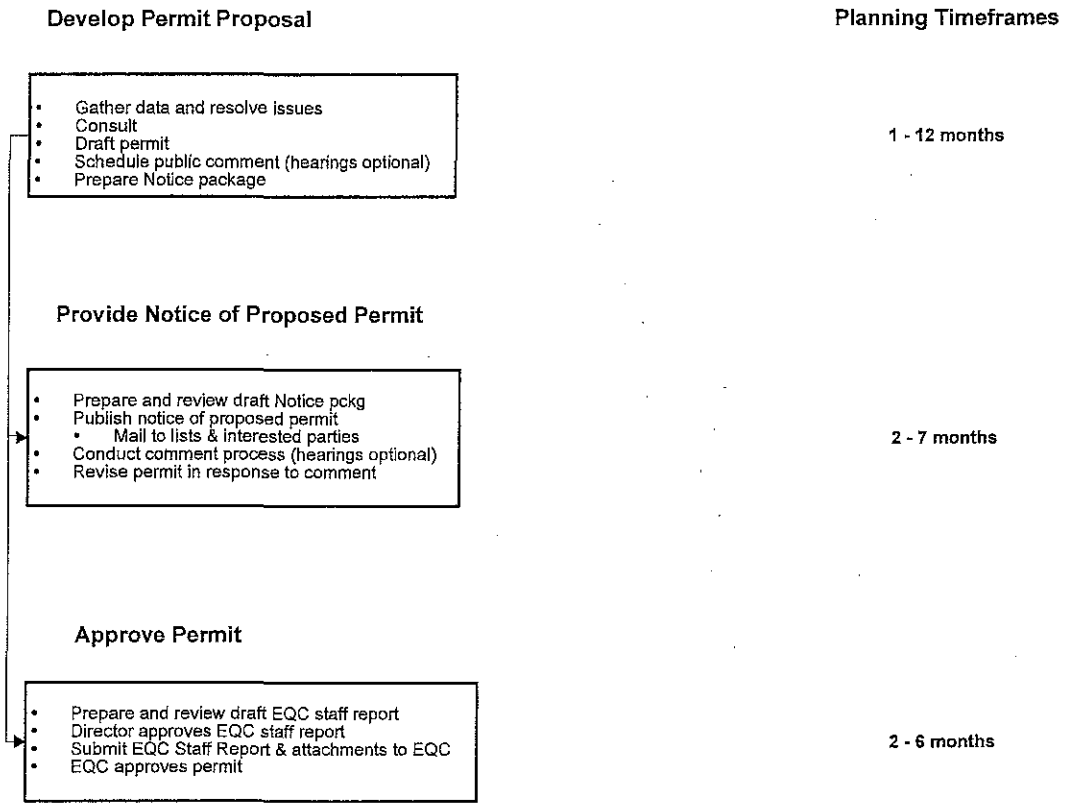
## 3 BASIN RULE SUMMARY OAR 340-041-0470

| | |
|---|---|
| Specifically prohibited permits:<br>New NPDES permits for<br>Industrial,<br>CAFO or<br>Domestic STPs<br>(7)(a) | Exceptions:<br>• Short-term lowering of WQ to respond to emergency situations,<br>• Individual NPDES permits for existing log ponds and fish hatcheries at time of renewal of general permits 300 & 400<br>• Industrial, CAFO or domestic waste land application at agronomic rates<br>• New General Permits 1200C, 1200CA, 1500, 100, 200, 500, 700 (outside designated scenic waterways)<br>• CWA Section 401 Certifications<br>• General and individual stormwater permits |
| Specifically prohibited permits:<br>NPDES permits that allow increased mass load limitations for existing sources<br>(2)(d), (7)(a) | Existing means construction was started before 1/28/1994 |
| Specifically allowed permit actions by DEQ:<br>Renewal or transfer of existing NPDES or WPCF permits,<br>New WPCF permits for STPs less than 5000 gpd,<br>Individual onsite systems<br>(2)(a) | |
| Permits DEQ may issue without approval by EQC:<br>New industrial or CAFO WPCF permits<br>(7)(b) | Conditions:<br>• No discharge to surface water and<br>• Meet all GW requirements |

| | |
|---|---|
| Permits DEQ may issue after approval by EQC:<br>New domestic STP/WPCF<br>(7)(c) | Conditions:<br>• No discharge to surface water,<br>• EQC finding that STP is a preferable to individual onsite systems, and<br>• Individual permit<br>• Certified operator<br>• Annual reporting |
| Permits not specifically addressed:<br>Repair of individual onsite system (>5000 gpd) under WPCF,<br>Improved treatment at STP | EQC should review and approve these permits per AG |

In order for DEQ to issue some permits, the EQC must make specific findings. In order to get a decision from the EQC, the draft permit and recommendations for findings should be treated within DEQ as if it were a standard agenda item for the EQC. This means that it will likely take about 6 months after the permit is finalized before it can be issued. Attached is a flow chart of the internal process.

# 3 Basin Permit Approval Process




1/03

December 14, 2004




RECEIVED
DEC 20 2004

Anne Cox, R.S.
Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987

RE: WQ - Clackamas County
Big Valley Woods
File No. 112246
Permit No. 102680
Proposed System Upgrade

Dear Ms. Cox:

Big Valley Woods, LLC is requesting a modification to the referenced WPCF permit. Several of the individual septic systems have failing components, so it is our intention to eliminate all individual systems and provide secondary treatment prior to subsurface disposal. In addition, we are proposing an expansion to the system to accommodate additional manufactured home units. Please note that this plan includes replacement drainfields for the entire community and reduces the environmental impact by incorporating secondary treatment, even though we are proposing adding users.

The requested changes will eliminate all individual septic systems. Effluent will be transported through zonal collection systems to a single secondary treatment plant. The effluent will be treated, and then discharged into subsurface drainfields for disposal. The secondary treatment will be accomplished with recirculating engineered textile filter systems configured using Orenco AdvanTex AX 100's. The AdvanTex systems provide treatment far superior to the standard septic systems currently in use, but they do require a substantial capitol investment. Income from the additional home sites will assist to off-set the considerable expenditure required for the improvements.

The work proposed in this WPCF modification request will be performed in two phases. The first phase will include the existing 161 manufactured home sites, 68 RV sites, a single family residence (formerly the office), 3 coin operated laundry facilities, the picnic building, and the new office along with the 10 recently approved in-fill manufactured home sites. During phase II the number of manufactured home sites will be increased by 40 to 211 total sites. Phase II will be developed only after the first phase has been constructed and is operating properly. The Land Use Compatibility Statement (LUCS) that accompanies this request includes all uses listed for Phase I and Phase II. Total usage, after system expansion, will be 211 manufactured home (MH) sites and 68 RV sites, 3 laundries, the picnic building, the office, and a single family residence.

**www.BigValleyWoods.com**
**503-668-4443 • 32700 SE Leewood Lane • Boring, OR 97009 • fax 503-668-4873**

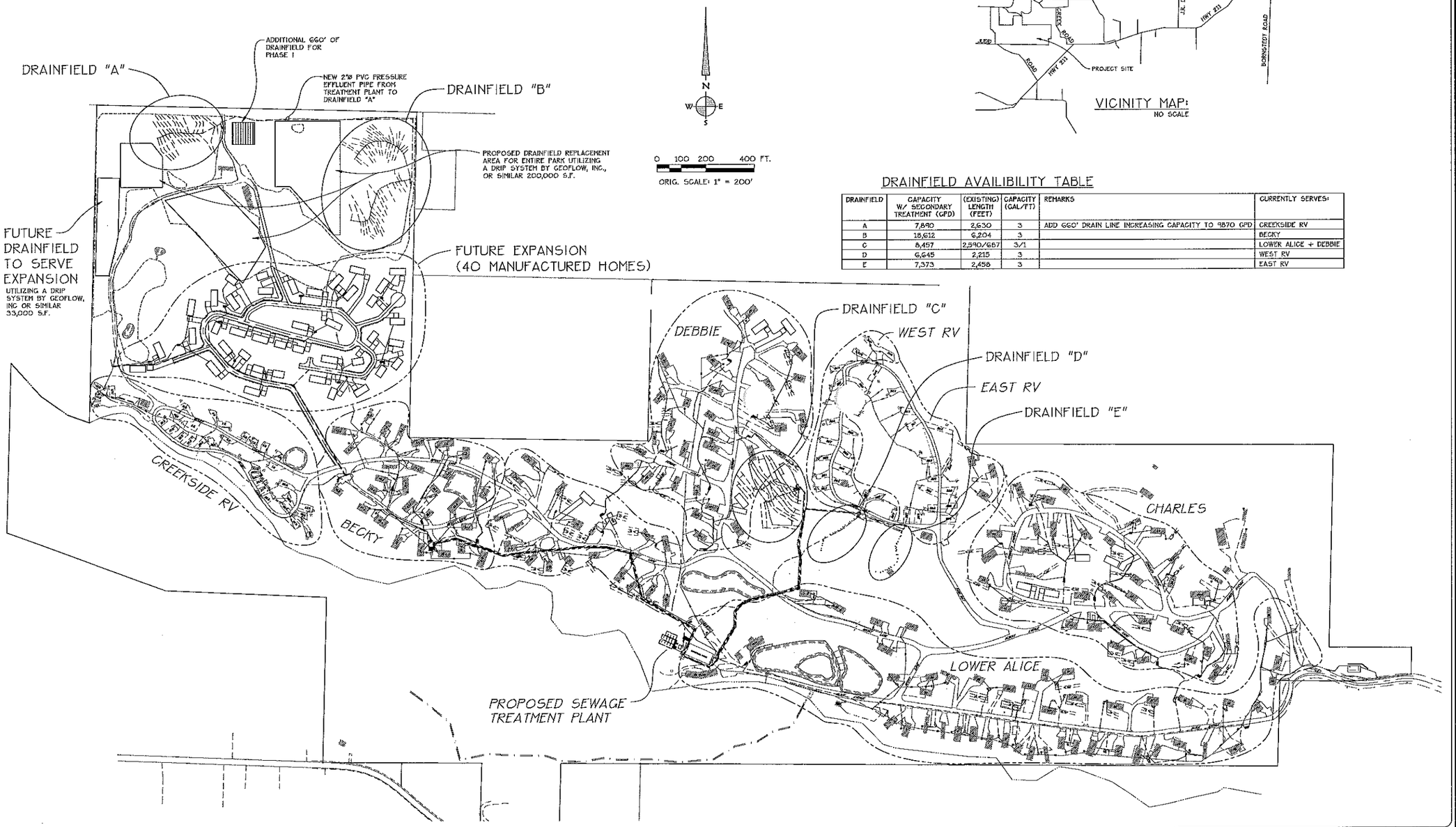
The proposed modifications will reduce environmental impacts even though there will be an additional 50 manufactured home sites when the project is completed. According to research data published by Orenco Systems, biochemical oxygen demand (BOD) will be reduced by 95 percent and total suspended solids (TSS) reduced by 91 percent. Unfiltered effluent is transported directly to subsurface drainfields in the current system. The proposed system includes filtration at the septic tank, and secondary treatment preceding subsurface disposal in the existing drainfields. Per the Orenco reference, the current system yields BOD in a range between 180 -190 mg/L and TSS in 80-85 mg/L range, which would produce 73 to 77 lbs. of BOD per day and 32 to 35 lbs. of TSS per day. The modified system will produce less than 5 mg/L of BOD (3 lbs.) and 5 mg/L of TSS (3 lbs) per day. The net result of the modification is an average reduction of 72 lbs. of BOD and 30 lbs. of TSS per day discharged to the drainfields.

The changes outlined in this proposal will allow Big Valley Woods & RV Resort to operate in a more environmentally friendly manner, while providing for some modest expansion. This will help recover some of the significant expense we're incurring in doing this in the best possible manner. We think the reduction in environmental impact is significant and we are eager to begin system construction as soon as DEQ approval can be obtained. To expedite the approval of this proposal, we want to waive the 14-day owner review. Thank you for taking the time to review this proposal. If you have any questions or comments about the technical data presented in this proposal, please call John McGee at (541) 928-2583.

Sincerely,

Steve Wise
414 Walnut Avenue
Huntington Beach, CA 92648-5158

Cc.: John McGee, K & D Engineering




VICINITY MAP:
NO SCALE

## DRAINFIELD AVAILIBILITY TABLE

| DRAINFIELD | CAPACITY W/ SECONDARY TREATMENT (GPD) | (EXISTING) LENGTH (FEET) | CAPACITY (GAL/FT) | REMARKS | CURRENTLY SERVES: |
|---|---|---|---|---|---|
| A | 7,890 | 2,630 | 3 | ADD 660' DRAIN LINE INCREASING CAPACITY TO 9870 GPD | CREEKSIDE RV |
| B | 18,612 | 6,204 | 3 | | BECKY |
| C | 8,457 | 2,590/667 | 3/1 | | LOWER ALICE + DEBBIE |
| D | 6,645 | 2,215 | 3 | | WEST RV |
| E | 7,373 | 2,458 | 3 | | EAST RV |

PROJECT SITE:
SCALE: 1" = 200'

Date: 4/1/2005 Time: 8:02
Scale: 1=40(PS)
File: dwg\2002\02-118\118b3-ss9.dwg (Justin)

| DATE: | REVISIONS: | BY: |
|---|---|---|
| 1/27/05 | REVISED PER DEQ REVIEW | JAM |

K & D ENGINEERING, INC.
278 N.W. HICKORY ST. — ALBANY, OREGON
P.O. BOX 725 — 541-928-2583
CIVIL ENGINEERING — LAND PLANNING
SURVEYING — CONSTRUCTION MANAGEMENT

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 11, 1978
JOHN D. MAY
12,970
EXPIRATION DATE: 12/31/04

BIG VALLEY WOODS + RV RESORT
PROPOSED SECONDARY TREATMENT SITE PLAN
CLACKAMAS COUNTY, OREGON

SCALE: 1" = 40'
DATE: 12/1/04
DSGN. BY: JDM
DRN. BY: JAM
CKD. BY: JDM
PROJECT NO. 02-118 B3
SHEET NO. 2 of 18

Public Notice: Request for Comments

# Proposed WPCF Permit Modification for Big Valley Woods File 112246

State of Oregon
**Department of Environmental Quality**

**Water Quality/Northwest Region**
2020 SW Fourth Avenue #400
Portland, OR 97201
Phone: (503) 229-5263
(800) 452-4011
Fax: (503) 229-6957
Contact: Anne Cox
*www.deq.state.or.us*

Notice issued: **March 18, 2005**

Written comments due:
**By 5 p.m., April 18, 2005**

### Where can I get more information and send comments?

DEQ accepts comments by mail, fax and e-mail.

**Name:** Anne Cox, R.S.

**Phone:** (503) 229-6653 or
toll free in Oregon (800) 452-4011

Mailing address: DEQ/NWR
2020 SW Fourth Avenue Ste. 400
Portland OR 97201

**Fax:** (503) 229-6957

**E-mail:** cox.anne@DEQ.state.or.us

(Email comments will be acknowledged immediately. If there is a delay between servers, e-mails may not be received before the deadline.)

### How can I review documents?

You can review the draft permit and permit application at
DEQ/Northwest Region
2020 SW Fourth Avenue #400
Portland, Oregon
For a review appointment call
(503) 229-5263
You can also review these documents on-line at
http://www.deq.state.or.us/wq/wqpermit/indvpermitdocs.htm

### What are DEQ's responsibilities?

The Oregon Department of Environmental Quality (DEQ) is the regulatory agency that helps protect and preserve Oregon's environment. DEQ is responsible for protecting and enhancing Oregon's water and air quality, for cleaning up spills and releases of hazardous materials, and for managing the proper disposal of hazardous and solid wastes. One way DEQ does this is by requiring permits for certain activities. The purpose of this notice is to invite you submit written comments on this proposed permit.

### Who is the applicant?

Big Valley Woods, LLC
414 Walnut Avenue
Huntington Beach CA 97648

### Where is the facility located?

Big Valley Woods (mobile home park)
32700 SE Leewood Lane, Boring, Oregon

### What is proposed?

The owner obtained a permit on July 21, 2003, for a WPCF permit to allow replacement of many of the septic tanks at the park. The facility has 161 mobile homes and 68 RVs, 3 laundries, a picnic building, office and single family residence. The permittee is currently proposing to increase the number of mobile homes to 211. The permittee is also proposing to collect all sewage at the facility, divide and direct the effluent to a new sewage treatment plant, with final discharge back to existing and some new drainfields for final onsite subsurface disposal.

### What are the special conditions of this permit modification?

The proposed permit modification provides for the transition from the regulation of many small standard septic systems, to the regulation of the operation of a sewage treatment plant to be installed and operated.

### Compliance history:

The permittee has operated in compliance with the permit.

### Who is affected?

Property owners, tenants of Big Valley Woods, and residents in the vicinity of the facility.

### What other DEQ permits are required?
A DEQ erosion control permit may be required.

### What legal requirements apply?
ORS 468B.050 and
OAR 340-071-0130(15) & (16).
OAR 340 Division 41 (Three Basin Rule)

### What discretionary decisions did DEQ use in deciding to issue the permit?
The 3-Basin Rule requires that the Environmental Quality Commission (EQC) review the current upgrade and expansion proposal. DEQ cannot authorize the proposal unless the EQC finds that the new facilities will provide a preferable means of sewage collection, treatment and disposal.

### What happens next?
DEQ will review and consider all comments received during the comment period. Following this review, DEQ will finalize the permit as proposed or modified. The permit and proposed modification will go before the EQC for its review. The EQC may approve the modification as proposed, approve a variation from the proposal, or deny the permit modification. DEQ will take final action on the proposed permit modification in accordance with the EQC decision.

### Accessibility information
DEQ is committed to accommodating people with disabilities at our hearings. Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format. To make these arrangements, contact DEQ Public Affairs at (503) 229-5696 or toll free in Oregon at (800) 452-4011.

People with hearing impairments may call DEQ's TTY number, (503) 229-5471

### Which of the facility's activities are not under DEQ's jurisdiction?
The drinking water system is under the jurisdiction of the Department of Human Services (formerly the Oregon State Health Division). Clackamas County has jurisdiction over home replacements, plumbing and electrical permits. The Water Resources Department has jurisdiction over water rights.

### What similar activities take place in the vicinity of the facility?
The area is rural. There are other mobile home parks in the area.

### What other facilities does this owner operate?
Not known.

### What are the known health effects or environmental impacts of the permitted substances stored, disposed of, discharged or emitted by the facility?
If sewage were allowed to discharge to the ground surface, it would present a potential public health hazard to the occupants of the park as well as to visitors and neighbors, through direct contact, or through contact with pets or insects that have been in contact with the sewage. There are human disease organisms present in sewage as well as normal intestinal bacteria. None of the septic systems at the park are known to be failing at this time.

### How are the permitted substances measured?
Most of the septic systems operate via gravity flow to the drainfields. Sewage flows cannot be measured at this time. If the upgrade system is constructed under the permit modification, the facilities will be equipped with elapsed time meters, cycle counters and/or flow meters to measure flows. The proposed permit modification also requires that treated effluent from the treatment plant be analyzed for contaminants, in order to measure plant performance.

**State of Oregon**
# Department of Environmental Quality Memorandum

**Date:** June 2, 2005

**To:** Big Valley Woods, File #112246

**From:** Anne Cox, Natural Resource Specialist
NWR, Source Control Section, 503/229-6653

**Subject:** Response to Comments for Big Valley Woods, Proposed Modification of Water Pollution Control Facilities (WPCF) Permit

## Introduction

The Department provided a 30-day public comment period from March 18, 2005, until 5 p.m. on April 18, 2005, to solicit comments on the permittee's proposal to construct a new sewage treatment plant, connect all uses to the plant, and eventually add a total of 50 homes to the development. A public hearing was not required or held. The following parties submitted comments on the proposed permit modification during the public comment period:

1. Northwest Environmental Defense Center
2. Tom Newell/Shirley Nelson (tenants)
3. Luann Martin (tenant)
4. Big Valley Woods Tenant Association
5. Curran-McLeod, Inc., Consulting Engineers
6. Clackamas River Basin Council (Tenant Association requested that the Council's land use comments be considered by the Department.)

The Environmental Quality Commission (EQC or Commission) is being asked by the permittee to make a finding as per the Three Basin Rule of one or both of the following:

- The new sewage treatment facility will eliminate a significant number of failing individual on-site sewage disposal systems that cannot be otherwise be treated by individual onsite sewage disposal systems, that cannot be otherwise reliably and cost-effectively repaired; and/or

- The new sewage treatment facility will treat domestic sewage that would otherwise be treated by individual on-site sewage disposal systems, from which the cumulative impact to groundwater is projected to be greater than that from the new facility.

The purpose of this report is to summarize the comments presented to the Department regarding the proposed permit modification. The Department's responses to those comments and changes, if any, to the permit modification draft, are in Times New Roman font.

## 1. Northwest Environmental Defense Center

**If the existing drainfields couldn't adequately disperse the waterflow of the septic systems, how can they be expected to handle additional waterflow?**

**While the permit does provide for the construction of new drainfields, which are probably necessary, how can NEDC be assured that the additional drainfields will be enough to handle the additional waterflow?**

**DEQ Response.** There are five larger "community drainfields," each serving large numbers of homes. These systems are frequently inspected by park personnel and at least once a year by the engineer. They have shown no signs of failure. The permittee has modified the distribution within some of these community drainfields to more equitably distribute the wastewater discharged to that system. There are also around 70 individual septic systems, each system serving one or two units. Some of these individual systems have been found to be failing. All are small and old and will need to be taken out of service. The failed septic systems have been taken offline, usually with the homes then connected as a stop-gap, temporary measure to one of the community systems.

The permittee has used existing county permit records to determine the size of the five community drainfields. DEQ's most conservative sizing of drainfields to receive treated effluent is 50 lineal feet of drainfield per 150 gallons of flow. Phase 1 is proposed to include construction of the treatment plant, another 660 feet of drainfield and addition of ten more homes. Phase 2 involves addition of 40 more homes and another 3,335 lineal feet of drainfield. The permittee proposes a total of 17,444 lineal feet to receive Phase 1 treated wastewater of 50,958 gallons per day, and 20,779 lineal feet to receive 60,958 gallons per day from Phase 2. This is equivalent to 50 feet/150 gallons.

The Department has record of numerous successes where existing trenches that had received septic tank effluent, were able to hydraulically receive a larger amount of treated effluent based on the sizing used for newly constructed trenches. In fact, failed drainfields have been known to completely recover their ability to absorb wastewater when the owner builds a treatment plant between septic tank and drainfields. The amount of drainfield necessary to adequately dispose of treated effluent has been carefully calculated. However, the permittee was still required to provide and demonstrate that there is sufficient area on the property, meeting DEQ's on-site rules for new construction criteria, for a full replacement drainfield for the fully expanded facility of 60,958 gallons per day. The permittee dug numerous test pits in the northwest portion of the property and had them professionally evaluated by a Registered Sanitarian. The permittee has successfully demonstrated the availability of a full replacement area for the fully expanded

facility. If any of the community drainfields should fail in the future, the permittee will be required to replace it.

**Will issuance of this permit ensure that no wastewater be discharged to surface waters, as required by OAR 340-041-0350 at (8)(c)(A)?**

**DEQ Response**. The permit prohibits the discharge of effluent to ground surface or to surface waters of the state. Any such discharges would be violations of the permit and water quality statutes and regulations.

**Has BVW submitted a groundwater monitoring plan for the uppermost aquifer and any other potentially affected aquifers, as required by OAR 340-040-0030 at (2)(a)?**

**DEQ response**. The permittee submitted a Preliminary Groundwater Assessment prepared by Cascade Earth Sciences (CES). The assessment was a requirement of the permit. CES concluded that it is unlikely that there will be adverse impacts to surface water and groundwater from the current operations. The report concluded that the potential for future impacts will be further reduced by the proposed secondary treatment system. The assessment report is available at DEQ's Northwest Region Office for review by the public.

DEQ groundwater staff reviewed the submitted assessment and concluded that groundwater monitoring would not be required of the permittee if (1) the treatment plant is built and operated, and (2) Well #4 (near the manufactured home on the golf course) is not used for supplying drinking water to residents. The permittee does not use this well.

**How will you ensure that the removal of the old septic systems will not cause the contamination of groundwater?**

**DEQ Response.** In Oregon, drainfields taken out of service are routinely left in place, where plant roots and soil bacteria continue the digestion and removal of nutrients from the trenches. Existing septic tanks are pumped by a DEQ-licensed septage pumper, and then the tank is either removed for solid waste disposal or left in place and filled with sand, gravel or other material. Some tanks have been discovered to be underneath the homes they serve, and will need to be decommissioned and left in place.

**How close will the new drainfields which BVW intends to construct be to drinking wells?**

**DEQ Response.** No drainfield can be closer than 100 feet from any well, no matter what the purpose of the well.

**********

## 2. Tom Newell/Shirley Nelson (tenants)

**...The current condition of the septic/sewer system is not at all acceptable. The started, but uncompleted phases of sewer construction throughout the park have left more than a handful of residents with partially open systems, foul smelling yards, backed up drain fields and temporary effluent pumps placed in tanks to eliminate flow to ground surface.**

**DEQ Response**. The above comment describes park management and current system maintenance complaints, but does not relate to the proposed permit modification. The permittee has already replaced around 100 septic tanks since purchasing the park a few years ago. DEQ has authorized the permittee to institute stop gap measures until it receives DEQ/EQC approval to build the sewage treatment plant and connect all of the development to the plant. The permittee has been quickly responsive to make corrections whenever DEQ staff have referred a specific sewage disposal problem. There are no known specific discharge problems at the park at this time.

**We are concerned that the sewer permit is tied in with an expansion to the existing living sites in the park.**

**DEQ Response**. The permittee has received county land use approval to increase the park by another 50 homes. If DEQ's rules and regulations allow the permittee to expand the size of the sewage disposal system to handle an increased number of homes, the Department can't deny the permittee's request.

**There is already ample pressure being placed on our park environment by the number of home sites and recreational vehicle spaces. Storm water run off from each of our hillside park streets is tainted with vehicle oils, petroleum, asbestos brake lining dust and tire rubber powder that feeds directly into the seeps and springs that travel down to Deep Creek. Increased traffic will further deteriorate the water environment within the park and downstream of the park.**

**DEQ Response**. Complaints about storm water contamination of Deep Creek should be directed to DEQ's complaints line at (503) 229-5393 for investigation. Subdivisions and manufactured home parks and RV parks are not required to obtain storm water permits; however, it is against the law to allow pollutants to enter waters of the state, or to be placed in a location where they are likely to be carried into waters of the state by any means. If storm water from the development is found to be polluting the creek, then the owner will be required to take corrective action. The complaint about storm water issues is not directly relevant to the proposal to build a sewage treatment plant and disposal system large enough to handle an additional 50 homes. The permittee is required to obtain a storm water erosion control permit for any construction project that disturbs more than one acre.

**Air Quality will be affected by the additional vehicle traffic. An estimated 60 to 80 home owner vehicles, plus their visitors will be making two or more daily trips through the park.**

**DEQ Response**. Air quality issues are important to human health and park liveability, but they cannot be addressed through this water quality permit.

**Although it is Safety and not a DEQ issue....please consider that emergency evacuation of this park is already a critical concern – additional vehicles would gridlock the only exit from the park!! Increased housing with current water constraints (we cannot water landscapes or surrounding vegetation from July to November) means there will be increased potential for a devastating park wildfire. Many homes would be lost because we have no local water pressure for our hoses and there is no fire hydrant water system in the park.**

**DEQ Response.** As stated by the commenter, this is not a DEQ issue for this permit.

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**3. Luanne Martin, tenant, signed a statement supporting the installation of a septic treatment system.**

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**4. Big Valley Woods Tenant Association:**

**We have enclosed a memorandum from Patrick D. Curran, P.E. Mr. Curran is with the firm of Curran and McLeod Inc. Engineers. We have also included a copy of a letter dated October 11, 2004, addressed to the Clackamas County Planning Commission from the Clackamas River Basin Council. We are submitting this letter for your review also.**

**DEQ Response**. Response to Mr. Curran's memorandum and to the letter from the Clackamas River Basin Council will be addressed separately later in this report.

**We feel that this plant should be designed to handle the existing spaces only. To add additional spaces to this park will only increase the chances of additional overloading of the existing groundwater problems.**

**DEQ Response.** Adequate water supply for the current or expanded park is a Water Resources issue, and is not under DEQ jurisdiction. There is little or no potential for the community drainfields to impact groundwater or the facility's wells. The groundwater in the area is deep and is protected by the overlying confining layers of rock and clay. Drainfields are relatively shallow, normally constructed no deeper than three feet into the soil. Only Well #4 is downgradient from any of the community drainfields. DEQ will require that Well #4 not be used by the park. The permittee states that Well #4 is not in use.

**Due to ...the fact that Deep Creek is the final destination for all of this drainage, ... putting more load on these slopes is only going to create additional problems. We realize that Clackamas has conditioned this drainage issue, however the**

**chances that these conditions can and will fail during heavy run off and especially during periods of flooding is a given.**

**DEQ Response**. The commenters are correct about the drainage. Big Valley Woods (on roughly 200 acres) is truly in a basin with Deep Creek passing through the bottom of it. Except for evaporation or plant uptake, any water discharged to this basin, whether by rainfall or by sewage discharge, must eventually drain to the creek DEQ's onsite rules include a table for assigning flows for various sewage-producing facilities. Water usage at the park has been measured at about 45,000 gallons per day. The addition of 50 more homes at 250 gallons per day per home will increase the discharge to this basin by an estimated 12,500 gallons per day. However, the increased flows will consist of treated effluent with reduced biochemical oxygen demand and an estimated 30 to 50 percent reduction in nutrients (total nitrogen) compared with septic tank effluent. With the water discharged to relatively shallow trenches, any remaining nutrients leaving the subsurface trenches should be migrating through the plant root zone. None of the community drainfields are closer than 400 feet from Deep Creek, according to the engineer's site plans. The drainfields have been carefully sized so that each will receive the correct fraction of discharged effluent. Distribution within the drainfields themselves has also been improved in order to further disperse water in the final trenches. The improved treatment of effluent including reduction of biochemical oxygen demand and nutrients should more than compensate for the increased flows into the soils of this 200-acre property. The Preliminary Groundwater Assessment submitted by Cascade Earth Sciences concluded that adverse impacts to surface water and groundwater are not indicated, and the potential for future impacts will be further reduced by the proposed secondary treatment system.

DEQ staff used a model to estimate current impact on Deep Creek from the existing facility as well as the estimated impact from the new sewage treatment plant serving the expanded facility. From the model, the existing community's estimated impact would be a 1.3 mg/l increase in total nitrogen of the surface water. The new sewage treatment plant and increase of 50 homes would have an estimated impact of 0.57 mg/l increase in total nitrogen of the surface water.

The Three Basin Rule requires that in order to approve a new facility, the Commission must find that there will be no measurable change in the water quality of the surface water that would be potentially affected by the proposed facility. To properly evaluate this requirement, it is necessary to evaluate the "existing facility" as defined by the Three Basin Rule. Prior to the trigger date in the rule of January 28, 1994, Big Valley Woods was on many small septic systems and the five community septic systems. The permittee reports that at time of purchase, most of the septic tanks at the park were small, rusted and leaking. The tanks and sewer lines for the approximately 20 homes on Alice Avenue immediately next to Deep Creek were in poor condition and had probably been that way for years. Although no stream data was collected to support the view, it is quite likely that prior to January 28, 1994, the park was contributing a serious impact on Deep Creek through leaking septic tanks and sewer lines, particularly in the Alice Avenue area. Those tanks have been replaced by the permittee, and a new, water tight sewer collection line has been built for that part of the park. The new sewage treatment plant, even with the proposed addition of 50 more homes, will still provide an overall reduction of an

estimated 83% of the discharge of actual pounds of 5-Day Biochemical Oxygen Demand ($BOD_5$) and Total Suspended Solids (TSS), over what is currently being produced by the community at its existing size and current level of sewage treatment. Therefore it would be reasonable for the Commission to make a finding that the proposed sewage treatment plant to serve the expanded community will not decrease surface water quality over what the community's impact was on the creek prior to January 28, 1994. Water quality in the creek should actually be improved over the pre-1994 conditions.

DEQ and others have sampled different parts of Deep Creek in past years, with higher nitrates (around 0.8 mg/l) found a mile upstream of the park in 2001, and lower levels (0.224 mg/l) found about a mile downstream of the park. Contaminant levels in the creek appear to be quite variable.

**...Another concern we have is the location of the treatment facility. The location near the existing tennis court was completely under water in the flood of '82. This area may not be included in the 100 year flood plain or included on any wetland maps, however that doesn't wave the fact that many of us who have lived here over 25 years have witnessed this area under water. There are many areas in Clackamas County that is undocumented, flood plains. To eliminate the danger of this plant flooding and causing the contamination of Deep Creek, it needs to be moved to higher ground.**

**DEQ Response**. Larry Alexander, park resident, has told DEQ staff that the area of the tennis courts was under water during the floods of 1982 and that water came inside the nearby buildings at that time. The sewage treatment plant is planned to be located next to the tennis courts.

The permittee states that the top of the treatment units will be almost 10 feet higher than the mean high water of the creek in that location.

DEQ and the system designer are faced with the reality that collection systems are developed such that sewage or effluent needs to flow to a centralized location that must by necessity be in a low elevation. Many of the homes are located next to the creek. Sometimes collection systems must be close to surface waters. In such cases, the design must accommodate contingency situations.

The treatment system will include large, buried tanks that are constructed watertight to ground surface. Each tank riser will have a lid held fast with screws. The textile filter units will be at least partly above finished grade, perhaps two feet, and weighted for antibuoyancy. If the area were to be covered by floodwaters, very little water could get into the tanks or into the filter units. Likewise, the escape of treated or untreated sewage out of the plant would be unlikely. The electrical for the treatment plant needs to be installed high enough to prevent shorting and power failure during such a flood event. As long as there is still power to the treatment plant, the plant would continue to function.

The greater likelihood of a sewage spill reaching Deep Creek would be through loss of power or from pump failure. With as much as 60,000 gallons of sewage going to the plant each day after Phase 2 is completed, there must be a back-up plan for assuring that this water can be contained and pumped to the drainfields. The permittee proposes a permanent emergency power generator for operating the treatment plant and the pumps during power outages. There are five recirculation pumps and 4 pumps in the final dose tank. If a pump should fail, an alarm will sound, but the other pumps will continue to function in any case. Unless replacement pumps are readily available, the permittee should have at least one backup recirculation pump and one final dose pump stored and ready for emergency use in case an operating pump should fail. The permit already requires that the permittee have a spill contingency plan, which should include all of the above, as well as a supply of disinfectants, and emergency phone numbers to call in case of spills. The control panel and other maintenance components will be housed in a small, locked building to be built in the treatment plant area.

The Department has not yet written an approval for the designer's submitted plans. Any specific design issues or requirements can be made a part of the Department's plan approval.

**The last issue of concern is the potential of serious slides on the south banks of Deep Creek. . ...The potential of a large slide damming Deep Creek and causing serious flooding around the tennis court area, as well as along Alice Avenue is a major concern.**

**DEQ Response**. The south hillside above Deep Creek is steep and there is evidence of slide activity. It is beyond the jurisdiction of the DEQ permit to place specific requirements on the permittee regarding stabilization of the south hillside above the creek. There is currently no part of the park on the south side of the creek. No part of the current or proposed sewage system is on the south side of the creek.

The permittee is required to be prepared for any sewage spills or system upsets, including any that might be caused by flooding due to rain events or landslide damming of the creek. Since the potential for such an event to occur is known, the permittee will need to plan for counter measures to prevent sewage from entering the creek.

**The existing drain fields that are being claimed in their application may not exist in total length as stated in their application. . ...We feel it would be a good idea to verify all these fields to be sure the total length is there. Also another concern is the actual reliability of these fields. Many are over thirty years old. Have the tree roots and other vegetation plugged these lines, are they all truly functioning the way they are supposed to? Are all the distribution boxes working properly?**

**DEQ Response**. The permittee initially relied on existing county permit records for the size of the five existing community drainfields. According to the permittee's designer, John McGee, P.E., the permittee had a DEQ licensed contractor expose every distribution box in Drainfields A and B. The contractor ran a snake down the length of each line to confirm the layout of the 1979

plans. Drainfield B was confirmed to have at least 6,204 lineal feet of drainline. The county records and physical observations were used to calculate how the treated effluent would be apportioned to each community drainfield. If the amount of treated effluent to a particular drainfield begins to cause hydraulic overloading, the permittee can redistribute the treated effluent to send less water to that drainfield. If a community drainfield should actually fail, the permittee will be required to replace that drainfield. The permittee has demonstrated through two separate site evaluation reports that there is sufficient area on the property to meet DEQ's onsite rules new construction siting criteria for construction of replacement drainfields to serve the fully expanded facility.

The plans for Drainfields A and B indicate that they were installed in 1979, the oldest of the community drainfields. The community drainfields were constructed using distribution piping in rock-filled subsurface trenches. It is true that drainfield trenches can over time become sealed by a creeping biomat that forms along the bottom of the trench. However, as stated before, none of the community systems are malfunctioning. Drainfields A and B are in a somewhat open, grassy area where problems would be visible. Drainfield C ("Alice" drainfield) is in a wooded area. The permittee has already divided this drainfield into cells so that the effluent will be distributed over a larger area instead of discharging to a single point.

Tree roots do not normally invade a rock-filled trench, but may grow alongside the trench to absorb moisture from the trench. Roots can and do find cracks and create blockage in pipes that are not inside a gravel sleeve. However, such a blockage would be readily discovered due to the inability of the pump to remove wastewater from a dose tank. There is no reason to uncover the trenches of the existing community drainfields. Again, if any problem arises with the functioning of the community drainfields, the permittee will be required to correct the problem.

**There are many systems that are having problems with their existing systems. The management pumps our septic tanks and fails to fix the drain field problems. Their answer to every back up is to pump the tank. Many times the backup is caused with problems beyond the tank.**

**DEQ Response**. This comment is a complaint regarding current management practices and interim measures and does not pertain to the proposed permit modification. It is true that many of the small, individual septic systems in the park have experienced problems, even failure. Sometimes the home had to be connected to one of the community systems. No new, small drainfields have been built. Pumping a septic tank may provide some temporary relief to a drainfield but is not a permanent fix in most cases. If the new treatment plant is built, all homes in the community will be connected to the new system, eliminating individual problems. DEQ staff have referred all tenant sewage complaints to the permittee, and in each case the permittee has quickly responded to correct and repair the situation. Staff are not aware of any current problems with individual sewage disposal at the park.

**********

**5. Patrick D. Curran, P.E., Curran-McLeod, Inc. Consulting Engineers**

**The proliferation of hillside ponds and impoundments is significant of the presence of springs and seeps located down-gradient of the existing and proposed drainfields. Considering the permeability of the subsoils, the future water quality of the spring water has to be a concern. And, the potential release of contamination to Deep Creek from both wastewater and storm drainage would seem to recall the previous EQC application of the Three Basin Rule to the mining operations in the North Santiam River basin.**

**DEQ Response**. Any drainfield proposed for use must be at least 100 feet uphill from a spring, or 50 feet down slope from a spring.

**...The proposed operation of a sewage collection system and a dozen small wastewater treatment devices with attendant drainfields sounds like a full-time job for qualified and certified operators. This assumes, of course, that the treatment devices are demonstrated to perform successfully according to the protocols of the National Sanitation Foundation.**

**DEQ Response**. A single sewage treatment plant is proposed, consisting of 12 recirculating textile filter units. These specific units have already been successfully deployed in the community of Hebo, where the new units replaced an older recirculating gravel filter. Last year the Commission authorized the repair of the Currinsville Mobile Home Park, also in the Clackamas Sub basin. The Currinsville repair incorporated the use of these same filter units, and the plant monitoring results are good. The units are also serving the Trask River Mobile Home Park in Tillamook County. DEQ's rules for approval of new technologies (Division 52) does not require that the technology be approved by the National Sanitation Foundation.

The single sewage treatment plant and five drainfields will provide a decided reduction in maintenance time, over the current operations of tending to numerous problems associated with the many individual septic systems at the park. It is estimated that after start-up, the treatment plant should not need more than a weekly visit. The control panel includes high water and other upset alarms, should any problems arise. The park manager lives near the area of the proposed treatment plant.

**Monitoring of performance should require weekly samples of conventional biological and bacterial parameters from each treatment module, along with nitrogen species to evaluate groundwater impacts in accordance with direction from DEQ Hydrogeologists.**

**DEQ Response.** For a system with ultimate disposal in subsurface disposal trenches, weekly sampling is extreme. Likewise, effluent from systems with final discharge to disposal trenches is not normally disinfected, nor does DEQ require sampling for bacteria.

Actual flows are unlikely to exceed 50,000 gpd for quite some time. DEQ's monitoring guidelines matrix for flows above 50,000 gpd indicates that flows be measured weekly, and that effluent be tested quarterly for ammonia, nitrate, Total Kjeldahl Nitrogen (TKN), 5-Day Biochemical Oxygen Demand ($BOD_5$) and Total Suspended Solids (TSS). The draft permit modification has been changed to these sampling requirements. Flow measurements have been kept at monthly. There is a provision to reduce effluent sampling to quarterly if the monthly sampling shows that the plant is operating consistently and satisfactorily.

Although the DEQ monitoring matrix guideline also requires sampling of influent to the treatment plant, there is nothing to be gained by permanently requiring it. The facility is residential, and sewage concentrations are expected to be typical of residential wastewater. The revised permit modification requires quarterly sampling of influent, with the Department's option to reduce or eliminate sampling if waste strength is demonstrated to be residential. The permittee will not be required to analyze influent for grease & oils, a sampling requirement reserved for food service sources.

**Existing drainfields should be documented for in-place length, capacity and performance. New drain fields should be inspected, recorded and reported by the design engineer to DEQ. Locations of seeps and springs should show geographic separations from the drain fields. Background water quality of the springs should be recorded and reported for those sources down-gradient and vulnerable to subsurface travel of undisinfected sewage.**

**DEQ Response**. Drainfields A and B (from 1979) have been field verified for size and function. Drainfield C has been evaluated and also modified to more equitably distribute effluent. Drainfields D and E are of relatively recent construction and there are county-issued "as built" drawings showing actual footage documented by the inspecting sanitarian. None of the community drainfields show signs of problems.

All drainfields must be at least 100 feet from seeps and springs. None of these seeps or springs are "in use" by anyone. There are no requirements for the permittee to sample seeps or springs.

**Rainfall runoff controls are not clearly evident among the several miles of paved streets. Gullies, culverts and ditches direct and carry the roadway runoff to Deep Creek.**

**DEQ Response**. This comment is not applicable to the proposed permit modification to build a new sewage treatment plant.

**Any new additions to the roadway system will mandate compliance with storm water runoff controls. This will fall to the appropriate agent of Clackamas County for compliance assurance.**

**DEQ Response**. This comment is not applicable to the proposed permit modification.

**The flood potential from the slide-prone south banks of Deep Creek adjacent to the community has to be a concern for the location of sewage pumping stations along the stream.**

**DEQ Response.** This is already addressed in DEQ response. See above.

**This looks like a city, operates like a city and should be treated like a city. The regulatory controls appropriate to a municipality should be imposed:**

- **Certified wastewater plant operator with standby operator**
- **Frequent monitoring & reporting of plant performance;**
- **Sludge reporting**
- **DEQ approval of system improvements; and**
- **Scrupulous compliance with Three Basin Rules.**

**DEQ Response.** All of the above will be required, except for services of a certified wastewater treatment plant operator. Systems with final discharge to subsurface disposal trenches are exempt by statute (ORS 448.430) from the requirement to have such an operator. However, the permit requires the permittee to have qualified personnel to operate the sewage treatment and disposal facilities. Both the permit and the Three Basin Rule require that the system be annually certified by a registered sanitarian, a professional engineer or certified wastewater treatment system operator, to be properly operated and maintained.

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**6. Clackamas River Basin Council** (The Council did not directly comment on the proposed permit modification, but the Big Valley Woods Tenant Association asked that DEQ consider the Council's letter of October 11, 2004 in reviewing the proposed permit modification.)

**...Deep Creek suffers from elevated levels of nitrates and phosphorus, particularly during low flow months. Elevated levels of nitrogen and phosphorus can contribute to excessive growth of algae, low dissolved oxygen and turbid water....**

**...We believe that in particular the Infill area A and B on the floodplain of the creek have a potential to adversely affect the nitrate and bacteria load in the creek.**

**DEQ Response.** DEQ does not have setback requirements for the placement of homes. In any case, sewer connections are required to be kept water tight, and no leakage will be allowed.

**We observed evidence of septic contamination in the roadside swales and noticed a strong odor of septic. The septic system in this development has been under water during flood events and most likely will be again in future events.**

**DEQ Response**. The current sewage disposal situation at the park needs to be corrected. There are no individual drainfields near the creek, and the nearest community drainfields are indicated on the designer's plans to be more than 400 feet from the creek.

**...The ponds located at this development have no apportioned water rights and probably contribute to water quality concerns such as an increase in nitrate, phosphate and water temperature.**

**DEQ Response.** Water rights for the ponds is an issue for the Water Resources Department and is not relevant to the proposed DEQ permit modification. The ponds are visibly turbid and are used by ducks and swans. Discharge of this water without a permit to Deep Creek would be a violation of water quality laws and regulations.

**...The Oregon Department of Water Resources indicates that there is no water right associated with this existing or proposed development.**

**DEQ Response**. Water rights is a Water Resources Department issue, and is not relevant to the consideration of the proposed DEQ wastewater permit modification.

**Clackamas River Basin Council believes that the public environmental economic and social benefits derived by maintaining the quality of Deep Creek's water and fisheries significantly outweighs the benefit of expanding a non-conforming use in this streamside location. We encourage you to reverse the (planning) staff's conditional approval and deny this application.**

**DEQ Response**. The comment is not relevant to the DEQ permit modification.

**Changes to Draft Permit Modification**

As a result of comments received, the following changes were made to the proposed permit modification from the version published for public comment:

- Quarterly sampling of treatment plant influent was added, with a provision that the Department can reduce or eliminate sampling if the influent is found to be typical of residential sewage.

- Treatment plant effluent sampling was changed to monthly for $BOD_5$, TSS, ammonia, nitrate TKN, and total nitrogen, with the provision that DEQ can reduce sampling to quarterly if the monthly sampling shows that the plant is operating satisfactorily.

- The reporting period was changed to quarterly so that Department staff will be able to more closely monitor the operation of the facility.

**Attachment E**

**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY**
**LARGE ONSITE WPCF PERMIT MODIFICATION EVALUATION**
May 16, 2005

| | | | |
|---|---|---|---|
| Permittee: | Big Valley Woods LLC<br>414 Walnut Avenue<br>Huntington Beach CA 97648<br>File Number: 112246 | Manager Approval Initials: | |
| Source Contact: | Steven Wise, Manager | Telephone Number: (714) 969-6969 | |
| Source Location: | Big Valley Woods, 32700 SE Leewood Lane, Boring OR | | |
| County: | Clackamas | | |
| Permit Writer: | Anne Cox | NWR Office | |
| Proposed Action: | Permit Modification, increased flows, expanded facility, improved sewage treatment | Application No.: 983862 | Date Received: 11/13/2003 Modified Request Received 12/14/2004 |

**Introduction**
Under Oregon Administrative Rule Chapter 340 Division 71 Section 130 (15)[ OAR 340-71-130(15) ], any system with a projected daily flow greater than 2,500 gallons a day is required to be operated under a WPCF permit from the Department of Environmental Quality. OAR 340-71-130(16) states that owners of existing systems are not required to apply for a WPCF permit until such time as a system repair, correction, alteration, or expansion is necessary.

Big Valley Woods (BVW) is an existing mobile home park in the Clackamas Sub Basin, and the facility must comply with the special regulations of the "Three Basin Rule." See OAR 340 Division 41. The initial WPCF permit was issued July 21, 2003, so that the new owner could replace over 100 deteriorated septic tanks. The "Three Basin Rule," requires review by the Environmental Quality Commission (EQC), not necessarily for new WPCF permits, but for new sewage treatment facilities over 5,000 gpd. Both the original DEQ permit and the replacement of system components (such as septic tanks) could be authorized without EQC review.

BVW has 5 larger, community septic systems, each of which serves many units. The rest of BVW's facilities are served by around 70 smaller septic systems. These are standard septic tank and drainfield systems.

**History of Upgrade Proposal**
As the permittee began replacing septic tanks, many of the smaller systems ceased to function because the deteriorated, leaky tanks had been serving as "cesspools." The new water tight tanks

delivered all wastewater to the drainfields, often resulting in drainfield failure. In November of 2003, the permittee made an initial request to enlarge the sewage system, add treatment to improve effluent quality, and to also increase the number of homes. The expansion/upgrade proposal was scheduled for EQC review at its April 8, 2004, meeting. However, the permittee was unable to obtain land use approval to increase the number of homes at BVW by the time of that meeting. Meanwhile, more individual septic systems were found to be failing. The EQC authorized the Department to allow BVW to manage these failures as they occurred, by either constructing additional drainfields or by connecting into existing larger community septic systems. These measures are considered by the Department to be interim, and the permittee understands that permanent repairs will be necessary for those systems that have failed. Rather than proposing to fix only some of the systems, the permittee is proposing, through two construction phases, to collect all of the sewage generated at the park, treat the effluent through the installation and use of recirculating textile filters, and to discharge the treated effluent back to the existing drainfields and to some new proposed additional drainfields. The permittee is also requesting to increase the number of manufactured homes at BVW from 161 by another 50 homes to 211.

The permittee requested additional time to obtain the land use approval to increase the number of manufactured homes at BVW. On November 18, 2004, Clackamas County issued a land use decision allowing the addition of 50 homes to BVW.

**Modification Proposal**

**Facility Description**

| | |
|---|---|
| Current Facility | 44,950 Gallons per day—161 mobile homes and 68 RV spaces, 3 laundries, picnic building, office, single family residence |
| Fully Expanded Facility (combined, Phase 1 and 2) | 60,958 gallons per day—211 mobile homes, 68 RVs, 3 laundries, picnic building, office, single family residence |
| Water Supply Source | 4 Wells |

The modification is proposed to be constructed in two phases. Approvable plans were received on February 7, 2005.

Phase 1. All sewage at the existing facility will be directed to a new sewage treatment plant to be built near the tennis courts. The treatment plant will include 12 treatment pods, AX-100 units. The proposed treatment plant is adequate to treat flows of up to 60,000 gpd. However, the design capacity of this phase will be limited to 50,958 gpd based on the amount of drainfield to be in use for this phase. The treated effluent will be discharged back to the five community drainfields. One of the community drainfields (A) is proposed to be enlarged by the addition of another 660 lineal feet of drainfield. The number of homes at the facility will be increased by 10 new "in-fill" homes that will be placed within the existing park layout.

Phase 2. Plans are conceptual for this phase. Another 3,335 lineal feet of drainfield will be installed, and 40 more manufactured home sites will be added to the facility.

The draft permit requires Phase 1 to be built by September 1, 2006. As emergency interim measures to alleviate a health hazard, the Department has allowed the permittee to connect many of the homes with failing individual septic systems to one of the community drainfields. This increases the hydraulic loading and pressure on the community drainfields. The treatment plant must be constructed—or the permittee will likely need to construct some very large new drainfields. With treatment of the effluent, the existing drainfields should be able to adequately dispose of the improved effluent. The permittee wants to build Phase 1 this year.

The draft permit does not contain a time schedule for the construction of Phase 2; however, it must be constructed before the additional 40 homes can be placed and connected to the system.

The permittee requests that the expansion be allowed based on the following:

Reduced impact on the environment. Although the flows would be increased, the improved treatment of the effluent prior to subsurface discharge would result in a substantial reduction of the amounts of contaminants discharged to the soils. The treatment plant will reduce 5-Day Biochemical Oxygen Demand ($BOD_5$) from an estimated 160 mg/l to 20 mg/l. Total Suspended Solids (TSS) of an estimated 150 mg/l will also be reduced to 20 mg/l. Taking $BOD_5$ as an example, the current septic tank effluent flows of 44,950 gpd would deliver daily an estimated 59.98 pounds of $BOD_5$ for drainfield disposal. The expanded facility would have projected flows of 60,958 gpd. Following treatment through the recirculating textile filters to a concentration of 20 mg/l, the final daily discharge would contain no more than a total of 10.17 pounds of $BOD_5$ discharged to the drainfields. This results in an estimated reduction in pollutants of about 83%. Total TSS would be similarly reduced. The installation of the textile filters will mean a substantial total reduction in pounds of $BOD_5$ and TSS delivered to the soils, even with the proposed increase in flows.

In other manufactured home parks, packed bed filters such as the textile filters proposed for this facility have reduced total nitrogen concentrations by as much as 35 to 40 per cent. The form of the nitrogen will be changed through aeration to nitrate, which is a form more easily assimilated by plant roots and soil bacteria.

Full replacement area. The permittee has demonstrated that there is sufficient area available on the property to build a full complement of replacement drainfields meeting site and soils criteria for the expanded system, in the unlikely event that any or all of the current drainfields were to fail. A full, code replacement area is a requirement for proposed facility expansions under Division 71 onsite regulations.

**Groundwater**
As part of this permit evaluation, a groundwater prioritization screening was done. The results of this screening are as follows:

| For new and existing drainfield systems (confirm all statements given as true or false: | |
|---|---|
| 1. Based on the depth to the water table underline the applicable statement and confirm it as either true or false:<br><br>A. Depth to water table is less than 100 feet: System design flow is less than 5,000 gpd.<br>B. Depth to water table is between 100 and 300 feet; system design flow is less than 10,000 gpd.<br>C. Depth to water table is greater than 300 feet; system design flow is less than 15,000 gpd. | False |
| 2. System is not located in Groundwater Management Area where an identified contaminant of concern may be associated with domestic wastewater. | True |
| 3. Drainfield is not located within:<br>1000 feet of an existing public or private drinking water supply well or<br>a designated Wellhead Protection Area,<br>And, all land within 1000 feet of the system is zoned such that no drinking water wells are likely to be installed in the future. | False |
| 4. No industrial sources discharge to the system | True |
| 5. There are no exceptional situations under which the system may require further groundwater review to determine the likelihood of an adverse impact. | True |

If all answers are true, then no further information is needed.

If any answers are false, has additional information been gathered to satisfy the permit writer and groundwater reviewer that the facility actually has a low potential to adversely impact groundwater? **Yes.** The permittee provided a Preliminary Groundwater Assessment and Hydrogeologic Characterization Report on the facility. The report concluded that it is unlikely that there are any current adverse impacts to groundwater or surface water. The report also stated that the potential for future impacts will be further reduced by the construction of the proposed treatment system, and Department staff agree. Staff reviewed the report and recommended that the permittee not use Well Number 4, which is near Drainfields A and B, for a drinking water supply. Alternatively, the Department could require groundwater monitoring if this well is to be used. This well has been used for irrigation only, according to the permittee's representative, due to high iron content. Department staff also recommended that groundwater monitoring need not be required for this facility if the treatment plant is constructed.

The Department of Human Services (formerly the Oregon State Health Division) requires the owners of community water systems to test and report on the quality of the water source. The

agency's drinking water records indicate that the park is served by two wells. Water tests show that coliforms are absent and that nitrates have for the most part been around 1.1 to 1.2 mg/l. The permittee has provided a map which locates the wells providing the drinking water for the park.

The Oregon Water Resources Division well logs indicate that there are around 80 wells in the two sections occupied by the mobile home park. The well depths in the area range from 20 feet to over 1,300 feet, with most wells between 100 and 300 feet deep. Due to the confining layers found in the soil profile and the relatively wide distribution of effluent, it is unlikely that the current systems have the potential to adversely impact groundwater. When the new treatment plant is built, the potential for adverse impact will be substantially lessened because of improved treatment of effluent and equalized distribution of that effluent for final subsurface disposal.

**Pending Issues**
The following issues must be addressed before DEQ can take final action on the request for permit modification:

Three Basin Rule. The rule requires that the Environmental Quality Commission review this proposed upgrade and expansion. The proposal can be approved if the Commission finds that the new sewage treatment facility provides a preferable means of sewage collection treatment and disposal.

Public Comment. The proposed permit modification was placed on the required 30 day public comment period. The permittee waived the 14 day applicant review period.

**Compliance History**
No Notices of Noncompliance have been sent.

**Complaints**
The tenants have complained that water lines were broken during the construction of parts of the new building sewers or effluent sewer transport systems. There have also been complaints of sewage discharge, failing septic systems, septic tanks left inadequately covered.

Response. The permittee has always responded to correct any problems or complaints referred by DEQ staff. In most cases it has been the permittee who has discovered and reported the problem. There are around 70 small, individual septic systems of unknown size and age at BVW. The age of the facility served, the lack of information regarding location of water lines, sewer lines, septic systems all contribute to a significant management assignment. The scope of the permittee's proposal is broad. Providing sewage collection and a centralized sewage treatment plant for BVW is analogous to taking a small town with individual septic systems in use, and providing the town with a sewer system.

In the past two years, the permittee has had to make many interim repairs or take other actions to correct sewage disposal problems on the property. The permittee has notified DEQ staff of problems as they have arisen and has obtained authorization to make corrections to alleviate health hazards. There are currently no known sewage problems or potential health hazards at BVW.

## PERMIT MODIFICATION DISCUSSION

**Schedule A – Waste Disposal Limitations**
Schedule A contains the following limitations for each system:

- Following construction of the Phase 1 upgrade to be completed by September 1, 2006, the permittee is authorized to have 171 mobile homes (10 of them new), 68 RVs, 3 laundries, a picnic building, office and single family residence. Design capacity of Phase 1 is 50,958 gpd. Phase 2 will allow the number of manufactured homes to increase by 40 to 211, and the treatment/disposal system capacity will be increased to 60,958 gpd.
- BOD5, TSS limited to 20 mg/l, TN (Total Nitrogen) limited to 30 mg/l
- Flow to a system shall not exceed system design capacity
- Prohibition of discharges to surface waters
- Prohibition of discharge of detrimental substances to system
- Groundwater restrictions.

**Schedule B – Minimum Monitoring and Reporting Requirements**
Monitoring parameters and frequencies are based on the Department monitoring matrix. Any modifications are listed as follows:

- Monitoring requirements for the existing facility are continued until the upgrade is constructed, approved and in use.
- After construction, monitoring of the new treatment and disposal system begins. Sewage flows are measured monthly. Influent is analyzed quarterly for BOD5, TSS, $NH_3$-N, $NO_3$-N, TKN and TN. The final treated wastewater is analyzed monthly for these parameters.
- The monitoring report period is quarterly. The permittee is required to have all systems evaluated annually by a Professional Engineer, Registered Sanitarian or certified sewage treatment plant operator, and certified to be properly treating and disposing of sewage.

**Schedules C, D and F continue unchanged.**

**Attachment F**
**Agenda Item J**

Expiration Date: 30-April 2013
Permit Number: 102680
File Number: 112246


# WATER POLLUTION CONTROL FACILITIES PERMIT MODIFICATION

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue, Suite 400, Portland, Oregon 97201
Telephone: (503) 229-5263

Issued pursuant to ORS 468B.050

**ISSUED TO:**

Big Valley Woods LLC
414 Walnut Avenue
Huntington Beach CA 97648

**SOURCES COVERED BY THIS PERMIT:**

| Type of Waste | System | Method of Treatment/Disposal |
|---|---|---|
| Domestic Sewage | several | Recirculating Textile Filters or Equivalent and Drainfields/dripfields |

**SYSTEM TYPE AND LOCATION:**
On-Site Sewage Treatment and Disposal
Big Valley Woods
32700 SE Leewood Ln, Boring, OR

Located on: T 2S – R 4E - Sect. 20&21 @
Lat: 45.3838N, Long: -122.3360W

**RIVER BASIN INFORMATION:**
Basin: Willamette
Sub-Basin: Clackamas
LLID: 1224320453894
County: Clackamas

Nearest surface stream which would receive waste if it were to discharge: Deep Creek at RM 5.7243

Issued in response to Application No. 983862 received November 13, 2003.
This permit modification is issued based on the Land Use Compatibility Statement issued by Clackamas County dated November 18, 2005.

Neil Mullane, Manager, Water Quality Program
Northwest Region

Date

## Addendum No. 1

This addendum shall be attached to and made part of Permit No. 102680. Schedules A and B have been modified as follows:

## SCHEDULE A

**Waste Disposal Limitations**

1. The permittee is authorized to operate and maintain domestic sewage treatment and disposal facilities consisting of treatment plants followed by subsurface absorption drainfields, to serve Big Valley Woods. Any system construction or modification shall be constructed **in accordance with plans and specifications approved by the Department.**

2. The permittee shall complete construction of Phase 1 modifications by no later than September 1, 2006.

3. Following construction and approval of Phase 1 modifications, the design capacity (sewage flow) for the sewage system is 50,958 gpd. The Phase 1 system shall serve a maximum of 171 manufactured home spaces, 68 RV spaces, 3 laundries, a picnic building, office and single family residence. The Phase 2 modifications will increase design capacity of the system to 60,958 gpd. Upon completion of and DEQ approval of expanded sewage treatment and disposal facilities of Phase 2, the permittee will be allowed to add another 40 homes to the facilities served. No changes in use or additional connections to any system shall be made without prior written DEQ approval.

4. The flow to and usage on a septic system shall not exceed design capacity of that system as specified by the Department's approval of plans.

5. The following describes the disposal areas and maximum peak daily flow of treated effluent allowed to discharge to that area:

| Drainfield System | Existing Lineal feet | Area Originally Served | Maximum GPD Allowed | Add'l Lineal Footage Required |
|---|---|---|---|---|
| A | 2,630 | Creekside RV | 9,870* | 660 |
| B | 6,204 | Becky | 18,612 | |
| C | 3,277 | Alice/Debbie | 8,457 | |
| D | 2,215 | West RV | 6,645 | |
| E | 2,458 | East RV | 7,374 | |
| Total Phase 1 | 17,444** | | 50,958 | |
| F (Phase 2) | 17,444 | N/A | 10,000 | 3,335 |
| Total Phase 1 and 2 | 20,779** | | 60,958 | |

* Gallonage is calculated from the total of existing footage plus the proposed 660 additional footage
** Includes the additional drainfield footage required to be built for this phase.

6. The **effluent** from the treatment plant prior to final disposal shall not exceed the following maximum concentrations

:

| Parameter | Limitation |
|---|---|
| $BOD_5$ | 20 mg/l |
| TSS | 20 mg/l |
| TN | 30 mg/l |

7. No discharge to surface waters is permitted. All wastewater shall be distributed into a soil absorption facility so as to prevent:

   a. Surfacing of wastewater on the ground surface, surface runoff or subsurface drainage through drainage tile.

   b. The creation of odors, fly and mosquito breeding and other nuisance conditions.

   c. The overloading of land with nutrients or organics.

8. No cooling water, air conditioner water, water softener brine, groundwater, oil, hazardous materials, roof drainage, storm water runoff, or other aqueous or non-aqueous substances which are, in the judgment of the Department, detrimental to the performance of the system or to groundwater, shall be discharged into the sewage treatment system, unless specifically approved in writing by the Department.

9. No Activities shall be conducted that could cause an adverse impact on existing or potential beneficial uses of groundwater.

## SCHEDULE B

**Minimum Monitoring and Reporting Requirements**

1. System Monitoring Requirements

The permittee shall monitor the operation and efficiency of all treatment and disposal facilities. Sampling and measurements taken as required herein shall be representative of the nature of the wastewater, and shall be taken at peak usage during operation of the system. Unless otherwise agreed to in writing by the Department of Environmental Quality, data collected, and submitted shall include but not necessarily be limited to the following parameters and minimum frequencies:

a. **Septic system Operations---current systems in operation—Monitoring requirements in force until the treatment upgrade is constructed and in operation.**

| Item or Parameter | Minimum Frequency | Type of Sample |
|---|---|---|
| Water usage, GPD | Monthly Average | Measurement or calculation based on meter readings |
| Flow Meter Calibration | Annually | Verification |
| $BOD_5$ (RV park systems) | Semi-annually | Grab |
| TSS (RV park systems) | Semi-annually | Grab |
| TKN (RV park systems) | Semi-annually | Grab |
| Number of MH vacancies | Monthly | Count |
| Number of RV vacancies | Monthly | Count |

b. **Septic system Operations—after the treatment upgrade is constructed and in operation**

| Item or Parameter | Minimum Frequency | Type of Sample |
|---|---|---|
| Treated effluent flow, GPD | Monthly Average | Measurement or calculation based on meter readings |
| Flow Meter Calibration | Annually | Verification |
| Number of MH vacancies | Monthly | Count |
| Number of RV vacancies | Monthly | Count |

c. **Sampling Requirements for Influent to Sewage Treatment Plant beginning one month after the Plant is placed in operation, sample at final septic tank**

| Item or Parameter | Minimum Frequency | Type of Sample |
|---|---|---|
| $BOD_5$ | Quarterly* | Grab |
| TSS | Quarterly* | Grab |
| $NH_3$-N | Quarterly* | Grab |
| $NO_3$-N | Quarterly* | Grab |
| TKN | Quarterly* | Grab |
| TN | Quarterly* | Grab |

* If analysis of four consecutive quarterly samples documents the influent waste strength to be representative of residential waste strength, upon request by the permittee the Department may allow influent sampling to be reduced to annually or discontinued.

d. **Sampling Requirements for Treated Effluent from Sewage Treatment Plant beginning one month after the Plant is placed in operation**

| Item or Parameter | Minimum Frequency | Type of Sample |
|---|---|---|
| $BOD_5$ | Monthly** | Grab |
| TSS | Monthly** | Grab |
| $NH_3$-N | Monthly** | Grab |
| $NO_3$-N | Monthly** | Grab |
| TKN | Monthly** | Grab |
| TN | Monthly** | Grab |

**After 12 consecutive months of sampling, the Department may allow effluent sampling to be reduced to quarterly.

e. **Operations and Maintenance Activities**
The permittee shall record in writing all observations of operation and maintenance activities, as required by the Department approved Operation and Maintenance manual, on a monthly basis.

f. **Solids Management**
The permittee shall maintain a record of the pumping dates and quantity (in gallons), of solids/wastewater pumped, and what licensed sewage disposal service company pumped the solids/wastewater, as well as the final disposal location and transfer locale (if applicable).

2. Reporting Procedures
Monitoring, maintenance practices, solids handling, and results shall be reported on Department approved forms. The reporting period is the calendar quarter. Reports must be submitted to the DEQ office listed on the face page of this permit by **the 15th of the month following the reporting period: April 15, July 15, October 15 and January 15.**

**The permittee shall have the entire sewage treatment and disposal system(s) evaluated annually by a Professional Engineer, Registered Sanitarian or certified sewage treatment plant operator, and certified to be properly treating and disposing of sewage.**

RECEIVED
JUN 22 2005
Oregon DEQ
Office of the Director

Date: June 16, 2005
To: Dept. of Environmental Quality, (DEQ), and Environmental Quality Commission, (EQC) and

cc: Representatives in the State of Oregon; Tom Butler, Gordon Anderson, Greg Smith, and State Senator, Ted Ferrioli.

Petitioners: Eastern Oregon Mining Association
Respondents: DEQ, EQC and the State of Oregon

Re: Request for Hearing, OAR340-011-0530, and ORS 183.413, which describes, "...that the citizens of this state have a right to be informed as to the procedures by which contested cases are heard by state agencies...". The following outlines the reasons why DEQ should issue a state permit and EQC should not agree to the issuance of the National Pollution Discharge and Elimination, (NPDES) permit for suction dredging in Oregon:

Section A- About the petitioners.

Section 1- NPDES only applies to navigable waters; who has jurisdiction and where does this jurisdiction begin and end?
Section 2- DEQ is in error concerning the "addition of a pollutant" under NPDES
Section 3- DEQ has failed to properly recognize that small scale placer mining is exempted from NPDES under 40 CFR 440 Subpart M
Section 4- Other errors including fees, size of the dredge, and turbidity criteria concerning the length of the mixing zone.

Attachments: A1- DEQ's stated authority, A2- Deputy Attorney General, Memo.
B- Miner's permit, version 3/3/05
C- Technical Resource Document, 1994
D1- Effects of Suction Dredging by Joe Cornell, 2001
D2- Effects of Small-Scale Gold Dredging on Arsenic, Copper, Lead, and Zinc Concentrations in the Similkameen River, March 2005
D3- Impact of suction dredging on water quality, benthic habitat, and biota in Fortymile River, Resurrection Creek, and Chatanika River, Alaska, 1999
D4- Response of fish to cumulative effects of suction dredge and hydraulic mining in the Illinois sub-basin, Siskiyou National Forest, Oregon, Peter B. Bayley April 2003
D5- Programmatic Biological Assessment, State of Oregon's Removal-Fill program, Final, September 2000, page 55,56,57

D6- Granite Area Mining Projects, Draft EIS, Umatilla National Forest, North Fork John Day Ranger District, page 4-15
E- DEQ 700PM NPDES permit and Attachments, June 6, 2005

**Section A**
The petitioners: Guy Michael has an extended 700J permit and filed comments during the making of the preliminary drafts and filed comments during the Public comment period; Ed Hardt, Jan and Ken Alexander and have also filed comments during the preliminary drafts and filed comments during the Public comment period; Ken Anderson filed comments during the public comment period; Robert Heitmanek has an extended 700J and filed comments during the preliminary draft. All are members of Eastern Oregon Mining Association. Jeff Boatwright is a miner and has filed comments during the public comment period. The following email address will contact the Petitioners: twohardts@eoni.com Edwin Hardt, President of EOMA.

**Section 1**
DEQ provided the miners with information as to why the agency believes it has authority to issue the NPDES suction dredge permit in the State of Oregon, (attachment A1). The list of ten reasons was provided at the February 3, 2005 public hearing in Baker City, Oregon. DEQ also refers the miners to the Dept. Of Justice, (DOJ) memorandum, (attachment A2), where the Clean Water Act, (CWA) is quoted by both, specifically identifying section 402 (b) where the State sought and received this authority, (reason number 7, A1), and, "*Under CWA Section 402, an NPDES permit is required for the discharge of a pollutant from any point source to waters of the United States...*" (Page 1 of DOJ memorandum).

Both statements of authority are in error, although we agree that the CWA provides for State implementation and that the State of Oregon did apply for and receive this authority to implement the provisions of the CWA. The petitioners do not accept that this authority applies to suction dredgers who operate in non-navigable waters in the public lands; I quote 33 USC 1342 (b), "*...The governor of each state desiring to administer its own permit program for discharges into navigable waters within its jurisdiction may submit to the Administrator...*" All through the CWA the term "navigable" is used very specifically to show where the CWA authority applies. We believe it is necessary to show exactly what the CWA states concerning this:

1) 33 USC 1251 (a) (1), "*...it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;*"
2) 33 USC 1251 (a) (6), "*...to develop technology necessary to eliminate the discharge of pollutants into the navigable waters...*"

3) 33 USC 1342 (a) (5), "*...The Administrator shall authorize a State, which he determines has the capability of administering a permit program which will carry out the objectives of this chapter to issue permits for discharges into the navigable waters...*"
4) 33 USC 1344 (f) (2),"*any discharge of dredge or fill material into the navigable waters...*"
5) 33 USC 1344 (g) (1), "*The Governor of any state desiring to administer its own individual and general permit program for the discharge of dredge or fill material into the navigable waters...*"
6) Section 502 (12) (A) [33 USC 1362 (12) (A)], "*any addition of any pollutant to navigable waters from any point source...other than a vessel or other floating craft.*"

To add to this point we must look at one of the reasons that Chief Justice Rehnquist used when the Supreme Court ruled against the Army Corps of Engineers (Corps) which was seeking authority over non-navigable state waters because of migratory birds in 531 US 159 2001 (SWANCC), "...*the term 'navigable' has at least the import of showing us what Congress had in mind as its authority for enacting the CWA: its traditional jurisdiction over waters that were or had been navigable in fact or which could reasonable be so made...*" The Corps was using their administrative rule to encroach upon the traditional state power over non-navigable waters in that case.

Congress in the CWA spells out that nothing in this act will infringe on the states' rights to govern pollution in waters under their jurisdiction:

1.) 33 USC 1251 (b), "*...it is the policy of the Congress to recognize, preserve and protect the primary responsibilities and rights of states to prevent, reduce and eliminate pollution...of land and water resources...*"
2.) 33 USC 1251 (g), "*it is the policy of Congress that the authority of each state to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter...*"
3.) 33 USC 1370, "*Except as expressly provided in this chapter, nothing in this chapter shall (1) preclude or deny the right of any state...or (2) be construed as impairing or in any manor affecting any right or jurisdiction of the states with respect to the waters (including boundary waters) of such states...*"

Each government, whether State or Federal has its own jurisdiction. NPDES applies to navigable waters and not to streams in the public domain that are not classified as navigable. To understand that there is a distinction between navigable (Federal Jurisdiction) and non-navigable (State jurisdiction), we need to look at the Federal-State framework and establish where their respective

jurisdiction begins and ends. The Equal-footing Doctrine is describe by Maleys, Mining Law page 19 (6th edition):

"In the United States it has been established that each new state created out of the public domain automatically, upon its admission to the union, becomes the owner of the beds of all waters then navigable and not previously conveyed by the Federal Government into private ownership under the equal-footing doctrine. In *Banal Cattle Co. v. Arizona,* 414 *Us.* 313, 318(1973), the Supreme Court discussed the origin of the equal-footing doctrine:

> "When the original Colonies ratified the Constitution, they succeeded to the Crown's title and interest in the beds of navigable waters within their respective borders. As new States were forged out of the federal territories after the formation of the Union, they were '...admitted [with] the same rights, sovereignty and jurisdiction...as the original States possess within their respective borders.' Accordingly, title to lands beneath navigable waters passed from the Federal Government to the new States upon their admission the Union, under the equal-footing doctrine."

In addition to numerous Federal Court decisions, which affirm the State's sovereignty over the beds of navigable waters, the US Congress enacted the Submerged Land Act of May 23, 1953 (stat 29; 43 USC 1301 et seq.). This part will concern the claim owner and suction dredger on public lands. I quote 43 USC 1301 (a) (3) (f), "*the term 'lands beneath navigable waters' does not include the beds of streams in lands now or heretofore constituting a part of the public lands of the United States...* " The State of Oregon has claimed to acquire 11 navigable rivers thus far, (associated press, Baker City Herald 4/13/05 pg. 3) and that because of the Equal-footing Doctrine and the Submerged Land Act the states have sovereign authority over lands beneath navigable waters. This includes the minerals and aquatic life, but this does not include the beds of streams in the public lands. If you have a valid mineral claim then you would own those minerals. The controls of the non-navigable waters are the states' concern. This includes water quality, but the state does not own the beds of these streams and any permit requirements for the public benefit must be consulted with those affected, ORS 517.125. Also, the beds of streams in the public lands are managed by the Federal land management agencies.

To round out this information more completely we must also understand that the Federal Government possesses navigational servitude, in that, although the state holds title to the beds of navigable waters, the Federal Government has control over the navigable waters itself for the purposes of navigation, see 429 US 363,375-76 (1977). In navigable waters, the Federal Government controls the water and the States control the beds beneath, which includes the gas, oil and minerals and aquatic life. In non-navigable waters the states control the waters but there are exceptions in the case of private ownership and in the public lands,

the Federal Government retains title until patent or the beds of these streams are sold. The Congress knew it does not have authority over non-navigable waters; it specifically uses the term "navigable" to describe where their authority applies. Congress, in the Act, offered to each state that wished to administer the NPDES permit program in navigable waters a plan that could be administered by the states, which allowed them to cross the jurisdictional boundary, in one direction. We will point out that suction dredging will occur mostly in state, non-navigable, public domain waters and would require a state permit, if the state statutorily required it.

Seeing the need for a state permit EOMA submitted, during the public comment period for the new 700J permit, a Draft Miner's Permit version on 3/3/05, (Attachment B). The DEQ was trying to establish permit conditions under NPDES that were outside the mechanical ability of the dredge to comply. We stated that we required a permit that used sound science and Best Management Practices (BMP) and to be listened to when consulted. The Miner's version with some "consulted" changes (ORS 517.125) could go quickly to public comment. The State of Oregon cannot impose Federal requirements where there is no jurisdiction to do so, since, the provision of the CWA and NPDES applies only to navigable waters.

**Section 2**

The Congressional definition of "discharge of a pollutant" as quoted above is this: "...addition of any pollutant to navigable waters from any point source". There is no ambiguity from Congress. The statutory question is whether suction dredge activity within waters of the U.S. constitutes the "addition of any pollutant to navigable waters from any point source" so as to require Oregon DEQ to issue an NPDES permit for suction dredges under § 402 (NPDES). For suction dredges to require NPDES permits, the courts have already stated five elements must be present: (1) a *pollutant (other than dredged or fill material which is regulated by* § 404*)* must be (2) *added* (3) *to navigable waters* (4) *from* (5) a *point source.*

The pollutants involved with suction dredging according to the Oregon deputy attorney general, which could be regulable under NPDES include rock, sand, biological material and cellar dirt. Dredged spoil is not a regulated pollutant under § 402 (In fact any material that is discharged as dredged material or fill material is excluded from § 402 as it is regulable under § 404 (33 CFR § 122.3)).

The Act does not define what constitutes the "addition" of a pollutant but, looking again to Congressional intent, the Congress Senate Committee stated (A Legislative History of the Clean Water Act): "*It should be noted that the term "thermal discharge" is defined as the introduction of water into the navigable*

*waters ....at a temperature different from the ambient temperature of the receiving waters*". It is intended that the term "thermal discharge" and the term "discharge of a pollutant" (and "discharge of pollutants") are mutually exclusive." This shows the intent of Congress in regards to introducing pollutants from outside of navigable waters and emitting or placing them into those navigable waters from a point source. There is no ambiguity to the intent of Congress and on this basis it is obvious that moving pollutants within the same general area within a water segment does not involve an "introduction" of pollutants just as the EPA itself has argued successfully before the Court, that concerning § 402 NPDES permits that addition from a point source occurs "*only if the point source itself physically introduces a pollutant into water from the outside world*" (Gorsuch 693 F.2d 156). Or "*Those constituents occurring naturally in the waterways or occurring as a result of other industrial discharges, do not constitute an addition of pollutants by a plant through which they pass*" (Appalachian power 545 F.2d 1351). As the Sixth Circuit Court so aptly stated, "*Since "addition" is one of the five elements necessary to trigger the NPDES permit requirement, we need only address whether the ...facility "adds" pollutants from the outside world to Lake Michigan*". (Consumers Power 862 F.2d 580).

In the Consumer's power case, material that was being pumped and channeled through a point source that would be considered pollution by Congressional definition (chopped up, altered biological material) was not regulable under § 402 although it was altered by the point source. The Court stated, "*any resulting pollution in the form of entrained fish is, as in Gorsuch, an inherent result of...operation. Any water quality change resulting from the release of entrained fish ... is simply not, giving proper deference to the EPA definition, from the physical introduction of a pollutant from the outside world.*" Furthermore, "*Had Congress wanted to use CWA §402 to regulate all sources of pollution, " 'it would easily have chosen suitable language, e.g., all pollution released through a point source.'*" *Gorsuch,* 693 F.2d at 176. Instead, Congress chose the word "addition." We agree with the District of Columbia Circuit "*the NPDES system was limited to 'addition' of 'pollutant' 'from' a point source.*" *Ibid. Dams, under certain circumstances, may "add" pollutants from the outside world, such as when they discharge grease into water passing through the outlet works. Gorsuch, 693 F.2d at 195 n. 22. In short, Congress and everyone involved in the water pollution problem knew that water flowed out of dams, and that such water was often not pristine. To the extent that no more has been shown than that unclean water flows out of the dam, Congress clearly displayed an intention to exempt dams from the Clean Water Act. However, if the dam itself added pollutants to the water, rather than merely transmitting the water coming into it, in whatever altered form, then it would be subject to the NPDES permit system.*" This clearly is in line with Congressional intent concerning moving small volumes of material (pollutants already occurring inside Waters of the

U.S.). Senator Domenici stated that "*we never intended under § 404 that the Corps of Engineers be involved in the daily lives of our farmers, realtors, people involved in forestry, anyone that is moving a little bit of earth anywhere in this country that might have an impact on navigable streams.*" Senate Debate, *id.* at 924. Both the Senator and the Court recognized that the waters could have an altered form and effect from point sources but that they were not intended to be regulable.

To briefly state the issue before us, suction dredges divert water including pre-existing pollutants that have previously been introduced into waters of the U.S. from non-point sources or point sources (as the case may be) and divert the "influent" through a discrete conveyance (a channel) that is partially or wholly submerged within the same water segment whereby heavy particles (some of which are desirable elements) are trapped by gravity as they flow through.

To further understand the Congressional purpose and approach of the Act in relation to the expressed intent of Congress I state testimony from another U.S. Senator concerning CWA bill:

*"The bill before the Senate today starts at a different point. It says, in effect: "Do not put any pollutant in the water". Then it recognizes that very often this may not be practical, and cannot be accomplished right away. So it says, that to the extent a discharge of pollutants cannot be eliminated, you may continue to put waste into the water, provided you have first applied the best available technology for the removal of that waste. In the first period, until 1976, it is to be the "best practicable technology". In the second period, until 1981, it is to be the "best available technology." After that time, we assume that the best available technology will continue to improve. This is a very different approach. It is a pragmatic approach. I think we all acknowledge that, in the short run, it may often require larger expenditures then permitting discharges to the point where the water can be shown to be degraded for some use. But I think it is fair to say that after the most thorough examination, the committee concluded that the approach adopted in the bill promised to be a far more effective means of attacking the problems of water pollution control than the 1965 act. I believe it would be a misinterpretation to view this bill as a "no discharge" bill, if that term conveys the notion that the committee expects every outfall to be shut off, or expects river systems-which are, after all, natural drainage systems--to no longer receive elements of the industrialization and urbanization which surrounds us. I believe the quality of water to which the bill is directed is not so very different from what we originally hoped might be accomplished under the 1965 and earlier acts. But I consider also that the way a problem is approached can make all the difference in reaching a goal. And it is in this way that the committee bill makes a sharp break with present practice for the beginning point is not the degree of*

*pollution considered tolerable, but the elimination of polluting discharges to the extent that available technology allows."*

This clearly shows the intent of the Act was to eliminate putting pollutants in the water that came from the outside world where the discharger has the opportunity to apply technological means to the extent that available technology allows to remove them before introduction to waters of the U.S. This is also reinforced by the Congress stating: "*...it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985.*" and "*...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited*". Congress hedged the purposes section by making it apply only as "*...consistent with the provisions of this [Act].*" and explicitly distinguished between the congressional "policy" to eliminate discharge of toxic pollutants and the presumably weaker "goal" of eliminating discharge of all pollutants. If we conclude that DEQ's interpretation is inconsistent with the language of the Clean Water Act, as interpreted in light of the legislative history, Democratic *Senatorial Campaign Committee,* 454 U.S. at 32, 102 S.Ct. at 42; *see SEC v. Sloan,* 436, or if it "frustrate[s] the policy that Congress sought to implement," no amount of deference can save it, U.S. 103, 118, 98 S.Ct. 1702, 1711, 56 L.Ed.2d 148 (1978). Misconstruction of "addition" would have frustrated Congressional and federal policy concerning mining, particularly placer mining whereby such a misconstruction of Congressional intent would be a contention that Congress' intended goal was to eliminate gold placer mining (including all suction dredging activity) by 1985 under their expressed goal of elimination of discharges of pollutants. That is especially noticeable where there exists no feasible or technological means of zero-discharge for any in-stream activities (suction dredging included) that move the existing pollutants, which clearly is contrary to the intention of Congress. Just as Congress recognized discharges under jurisdiction of Section 404 are necessary for commerce and should not be eliminated, being recognized as essential, the Congressional Committee stated that States should have criteria "*...providing for the establishment of standards for temporary turbidity resulting from dredging and disposal of dredge material, and to take such other action as is necessary ...to assure continuation of dredging essential to our Nation's waterborne transportation.*" Congress understood the discharge of material within and excavated from waters of the U.S. to involve the moving of pollutants from one place to another. During the 1972 debates, Senator Ellender stated: "*The disposal of dredged material does not involve the introduction of new pollutants; it merely moves the material from one location to another.*"

In the Appalachian power case the Court comments concerning litigation to EPA regulation: "*Industry is...required to treat and reduce pollutants other than those added by the plant process*". This, we are of opinion, is beyond the scope of EPA's authority. In addition, it is interesting to note that in the U.S. it was not

until a time after 1985 that any erroneous interpretation and construction of "addition" was constructed by any agency (particularly Oregon DEQ) to attempt to regulate suction dredges by any means let alone under §402. Moreover, if suction dredge activity was truly of significant effect consisting of legitimate addition, someone, be it EPA, or other group or agency would most likely have brought it to Congress' attention, either in 1972 or in 1977 and rather not find itself thrust into attempted agency regulation until after 1985, the expressed date for zero discharge goal.

Within EPA NPDES regulations the same Congressional intent is emulated in (TITLE 40,PART 122 Subpart C Sec. 122.45(g) whereby pollutants in "influent" would not require technological elimination from "*effluent if the discharger demonstrates that the intake water is drawn from the same body of water into which the discharge is made.*" This clearly is reinforcing expressed Congressional intent that "addition" of pollutants (from NPDES permitting standpoint) consists of an introduction of pollutants from the "outside world" even if the influent (water and pollutants) are taken from the waters of the U.S. for a commercial means used outside of those waters of the U.S. and subsequently re-introduced into that same water segment. What would however be regulated is any "addition" of pollutants from the discharger whereby it would be coming "from a point source" or if the influent, without any such addition were to enter a different waterbody. Suction dredging does not involve either.

Congress was not unclear in their structure and reasoning in the Act. Had it wanted to do so, it could easily have chosen language stating, "all pollution released through a point source." Instead, as we have seen, the NPDES system was limited to "addition" of "pollutants" "from" a point source. DEQ's construction must be upheld if, in light of the appropriate degree of deference, it is sufficiently reasonable. However there is no room for consideration or application of deference here when the Clear intent of Congress is expressed and known and there is no "addition" of any pollutants from a suction dredge into waters of U.S., which could be regulable under §402. The Supreme Court, however, has ruled that certain radioactive materials are not "pollutants" even though they undoubtedly emit "pollution", *Train v. Colorado Public Interest Research Group, Inc.,* 426 U.S. 1, 96 S.Ct. 1938, 48 L.Ed.2d 434 (1976). Moreover, under usual rules of statutory construction, use of two different terms is presumed to be intentional, *see, e.g., Russell v. Law Enforcement Assistance Administration,* 637 F.2d 354, 356 (5th Cir.1981, especially when the legislation specially defines both terms. EPA's policy-oriented explanation for the distinction--*that Congress purposely limited the federal NPDES permit program to certain well-recognized pollutants and left control of other water-altering substances or conditions to the states under § 208--is quite plausible. Not to mention Congress' specific intention of segregating discharges of fill and dredged material under §404 that involve discharges of numerous pollutants. In order to fully*

*understand [the Act], it is necessary to recognize that certain terms ... have very specific and technical meanings. The definitions of these terms are included in section 502 of title V, and it is recommended that very special attention be accorded section 502.... [S]ome of the more important terms ... [are] "pollution" ... "pollutant"... "discharge of a pollutant" ... "thermal discharge" ..."discharge," ... [and] "point source" ....*

While recognizing that all adverse water quality changes are "pollution"--broadly defined in § 502(19), 33 U.S.C. § 1362(19), as *"...the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water that is distinguishable however from 'discharge of pollutants' noting that pollutant and pollution are not interchangeable within the act, each with specific definitions and meaning..."* Congressional intent did not state: no person shall discharge "pollution" but rather "pollutants." This also embodies their correlating intent to deal with mining pollution through §208 of the Act whereby they were to apply feasible controls.

The Oregon deputy attorney general in an attempt to substantiate an addition of a pollutant has relied on several prior Court interpretations all of which required §404 permits (under the jurisdiction of the Secretary of the United States Army in the State of Oregon). There is no basis within the Act to determine permitting requirements or regulable discharges based on the purpose of the discharge. Section 404 of the Act was intended to regulate waste disposal of the pollutant of "dredged spoil" through regulation of discharges of dredged material (that come exclusively from waters of the U.S.) or discharges of fill material that can be comprised of waste materials (that are discharged into waters of the U.S.). The court has ruled in US vs. Sinclair Oil, *767 F.Supp. 200*, that if the defendant's redeposit of indigenous materials in the bed of the Little Bighorn River met the definition of a "discharge of dredged or fill material," the defendant must be held liable under the Clean Water Act for failure to obtain a § 404 permit. Furthermore the defendant could not use a defense based on §402. To attempt to validate suction dredge activity as addition of pollutants regulable under NPDES the Oregon attorney general and DEQ have cited court interpretations showing validity of 404 permitting which is not relevant to Section 402. The first citation (*Borden Ranch Partnership v. United States Army Corps of Engineers*, 261 F3d 810, 814 (9th Cir 2001)) that involved a point source (mechanized equipment that was being used to "deep rip" soil) whereby the majority of the court believed without any addition of material the deep ripping activity could "transform some material from a non pollutant into a pollutant" which would be regulable under §404. However, distinguishable in relation to deep ripping bare earth, is suction dredging, by the fact that the pollutants excavated from within the water consist of the various previously introduced pollutants of rock, sand, cellar dirt or biological material which cannot reasonably either individually or cumulatively be considered non-pollutants after they have already

been discharged into waters of the U.S. as pollutants. In addition *Rybachek, supra,* at 1285-1286 is cited as well. Considering Rybachek, it is distinguishable from suction dredge mining, in that, though the Rybacheks were mining for placer gold they were not suction dredging, but rather "hydraulicing" (not all placer mining methods or processes are synonymous though they have a similar objective) by using a pressurized stream of water to wash ancient stream gravels (which originally came from the streambed itself eons ago) that were not presently within the active stream channel which they then processed and then the leftover gravel dumped into the water. The Ninth Circuit court states, "*if the material discharged is not from the streambed itself, but from the bank alongside, this is clearly the discharge into navigable waters of a pollutant under the Act*". Further the court stated: "*even if the material discharged originally comes from the streambed itself, such re-suspension may be interpreted to be an addition of a pollutant under the Act*". However the Oregon deputy Attorney general or DEQ did not address this statement concerning the Rybachek mining operation from the Court- Justice Gould in the Borden case states: " *In Rybachek, we held that placer mining, a process in which miners excavate dirt and gravel in and around waterways and, after extracting the gold, discharge the leftover material back into the water," fell within the scope of section 404 of the Clean Water Act. Id. at 1285.*" Once again I must reiterate the above mentioned mining process is distinguishable from suction dredging and that §404 discharges are not permitted by DEQ under §402 NPDES. Even if §404 were to apply it would only apply to the discharge of the pollutants when the pollutants were transported some distance away from the same general area from which they were moved and discharged or if they were held for some time and dropped back in the same spot. Because suction dredging does not move any pollutants to a substantially different geographic location (especially onshore for subsequent processing) and does not process pollutants for any period of time, Rybachek is not controlling.

Concerning mining the expressed intent of Congress has pointed to §208 of the Act in the Legislative History. This follows recognition of this important Congressional declaration of policy: "*...that it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in the development of economically sound and stable domestic mining...the study and development of methods for the disposal, control, and reclamation of mineral waste products, and the reclamation of mined land, so as to lessen any adverse impact of mineral extraction and processing upon the physical environment that may result from mining or mineral activities.*" There exists no Congressional ambiguity concerning suction dredging in light of this stated policy as a valid mining activity. Congressional intent towards mining activity found in §208 calls for plans that include:

"**(G)** a process to:

**(i)** identify, if appropriate, mine-related sources of pollution including new, current, and abandoned surface and underground mine runoff, and

**(ii)** set forth procedures and methods (including land use requirements) to control to the extent feasible such sources"

Again this points out that the expressed intent of Congress was calling for feasible controls (controls to the extent that available technology allows) even though §208 would involve areas having "...substantial water quality control problems...", control problems in relation to State water quality standards.

**Section 3**

40 CFR 440 Subpart M is the rule that implements the CWA for placer gold mining operations that process more than 1,500 yards per year and dredges that process more than 50,000 yards per year. In the preamble to the revision of 40 CFR 440 Subpart M, (FR Vol. 53 No. 100 Tuesday, May 24, 1988 rules and regulation), the Regulatory Flexibility Act was the authority quoted to continue to exempt small scale gold placer mining from the requirements of the CWA (and NPDES).

40 CFR 440.140 states, "*the provisions of this subpart M are not applicable to any mines or beneficiations process which process less than 1,500 cubic yards of ore per year or to dredges which process less than 50,000 cu yd of ore per year...*" The U.S. Environmental Protection Agency, (EPA), explains this very clearly in the document: Technical Resource Document Volume 6 Gold Placer 1994, "*The size of a placer mining operation determines whether or not it is subject to compliance with the Clean Water Act administered by the EPA under 40 CFR 440 Subpart M. Mines handling less than 1,500 cubic yards of ore per year and dredges handling less than 50,000 cubic yards annually are exempted from effluent guidelines,*" page #1-4.

This technical document was written to describe how the CWA is implemented concerning the Extraction and Beneficiation of Ores and Minerals for gold placer mining. The EPA also states, "*Small-scale extraction methods include panning, and suction dredging...*[these] *extraction methods employ the basic principal of gravity separation,*" page #1-15. The EPA document further states, "*Under section 402 of the CWA (33 USC 1301 et seq.) All point source discharges to waters of the United States from industrial and municipal sources must be permitted under the National Pollutant Discharge Elimination System NPDES...Effluent limitations may be either technology-based of water quality based...Technology-based limitations specifically applicable to the gold placer mine subcategory of the Ore Mining and Dressing Point-Source Category are codified in 40 CFR 440 Subpart M. These standards are only applicable to large placer mining operations (defined as mines which beneficiate more than 1,500*

*cubic yards of ore per year). There are no regulations under the CWA specific to small placer mine operations,"* page #1-48, (Attachment C).

The reasons for this section are this: from the beginning of the first preliminary draft to the 5th draft, which was released for public comment, DEQ was establishing a technology-based control. This 700 PM NPDES permit left the previous efforts and based the permit on state water quality standards of 10% above background, which allows for a limited exceedance for legitimate uses of the water. DEQ, in the 700 PM permit, expects to now charge $300 for an Individual NPDES permit in order to receive the limited exceedance. The OAR did not say that the limited exceedance could only be regulated by an individual permit; it states that limited exceedance would be allowed for other legitimate uses. Under the previous 700J permit DEQ allowed dredges to exceed that 10% standard, we submit that there is no technology available to reduce turbidity, only a few Best Management Practices (BMP) This is another reason why a state permit based on sound science and BMP will continue to protect the environment and allow suction dredging to continue.

**Section 4**

The miners provided comments on the proposed fees during the preliminary draft 700J permit and DEQ did not respond to our comments, but removed the fees from the permit advising that we could comment later. Then during the public comment period we addressed the fees again, but DEQ bypassed the Administrative Procedures Act, and submitted a bill directly to the Legislature to increase fees for the NPDES suction dredge permit without consulting the miners or addressing our comments on this issue. The miners had to scramble to get to the hearings on the fees, and none of our previous comments were made a part of the legislative record.

We understand that the Clean Water Act specifically provides financial aid to the states for implementation of the NPDES programs (33 USC 1251 (b)). It seems obvious that the money generated by using NPDES permits is one big reason why DEQ wants the permit to remain NPDES, instead of a state permit. Then, DEQ plans to be paid again, by raising fees for the permits. Scott Manzano, at the public meeting in Baker City, stated that the money raised through fees would be used to hire more employees and to fund other areas in the department.

We believe that DEQ should not charge any fees that are above the actual cost to review the application, accept payment if one is needed, issue the permit and maintain the files. Other costs, such as for new employees or projects should be funded by appropriations from the legislature. The DEQ has proposed that the, "*new annual fee of $25*"(attachment F page 1, of the 700PM permit), "*will be used to help fund DEQ's overall program costs to protect surface water*

*statewide,*" page 2, Attachment F. The permit will be renewable every five years and they have not shown the need for the continued payment each year, such as annual compliance review, which also would not be needed. A "short term" 10-day permit could be made available and we expect a $15 cost would be appropriate.

There are many problems with the content of the current NPDES proposal. One concern is that DEQ is attempting to control federal managed lands by requiring the operator to quit or move or pay three times more money if the dredge plume extends past the 300 foot mixing zone below the dredge. In Washington and California, there is no mixing zone designated, since the science shows negligible effects from the turbidity in the dredge plume no matter how long it remains visible. It is obvious that DEQ wants miners to pay $300 for their individual permit and have provided no justification for charging the higher fees. Another land use control problem is that the miner in the public lands, who has located a claim with a stream running through it, owns the minerals in those beds. DEQ's proposed NPDES permit requires that in streams where no mining has occurred before, new mining be prohibited, (page 7 of 10 Conditions for dredging on water quality limited streams (1)). This is a clear and direct violation of a miner's rights, and this prohibition is not supported by the science. The State is clearly operating outside its authority. There are likely thousands of placer deposits yet to be discovered and many of these would have streams associated with them. The streams that were considered water quality limited for sediment were previously allowed in the 700J permit and we are not aware of any degradation from suction dredging in any streams. Under a state permit with BMP the permit would be designed so that those who comply will ensure that suction dredging will not degrade the streams that are worked. DEQ has assumed that suction dredging will degrade those streams and the scientific evidence previously sent by EOMA shows that the mitigating restrictions of BMP are enough to protect the aquatic life. Can DEQ restrict the mining of private property minerals while not revealing any sign of degradation to streams caused by suction dredging. We wonder if the State of Oregon is prepared to pay individuals for the taking of their mineral rights in those streams where no mining has yet occurred? Attachment D will list the Scientific Evidence.

This NPDES permit only authorizes dredges up to 6 inches in size and all operators of dredges that are over that size are required to pay the additional $300 for an individual NPDES Permit. The science does not support DEQ by excluding the larger dredges or dredges that exceed the 300 foot turbidity distance in the general permit, since it would take a dredge 12 inches or larger even to come close to meeting the requirements of 40 CFR 440 Subpart M, ("50,000 cubic yards" of processed material). The Bibliographies and scientific studies, (Attachment D), show clearly that dredges up to 10 inches should come under the General Permit and have benign effects on the environment.

Suction Dredging itself is basically a benign activity that requires a few BMP be met. Under a state permit, dredgers would not be allowed to dredge into the banks, they must operate during the State approved in-stream period when fish are not spawning and no eggs are in the gravels and they would leave the stream structure in the channel after the dredging is completed. Another BMP would be that when turbidity passes 400 feet, the operator would reduce his actual dredging time to six hours for that day. Studies on the effects of larger dredges, showed that after about 500 feet, the turbidity levels were back to near background levels.

DEQ's proposed NPDES permit does not consider that suction dredging is also a legitimate and beneficial use of the waters of the state. ORS 541.110 provides that, "...the use of water of lakes and running streams of Oregon for the purpose of developing the mineral resources of the State...is declared to be a public and beneficial use and a public necessity...". On the Public Lands managed by Federal authority, the Multiple Use Land Act gives to mining precedence over other uses, but will allow other non-conflicting beneficial use of the waters as well. In addition, dredgers remove mercury and lead and collect lures, fish hooks, fishing line left behind by previous era miners and fisherman. Dredgers leave deep, cold holes in the stream bottom for fish to hold in when stream temperatures rise or in the winter freeze over.

In DEQ's analysis report for the 700J NPDES permit, the agency states that there would be no adverse effects on small business. But we find that the proposed NPDES dredge permit is too restrictive and it severely curtails the activity to a point that many dredgers cannot operate or may not be able economically to afford to continue dredging. DEQ themselves, in the Analysis Report for economic impact, estimate that 450 out of 1800 individuals, or in attachment F, page 2 of the 700PM permit, that 488 of 1950 currently permitted by DEQ will probably decide either to no longer dredge or forego buying a permit. The Economic Analysis on the Designation of Critical Habitat for Bull Trout in Baker County, Oregon, used a very conservative figure of $50.00 per day spent in the local community by each suction dredger. If they stay 60 days, you have a figure of 1.464 million dollars removed from the rural communities. It should be noted that the suction dredge season work window approved by the Oregon Fish and Wildlife, ranges from 30 days to 4 months.

The Oregon Statutes that begin the section for mining in the statutes has need to be quoted here:

ORS 517.123 Legislative findings; the Legislative Assembly finds that
prospecting, small-scale mining and recreational mining:
Are important parts of the heritage of the State of Oregon;

Provide economic benefits to the state and local communities; and
Can be conducted in a manor that is not harmful and may be beneficial to fish habitat and fish propagation. [1999c.354 s/s2]

**Conclusions**

In conclusion, this General 700PM NPDES permit and the Individual NPDES permit are unacceptable, because they are incorrectly authorized under NPDES, it incorrectly considers that suction dredges add pollutants, and because this permit will hurt the small business miner and also the business in the rural community. It will also violate the rights provided under the General Mining Law of 1872, as amended, and because the permits do not reflect the legitimate and beneficial uses of suction dredge mining as reflected in the laws of this State, it will violate state law.

We therefore request that EQC deny DEQ's request to implement this permit. We further request that DEQ be advised to use the "miners permit" as a basis for a State Permit, and submit this permit for public comment at the earliest possible date.

Edwin F Hardt

Edwin Hardt, President
Eastern Oregon Mining Association
PO Box 932
Baker City, Oregon 97814

# Attachment A1
# Oregon Authority to Control Discharges From Suction Dredge Placer Mining

1) Federal Constitutional Authority

Gold mining clearly qualifies as "interstate commerce" as contemplated by the U.S. Constitution and therefore may be regulated through laws enacted by the Congress. Once these laws are adopted, executive agencies such as EPA may adopt regulations that clarify how those laws will be implemented.

2) The Federal Clean Water Act

Section 402 (33 USC 1342) of the Clean Water Act requires "point sources discharging pollutants into navigable waters" to be permitted under the National Pollutant Discharge Elimination System (NPDES) program.

3) According to 502(14), a point source is "any confined and discreet conveyance, including but not limited to a.. .container." The hose and sluice box of a dredge satisfies the definition of a point source. State law has a similar definition [see ORS 469B.005(4)].

4) According to 502(12), a discharge is "any addition of any pollutant to navigable waters." The discharge from the sluice box is an addition of a pollutant. Note that incidental discharges associated with the dredging part of the operation (i.e., that do not travel through the hose and sluice box) are not considered part of the point source discharge and do not require a permit under the NPDES program

5) According to *502(6),* a pollutant includes dredged spoil, solid waste, rock and sand. Under State law, "pollution" specifically includes turbidity and silt [see ORS 468B.005(5)j

6) According to *502(7),* navigable waters mean the waters of the United States, including the territorial seas. According to EPA regulations (40 CFR 122.2), waters of the United States include "all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce." Again, gold mining is interstate commerce. The State definition of "waters of the State" includes springs, wells, rivers streams, creeks and all other surface and underground waters, natural or artificial [see ORS 468B.005(10)j.

7) Oregon Program Approval

The Clean Water Act provides for State implementation in lieu of EPA [see 402(b)]. Oregon sought and received this approval in September 1973 and has held exclusive authority to issue NPDES permits ever since. In that end, Oregon State law grants authority to the Environmental Quality Commission to perform all acts necessary for a State to implement within the State the provisions of the Federal Water Pollution Control Act of 1972 [see ORS 468B.030 and 035].

8) Effluent Limits

As with all NPDES discharges, suction dredging is subject to both technology

based controls and those needed to achieve and maintain water quality standards. EPA has adopted a technology-based, effluent guideline (40 CFR 440, Subpart M) for dredge mining of 1,500 cubic yards or more of ore per year, and dredges processing 50,000 cubic yards or more of ore. Smaller operations and those in open bays, marine waters and major rivers are not covered by these rules but nevertheless remain regulated. Requirements for these smaller operations are based on best professional judgment.

In addition to the technology based controls, dischargers of all types are subject to State water quality standards. Water quality standards must be incorporated into NPDES permits whenever there is a reasonable potential for the discharge to cause an exceedance of the water quality standard. In the case of suction dredge dischargers, the discharge is likely to exceed the turbidity standard. The Oregon turbidity standard (OAR 340, Division 041-0036 restricts turbidity discharges to no more than 10% above background turbidity levels. However, the rule also allows limited exceedance allowances.

9) Other Applicable State Laws:

ORS 468B.25 prohibits persons from causing pollution, discharging in manner that reduces water quality below the State water quality standards, and violating conditions in permits issued under ORS 468B.050.

Civil penalty authority for any permit violation: up to $10,000 per violation per day [see
ORS 468.130-140].

10) Other Relevant Federal Laws

There has been some confusion about the definition of discharge. Under the federal dredge and fill program, the incidental discharge from dredging (i.e., fall back from the excavation) is not considered a discharge of a pollutant. However, this concept does not apply to the NPDES discharge from a sluice box which has no deminimis discharge exemption. All point source discharges, regardless of size require and NPDES permit.

HARDY MYERS
Attorney General

PETER D. SHEPHERD
Deputy Attorney General

**DEPARTMENT OF JUSTICE**
GENERAL COUNSEL DIVISION

Attachment A2

**MEMORANDUM**

DATE: April 19, 2005

TO: Mark Charles, Manager of Surface Water Management Section
Scott Manzano

FROM: Larry Knudsen, Assistant Attorney General
Natural Resources Section

SUBJECT: Applicability of NPDES Permit Requirements to Recreation Suction Dredge Mining

EQ is preparing to renew the expired 700-J permit. This is an National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to CWA Section 402 [33 USC § 1342], and it covers the operation of suction dredges of 40 horsepower or less used for recovering precious metals from stream bottom sediments. As the name implies, these dredges pull sand and other materials from the stream bed. The material is then mechanically processed to remove a significant percentage of the heavy metals and the remainder of the material is discharged back into the water column as waste.

DEQ accepted formal comments on the proposed renewal of the 700-J permit from December 23, 2004 through March 4, 2005. A number of the individuals and groups commenting on the proposed permit have asserted that discharges from these dredges are not properly regulated under CWA section 402. Instead, they claim that the discharges are not subject to regulation at all, should be regulated only under CWA Section 404 (33 USC § 1344) or should be regulated only under a state water pollution control facility (WPCF) permit. Each of these arguments is discussed below.

## The CWA Regulation under Section 402

Under CWA Section 402, an NPDES permit is required for the discharge of a pollutant from any point source to waters of the United States. These suction dredges at issue are required to have such a permit before discharging. This conclusion clearly follows from the applicable statutory and regulatory definitions, as well as the federal court decisions interpreting these definitions.

**Point Source.** The CWA defines a point source as "any discernible, confined, and discrete conveyance," including pipes and conduits. CWA Section 502(14) [33 USC § 1362(14)]. There does not appear to be any reasonable argument that discharges from the

suction dredge apparatus do not fall under the definition of point source. *See League of Wilderness Defenders v. Forsgren*, 309 F3d 1181, 1184-1185 (9th Cir 2002); *Rybachek v. United States Environmental Protection Agency*, 904 F2d 1276, 1285 note 8 (9th Cir 1990).

**Pollutant.** The term "pollutant" is broadly defined and includes dredge spoils, rock, sand, and almost all other forms of waste. CWA Section 502(6). The federal Environmental Protection Agency (EPA) has determined that the re-introduction of waste materials from the stream bed into the water column through the process of suction dredging and sluicing constitutes the addition of a pollutant. The federal Ninth Circuit Court of Appeals has reviewed and upheld EPA's decision. *See Rybachek, supra,* at 1285-1286; *see also Borden Ranch Partnership v. United States Army Corps of Engineers*, 261 F3d 810, 814 (9th Cir 2001). *See also, Washington Wilderness Coalition v. Hecla Mining Co.*, 870 F Supp 983, 988 (ED Wash) (and authorities cited therein).

Some of the comments assert that a permit is not appropriate because the discharges from small suction dredges are relatively insignificant. There is, however, no exception to CWA Section 402 permitting requirements based on the relative significance of the discharge. *Sierra Club v. Union Oil Co.*, 813 F2d 1480, 1490-1491 (9th Cir 1986), *rev'd on other grounds, Union Oil Co. v. Sierra Club*, 108 S Ct. 1102 (1988); *Save our Bays & Beaches v. City and County of Honolulu*, 904 F Supp 1098, 1105 (D. Hawaii, 1994). Similarly, under the CWA, the determination of the need for permit effluent limits or other regulatory conditions must be made in the context of the water quality of the specific receiving water and the standards applicable to the receiving water. CWA Sections 301, 303, and 402. The existing record for this general permit does not, and probably could not, include substantial evidence upon which to base a determination that **all** of the covered discharges are in fact insignificant. *See also, Natural Resources Defense Council, Inc. v. United States EPA*, 966 F2d 1292, 1306 (9th Cir 1992).

**Waters of the U.S.** A number of comments assert that suction dredge mining is not subject to the federal Clean Water Act because the discharges take place on waters that are not navigable in fact. These assertions are misplaced because the requirements under CWA Sections 402 and 404 apply to any discharge to "waters of the United States including the territorial seas." 33 USC § 502(7) (defining "navigable waters" as used in the CWA). The waters of the U.S. include streams that are tributaries of navigable waters even if those streams are not themselves navigable. *Headwaters, Inc. v. Talent Irrigation District*, 243 F 3d 526, 533 (9th Cir 2001). It also includes wetlands and ponds adjacent to navigable waters and their tributaries. *See, e.g., San Francisco Baykeeper v. Cargill Salt Division*, __ F Supp 3d ___ (2003 US Dist LEXIS 8247) (N Dist CA, 2003) (and authorities cited therein).

**Unitary Waters Theory.** At least one comment argues that a permit is not needed because of the so-called "unitary water theory." This is a relatively new concept that the United States Department of Justice used to argue that permit is not required when water is transferred from one relatively polluted water body to another relatively less polluted water body. *See South Florida Water Management District v. Miccosukee Tribe of Indians*, 124 US 1537 (2004). Essentially, the theory holds that all waters of the U.S. are the same and thus no permit is required to move water from one water body to another water body.

At this time, the unitary water theory has not been adopted by the Supreme Court or any other court. Assuming for the sake of argument that the theory becomes law at some future date, it is not relevant to the issue of permitting suction dredge mining. Such mining does not move polluted waters between water bodies. Rather, pollutants are introduced to the water body by the dredging and sluicing and not by the transfer of water. *See Rybachek, supra; see* also Brief for the United States, at 22 note 7, in *South Florida Water Management District v. Miccosukee Tribe of Indians*, 124 US 1537 (2004). In this fundamental regard, discharges from dredging are not distinguishable from most other industrial and municipal discharges.

**Effluent Limit Guidelines.** A number of comments assert that NPDES permits are not required because EPA has promulgated specific effluent limit guidelines (ELGs) as technology-based requirements for certain placer mining activities, and these ELGs do not apply to dredges processing less than 5,000 cubic yards per year. 40 CFR § 440.140 to 440.148. With one exception discussed below,[1] the existence of ELGs is irrelevant to the issue of whether an NPDES permit is required.

NPDES permits are required to have, at a minimum, all effluent limits needed to meet the technology-based requirements of the CWA. CWA Sections 301, 304, 306, and 402. Permits are also required to have any additional effluent limits needed to ensure that the permitted activities do not cause or contribute to a violation of a water quality standard. CWA Sections 301, 303 and 402.

The CWA directs EPA to adopt ELGs to implement technology-based requirements for various industrial categories. CWA Section 304(b). The CWA recognizes, however, that ELGs will not be prepared for all sources. For the remainder of point sources not covered by an ELG, permit writers are directed to impose technology-based effluent requirements using best professional judgment. 40 CFR § 125.3(c)(2). Thus the absence of an ELG only means that technology-based effluent limits must be established by the permit writer using best professional judgment. It does not mean that the discharge is exempt from permitting requirements.

**Section 404 Exemption.** CWA Section 404 [33 USC § 1344] is a companion provision in the Clean Water Act that authorizes the Army Corps of Engineers to issue permits for the discharge of dredged or fill materials into navigable waters. Several of the comments argue that the suction dredge mining at issue should be regulated by a Section 404 permit rather than a Section 402 permit. Others argue that a Section 402 permit is not required simply because the discharge includes dredged materials regardless of whether the Corps regulates the activity or exempts it from regulation.

The provisions of Section 404 of the Clean Water Act do not apply to the discharges from suction dredges used for mining. The courts have treated the wastes from sluicing or other beneficiation processes as distinct from dredged materials as that term is used in Section 404. *National Mining Ass'n v. United States Army Corps of Engineers,* 145 F3d 1399, 1406 (DC Cir 1998). This position is consistent with EPA's treatment of the issue and the position taken by the United States Department of Justice in recent litigation. United States of America's

[1] See discussion of the CWA Section 404 exemption at page 4.

Memorandum in Support of Motion for Judgment on the Pleadings, *Templeton v. United States of America,* C1V02-320-C-EJL (D Idaho, 9/28/2004).

Historically, the Corps has not regulated the other (i.e. unprocessed) discharges from suction dredges because they were viewed as insignificant or "incidental fall back." Under the regulations adopted by the Corps, incidental fall back is defined as: "the redeposit of small volumes of dredged material that is incidental to excavation activities ... when such materials falls back to substantially the same place as the initial removal." 33 CFR 323.2(d)(1). Separate provisions clarify that no permit is required for redeposit of dredged materials that does not destroy or degrade waters of the US. *Id. at* (4). And it expressly recognizes a "de minimis" (i.e. inconsequential) effect when considered individually or cumulatively. *Id.* at (6).

Section 404 also covers the discharge of certain fill materials. The definition of fill has been the subject of much litigation and recent rulemaking.[2] Historically, the Corps defined fill to include only materials placed in the water for a purpose other than disposal, such as creating dry land or raising the elevation of the land under the water. 33 CFR § 209.120(1975). Eventually, this became known as the "primary purpose" test. 30 CFR § 323.2 (2001). EPA for its part, however, adopted an "effects based test." 40 CFR 232.2 (1976). In 2000, the Corps and EPA proposed a single definition that essentially adopted an effects-based test and that excluded most wastes. 65 FR 21,292 (4/20/200). In 2002, the agencies adopted a slightly different effects-based test that excludes trash and garbage. 33 CFR pt 323, 40 CFR pt 232.

As a part of the 2002 regulations, the Corps and EPA deleted provisions that specifically addressed discharges covered by ELGs, water quality standards or permits issued under CWA section 402 from the definition of fill. In doing so, however, the agency noted that they did not view this as a significant change in regulatory approach and the agencies clearly noted that while some discharges covered by such provisions, including those addressing suspended or settleable solids can raise bottom levels over time, the agencies do not consider such pollutants to be fill materials for purposes of Section 404. 67 FR 31129, 31135 (5/9/2002).

Based on the nature of the suction dredge mining at issue, there is no reason to believe that the change in regulations leads to a conclusion that the suction dredge discharges in question are properly regulated as fill material. There is nothing to suggest that the actual effect of the activities on bottom levels would be significant or that the existence or lack of an ELG would change the analysis.

It is also worth noting that even if one were to assume for the sake of argument that discharges from these suction dredges are dredge spoils and not waste, the requirement for a Section 402 permit likely would not change. EPA's regulations expressly exempt dredge and fill activities from Section 402 permitting requirements **only** when the activities are actually subject to regulation by the Corps. 40 CFR §123.2. As noted previously, to date the Corps has determined that dredge mining is not subject to regulation under Section 404.

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[2] *See, e.g.*, Note, Shifting the Boundary Between the Sections 402 and 404 Permitting Program by Expanding the Definition of Fill Material, 31 BC Envtl Aff L Rev 617 (2004).

## State Permitting Authority

Several of the persons commenting on the permit took the position that regulation of suction dredging is appropriate only under state law. Others argued that state law does not authorize such regulation. Oregon law clearly authorizes DEQ regulation of suction dredges, both through the Clean Water Act's NPDES permit program and under independent provisions of state law.

Oregon Statutes dating back to the 1950's, and, in some cases earlier, have declared water pollution to be contrary to public policy and have authorized DEQ to take all those actions necessary to protect, maintain and improve water quality. ORS 468B.010, 468B.015 and 468B.020. For more than three decades, Oregon Law has expressly required DEQ permits for any discharge of wastes into waters of the state from any industrial or commercial activity or any disposal system. ORS 468B.050.

In 1973, the states water quality statutes were amended to authorize the Environmental Quality Commission to adopt all rules and take any other actions necessary to implement the Clean Water Act. ORS 468B.035. This includes all actions required for EPA approval to operate the NPDES permit program established by CWA Section 402.

With a few exceptions not relevant here, federal agencies and federal lands are subject to both the requirements of the federal Clean Water Act and state water quality requirements arising under state law. CWA Section 313 [33 USC § 1323]; CWA Section 401 [33 USC § 1341]. EPA determines whether a state will administer the NPDES permit program established by CWA Section 402. If EPA delegates the NPDES permit program to a state, it suspends its own permitting program. EPA also decides which lands within the state are subject to the state program, but typically,[3] a state program must include all discharges, even those arising on federal lands. 40 CFR § 123.2(g)(1). And in Oregon, EPA did not reserve permitting authority except with respect to Tribal lands.

Further, and as discussed in more detail below, the U.S. Supreme Court has held that federal mining laws and the federal regulations implementing those statutes and federal land management statutes and the federal regulations implementing those statutes do not pre-empt state environmental regulation of mining activities. *California Coastal Comm'n v. Granite Rock Co.*, 480 US 572, 581-586 (1987). This includes both the laws applicable to U.S. Forest Service lands and lands under the jurisdiction of the Bureau of Land Management.

## Mining Law of 1872

A number of comments assert that the Mining Law of 1872, 30 USC § 21 *et seq.* pre-empts CWA and state permitting requirements. Neither assertion is supported by the law.

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[3] A different regulatory regime often exists for tribal lands. 40 CFR § 123(g)(2); §123.31. EPA often reserves regulatory authority over reservations unless the tribe has been approved for "treatment as a state" status. CWA Section 518 [33 USC § 1377].

The U.S. Supreme Court has previously held that the Mining Act of 1872 "expressed no legislative intent on the....subject of environmental regulation." *California Coastal Comm'n, supra*, at 581 (1987). The Court also held that the subsequent amendments to federal mining law known as the Multiple Use Mining Act (30 USC § 601 *et. seq.*) and federal agency implementing regulations did not pre-empt state or federal environmental regulation. *Id.* at 582.

Further, the Oregon Court of Appeals has expressly rejected the notion that the federal mining laws create **any** right to use waters of the state for the purpose of waste disposal. *Kinross reconsideration*, 163 Or App 357 (1999), *cert den*, 531 US 960 (2000).[4]

Finally, there is nothing in text, context or legislative history of the more recent CWA that suggests a general exemption from permitting requirements for mining on federal lands.[5] CWA Sections 313 and 402. Subsequent amendments to federal mining, environmental and land management statutes all provide strong evidence against any inference of pre-emption. *See, e.g.*, 30 USC § 21(a); 30 USC §§ 601 *et seq.*; 42 USC §§ 4321 to 4370d.

**Land Use Issues**

Questions also have been raised regarding DEQ's authority and responsibility to require certification that dredging operations are consistent with statewide land use planning goals and acknowledged local comprehensive plans and regulations implementing those plans. DEQ is required to obtain such certification for water quality permits under ORS 197.180 and the rules of the Environmental Quality Commission (EQC) and Land Conservation and Development Commission (LCDC) that implement this statute. OAR chap 340, div 18; chap 660, div 30 and chap 660, div 31.

The state's land use statutes require LCDC to determine which activities on federal lands are subject to regulation under the state land use program and which are pre-empted. ORS 197.390 to 197.395. LCDC has not fulfilled this statutory directive. Rather, state agencies and local governments have been left to determine which federal activities are subject to regulation.

The U.S. Supreme Court has assumed, without actually deciding, that states and localities are pre-empted from extending actual land use designations to federal lands. *Granite Rock, supra*, at 586-587. In other words, a state cannot dictate to a federal agency what specific land uses are or are not allowed on federal lands. The Court concluded, however, that states could impose state environmental regulations as conditions on state or local land use permits. *Id.* Moreover, Oregon's courts have recognized that some components of the statewide planning system are in fact environmental regulations. *Arnold Irrigation Dist. v. DEQ*, 79 Or App 136, 143, *rev den*, 301 Or 765 (1986).

Given the unsettled state of affairs, DEQ has reasonably interpreted the land use statutes and implementing rules to require submission of a Land Use Compatibility Statement. The

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[4] At least for all claims made after 1877. *Kinross, supra* at 523.

[5] There is an express limited exemption from stormwater requirements for some mining activities. CWA Section 402(1).

Department has further concluded, however, that in any given case the local government may properly determine that its acknowledged comprehensive plan and land use regulations do not impose relevant conditions on the land use activities conducted on the federal lands in question.

ljk:lal/GENM2439

Attachment B

**MINERS' VERSION-REVISED 3-3-05**

Permit Number: 700-J
Expiration Date: May 2009


# OREGON STATE GENERAL SUCTION DREDGING PERMIT

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204
Telephone: (503) 229-5279

**Issued pursuant to ORS**

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**ISSUED TO:**

**SOURCES COVERED BY THIS PERMIT:**

This permit covers suction dredges with an inside diameter suction nozzle no greater than 8 inches that are used for recovering precious metals or minerals from stream bottom sediments.

Holly Schroeder, Administrator
Water Quality Division

Date

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## SCOPE OF PERMITTED ACTIVITIES

This 700-J NPDES General Permit replaces 700-J issued in 1999, and the Mutual Agreement and Order Number WQ/I-NWR-02-109. Until this permit expires or is modified or revoked, the holder of this permit is authorized to operate one or more suction dredge in waters of the state in accordance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

| | Page |
|---|---|
| Schedule A - Waste Discharge Limitations | 2 |
| Schedule B - Special Conditions | 3-5 |
| Schedule C - General Conditions | 6-7 |
| Schedule D – Definitions | 7 |

## SCHEDULE A: WASTE DISCHARGE LIMITATIONS

1. Suction dredge operation is authorized for the person assigned to this General Permit. Multiple dredges can be registered to that person. Other persons may operate the permittee's dredges under the supervision of the permittee.

2. Suction dredge activities covered by this permit are not authorized to discharge except in compliance with this General Permit. This permit does not authorize mining of bare soil stream banks or areas with rooted vegetation, or upland areas. Such out-of-stream mining requires a separate permit from DEQ.

3. Dredging shall be conducted such that in-stream turbidity will be minimized and localized to the general area of the dredging activity. If turbidity is visible 400 feet downstream from one or more working suction dredges, then turbidity exceeds allowable in-stream water quality standard, and dredging will be restricted to a six hour day.

4. Except as restricted in Oregon Scenic Waterways or Essential Salmon Habitat, dredging is allowed into gravel bars up to 10 feet outside the active stream channel provided that the gravel bars are below the normal high water mark, and the dredging takes place during the instream period assigned by ODFW for the stream. In no case is dredging of bare soil stream banks or rooted vegetation authorized.

5. Turbidity created from suction dredge activity must not be visible, as compared to background, beyond the following distance downstream from one or more working dredges.

| Wetted Stream Width | Compliance Distance from Dredge Sluicebox Discharge |
|---|---|
| All streams and rivers | 300 feet-400 feet |

Visual monitoring will take place at least once daily during the operating period, and if turbidity is visible 300 feet downstream of the sluicebox discharge, the operator will walk down another 100 feet and see if the dredge plume is still visible at 400 feet. If so, the dredging period will be restricted to 6 hours for that day. If no turbidity is visible at 400 feet, the length of the dredging day will not be restricted.

6. Limited Duration Turbidity Allowance under ORS 468.020, 468B.030, 468B.035, 468B.048, includes limited duration suction dredge activities that are necessary to accommodate the lawful extraction of minerals. Where visible turbidity occurs beyond the 400 foot zone, dredging duration is limited to 6 hours per day.

## SCHEDULE B: SPECIAL CONDITIONS

**OPERATION**

1. Harassment of fish in the stream is prohibited. Dredging is not allowed outside the periods set out in the attached schedule, Timing of In-Water Work To Protect Fish and Wildlife Resources, except as authorized by the Oregon Department of Fish and Wildlife (ODFW) which may issue written authorization for dredging beyond this schedule. A copy of that written approval must be in the possession of the operator or readily available during dredging activities.

2. The permittee must provide a safe passage of fish around and through the active mining area if the stream supports a fish population.

3. Removing boulders or logs from across or in the active stream channel (not those materials embedded in the banks) is authorized under this permit for the safety of the operator and to facilitate access to the minerals. Following dredging, these materials must be returned to the channel or placed along the banks or in the riparian area. remain in

4. Dredging of bare soil stream banks is not authorized under this permit. Undercutting or eroding stream banks and removal or disturbance of boulders, rooted vegetation, or embedded woody plants from stream banks is prohibited. (Boulders include cobbles and larger rocks that protect and prevent erosion of the banks from spring run runoff and storm event stream flow. Woody plants include living or dead trees and shrubs. Vegetation includes grasses, wildflowers, weeds, and other vegetation that stabilizes the stream banks or provides cover for fish or provides shade).

5. Creating areas of pooled water is authorized within the stream channel, as long as fish passage is maintained.

6. If suction dredging activity is conducted according to the terms of this permit, the activity will not result in the formation of organic or inorganic deposits that are harmful to fish or other aquatic life as required in OAR 340-041-0007(13), nor will the activity cause a rise in stream temperatures.

7. Suction dredging activity will be conducted so that the wetted perimeter of the stream is not widened and water depth is not shallower than the pre-mining condition. After completion of the mining activity in streams with bull trout (fall spawners) loose gravel will be raked down to prevent bull trout spawning in unstable gravels.

8. The suction dredge equipment must be properly maintained and petroleum products managed as follows:
   a. Discharging oil, grease, and fuel from suction dredge activity is prohibited.
   b. Equipment must be free of surface oils and grease, and must be checked for fuel and oil leaks prior to start of operation on a daily basis.
   c. A funnel or spill-proof spout must be used when refueling to prevent possible contamination of surface waters or groundwater.

d. All fuel and oil, excess to what is needed for the day's work, must be stored in an impermeable container and must be located at least 25 feet from the active stream channel, if practicable.
e. For dredge locations where a 25 foot buffer is not possible, the excess fuel containers should be located in the bed of a pick-up, or if on the ground, set on a polypropylene absorbent pad or inside a dirt berm..
f. Fuel needed for the days work may be located nearer than 25 feet from the stream and should be situated within a shallow dirt berm or set on a polypropylene absorbent pad.
g. All waste oil or other petroleum products must be disposed of off-site.

9. Mercury and lead that is removed from the stream sediments will not be returned to the stream.

**OREGON SCENIC WATERWAYS and ESSENTIAL SALMON HABITAT STREAMS**

1. Suction dredging under this permit is prohibited in the portions of the Clackamas River, McKenzie River, and North Santiam River subbasins that have been designated as Oregon Scenic Waterways, as provided in OAR 340-041-0350, except as authorized on Federal mining claims.

2 Suction Dredging in Oregon Scenic Waterways must follow the applicable requirements provided in ORS 390.835, except as authorized on Federal mining claims. or Federal managed Lands

3. Suction dredging in Oregon Scenic Waterways is restricted to recreational placer mining, and is not allowed outside the active stream channel under this permit, except as authorized on Federal mining claims. Recreational placer mining as defined in Oregon Revised Statutes (ORS) 390.835(17)(b) includes the use of a motorized surface dredge having an intake of four inches or less and a motor no larger than sixteen horsepower.

4. Suction dredging on Oregon Scenic Waterways is subject to all the provisions of this permit where dredging activity is authorized on Federal mining claims.

5. Recreational placer mining in essential salmon habitat is not authorized outside of the active stream channel, except as authorized on Federal mining claims. managed lands

6. Until an agreement is made between DEQ and DSL to administer this permit through one agency, suction dredging in Oregon Scenic Waterways and Essential Salmon Habitat streams requires an additional, separate authorization from the DSL.

Maps and lists of scenic waterways and essential salmon habitat streams are available at the following web sites:
http://www.oregonstatelands.us/esshabitat.htm
http://www.oregonstatelands.us/scenicwaterways.htm

This information can also be obtained from the following Division of State Lands (DSL) offices:

a. Division of State Lands
Salem Office

b. Division of State Lands
Bend Office

775 Summer St. NE
Salem, OR 97310
Telephone: (503) 378-3805

20300 Empire Avenue
Bend, OR 97701
Telephone: (541) 388-6112

**WATER QUALITY LIMITED STREAMS***

1. Suction dredging shall be allowed in streams designated by the Department as water quality limited for temperature, provided that all conditions and limitations of this permit are otherwise met.

2. Suction dredging is prohibited in streams designated by the Department as water quality limited for toxics.

3. Dredging activities on streams listed under 303(d) for sediment are authorized under the following conditions:
   a. All practicable turbidity control techniques have been applied.
   b. Daily operation of the dredge will be limited to 6 hours.

* A list of water quality limited streams is attached to this permit. Additional copies can be obtained from the following DEQ offices:

a. Northwest Region
2020 SW 4th Avenue, Suite 400
Portland, OR 97201
Tel. No. (503) 229-5263

b. Western Region
750 Front Street NE, #120
Salem, OR 97301-1039
Tel. No. (503) 378-8240

c. Eastern Region
700 SE Emigrant, #330
Pendleton, OR 97801
Tel. No. (541) 276-4063

d. DEQ Headquarters
811 SW 6th Avenue 7th floor
Portland, OR 97204
Tel. No. (503) 229-5185

**OTHER REGULATIONS AND REQUIREMENTS**

1. A Removal-Fill Permit is required by DSL for any placer mining operation which involves an alteration, removal, or filling of more than fifty (50) cubic yards of material per year in any waterway. Furthermore, a Removal-Fill permit may be required by DSL for operations involving less than fifty cubic yards per year. Suction dredge operators meeting the requirements for DSL fill and removal permits may also be required to obtain an individual permit from the DEQ (large-scale placer mining). The permittee must contact the DSL and/or DEQ for additional information.

2. Persons who are eligible for coverage under this general permit, but who want an individual permit, may apply to the Department in accordance with the NPDES permit procedures set forth in OAR 340-45-030 for large scale placer operations.

## SCHEDULE C-GENERAL CONDITIONS

### STANDARD CONDITIONS OF OPERATION

1. The dredge owner/operator must comply with all conditions of this permit. Any permit noncompliance may be grounds for enforcement action, for permit termination, suspension, or modification or for denial of a permit renewal application.

2. Dredge operations that result in complaints from downstream users or impairment of other beneficial uses may be in violation of the terms and conditions of this permit and the Department may take enforcement action as described in Condition 1.

3. Suction dredge activities allowed under this permit are not expected to cause a measurable change in stream temperature. Therefore, compliance with this permit will be considered to satisfy the requirement for developing and implementing a temperature management plan.

4. The permittee shall allow the Director, or an authorized representative, upon presentation of credentials to:
   a. Enter upon the mining site
   b. Inspect at reasonable times the equipment, practices or operations regulated or required under this permit.
   c. Sample or monitor at reasonable times, for the purpose of assuring permit compliance.

5. This permit may be modified, suspended, revoked and reissued, or terminated for cause including but not limited to the following:
   d. Violation of any term, condition, or requirement of this permit, a rule or a statute.
   e. Obtaining this permit by misrepresentation or failure to disclose fully all material facts
   f. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge. The filing of a request by the permittee for a permit modification or notification of planned changes or anticipated noncompliance, does not stay any permit condition.

### PROPERTY RIGHTS AND TRESSPASS

1. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

2. Other Oregon state agencies may enter into agreement with the Department to act as DEQ's agent to determine compliance with the limits, terms, and conditions of this General Permit.

3. This permit does not authorize trespass on private property or mining claims.

**APPLICATION AND FEES**

1. To receive this permit, an application must be made on a form provided by the Department.

2. The applicable fees provided in OAR 340-045-0075 must be received by the Department with a new application for persons seeking assignment to the permit.

3. A permit filing fee of $60.00 is required for dredges equipped with an inside diameter suction nozzle ranging from 5 inches to 8 inches. No fee of any kind is required for suction dredges equipped with an inside diameter suction nozzle no greater than 4 inches.

4. In lieu of one fee for the five year period, a short-term activity fee as provided in OAR 340-045-0075 is required with a complete application for each suction dredge activity that is conducted entirely within 10 days or less.

5. Persons covered by this permit must have a copy readily available during dredging activities.

## SECTION D.

GENERAL DEFINITIONS

1. *BOD* means five-day biochemical oxygen demand.
2. *TSS* means total suspended solids.
3. "*Bacteria*" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
4. *FC* means fecal coliform bacteria.
5. *Total residual chlorine* means combined chlorine forms plus free residual chlorine
6. *Technology based permit effluent limitations* means technology-based treatment requirements as defined in 40 CFR Section 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR Chapter 340, Division 41.
7. *mg/l* means milligrams per liter.
8. *kg* means kilograms.
9. $m^3/d$ means cubic meters per day.
10. *MGD* means million gallons per day.
11. *Composite sample* means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
12. *Grab sample* means an individual discrete sample collected over a period of time not to exceed 15 minutes.
13. *Quarter* means January through March, April through June, July through September, or October through December.
14. *Month* means calendar month.
15. *Week* means a calendar week of Sunday through Saturday.

SPECIFIC PERMIT DEFINITIONS

1. *Active Stream Channel* width means the beds and gravel banks below the high water mark of the stream channel during the day that dredging occurs, but does not include areas of bare soil or areas with rooted vegetation.
2. *Background Turbidity* means turbidity that represents the ambient, undisturbed turbidity in the immediate vicinity of the area of influence of the dredging operation discharge at the time dredging occurs.
3. *Visible Turbidity* means turbidity that is distinctly visible when compared to background turbidity.
4. *DEQ* or *Department* means Oregon Department of Environmental Quality.
5. *Gravel Bar* means a transitional gravel deposit within the confines of the stream banks that lacks any rooted vegetation.
6. *Limited Duration Exceedance* means an allowed short term exceedance of the maximum turbidity limit specified in this permit.
7. *Location* means a section of the active stream channel, measured along the wetted bank.
8. *OAR* means Oregon Administrative Rule.
9. *ODFW* means Oregon Department of Fish and Wildlife.
10. *Stream bank* means a slope of land adjoining and confining a stream.

## Main Identity

**From:** "jan" <alx@ortelco.net>
**To:** "Ed Hardt" <twohardts@eoni.com>; "Guy Michael" <guymmining@hotmail.com>; "Tom Kitchar" <mythicalmining@cavenet.com>
**Sent:** Thursday, March 03, 2005 8:19 AM
**Subject:** No NPDES permit for EOMA

Tom-EOMA does not believe it would be prudent to accept an NPDES permit now that we know this is not the legal way to permit suction dredging. It would set a dangerous prescedence.

We propose going to DEQ with a state permit in hand. The format will be similar to DEQs draft, but will have the concessions you guys talked about (i.e. no permit fee for 4" or less, one time $60.00 fee for five year permit, for 6"-8", no filing fee (only applicable to NPDES), no $10,000 per day fines, etc, limited monitoring, no record keeping or giving information to DEQ). We have the permit electronically, all we need to do is take off the NPDES heading, make the changes and give to DEQ so they can go out again for public comment.

Your thoughts?
Jan

EPA530-R-94-035
NTISPB94-201811

Attachment C

# TECHNICAL RESOURCE DOCUMENT

## EXTRACTION AND BENEFICIATION OF ORES AND MINERALS

## VOLUME 6

# GOLD PLACERS

October 1994

U.S. Environmental Protection Agency
Office of Solid Waste
Special Waste Branch
401 M Street, SW
Washington, DC 20460

## DISCLAIMER AND ACKNOWLEDGEMENTS

This document was prepared by the U.S. Environmental Protection Agency (EPA). The mention of company or product names is not to be considered an endorsement by the U.S. Government or by EPA.

This Technical Resource Document consists of three sections. The first is EPA's Profile of the gold placer mining industry; the following sections are reports on site visits conducted by EPA to gold placer mines in Alaska. The Profile section was distributed for review to the U.S. Department of the Interior's Bureau of Mines, the State of Alaska Department of Natural Resources and Department of Environmental Conservation, the Interstate Mining Compact Commission, the American Mining Congress, the Mineral Policy Center, and public interest groups. Summaries of the comments received on the draft profile and of EPA's responses are presented as an appendix to this section. The site visit sections were provided to representatives of the companies and of state agencies who participated in the site visit. Their comments and EPA's responses are presented as appendices to the specific site visit section. EPA is grateful to all individuals who took the time to review sections of this Technical Resource Document.

The use of the terms "extraction," "beneficiation," and "mineral processing" in this document is not intended to classify any waste stream for the purposes of regulatory interpretation or application. Rather, these terms are used in the context of common industry terminology.

## TABLE OF CONTENTS

**Page**

1.0 MINING INDUSTRY PROFILE: GOLD PLACERS ..... 1-1

1.1 INTRODUCTION ..... 1-1
1.2 ECONOMIC CHARACTERIZATION OF THE GOLD PLACER INDUSTRY ..... 1-2
1.2.1 Background ..... 1-2
1.2.2 Current Operations ..... 1-3
1.3 PHYSICAL CHARACTERIZATION OF PLACER DEPOSITS ..... 1-6
1.4 GOLD PLACER MINING PRACTICES ..... 1-10
1.4.1 Background ..... 1-10
1.4.2 Extraction Methods ..... 1-11
1.4.2.1 Open Cut Methods ..... 1-13
1.4.2.2 Other Methods ..... 1-14
1.4.3 Beneficiation Methods ..... 1-18
1.4.3.1 Sizing ..... 1-19
1.4.3.2 Coarse Concentration ..... 1-21
1.4.3.3 Fine Concentration ..... 1-22
1.4.3.4 Mercury Amalgamation ..... 1-26
1.5 WASTE MANAGEMENT PRACTICES ..... 1-26
1.5.1 Extraction and Beneficiation Wastes and Materials ..... 1-26
1.5.1.1 Waste Rock or Overburden ..... 1-27
1.5.1.2 Tailings ..... 1-27
1.5.2 Waste and Materials Management ..... 1-28
1.5.2.1 Tailings Impoundments/Settling Pond Systems ..... 1-29
1.6 ENVIRONMENTAL EFFECTS ..... 1-38
1.6.1 Surface Water ..... 1-39
1.6.2 Ground Water ..... 1-41
1.6.3 Soil ..... 1-41
1.6.4 Wetlands ..... 1-41
1.6.5 Wildlife ..... 1-41
1.7 MITIGATING MEASURES AND REMEDIATION ..... 1-43
1.7.1 Tailings ..... 1-43
1.7.2 Stream Channel ..... 1-43
1.7.3 Floodplain ..... 1-44
1.7.4 Soils ..... 1-45
1.7.5 Mined Land Remediation ..... 1-46
1.8 CURRENT REGULATORY AND STATUTORY FRAMEWORK ..... 1-47
1.8.1 Environmental Protection Agency Regulations ..... 1-47
1.8.1.1 Resource Conservation and Recovery Act ..... 1-47
1.8.1.2 Clean Water Act ..... 1-48
1.8.1.3 Dredged and Fill Material ..... 1-49
1.8.2 Department of the Interior ..... 1-51
1.8.2.1 Bureau of Land Management ..... 1-51
1.8.2.2 National Park Service and Fish and Wildlife Service ..... 1-52
1.8.3 Department of Agriculture (Forest Service) ..... 1-53
1.8.4 State Programs ..... 1-53
1.8.4.1 Alaska ..... 1-53
1.8.4.2 Colorado ..... 1-56
1.9 REFERENCES ..... 1-59

2.0 SITE VISIT REPORTS: ALASKA PLACER MINES ..... 2-1

2.1 INTRODUCTION ..... 2-1
2.2 POLAR MINING, INC. ..... 2-1
2.2.1 General Facility Description ..... 2-1
2.2.2 Regulatory Requirements and Compliance ..... 2-9
2.3 ALF HOPEN ..... 2-11
2.3.1 General Facility Description ..... 2-11
2.3.2 Regulatory Requirements and Compliance ..... 2-13
2.4 COOK'S MINING ..... 2-14
2.4.1 General Facility Description ..... 2-14
2.4.2 Regulatory Requirements and Compliance ..... 2-16
2.5 REFERENCES ..... 2-17

3.0 SITE VISIT REPORT: VALDEZ CREEK MINE CAMBIOR ALASKA INCORPORATED ..... 3-1

3.1 INTRODUCTION ..... 3-1
3.1.1 Background ..... 3-1
3.1.1.1 General Description ..... 3-2
3.1.2 Environmental Setting ..... 3-7
3.1.2.1 Geology ..... 3-7
3.1.2.2 Surface Water ..... 3-10
3.1.2.3 Ground Water ..... 3-10
3.2 FACILITY OPERATION ..... 3-11
3.2.1 General Overview ..... 3-11
3.2.2 Extraction ..... 3-11
3.2.2.1 Excavation ..... 3-12
3.2.2.2 Water Management ..... 3-14
3.2.3 Beneficiation ..... 3-15
3.2.3.1 Ancillary Facilities ..... 3-18
3.3 MATERIALS AND WASTE MANAGEMENT ..... 3-18
3.3.1 Waste Rock ..... 3-18
3.3.2 Tailings ..... 3-18
3.3.3 Other Materials ..... 3-23
3.4 REGULATORY REQUIREMENTS AND COMPLIANCE ..... 3-26
3.4.1 Federal Permits ..... 3-26
3.4.1.1 Bureau of Land Management ..... 3-26
3.4.1.2 Army Corp of Engineers ..... 3-26
3.4.1.3 Environmental Protection Agency ..... 3-26
3.4.2 State Permits ..... 3-27
3.4.2.1 Dam Safety ..... 3-27
3.4.2.2 Diversion Channel ..... 3-28
3.4.2.3 Alaska Fish and Game ..... 3-28
3.4.2.4 Solid Waste Permit ..... 3-28
3.4.3 Inspections and Compliance Incidents ..... 3-29
3.4.3.1 Inspections ..... 3-29
3.4.3.2 Compliance Incidents ..... 3-30
3.5 REFERENCES ..... 3-31

## APPENDICES


APPENDIX 1-A ACRONYMS ..... 1-65

APPENDIX 1-B COMMENTS SUBMITTED BY U.S. BUREAU OF MINES ON DRAFT GOLD PLACER PROFILE ..... 1-68

APPENDIX 1-C RESPONSE TO COMMENTS SUBMITTED BY U.S. BUREAU OF MINES ON DRAFT GOLD PLACER PROFILE REPORT ..... 1-70

APPENDIX 3-A COMMENTS SUBMITTED BY CAMBIOR ALASKA INC., ON DRAFT SITE VISIT REPORT ..... 3-33

APPENDIX 3-B EPA RESPONSE TO COMMENTS SUBMITTED BY CAMBIOR ALASKA INCORPORATED ON DRAFT SITE VISIT REPORT ..... 3-34

APPENDIX 3-C COMMENTS SUBMITTED BY THE STATE OF ALASKA ON DRAFT SITE VISIT REPORT ..... 3-36

APPENDIX 3-D EPA RESPONSE TO COMMENTS SUBMITTED BY THE STATE OF ALASKA ON DRAFT SITE VISIT REPORT ..... 3-37


## LIST OF TABLES

**Page**


Table 1-1. EPA and Bureau of Mines Estimates of Operational Placer Mines ..... 1-5
Table 1-2. Turbidity and Arsenic Levels in Two Alaskan Creeks ..... 1-40

Table 3-1. Estimated Volumes of Overburden and Pay-Gravel ..... 3-13
Table 3-2. Theoretical Efficiency of Settling Ponds ..... 3-20
Table 3-3. NPDES Discharge Rates ..... 3-22
Table 3-4. Storage Tank Summary ..... 3-25

## LIST OF FIGURES


| | | Page |
|---|---|---|
| Figure 1-1. | Overview of a Placer Mining Operation | 1-13 |
| Figure 1-2. | Long Tom | 1-16 |
| Figure 1-3. | Basic Design for a Prospector's Rocker | 1-17 |
| Figure 1-4. | Diagram of a Trommel | 1-20 |
| Figure 1-5. | Diagram of a Sluice Box Including Hungarian Riffles | 1-21 |
| Figure 1-6. | Diagram of a Jig | 1-23 |
| Figure 1-7. | Diagram of a Centrifugal Bowl | 1-24 |
| Figure 1-8. | Diagram of a Pinched Sluice | 1-25 |
| Figure 1-9. | Pre-Settling Ponds | 1-31 |
| Figure 1-10. | Sediment Removal Before Ponds by Filtration | 1-33 |
| Figure 1-11. | Settling Ponds with Tailings Filters | 1-35 |
| Figure 1-12. | Settling/Recycle Pond | 1-37 |
| Figure 2-1. | Polar Mining, Inc., Vicinity Map | 2-2 |
| Figure 2-2. | Sketch of Lower Goldstream Creek Mining Operation | 2-4 |
| Figure 2-3. | Plan View of Lower Goldstream Creek Operation, Amended 1992 | 2-6 |
| Figure 2-4. | Second Plan View of Lower Goldstream Creek Operation, Amended 1992 | 2-7 |
| Figure 3-1. | Facility Location Map | 3-3 |
| Figure 3-2. | Denali Mine Work Areas | 3-5 |
| Figure 3-3. | Typical Cross Section of Pits A-6 Through A-10 | 3-9 |
| Figure 3-4. | Water Balance for 1990 Through 1991 | 3-17 |

# 1.0 MINING INDUSTRY PROFILE: GOLD PLACERS

## 1.1 INTRODUCTION

This Industry Profile presents the results of U.S. Environmental Protection Agency (EPA) research into the domestic gold placer mining industry and is one of a series of profiles of major mining sectors. Additional profiles describe lode gold mining, lead/zinc mining, copper mining, iron mining, and several industrial mineral sectors, as presented in the current literature. EPA prepared these profiles to enhance and update its understanding of the mining industry and to support mining program development by states. EPA believes the profiles represent current environmental management practices as described in the literature.

Each profile addresses extraction and beneficiation of ores. The scope of the Resource Conservation and Recovery Act (RCRA) as it applies to mining waste was amended in 1980 when Congress passed the Bevill Amendment, Section 3001(b)(3)(A). The Bevill amendment states that "solid waste from the extraction, beneficiation, and processing of ores and minerals" is excluded from the definition of hazardous waste under Subtitle C of RCRA (40 CFR 261.4(b)(7)). The exemption was conditional upon EPA's completion of studies required by RCRA Section 8002(f) and (p) on the environmental and health consequences of the disposal and use of these wastes. EPA segregated extraction and beneficiation wastes from processing wastes. EPA submitted the initial results of these studies in the 1985 *Report to Congress: Wastes from the Extraction and Beneficiation of Metallic Ores, Phosphate Rock, Asbestos, Overburden From Uranium Mining, and Oil Shale* (U.S. EPA 1985a). In July 1986, EPA made a regulatory determination that regulation of extraction and beneficiation wastes under Subtitle C was not warranted (51 FR 24496; July 3, 1986). EPA concluded that Subtitle C controls were unnecessary and found that a wide variety of existing Federal and State programs already addressed many of the risks posed by extraction and beneficiation wastes. Instead of regulating extraction and beneficiation wastes as hazardous wastes under Subtitle C, EPA indicated that these wastes should be controlled under Subtitle D of RCRA.

EPA reported their initial findings on wastes from mineral processing from the studies required by the Bevill Amendment in the 1990 *Report to Congress: Special Wastes From Mineral Processing* (U.S. EPA 1990). This report covered 20 specific mineral processing wastes; none involved gold processing wastes. In June 1991, EPA issued a regulatory determination (56 FR 27300) stating that regulation of these 20 mineral processing wastes as hazardous wastes under RCRA Subtitle C is inappropriate or infeasible. These 20 wastes are subject to applicable state requirements. Any mineral processing wastes not specifically included in this list of 20 wastes no longer qualifies for the exclusion (54 FR 36592). Due to the timing of this decision and the limited number of industry wastes at issue, gold placer processing wastes are not addressed in this profile.

In addition to preparing profiles, EPA has undertaken a variety of activities to support state mine waste programs. These activities include visits to a number of mine sites; compilation of data from State regulatory

agencies on waste characteristics, releases, and environmental effects; preparing summaries of mining-related sites on the National Priorities List (NPL); and an examination of specific waste management practices and technologies. EPA has also conducted studies of State mining-related regulatory programs and their implementation.

The purpose of this profile is to provide additional information on the domestic gold placer mining industry. The report describes gold placer extraction and beneficiation operations with specific reference to the wastes associated with these operations. The report is based on literature reviews. This report complements, but was developed independently of, other Agency activities, including those described above.

This report briefly characterizes the geology of gold placer deposits and the economics of the industry. Following this discussion is a review of gold placer extraction and beneficiation methods; this section provides the context for descriptions of wastes and materials managed by the industry, as well as a discussion of the potential environmental effects that may result from gold placer mining. The profile concludes with a description of the current regulatory programs that apply to the gold placer mining industry as implemented by EPA, Federal land management agencies, and selected States. The profile section is followed by reports on site visits conducted by EPA to gold placer mines in Alaska.

## 1.2 ECONOMIC CHARACTERIZATION OF THE GOLD PLACER INDUSTRY

### 1.2.1 Background

Placer gold is typically sold in one of two forms. Nuggets may be sold to jewelry makers, the general public, or other users directly. An unknown amount of gold production enters the market directly by sales to the jewelry industry, and thus, may never be reported as typical production from some small operations. Individual pieces are typically assessed an additional charge or "nugget bonus" in addition to the gold market price. Placer gold may also be smelted, and pass into the market through the same route as lode-mined gold (U.S. EPA 1988b).

Gold mining began in the United States in the early 1800s in North Carolina and soon followed in Georgia and Alabama in 1829 and 1830, respectively. Although not a state until 1850, gold mining was also conducted in California as early as the late 1700s. California was not a major gold producer until the gold rush began with the discovery of gold at Sutter's Mill in 1848. As gold prospectors moved west, mining also commenced in other states. Production in California between 1850 and 1864 averaged nearly 2.45 million troy ounces annually. After the rich, readily accessible placer deposits were mined out, gold was extracted using drift mining techniques and later, hydraulic methods. Hydraulic methods were limited after 1884. In the late 1890s, dredges were employed to mine alluvial placers, a practice that continued steadily through the 1960s, and intermittently through the 1980s (Clark 1970; Silva 1986).

Placer gold deposits were known to exist in Alaska prior to its purchase by the United States in 1867, but these deposits were not exploited until California gold rush prospectors eventually commenced operations in

Alaska as they moved up the coast. By 1940 Alaska led the states in gold production, supplying 750,000 troy ounces of gold, mostly from placer mines. During World War II, domestic placer mining activity subsided substantially and remained at a low level after the war because of rising operating costs and a government-fixed gold price of $35 per troy ounce. When the federal restrictions on prices and private ownership of gold were relaxed and the market price of gold increased in the late 1970s, there was a resurgence in gold mining activity including placers (U.S. EPA 1988a).

During the 1800s, and early into this century, gold mining of alluvial deposits primarily involved placer methods. Miners worked stream deposits using a variety of techniques and recovered gold by gravity separation and mercury amalgamation. In Alaska, mining quickly exhausted the high-grade gold deposits, but the introduction of new extraction techniques made it possible for miners to successfully access lower-grade deposits, as well as to increase the overall productivity of placer mining. Large-scale permafrost thawing, hydraulic stripping, and mechanized excavation methods were some of the innovative extraction techniques that modernized the industry. In 1905, mechanical dredges reached Nome, Alaska, and in the 1920s, mining operations in the same region began to work with large electric-powered dredges (U.S. EPA 1988a).

Gold recovery methods and efficiency have continued to evolve over the years with the refinement of techniques, equipment and technology. Before the 1940s, miners were able to recover up to 60% of the gold values within a deposit. By 1945, recovery rates were between 70 and 75 percent. Currently, miners interviewed during EPA's recent site visits claimed that, depending on the type of operation, over 90 percent of gold may be recovered from a deposit. As efficiency has gone up, so has the difficulty level in extracting the remaining deposits (Silva 1986).

### 1.2.2 Current Operations

According to U.S. Bureau of Mines statistics, placer mines have historically produced approximately 35 percent of the total U.S. gold production. However, while net gold production has increased annually in recent years, placer production has decreased as the readily accessible deposits have been mined out and with the increase and improvement in heap leaching technology. Placer mines produced only two to three percent of the total U.S. gold production during the period from 1984 through 1989; in 1990 and 1991, placer production accounted for approximately one percent of the U.S. total. According to Bureau of Mines statistics, placer mines produced 2,888 kg of gold in 1991 while total U.S. gold production was approximately 289,885 kg (U.S. DOI, Bureau of Mines 1988a; U.S. DOI, Bureau of Mines 1992a; Lucas 1992).

The economics involved in mining a deposit is dependant on factors including the cost of fuel, interest rates, and the market price of gold. These factors are variable in terms of location and time. Under 1991 conditions, gold placer mines could economically beneficiate gravels containing as little as 0.49 grams per cubic meter (0.01 oz/cubic yard). However, average recoverable gold content of precious metals from placer gravels was 0.82 gm/$m^3$ (0.02 oz/$yd^3$) of material washed. (U.S. DOI, Bureau of Mines 1992a).

The size and nature of placer mines range from open cut operations disturbing tens of acres annually to small sluices operated solely as a recreational activity. In 1987, the average number of employees at placer mines in the contiguous 48 states was between three and four, and few mines employed more than 10 people (U.S. EPA 1988b). The size of a placer mining operation determines whether or not it is subject to compliance with the Clean Water Act administered by the Environmental Protection Agency (EPA) under 40 CFR 440 Subpart M. Mines handling less than 1,500 cubic yards of ore per year and dredges handling less than 50,000 cubic yards annually are exempted from the effluent guidelines (40 CFR, Part 440, Subpart M 1989). A more complete discussion of regulatory issues is presented in the current regulatory framework section of this report.

Regardless of size, most placer mines throughout the country operate on a seasonal basis (ADEC 1986; U.S. EPA 1988a). The small size of most placer operations and the relative ease in establishing an operation make placer mines particularly sensitive to fluctuations in market prices; more mines are active when prices are up and fewer are active as prices drop. These facts contribute to the difficulty in establishing the number of mines operating at any one point in time (U.S. EPA 1988a). Additionally, the limited information collected by state and federal agencies, and the sources that these agencies use to determine the number of operational mines, make specific characterization of the placer mining industry exceedingly difficult.

Alaska has the highest concentration of operational placer mines and is the only state where gold production from placer operations exceeds that from lode operations. In 1991, according to the Alaska Department of Natural Resources, Alaskan mines (202 placer and 2 hard rock mines) produced 7,585 kg of gold. Production from placer and hard rock mines was not differentiated. The number of placer mines operating in 1991 dropped to 202 from the 218 reported in 1990. Low gold prices, exhaustion of resources and increasing regulatory requirements were cited as reasons for the decrease. The 202 placer mines operating in Alaska in 1991 employed 1,240 people, although this number is adjusted for a 260 day work-year (Alaska Department of Natural Resources 1992b). Half of the placer gold produced in Alaska in recent years comes from just two mines; Valdez Creek mine and Green's Creek mine. The remaining 200 mines produce an average of 500 ounces per year. The average grade is .0158 ounces per yard, so that the average in-place value of Alaskan pay gravels is just over $5.00 a yard or about $3.00 per ton. Stripping overburden costs between $1 and $2 a yard at most mines, depending on site specific conditions. The low grade of placer ores is the reason the placer industry is a small business or family oriented industry. Major mining companies with high capitalization costs can not operate placer ground at a profit (Peterson 1993).

The Bureau of Mines also collects and publishes data based on results collected from a voluntary survey. Data collected during the 1988 survey showed that placer mines operated in a number of states including Alaska, Idaho, Montana and Nevada (U.S. DOI, Bureau of Mines 1989a; U.S. DOI, U.S. DOI, Bureau of Mines 1989b; U.S. DOI, Bureau of Mines 1989c; U.S. DOI, Bureau of Mines 1989d). Placer mines have also operated in Oregon on at least a limited basis (U.S. DOI, Bureau of Mines 1992a).

Data from a previous survey (U.S. EPA 1985b) indicated that there were four operating placer mines in Colorado; 29 in Idaho (mostly seasonal); one in California (processing 4.5 x $10^6$ ton/year) and 46 in Montana (most probably seasonal or intermittent). These were based upon state agency records and permit files.

Bureau of Mines publications typically withhold figures for placer production by state to protect proprietary information and do not provide specific lists of gold placer mines. Of the 19 placer operations that responded in 1991, 14 were considered in the underground, small-scale mechanical and hand methods or suction dredge category. The other four were bucketline dredging operations (U.S. DOI, Bureau of Mines 1992a). A 1986 survey conducted by the EPA, based on data collected from state agencies, showed a total of 454 placer mines in operation (U.S. EPA 1988b). The same year, the Bureau of Mines reported 207+ operational placer mines (U.S. DOI, Bureau of Mines 1986). The number of placer mines operating in each state in 1986, as tabulated by EPA and the Bureau of Mines, is presented in Table 1-1.

**Table 1-1. EPA and Bureau of Mines Estimates of Operational Placer Mines**

| State | EPA Estimate[1] | Bureau of Mines Estimate[2] |
|---|---|---|
| Alaska | 190 | 195 |
| Idaho | 69 | 2 |
| Montana | 57 | 6 |
| California | 26 | 2 |
| Colorado | 13 | 0 |
| Oregon | 49 | Several |
| South Dakota | 18 | 0 |
| Wyoming | 8 | 0 |
| Washington | 16 | 1 |
| Utah | 5 | 0 |
| Nevada | 3 | 1 |
| TOTAL | 454 | 207+ |

[1] (U.S. EPA 1988b).
[2] (U.S. DOI, Bureau of Mines 1986).

## 1.3 PHYSICAL CHARACTERIZATION OF PLACER DEPOSITS

Placer deposits are mineral bearing deposits found in weathered residuum and alluvium. The word placer is of Spanish derivation, used by early miners in North and South America to describe the gold found in gravels and sands associated with streams. For the most part, placers are unconsolidated sedimentary deposits, although, depending on the nature of the associated materials, placers may be cemented to varying degrees. Placers occurring within permafrost are usually frozen solid (Boyle 1979). Current placer mining activity generally takes place in young placers originating as waterworked sediments or stream deposits.

There are several natural requirements necessary before a placer deposit can form: there must be a valuable mineral which is relatively heavy and resistant to weathering and abrasion; the valuable mineral must be released from its parent rock; and the valuable mineral must be concentrated into a workable deposit (usually by water transport). Although the location, size, and shape of a placer will reflect the regional forces of erosion, transportation, and deposition which created it, its final form will be controlled or modified by purely local conditions. As a result, each placer deposit can be expected to be unique in one or more ways. The end richness and size of a placer deposit will depend more on there being an abundant supply of source materials, and on conditions favorable for their concentration, than on the actual richness of the primary source. (Wells 1973)

Gold particles in placer deposits range in size from 'flour' gold (-400 mesh) found in Idaho's Snake River, to the massive, 2516 troy ounce 'Welcome Stranger' nugget found in Victoria, Australia. Although the value of a placer deposit is generally based on smaller particles (called colors), nuggets are the perceived rewards for a miner's toils and are associated with placers. Nugget formation is not fully understood: some are larger remnants of lode deposits that have become part of a placer deposit, while others apparently form in place within streams where dissolved gold precipitates on either a gold particle or other nucleus. Although nugget formation may occur within streams, placer gold often has a platy (i.e., tabular) form (Boyle 1979; MacDonald 1983).

The density of gold, and its resistance to chemical weathering, are two principal factors for the development of gold placer deposits. Gold is considerably more dense than the minerals typically associated with it (19.13 grams per cubic centimeter [g/cc] versus 2.65 g/cc for quartz). Heavy minerals typically settle to the bottom of a stream or beach displacing lighter material. Gold continues a downward migration in response to additional agitation within the streambed. Settling action also occurs on land in colluvium although the downward migration is not as pronounced as the absence of a fluid matrix. Placer deposits are formed as particles accumulate in this manner (Park and MacDiarmid 1975).

The distance gold particles move within a stream (or by gravity) is dependant on the size and shape of the particle, and the energy of the stream. Large particles will settle close to their source while the smallest may travel great distances. Particles are often deposited in riffles and other irregularities within the streambed where the energy and velocity of the stream are reduced (Park and MacDiarmid 1975).

Particles that are carried great distances in streams are typically more pure than the lode deposits from which they came. The increase in purity is a result, in part, of the dissolution of impurities within the gold particle (Boyle 1979). It has also been observed that the oxidized portion of lode deposits, (that which is also most likely to become placer gold), is often of greater purity than the primary deposit. Fineness is a measure of purity in gold with 1.000 being absolutely pure. Gold in placers ranges from 0.500 to 0.999 fine; most is greater than 0.850 fine (Boyle 1979).

Placer gold is different in appearance than gold deposited in veins. Crystallization on the surface of placer particles dull the luster normally associated with vein deposits. Placer deposits may be colored brown or black if coated with manganese and iron oxides or manganese and iron humates; or white to gray when coated with calcium carbonate or colloidal clay (Boyle 1979).

The terms pay streak, pay dirt and pay gravel refer to the zone where the economic concentration of gold is located. The pay zone is often found in the layer adjacent to the bedrock, but under certain conditions the pay zone may be located on the surface or in one or more intermediate layers (Wells 1973). Finer gold particles are carried farther from their source and have a greater tendency to be distributed throughout the sediments in which they are found. The value of the pay streak is usually assessed as troy ounces per cubic yard, and varies throughout the deposit (Boyle 1979).

Placers exist in different forms although they all originate from lode deposits. Placer deposits may be young (modern) or ancient (fossil). Young deposits are usually found along present day water courses and were formed during the Quaternary (Recent and Pleistocene Epochs) and late Tertiary Periods. Young deposits range from a few feet to more than 10 feet in thickness (U.S. EPA 1988a). Ancient deposits occur in paleochannels and are usually buried by layers of sediment or volcanics. In the Sierra Madre of California, lava that filled ancient stream channels now forms residual ridges as material adjacent to the lava has been eroded away (Park and MacDiarmid 1975). Some of these rich fossil placers have been identified in tertiary gravels buried beneath up to 1,500 feet of sediment (Hatkoff 1983). Ancient deposits in Alaska may be 10 to 40 feet thick, buried under 10 to 30 feet of humus, sand, silt and clay (U.S. EPA 1988a). Other ancient placers have been located in northwestern Wyoming and the Deadwood formation of South Dakota. Ancient placers in the contiguous 48 states are not typically mined since expensive underground mining techniques are often required (Boyle 1979).

Alluvial placers form when material is concentrated in stream channels. For this reason they are also referred to as stream or fluvial placers. Alluvial placers were likely to have been man's first source of gold. It is speculated that sheepskins may have been placed in streams to trap gold bearing sediments, adding new insight to the myth of Jason's golden fleece (Boyle 1979). Alluvial placers are formed in sedimentary deposits as gold is picked up where currents are fast and deposited where the stream velocity slows. Alluvial deposits are not restricted to channels and may be deposited at the mouths of streams and rivers. Most significant placer deposits in the U.S. are of alluvial origin including those in the Sierra Nevada region of California (Boyle 1979).

Alluvial gold placers are associated with a wide range of minerals depending on the geology of the lode deposits from where they came. The gold, or electrum, may be naturally alloyed with other metals such as copper, iron, lead, silver and zinc. In addition, minerals containing varying concentrations of copper, iron, lead, silver and zinc have been found with gold placer deposits as have monazite, pyrite, arsenopyrite and wolframite. 'Black sands', associated with placer deposits in many areas, consist of heavy minerals including magnetite, ilmenite and members of the garnet group (ADEC 1986; Ferguson and Gavis 1972; Thompson 1992).

The characteristics of different alluvial or stream placers varies considerably, but generally they can be divided into several categories based on the size of the stream (Wells 1973). Gulch placers are characteristically small in area, have steep gradients and are confined to minor drainages in which a permanent stream may or may not exist. This type of placer is made up of poorly sorted gravel. Boulders are usually found in quantities that preclude all but simple hand mining methods. Creek placers are found in permanent streams and are composed of a mix of gravels, cobbles and boulders. Generally the size and number of boulders in creek placers is less than in gulch placers. Creek placers are important sources of gold. River placers are similar to creek placers but the gold is usually finer, the gravel well-rounded and large boulders few or absent. Over-all river placers are generally low-grade, but local pay streaks and bedrock concentrations may be able to support large-scale mining operations.

Alluvial placer deposits are currently the most economically significant in the U.S. and will be the focus of this profile. Other forms of placers, including flood gold, bench, beach, eluvial, desert, eolian, and glacial placers will also be discussed briefly below.

As a rule, finely-divided gold travels long distances under flood conditions. This gold, which can best be referred to by the miners' term of "flood gold," consists of extremely minute particles and is found far from its original source. Flood gold will be deposited near the surface of a sand bar between the high and low water mark on the inside bend of the stream. Good surface showings of fine-size gold are not uncommon, but often the gravel a few inches beneath these surface concentrations is nearly worthless. With few exceptions flood gold has proven economically unimportant in spite of its deceptively rich surface concentrations. However, such deposits may not be permanently exhausted by mining since floods deposit a new supply of gold and the renewal will continue indefinitely. In some cases small-scale mining operations are able to skim the new accumulations of flood gold from the same location year after year, however more ambitious plans to mine the deeper gravels have generally proved unprofitable. (Wells 1973)

Bench placers are usually remnants of deposits formed during an earlier stage of stream development and left behind as the stream cuts downward. The abandoned segments, particularly those on the hillsides, are commonly referred to as "bench" gravels. Frequently there are two or more sets of benches in which case the miners refer to them as "high" benches and "low" benches. Bench placers have been mined in the past using underground mining methods and following the development of hydraulic mining in the 1850s, many of the larger benches were worked by hydraulicking and the smaller ones by ground sluicing. (Wells 1973)

Beach placers are also formed by water action, but in this case gold is eroded by wave action from deposits along a shoreline or reworked from sediments carried to the sea by nearby rivers and deposited within the beach materials. Some beach placers are being, or have recently been, mined around Nome, Alaska, usually by dredging (Boyle 1979). Typical beach placers are found as erratically distributed, somewhat lenticular concentrations or streaks of black sand minerals with varying amounts of finely-divided gold. Those found along active beaches are the result of storm and tidal action, and they come and go with the changing conditions of the beach (Wells 1973). Beach placers may be either submerged or elevated due to sea level fluctuations of the past.

Eluvial placers have been referred to as residual deposits. The distinction between eluvial and other forms of placer deposits is that these deposits have been concentrated in place, as the lighter, valueless surrounding material has been leached or eroded away. Deposits formed on a slope as a result of gravity-driven downhill creep are included in the definition of eluvial deposits although these deposits may also be referred to as colluvial (Hatkoff 1983; Macdonald 1983). Eluvial deposits were worked in the Appalachians of Georgia as well as in California, Oregon, Nevada and Montana (Boyle 1979; Hatkoff 1983; Macdonald 1983). Considering the relative ease in mining these deposits, most of the economically significant deposits have been mined out.

Desert placers are so different from normal stream placers as to deserve a special classification. Desert placers are found in arid regions where erosion and transportation of debris depends largely on fast-rising streams that rush down gullies and dry washes following summer cloudbursts. During intervening periods, varying amounts of sand, gravel or hill-side detritus is carried in from the sides by lighter, intermittent rain wash which is sufficient to move material into the washes but not carry it further. When the next heavy rain comes, a torrential flow may sweep up all of the accumulated detrital fill, or only part of it, depending on intensity and duration of the storm and depth of fill. The intermittent flows provide scant opportunity for effective sorting of the gravels or concentration of the gold. Under such conditions the movement and concentration of placer gold will be extremely erratic. Moreover, where the entire bedload is not moved, any gold concentration resulting from a sudden water flow will be found at the bottom of the temporary channel existing at that time. This may be well above bedrock. As a result, gold concentrations, if present at all, may be found in one or more discrete lenses or layers scattered throughout the gully sediments and the best chance of finding pay gravel is to a great extent fortuitous and largely dependent on careful prospecting. (Wells 1973)

Eolian placers are also found in arid or desert regions, but where the wind acts as the agent of concentration. By blowing sand and the lighter rock particles away from a body of low-value material the wind may leave an enriched surface veneer containing gold in a somewhat concentrated state (Wells 1973). Eolian placers differ from most other placers in that the gold has been concentrated in place by the removal of other less valuable material rather than by being transported to a new location where it is concentrated and deposited. There is no reference to eolian placers being mined in the U.S. World-wide, the limited extent of these deposits generally does not warrant specific exploration or development (Macdonald 1983).

Glacial placers are deposited as a result of glacial activity. The nature of glacial movement, however, tends to mix materials to such an extent that without subsequent fluvial activity, mining is not an economically viable option. On the other hand, it is not unusual for a miner to assert that a particular deposit, particularly if its origin is obscure, is a "glacier" placer. Occasionally bits of rich but widely scattered float have been found in glacial moraines but because the gold is mixed with large masses of barren earth attempts to mine the moraines are rarely successful. One reference was made to the mining of a glacial placer near Fairplay, Colorado. Here the actual moraines were mined locally but the most extensive and productive placers were found in outwash aprons extending away from the true moraines. Where outwash aprons were mined, the glacial materials were reworked by running water and were not a true glacial placer, however since glacial rivers choke themselves and build up their channels progressively, their deposits are likely to be thicker and not so well concentrated as those of the more normal graded rivers which are not associated with glaciers. (Wells 1973)

## 1.4 GOLD PLACER MINING PRACTICES

### 1.4.1 Background

Typically a placer mine moves up-valley so that settling ponds and water runoff will be down gradient from the wash plant. Often the original stream is relocated to a temporary channel during the period of mining. In addition, the previously mined ground cannot be immediately reclaimed since it is necessary to maintain a drain below the operation. Miners have also found that it is almost impossible to control all of the water that comes into the mine from the side hills and the cut above the wash plant creating the potential for prolonged erosion and down-stream environmental impacts. Once the mine has ceased operations, the miner is then faced with the need to reclaim large tracts of stream valley with no more prospect of additional income from the property.

Recently two popular mining methods have been developed that make reclamation easier. One is the "Koppenberg" method in which the wash plant is highly portable. In this method, the wash plant is continuously moved to the pay dirt instead of the pay dirt being moved to the plant. In this method, the size of each mining cut is the length of the back-hoe arm that feeds the plant. No great mounds of tailings are generated because the tailings are backfilled into the previous hole as the plant moves along. This method works extremely well in narrow valleys but does not work well in frozen ground (Peterson 1993).

A second new method, effective in mining large open cut mines is to mine down-valley instead of the standard up-valley method. This means that the recycle pond and settling basin is up hill from the cut. The result is they can much more easily control the amount of water coming into and escaping from the operation, and they can reclaim the old cuts as they mine down-valley away from them. Since they are not needed to maintain an open drain, there is no reason for the open cuts to be left unreclaimed. A critical part of the reclamation plan is to plan for the position of the stream at the end of mining (Peterson 1993).

Gold placer mining consists of three major operational steps: extraction, beneficiation and processing. Extraction is defined as removing ore material from a deposit and encompasses all activities prior to beneficiation. Beneficiation is the operation by which gold particles are separated from the associated undesirable material. Beneficiation in placer mining usually involves gravity separation techniques. Processing operations, including smelting, produce a final, marketable product bullion from the gold concentrate produced in beneficiation. Most gold placer mining has been conducted using surface techniques, although some underground drift mining of placers occurred historically.

At a typical placer mine, overburden is removed to expose the pay zone. In some permafrost areas, or where other conditions require it, the pay zone is blasted to fluff-up the material and make it easier to excavate. The gold bearing gravel is then hauled by trucks to a wash plant, which consists of a combination of equipment used to size and concentrate the pay dirt. A typical wash plant consists of a grizzly where initial sizing takes place and extreme oversize material is rejected. A trammel then sizes the remainder of the plant feed. The pay dirt is then washed into a sluice or sluices, where the gold and other heavy minerals are concentrated and settle below the riffles and onto matting. The gold remains in the sluice, while the tailings and wash water flow out of the sluice and into a tailings or settling pond. The number and configuration of settling ponds varies depending on site specific conditions. The purpose of the settling ponds is to allow the solids to settle out prior to recycling the water back to the wash plant. The ponds may also serve to reduce the sediment load in any remaining water prior to discharge. Periodically, (on the order of 1 - 2 days) the wash plant is shut-down and the gold is removed. The concentrate may then be subjected to further, more refined concentration, with gravity separation techniques such as jigs, shaking tables and pinched sluices, and possibly magnetic separation if magnetite is present, to produce a high grade concentrate suitable for processing.

Mercury amalgamation was used to collect fine gold in the lowest (final) portion of a sluice. Regulations and environmental concerns have all but eliminated this procedure, except for the recent mention of a few very specialized operations, which employ mercury amalgamation. These operations function such that mercury is not allowed to escape into the environment (Thompson 1992). Otherwise, more efficient operations utilizing gravity separation have generally replaced mercury amalgamation.

### 1.4.2 Extraction Methods

Extraction methods employed at gold placer operations differ substantially from hard rock extraction methods. Although many placer gold operations are fairly small, relatively large amounts of overburden, waste rock, and gold bearing gravel must be excavated and concentrated to remove the trace constituent gold. The stripping ratio, which is defined as the amount of overburden and waste rock moved relative to the amount of pay dirt mined, at gold placer mines is high. At the largest placer gold mine in North America, Cambior, Inc.'s Valdez Creek Mine near Cantwell, Alaska, approximately 34,000 cubic yards of material were extracted daily. Of this, 3,000 cubic yards pass through the wash plant when it is operating, leaving approximately 90 percent of the material moved as waste. The figures for this mine site suggest a stripping ratio that approaches 10:1 (waste:ore). Other Alaskan gold placer mines had stripping ratios of 4:1 and 3:1. In the coldest regions where gold placer mining occurs, frozen overburden (consisting of vegetation, muck,

and waste rock) and gold bearing deposits must be loosened by blasting and/or mechanical means prior to extracting the pay dirt. They may also be thawed by a system or grid of water pipes circulating over the deposit. Many gold placer operations are located in extremely cold climates and remote areas. These conditions increase the difficulty of mining and associated cost of equipment maintenance. (U.S. EPA 1988a)

Gold extraction at placer operations may be conducted using either surface or underground techniques, but surface methods are most commonly used because they generally are the least expensive (Whiteway 1990). The principal surface extraction method associated with large-scale gold placer operations is open cut mining, which is synonymous with open pit mining; for the purposes of this study, the term "open cut" will be used. Other extraction methods employed at gold placer mines include dredging, hydraulicking, and other recreational and small-scale extraction techniques, such as panning and small suction dredging. Currently, use of dredging and hydraulicking methods is limited. Underground mining methods include bore-hole and drift mining, which in the past have been employed to reach deep deposits. (Alaska Miner's Assn. 1986; Argall 1987)

An article on drift mining in the *Engineering and Mining Journal* (Argall 1987) states that the prohibitive cost of mining deep shafts and long adits has prevented a major revival of drift mining. However, in Alaska there may be a resurgence in this type of mining. A few years ago nearly 100 percent of the placer mining operations used surface mining methods. However, in Alaska the industry trend toward underground placer mining suggests that use of, and dependence on, underground placer mining techniques may increase in the future. (Alaska Miner's Assn. 1986; U.S. EPA 1988a; Argall 1987; ADEC 1992)

Historically, large-scale gold placer mining operations used hydraulic methods to excavate the pay zone. Underground drift mining methods developed in the early 1900s were also used to reach rich placer deposits located far below the surface. With the advent of mechanical methods of extracting and hauling materials, hand, hydraulic, and drift mining extraction methods were displaced by mobile earth-moving equipment that was capable of handling greater volumes of material. The increase in the volume of material mined compensated for the decline in the grade of deposits (Alaska Miner's Assn. 1986). Prior to 1930, excavation equipment at open cut gold placer mines was steam-powered, but the development of the diesel engine revolutionized the industry both in Alaska and in other placer mining states. New equipment in the mid-1930s reduced costs and increased the volume of material handled. This allowed previously uneconomical deposits to be mined. Concurrent improvements were made in gravel washing and recovery systems. Technological advancements in placer mining methods generally offered operators increased flexibility and efficiency.

The selection of mining methods that maximize gold recovery and allow the safe, efficient, and economic removal of the pay dirt is influenced by several factors. The choice of mining methods is based on the physical characteristics of the placer deposits (dip, size, shape, depth, degree of consolidation), the water supply, and, ultimately, the available funds. A gold placer mining operation will usually employ a

combination of extraction methods because of the variety of conditions that must be addressed. (Whiteway 1990; U.S. EPA 1988a; Alaska Miner's Assn. 1986)

1.4.2.1 Open Cut Methods

The surface mining method most commonly used in placer mining is open cut. Modern earth-moving equipment is used to mine deposits of varying size and depth. Characteristics of the deposit such as topography and condition of the underlying bedrock are important. While open cut mining is the most common method used to extract placer gold, specifics on the frequency of use of this type of surface mining relative to other mining methods are not known. (Alaska Miner's Assn. 1986)

Open cut mining involves stripping away vegetation, soil, overburden, and waste rock to reach the ore buried below. In the placer industry, the pay zone or pay streak is the equivalent of ore and may be referred to as either pay dirt or pay gravel, depending on the nature of the deposit. The pay steak can be excavated by bulldozers, loaders, scrapers, and draglines; conveyors or trucks transport the pay dirt to a wash plant for beneficiation. Usually the excavation site is located upstream or upslope of the wash plant, and the direction of the mining activity is away from the plant. Once a cut has been mined, it is generally either backfilled with excavated overburden and waste rock or converted to a water recycle or sediment pond (see Figure 1-1). (ADEC 1987)

Bulldozers are used in every phase of open cut gold placer mining operations from initial excavation to final reclamation. Primary functions include the following: stripping overburden (typically composed of vegetation, muck, and barren gravels; pushing pay gravels to sluice boxes for beneficiation; and stacking tailings. They are typically equipped with straight blades. In addition, some are fitted with rippers to break up cemented gravels and excavate bedrock containing placer gold deposited into fractures and joints. Bulldozers are also used to construct roads, diversion ditches, and settling ponds (U.S. EPA 1988a; Cope and Rice 1992; Alaska Miner's Assn. 1986).

Second to bulldozers, front-end loaders are the next most commonly utilized piece of equipment at gold placer mines. Front-end loaders are used to excavate loose or already ripped gravel. Most front-end loaders are mounted on wheels with rubber tires, but they can also be mounted on tracks. The rubber-tired loader is faster than a track loader, but it is less efficient when digging compacted in-situ gravels. (Cope and Rice 1992)

Draglines are used to excavate both dry gravels and underwater gravels, but when employed at open cut gold placer mining operations, draglines perform the same function as bulldozers (i.e., stripping overburden, moving excavated material, stacking tailings, etc.) Draglines may be fitted with booms as long as 100 feet, which gives them a large digging radius. Although it costs less per unit to move materials using draglines, they are not as mobile as bulldozers. Draglines are fitted with buckets whose capacities range from 1/2 to 2 cubic yards. A disadvantage posed by draglines is the sparse number of experienced operators. It is not clear

from the information available whether draglines are more commonly used to extract dry gravels at placer gold surface mines or to dredge underwater gravels. (Cope and Rice 1992; U.S. EPA 1988a)

1.4.2.2 Other Methods

Dredging

Although dredges are used in both surface mining and underwater mining of placer deposits, they are generally associated with the mining and beneficiation of metal-bearing minerals (values) below water level. Dredges are limited by the availability of a saturated placer gold deposit or the existence of a water table near the surface to create the appropriate excavating environment (i.e., a pond). Some dredges, however, operate in the water while anchored on land. Four commonly used dredging systems include bucketline (also referred to as bucket-ladder), backhoe, dragline, and suction dredging. Dredges are designed to execute multiple functions. For example, many floating dredges are equipped to perform extraction, beneficiation, processing, and waste disposal. (U.S. EPA 1988a; Alaska Miner's Assn. 1986) Hydraulic dredging systems have been used to produce sand and gravel, marine shell deposits for aggregate, and mine deposits containing diamonds, platinum and tin. Heavy mineral mining, including titanium sand dredging is also practiced to obtain ilmenite, monazite, rutile and zircon (Harty and Terlecky 1986).

Dredging systems are categorized as either hydraulic or mechanical, depending on the method of digging. Hydraulic systems include suction dredges, while mechanical systems comprise bucketline, backhoe, and dragline dredges. Some dredging systems integrate hydraulic and mechanical power for the purposes of extracting placer gold. Special circumstances might make a combination dredge (sometimes called a "combiminer") more desirable than simply a plain suction dredge. Some suction dredges are equipped with a cutter head to make excavation easier. Dredges are known to be capable of excavating to depths of 225 feet, but excavation for mineral recovery has been much less, perhaps one quarter of that depth.

Hydraulic Methods

In hydraulic mining, or hydraulicking, water under pressure is forced through an adjustable nozzle called a monitor or giant and directed at a bank to excavate gold placer pay streak and to transport it to the recovery unit, which is generally a sluice box. The pressurized water jet can also be used to thaw frozen muck and to break up and wash away overburden. Water pressure is supplied either by a pump or by gravity. The operator controls the vertical and horizontal movements of the monitor (giant, or water cannon), as well as the water pressure and the volume of the flow by remote control (U.S. EPA 1988a).

One advantage of hydraulicking is the ability to move large volumes of material at a low cost. The amount of water required to accomplish this movement and the resultant tailings, however, present a serious obstacle to the widespread use of this water-dependent extraction technique. Originally employed in geographic areas rich with water bodies, hydraulicking tapered off as mechanized earth-moving extraction equipment gained favor and as restrictions were placed on the availability and pollution of water. Given the efficiency and

economic savings of the equipment used in open cut gold placer mining operations and concerns related to hydraulic mining's environmental impacts, it seems unlikely that hydraulic mining will be widely used in the future. (U.S. EPA 1988a)

Small-Scale Methods

Small-scale extraction methods include panning, and suction dredging. Small-scale extraction methods are primarily used by recreational gold placer miners working on a non-commercial scale. Small-scale methods combine extraction and beneficiation steps because the extraction phase of the placer operation is integrated with beneficiation. Essentially, shallow alluvial sediments are "sifted" using equipment that is modeled after the basic mining equipment used in some open cut and dredging operations; small-scale extraction methods employ the basic principles of gravity separation. (U.S. EPA 1988a)

Panning recovers gold concentrate. It is a low budget, labor intensive method involving fairly rudimentary gravity separation equipment. Panning is also a sampling method used by prospectors to evaluate a placer gold deposit to determine whether it can be mined profitably. Such assessment operations differ from small-scale mining operations that recover gold for an immediate return on their investment. (U.S. EPA 1988a; Alaska Miner's Assn. 1986) Small-scale gold placer miners also use a variety of other portable concentrators, including long toms, rocker boxes, and dip boxes (see Figures 1-2

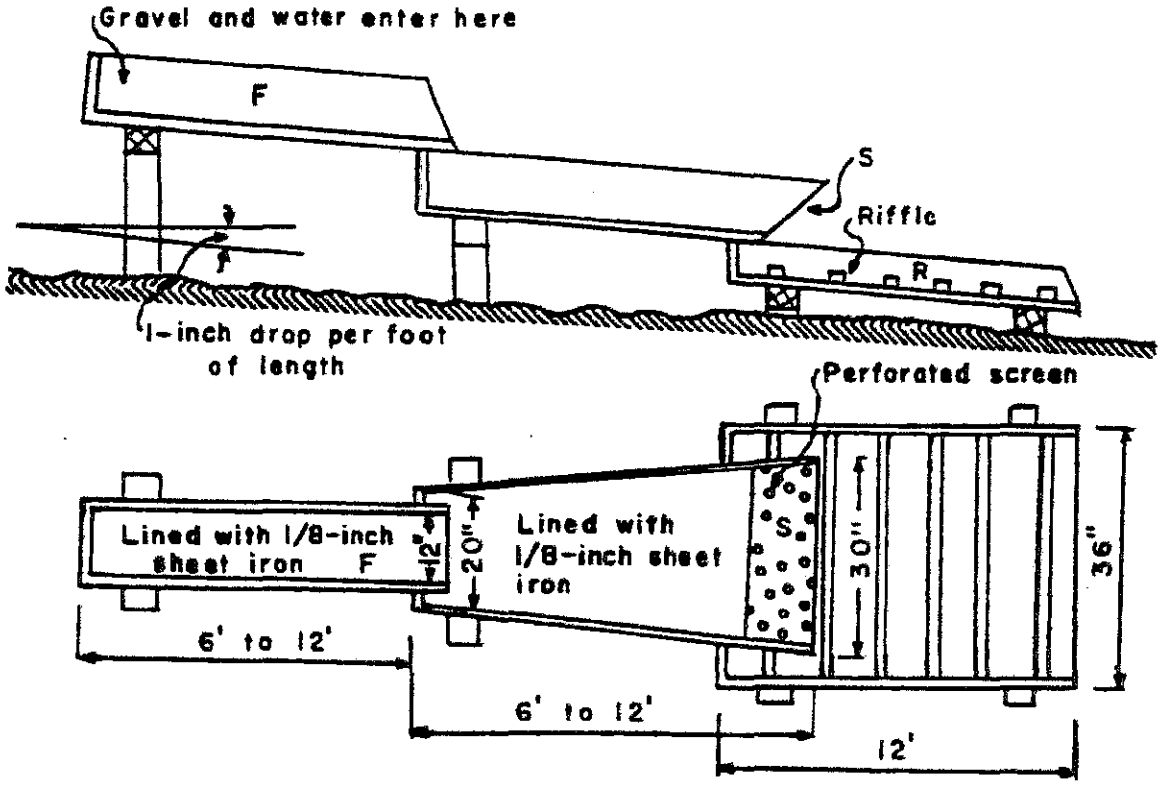



**Figure 1-2. Long Tom**

(Source: U.S. EPA 1988)

and 1-3). (U.S. EPA 1988a)

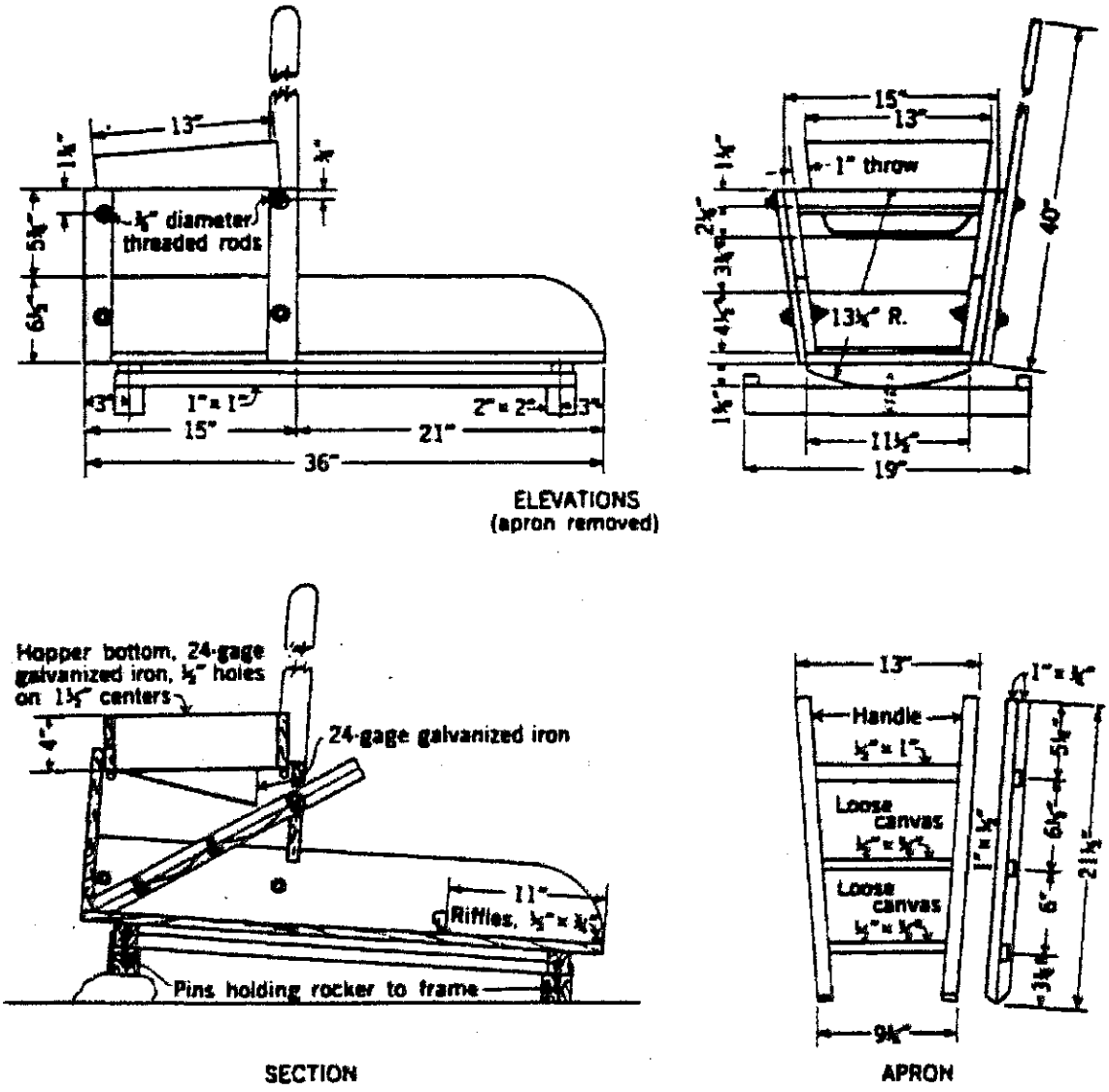



**Figure 1-3. Basic Design for a Prospector's Rocker**

(Source: U.S. EPA 1988)

Small suction dredges are being used successfully by recreational or small (part-time) gold placer ventures. A pump varying from one to four inches usually floats immediately above the mined area. The mechanism that recovers the gold sits in a box next to the suction pipe and is carried under water. Alternatively, the nozzle has two hoses, one that transports water to the head and the other that transports material to the surface of a beneficiation device (i.e., usually a small sluice box that deposits tails back into the stream).

Underground Mining Methods

Drift mining and bore-hole mining are terms applied to working alluvial placer deposits by underground methods of mining. Drift mining is more expensive than open cut sluicing and hydraulicking, so it is used only in rich ground. In drift mining, the pay streak is reached through a shaft or an adit. Pay dirt that has been separated from the gold bearing zone either by blasting or with hand tools is carried in wheelbarrows or trammed to small cars that transport the gravel to the surface for beneficiation. If a deposit is large, then regular cuts or slices are taken across the pay streak, and work is generally performed on the deposit in a retreating fashion from the inner limit of the gravel. (U.S. DOI 1968; Argall 1987)

### 1.4.3 Beneficiation Methods

Beneficiation of placer materials involves the separation of fine gold particles from large quantities of alluvial sediments. Gravity separation is the most commonly used beneficiation method. Magnetic separation is used in some operations to supplement the gravity separation methods. Water is used in most, if not all steps; initially, to wash gold particles from oversized material and later, to move gold concentrate through the wash plant. The wash plant refers to the collection of equipment where beneficiation is conducted. For land-based operations, the plant may be stationary but is often mounted on skids so that it can be moved along with the mining operation as it progresses. Dredge operations frequently employ floating wash plants, where the beneficiation equipment is carried within the dredge.

Beneficiation typically involves three general steps: the first is to remove grossly oversized material from the smaller fraction that contains the gold, the second to concentrate the gold, and the third to separate the fine gold from other fine, heavy minerals. The same type of equipment is often used in more than one step, for example an array of jigs may be employed to handle successively finer material (Flatt 1990).

Classification (sizing) is the initial step in the beneficiation operation when the large, oversize material (usually over 3/4 inch) is removed during beneficiation. A rough (large diameter) screen is usually used. This step may be fed by a bulldozer, front-end loader, backhoe, dragline or conveyor belt. Within the industry, this step is also referred to as roughing (U.S. EPA 1988a). Previous studies have indicated that the practice improves the efficiency of gold recovery and reduces the water consumption (Bainbridge 1979).

After the initial removal of the larger material during sizing, pay dirt is subject to a coarse concentration stage. This step, also referred to as cleaning, may employ trommels or screens. Other equipment used in the

coarse concentration stage includes sluices, jigs, shaking tables, spiral concentrators and cones. Depending on the size of the gold particles, cleaning may be the final step in beneficiation (Flatt 1990; Silva 1986).

Fine concentration is the final operation used to remove very small gold values from the concentrate generated in the previous stages. Many of the previously identified pieces of equipment can be calibrated for finer separation sensitivity. Final separation uses jigs, shaking tables, centrifugal concentrators, spiral concentrators or pinched sluices.

The following is a summary of the equipment commonly used in beneficiation. One of the key determinants in selecting equipment is the volume of material that will pass through each step within a given time period. Rates for material handling for the equipment discussed below are included where the information was available.

#### 1.4.3.1 Sizing

Sizing is a physical separation of material based strictly on size. The sizing step removes large rocks prior to additional beneficiation. The waste generated is usually solid and is much lower in volume compared to the pay dirt that passes through. Discharge material may be used for other applications including road aggregates. This step typically involves the pay dirt being loaded into a grizzly, trammel or screen or a combination thereof.

A typical grizzly consists of a large screen or row of bars or rails set at a specific distance apart (2 to 6 inches) such that undersized (gold-bearing) material can readily pass through while oversize material is rejected. Typically, the grizzly would be inclined to ease the removal of the rejected material. Water is usually used to move material through the grizzly and wash off any fines that may be attached to larger fragments before they are discarded. The undersized material drops onto a trammel, screen, or sluice depending on the operation. Grizzlies may be stationary or vibrating (U.S. EPA 1988a).

Trommels are wet-washed, inclined, revolving screens (Figure 1-4). They usually consist of three chambers, the first uses a tumbling action and water to break up aggregated material. Successive chambers are formed of screens or punched metal plates (smaller holes first) that allow the selected sized material to pass through. The screens are typically 3/8 inch in the second chamber and 3/4 inch in the final chamber. Material passing through the screens is directed for further concentration. Material passing through the trammel may be returned for a second pass or discarded (Cope and Rice 1992; U.S. EPA 1988a).

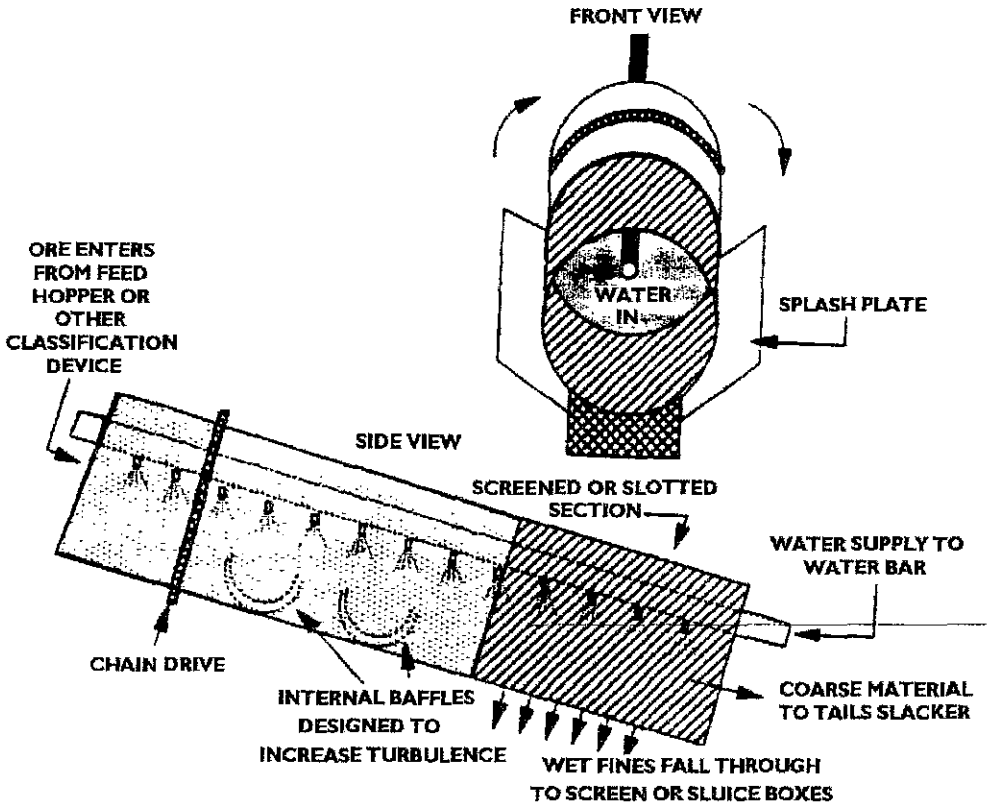



**Figure 1-4. Diagram of a Trommel**

(Source: EPA 1988a)

A fixed punchplate screen (also called a Ross Box) consists of an inclined plate with holes ranging from 1/2 to 3/4 inches. Pay dirt is placed onto the plate where nozzles wash the material with a high-pressure water stream. The undersized (desirable) material is washed to the outside of the plate where it is fed into a sluice designed to handle 3/4 inch material. The oversize is directed down the plate which typically has riffles to collect coarser gold. Oversized material passing off the plate is discarded.

Screens function to separate oversized, undesirable material from the gold concentrate. Screen size (usually 1/2 to 3/4 inch) is selected based on pay dirt characteristics. Screens may be fixed or vibrating. The action of both is similar although vibrating screens speed the rate of particle separation. The concentrate continues for further concentration while the oversize is removed via a chute or stacker conveyor belt. Different sized screens may be used to sort material into different sizes for use as road construction aggregate or other purposes.

1.4.3.2 Coarse Concentration

Separation in the coarse concentration step involves particle density rather than size. Sluices are the pieces of equipment most commonly used in the coarse concentration step although jigs and screens may also be employed. The wastes are discharged to a tailings pond also called a recycle pond or settling pond. Most of the material that enters the sluice exits as waste. The gold and other heavy minerals settle within the lining material while the lighter material is washed through. Coarse concentration generates the largest volume of waste during beneficiation.

A sluice consists of a long, narrow, inclined trough lined with riffles, perforated screens, astroturf, corduroy, burlap or a combination thereof (Figure 1-5). The sluice mimics the conditions that caused the formation of the placer deposit initially. Pay dirt is placed at the high end of the trough and washed with a stream of water. Gold and other dense minerals settle between the riffles or in the lining while the lighter material is carried through the sluice. Longer sluices are used for preliminary concentration. Shorter, wider sluices are used

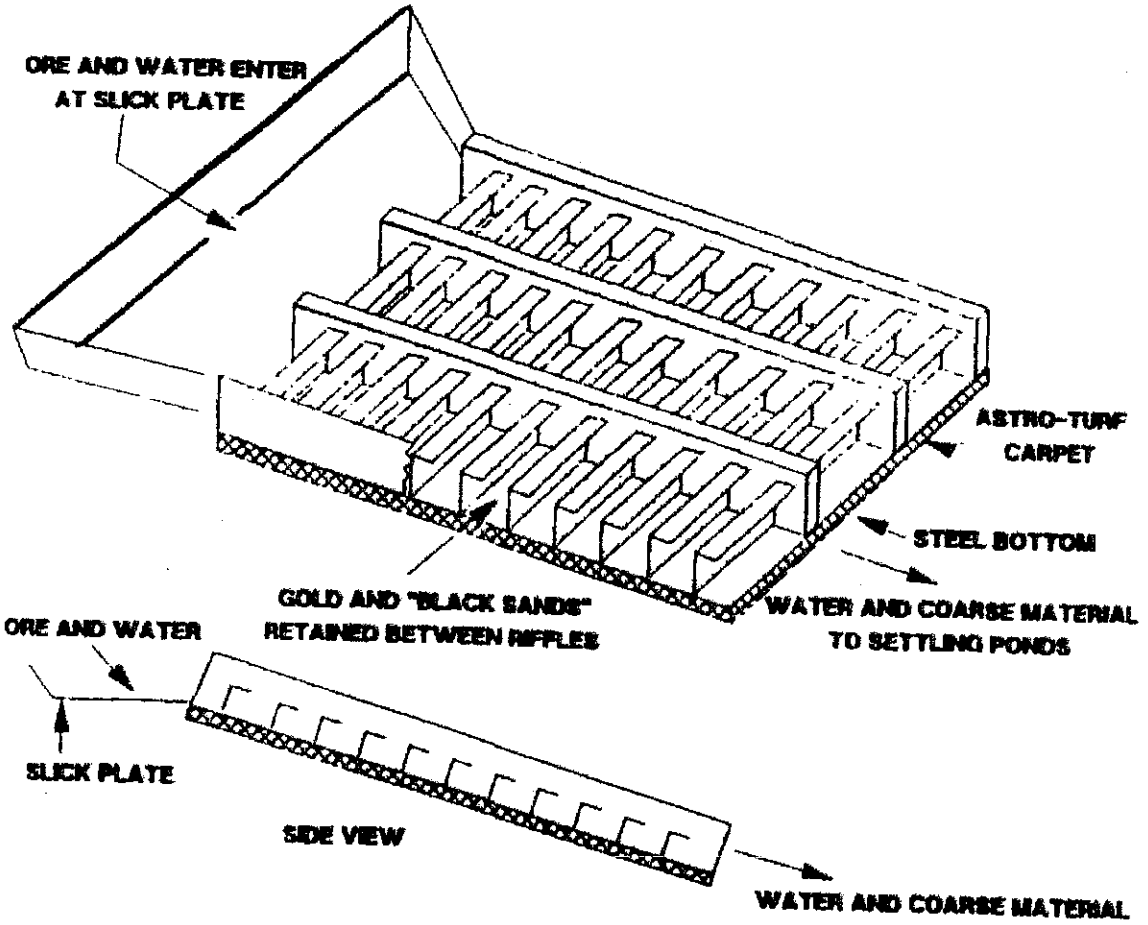



**Figure 1-5. Diagram of a Sluice Box Including Hungarian Riffles**

(Source: EPA 1988a)

following preliminary separation to separate fine gold from black sands. The length, grade, riffles and lining are adjusted to suit the nature of the pay dirt. However, slopes of one to two inches per foot are typical.

Riffles are bars, slats, screens or material that act to create turbulence and variation of water flow within the sluice. This action increases the efficiency of gravity separation. Riffles have ranged in size from 12 inches wide, 12 inches high and 12 inches apart to 1 inch high, 1 inch wide and 2 inches apart.

Hungarian riffles are angle irons mounted perpendicular to the sluice box. The vertical angle of the angle irons may be adjusted to affect the degree of turbulence generated and maximize gold deposition. Astroturf, carpet or coconut husks are sometimes placed between and under the riffles to maximize their efficiency. The units are usually constructed so that sections of the riffles may be removed so the gold can be recovered from the turf. As mentioned above, the height, spacing and construction of the riffles may be adjusted to maximize efficiency of gold separation depending on the character of the pay dirt.

Other material has also been tested and/or used as riffles and liners. Expanded metal riffles are employed at some operations. Like the hungarian riffles, the height, size and spacing is determined by the pay dirt and, sections are removable for cleaning. Miscellaneous materials including longitudinal or horizontal wooden poles, blocks, rocks, railroad ties, cocoa mats, rubber and plastic strips have also been documented as being used as riffles by different placer operations (U.S. EPA 1988a).

#### 1.4.3.3 Fine Concentration

After the pay dirt is concentrated, typically through a trommel and sluice, most waste material has been removed leaving a fine concentrate (the percentage of gold within the concentrate is not discussed in the references and is highly variable). The concentrate may then be subjected to fine concentration methods including jigs, shaking tables and pinched sluices. Depending on the nature of the concentrate and the equipment, 80 to 95 percent of the gold can be recovered from the concentrate at this stage. The waste at this stage is a slurry (often called slimes), and is low in volume compared to that generated in the other stages.

Jigs are settling devices that consist of a screen through which water is pulsed up and down via a diaphragm or plunger numerous times per second (Figure 1-6). A layer of rock or steel shot referred to as ragging may be placed on the screen to accentuate the up and down motion. Slurry is fed above the screen. The agitation keeps the lighter material in suspension which is then drawn off. The heavier material falls onto or through the screen and is collected as concentrate. Efficiency is increased by varying the inflow rate, pulse cycles and intensity. Jigs may handle from 7 to 25 tons per hour, and can handle particles ranging from 75 mm to 25 mm. At some operations, jigs are also employed in the cleaning stage. (Macdonald 1983; Silva 1986).

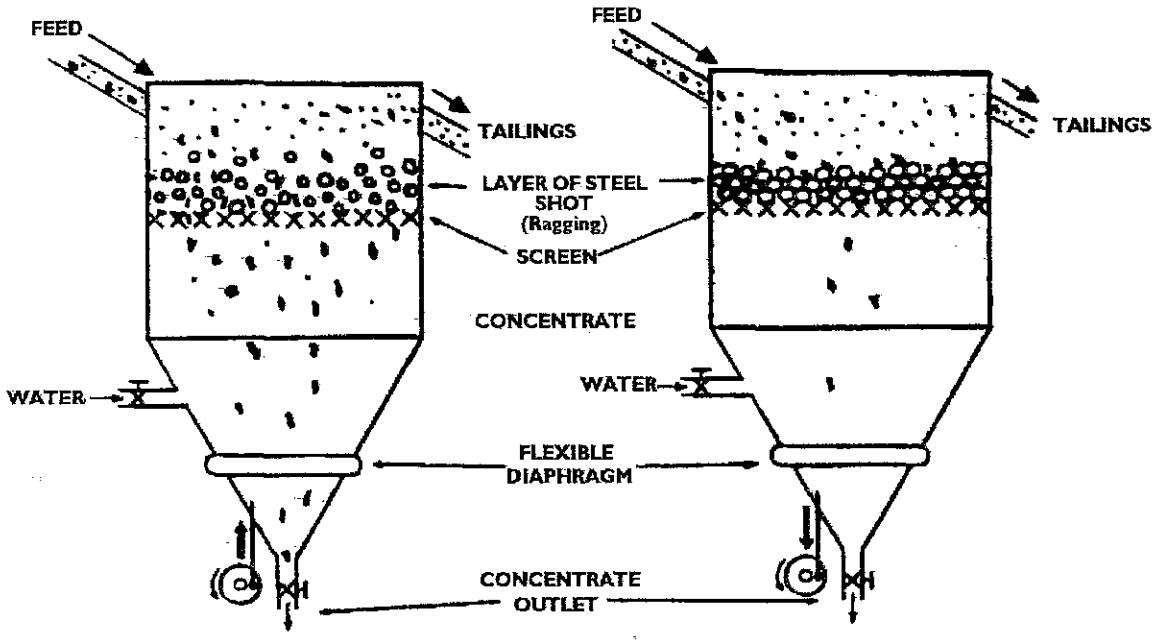



**Figure 1-6. Diagram of a Jig**

(Source: Cope 1992)

Shaking tables consist of small riffles over which a slurry containing fine pay dirt is passed. The gold settles into the riffles and, through a vibrating action, is directed to one side of the table where it is collected. The tails are passed across the middle of the table or remain in suspension. Middlings, material that is partially settled, may be collected. Heads and middlings are commonly reprocessed on multi-stage tables. Shaking tables can handle materials from 15 *u*m to 3.0 mm (U.S. EPA 1988a; Macdonald 1983).

Spiral concentrator is a generic term referring to a method of separation rather a specific piece of equipment. Pay dirt concentrated from previous steps is fed with water, into the top of the spiral, and spins down through the spiral. The heaviest materials are concentrated toward the center of the spiral while lighter material moves to the outside. Gold particles (concentrates) are collected from the center of the spiral while the tails pass down the entire spiral. Large operations may employ multiple spiral concentrators in series to handle a wide range of sizes. Humphreys concentrators, as one example, can be used to separate particles between

100 *u*m and 2 mm in diameter. These machines can handle low feed rates (1.5-2 tons per hour) and low feed density (U.S. EPA 1988a).

Centrifugal concentrators or bowls were typically used in dredges but may also be used in other operations (Figure 1-7). Slurry is fed into the top of the circular machine. Driven from the bottom, the interior portion spins on its vertical axis, driving the slurry against a series of concentric circular riffles or baffles. The lighter material (tails) is driven up the side of the bowl while the heavy material (concentrate) collects on the bottom or in the riffles (Cope and Rice 1992).

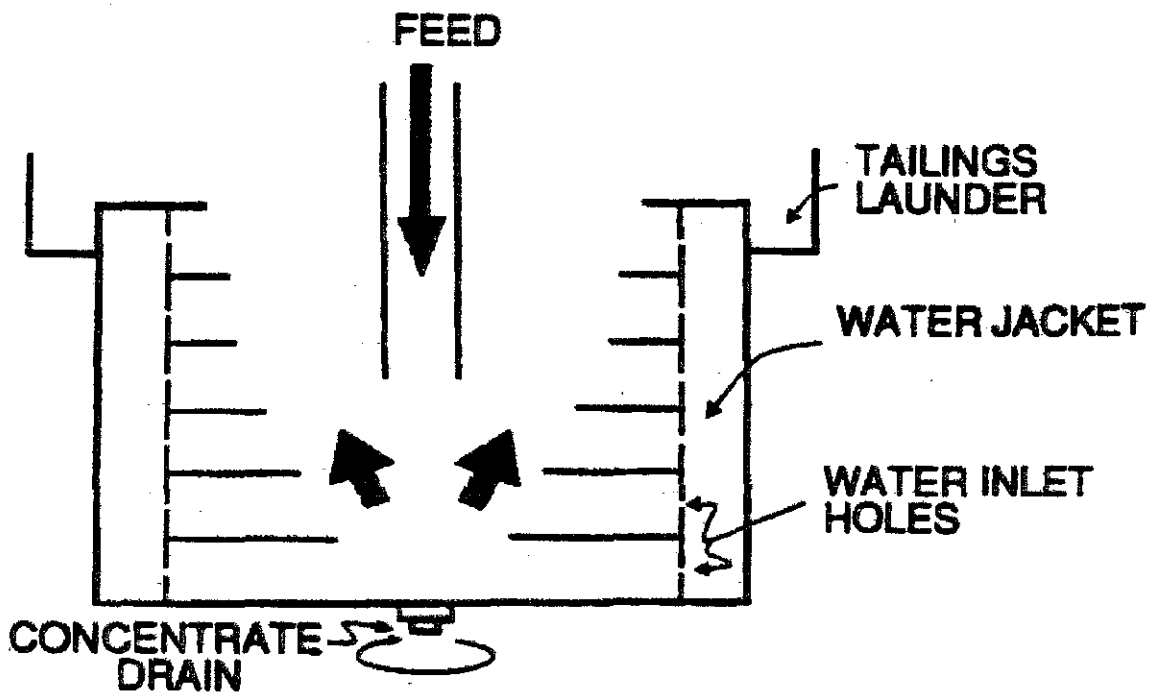



**Figure 1-7. Diagram of a Centrifugal Bowl**

(Source: Cope 1992)

Pinched sluices work on the concept that as a fine feed is exposed to an opening, the arc formed by the heaviest particles dropping will be much narrowed than the arc formed by the lighter materials (Figure 1-8). A divider placed perpendicular to and below the pinched outfall lets heavy materials (concentrate) collect on one side while lighter material (tails) can be collected and reprocessed separately or directed out of the operation completely. Reichert cones, which are based on the pinched sluice principle, can handle 75 tons per hour and recover particles in the minus 10 to plus 400 mesh range (45 *u*m to 0.5 mm) (Gomes and Martinez 1983).

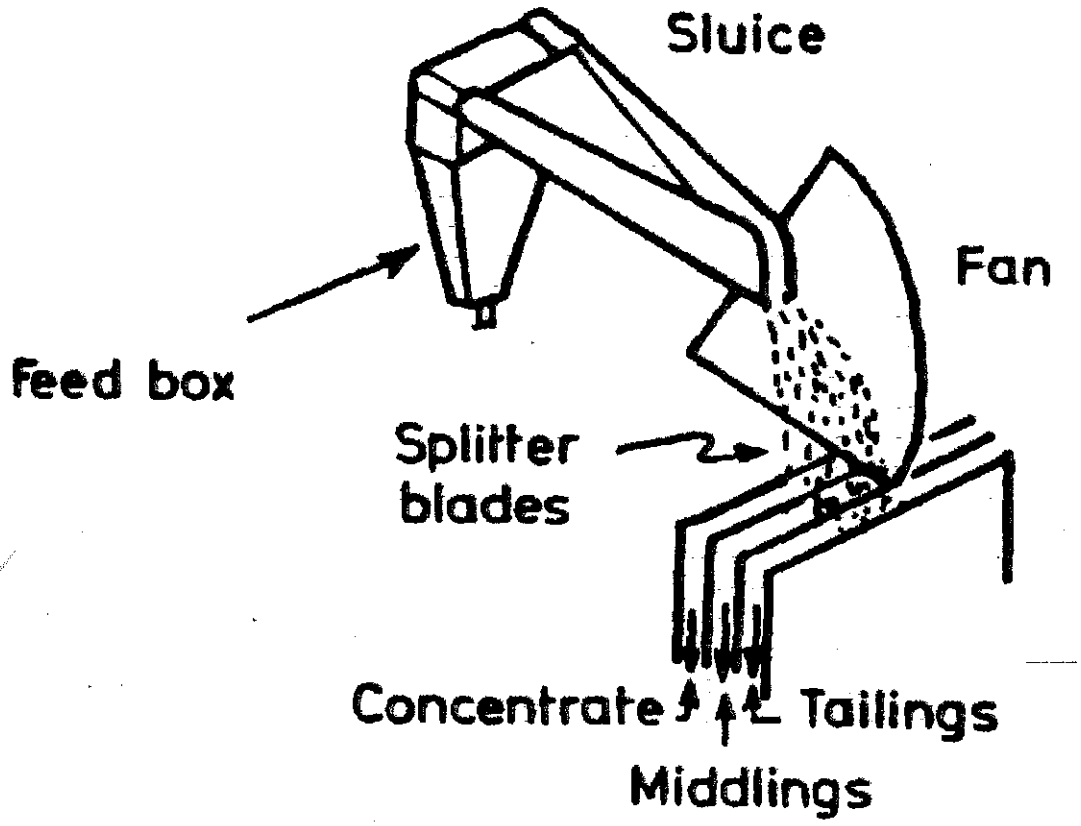



**Figure 1-8. Diagram of a Pinched Sluice**

(Source: Macdonald 1983)

Magnetic separation is not commonly used in placer mining but may be employed when magnetite is a component of the black sand. This technique is used to remove electrostatically charged tails from the neutral gold. To be effective, the method should involve multiple magnetic treatments followed by demagnetization steps so that the magnetite is removed slowly, not in a 'magnetically coagulated' form that may bind gold particles within it. Magnetic separation, when used, is one of the final steps of beneficiation. This technique is used in at least one operation in Alaska; the extent of its use in gold recovery from construction aggregates in California was not discussed (Thompson 1992).

1.4.3.4 Mercury Amalgamation

Before Federal environmental regulations were promulgated in the mid-1970s, mercury amalgamation was commonly used to recover gold fines. An amalgam of mercury and gold is formed by adding mercury to the lowest portions of a sluice. There had been little or no reference to its recent use until an article in the *Engineering and Mining Journal* entitled "Byproduct Gold From Construction Aggregates" mentioned its use in recovering gold from bowl concentrates. In this case, gold concentrates were generated as a byproduct from the production of construction aggregates. The amalgam was to produce a final bullion. The mining and beneficiation operations were not described in the article. The only discussion regarding control of environmental releases simply stated that the operation was conducted away from the mining activities (Thompson 1992).

## 1.5 WASTE MANAGEMENT PRACTICES

This section describes several of the wastes and materials that are generated and/or managed at gold placer extraction and beneficiation operations and the means by which they are managed. As is noted in the previous section, a variety of wastes and other materials are generated and managed by gold placer operations.

Some, such as waste rock and tailings, are generally considered to be wastes and are managed as such, typically in on-site management units. Even these materials, however, may be used for various purposes (either on- or off-site) in lieu of disposal. Some quantities of waste rock and tailings, for example, may be used as construction or foundation materials at times during a mine's life. Many other materials that are generated and/or used at mine sites may only occasionally or periodically be managed as wastes. These include mine water removed from underground workings or open pits, which usually is recirculated for on-site use but at times can be discharged to surface waters. Some materials are not considered wastes at all until a particular time in their life cycles.

The issue of whether a particular material is a waste clearly depends on the specific circumstances surrounding its generation and management at the time. In addition, some materials that are wastes within the plain meaning of the word are not "solid wastes" as defined under RCRA and thus are not subject to regulation under RCRA. These include, for example, mine water or process wastewater that is discharged pursuant to an NPDES permit. It is emphasized that any questions as to whether a particular material is a waste at a given time should be directed to the appropriate EPA Regional office.

The first subsection below describes several of the more important wastes (as defined under RCRA or otherwise) and nonwastes alike, since either can have important implications for environmental performance of a facility. The next subsection describes the major types of waste units and mine structures that are of most environmental concern during and after the active life of an operation.

### 1.5.1 **Extraction and Beneficiation Wastes** and Materials

#### 1.5.1.1 Waste Rock or Overburden

Waste rock consists of material that contains no gold and must be removed to access the pay zone. Industry usually refers to overburden and, in the case of underground mines, mine development rock as waste rock. It is generally disposed of in waste rock dumps near the point of excavation. Eventually, the stockpiled waste rock may be used to backfill the mine cut during reclamation. Because the desired material (gold) is such a small fraction of the material mined (< 0.1 oz/ton) there is a tremendous amount of waste rock generated. Surface mining operations generate more waste per unit of crude ore extracted than underground operations, although stripping ratios vary from one site to the next. For example, in 1992 at Polar Mining, Inc.'s Lower Goldstream placer operation near Fairbanks, Alaska, approximately 2,200,000 cubic yards of overburden were excavated to beneficiate 500,000 cubic yards of pay dirt. Polar Mining, therefore, has a stripping ratio that exceeds 4:1 (waste:ore). On the other hand, estimates from the 1992 Reclamation Plan and Annual Placer Mining Application of another Alaska placer mine (Alf Hopen's Little Eldorado Creek operation in the Fairbanks mining district near Cleary, Alaska) for total material mined and total material concentrated (70,000 cubic yards and 60,000 cubic yards, respectively) suggest a very low ratio of overburden to pay dirt (Polar Mining, Inc. 1991b).

Overburden removed from the mine cut is stored nearby, sometimes piled along the edge of the pit until mining ceases, at which time the waste rock is returned to the cut, or backfilled. These piles may be referred to as waste rock piles.

#### 1.5.1.2 Tailings

Material from gravity concentration operations consist of a slurry of gangue (non-gold material) and process water which passes through the concentration operation. Tailings are classified by their size into three classes: coarse or oversize tailings, intermediate tailings (middlings), and fine tailings (slimes). Of the three grades delineated, fine tailings can be further broken down into two categories. Components of the slurried tailings can be classified as settleable solids, which are made up of sand and coarse silt, or as suspended solids, composed mostly of fine silt and some clay size particles. (U.S. EPA 1988a)

Oversize tailings are separated from smaller material early during classification. Open cut operations use a grizzly to segregate larger material as the pay dirt enters the wash plant. Coarse tailings may be used in road and filtration dam construction or may be sold as aggregate. Middlings and fines generated during sluicing are usually disposed of in tailings impoundments. Ultimately, the smaller-size tailings may be covered by coarse tailings and overburden during reclamation.

Large volumes of flowing water are used to carry the pay dirt through the classification operation. The velocity of the flowing water generates a large volume of intermediate and fine tailings in the form of suspended sediment and lesser quantities of dissolved solids. Historically, the water and sediments were released to streams and created problems downstream from the mining sites. Currently, release of sediment is controlled by using impoundment structures where the water is held and the velocity is consequently reduced.

As flow is restricted sediments are deposited. Exposure of waste rock and pay dirt during extraction and beneficiation greatly increases the likelihood that soluble constituents will be dissolved. Once in solution, dissolved solids are much more likely to pass through sedimentation structures and reach surface waters.

Recycling or recirculating water at gold placer mines reduces the volume of effluent to be discharged after treatment. Water treatment is more economical when less water is flowing through the system. Production statistics from 1984 show that 21.3 percent of the Alaska gold placer mining industry achieved 90-100 percent recycle of the process wastewater (Harty and Terlecky 1984a). Operations that separate oversize tailings prior to sluicing typically use less water than mines that do not classify the excavated material (Harty and Terlecky 1984b). Where classification methods are used, approximately 1,467 gallons of water per cubic yard of pay dirt are needed, whereas at mines that do not classify material, average water usage is 2,365 gallons per cubic yard of pay dirt. (U.S. EPA 1988a; ADEC 1987)

Chemicals are not typically used during beneficiation at placer gold mines, so tailings contain the same constituents found in the extracted pay dirt. Very little use of any chemicals was found at placer sites visited by EPA in 1992. Potential natural constituents of gold placer wastes and materials include minerals that contain mercury, arsenic, bismuth, antimony and thallium as well as the minerals pyrite and pyrrhotite. These are often found in discharges from placer mines, however the Bureau of Mines states that because of the maturity of most alluvial deposits, the majority of the elemental constituents contained in these minerals are not readily soluble, especially in the conterminous forty-eight states. Some chemicals associated with gold placer mines have been identified, and these exceptions involve the addition of chemicals during beneficiation. Some California operators use magnetic separation to remove high concentrations of magnetite. At early placer mines, mercury was frequently added to sluice boxes to augment the recovery of fine gold. Mercury amalgamation produced a slurry waste composed of a mercury-tainted solution and gangue. Modern placer operations in California have recovered mercury from the sediments as a byproduct of historic amalgamation operations. The use of mercury at modern gold placer mines is considered minimal. (U.S. EPA 1991; Cope and Rice 1992)

### 1.5.2 Waste and Materials Management

Waste and non-waste materials generated as a result of extraction and beneficiation of gold placer deposits are managed (treated, stored, or disposed) in discrete units. For the purposes of this report, these units are divided into two groups: (1) waste rock piles and (2) tailings impoundments, also referred to as settling and recycle ponds.

In general, the goal of treating or managing these materials is to separate the silt and fine-grained solids from the water, reusing the water or ensuring it meets NPDES discharge requirements prior to discharging to a stream. Most management occurs after sluicing; the stacking of overburden and waste rock in areas proximate to the mining operation, however, constitutes an interim method of managing solid extraction wastes prior to their ultimate return to the mine cut. (Alaska Miner's Assn. 1986)

There are two ways to maximize the quality of the effluent discharged from a gold placer operation. The effluent can be treated using a variety of impoundments (tailraces, pre-settling ponds, and settling/recycle ponds), filtration, and, in rare instances, flocculants. A study sponsored by the EPA in 1984 showed that polymer-aided settling removed over 96 - 99+ percent of suspended solids using cationic polymers (Harty and Terlecky 1984c). Alternatively, the mining operation can be modified to reduce water use during beneficiation, thereby reducing the volume of effluent discharged. Management methods used to achieve this reduction include classification, recycling, use of a bypass, and control of water gain (i.e., surface and subsurface seepage). (Alaska Miner's Assn. 1986)

#### 1.5.2.1 Tailings Impoundments/Settling Pond Systems

Tailings (oversize, intermediate, and fines) are typically managed in tailings impoundments or used for construction. The method of managing tailings is largely determined by the water content of the tailings. Tailings impoundments associated with gold placer mines are generally unlined containment areas for wet tailings in the form of slurries.

At most gold placer operations, the disposal of tailings requires a permanent site with adequate capacity for the life of the mine. The size of tailings impoundments varies between operations; that is, if the impoundment is going to function effectively, the dimensions and characteristics are tailored to meet the specifications for a particular operation.

The removal of sediment from water is the goal of effluent treatment. A properly designed settling pond can remove 99 percent of the settleable solids (SS) from the effluent. There are numerous factors that influence how efficiently a settling pond removes sediment from effluent, including the following:

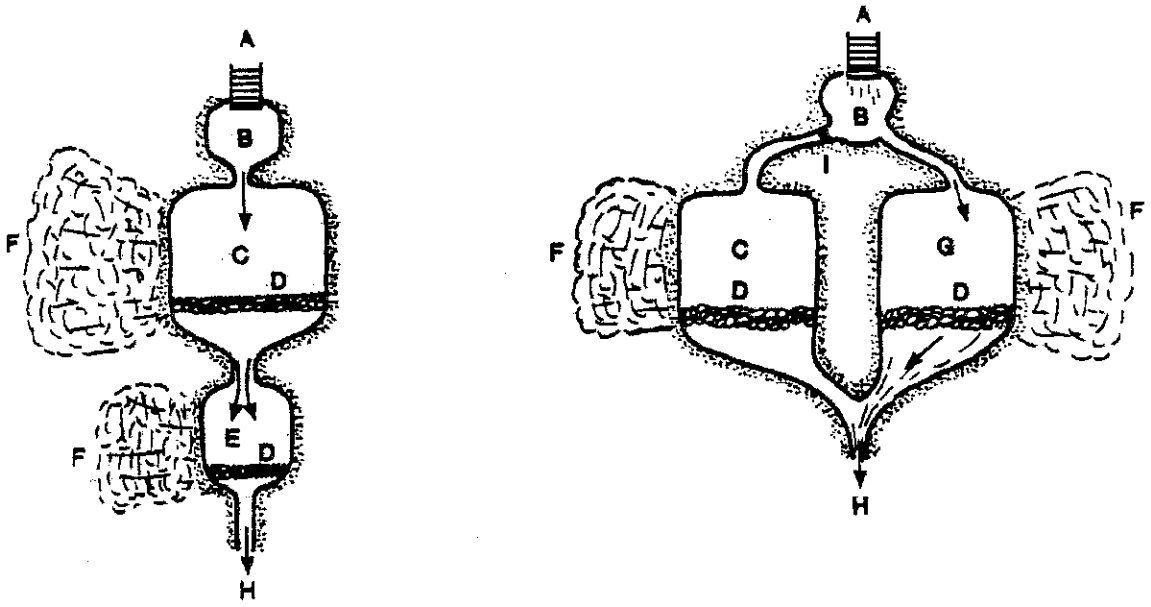
- Surface area of the pond
- Flow rate through the pond
- Settling characteristics of the sediment
- Short circuiting
- Entrance and exit effects
- Wind and rain turbulence.

To promote settling, the surface area of the pond should be as large as possible. The flow rate through the pond can be minimized by means of a bypass that diverts excess water around the operation. Settling ponds are designed to meet the needs of a specific placer mining operation. Short circuiting occurs when the slurry in the pond flows directly from the inlet to the outlet without using the available settling area. Berms or baffles can be constructed in the pond to eliminate short circuiting, or the inlet and outlet structures can be positioned far apart from each other. Entrance and exit effects occur when the velocity of the incoming effluent creates a turbulent plume in the pond. If the slope of the tailrace is decreased or if a berm is situated at the entrance perpendicular to the flow, entrance effects can be eliminated. (ADEC 1987; Alaska Miner's Assn. 1986)

Tailraces and Pre-Settling Ponds

The tailrace is the open channel that carries the effluent from the beneficiation plant to the settling pond. A pre-settling pond is an area of the tailrace that has been widened and deepened two to three feet to form a small pond in which heavy sediment settles and is temporarily stored. Pre-settling ponds are smaller than settling ponds, and they are less expensive to build. Pre-settling ponds require regular cleaning to remain effective, but the frequency of cleaning depends on pond size. To prevent bulldozers and other heavy equipment from getting stuck during cleaning, the pre-settling pond should be located on flat, competent bedrock, with a gentle slope on one side of the pond. When the beneficiation plant shuts down between shifts effluent in the pre-settling pond drains off completely, allowing for easy cleaning. A small berm of course tailings placed at the downstream end of the tailrace slows the flow velocity during plant operation, thereby maximizing sediment removal, while still allowing for the complete drainage of the pre-settling pond after the shift. (Alaska Miner's Assn. 1986; ADEC 1987)

Tailraces and pre-settling ponds are characteristic of open cut surface mining operations. Even at open cut mines, however, there are variations of the typical tailrace and pre-settling pond. Two pre-settling ponds are sometimes used simultaneously and in series to provide extra storage in case the first pond fills prematurely or in the event that a scheduled cleaning is missed. Alternatively, two parallel pre-settling ponds might be used at alternating times (see Figure 1-9). (Alaska Miner's Assn. 1986; ADEC 1987)




Key

| | |
|---|---|
| A | Sluice box (or other primary gold recovery system). |
| B | Tailings sump. |
| C | Pre-settling pond (2 to 3 feet deep with 1 $ft^2$ surface area per gpm water flow through the pond). |
| D | Narrow, shallow berm of coarse tailings. |
| E | Second pre-settling pond (when two ponds are used in series). |
| F | Disposal area (for sediment removed from pre-settling ponds). |
| G | Alternate pre-settling ponds (when two ponds are used in parallel—sized at 1 $ft^2$/gpm water flow). |
| H | To meandering tailrace. |
| I | Berm (to divert water into one pre-settling pond or the other). |

Notes

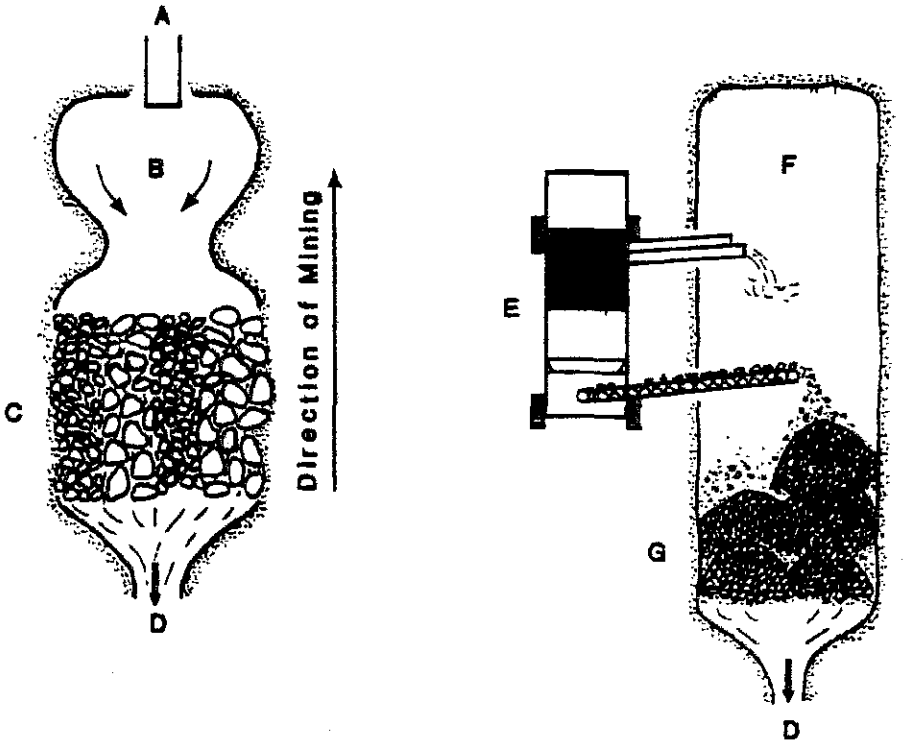
1. Pre-settling ponds should be located in areas of competent bedrock or firm ground to prevent equipment from getting stuck during cleaning.
2. Pre-settling ponds, and tailraces where possible, should be bounded by at least one gentle slope so sediment can be removed by dozer, loader, backhoe, or dragline.
3. When located near flattened tailings pile, sediment from the pre-settling ponds can be placed on top of the tailings piles as the ponds are cleaned, thereby minimizing handling and rehabilitation costs.
4. Pre-settling ponds should be built so that water will drain when processing stops. The optimum time for sediment removal is after several hours of draining, commonly at the start of the next shift.
5. When two pre-settling ponds are used in parallel, only one should be used at a time while the other drains and is cleaned. Flow can be controlled by small berms appropriately placed in the tailings sump.

**Figure 1-9. Pre-Settling Ponds**

(Source: ADEC 1987)

Filtration

Filtration of sediments can occur at two stages during management. Prior to reaching the settling pond, the tailings slurry is routed through coarse tailings, which enhance the percolation rates. Tailings filters are constructed at sites that use fixed or mobile wash plants; the latter have coarse tailings stackers that deposit the tailings in the mine cut downstream from the direction of mining (see Figure 1-10




Key

| | |
|---|---|
| A | Sluice box (or other primary gold recovery device). |
| B | Tailings sump. |
| C | Alternating rows of coarse and fine tailings (placed parallel to flow path). |
| D | Tailrace (to settling ponds). |
| E | Mobile washing plant (with coarse tailings stacker). |
| F | Settling pond. |
| G | Piles of coarse tailings (from stacker). |

Note

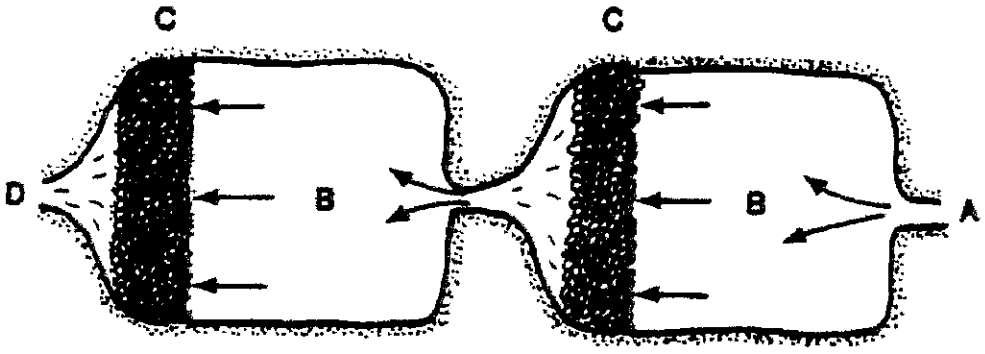
The tailings filter for a fixed plant is ideally constructed entirely of coarse tailings to enhance the percolation rate. Fine tailings are used only when insufficient coarse tailings are available.

**Figure 1-10. Sediment Removal Before Ponds by Filtration**

(Source: ADEC 1987)

(ADEC 1987)

Filtration also occurs just prior to discharge of the effluent into a receiving stream. Settling ponds in series may have porous dikes or dams constructed of middlings or coarse tailings (see Figure 1-11




Key

A Incoming flow (from upstream settling or recycle ponds).

B Settling or polishing ponds.

C Porous dikes (made of medium to coarse tailings).

D Effluent (to further treatment or discharge).

**Figure 1-11. Settling Ponds with Tailings Filters**

(Source: ADEC 1987)

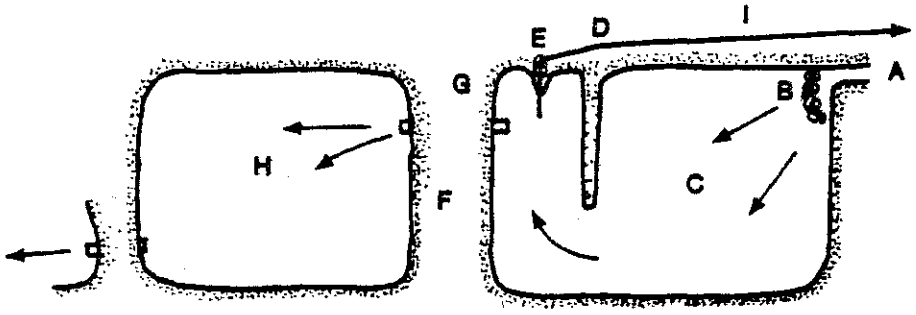
The more coarse the tailings, the higher the percolation rates will be. Water levels in ponds fluctuate, rising when the wash plant is actively beneficiating and falling when the plant is shut down. Tailings filters dampen flow surges through the pond, filter out solids, and mix effluent with ground water, which decreases the concentration of solids and turbidity. Finally, vegetative filtration can "polish" the effluent after other treatment methods have removed all settleable solids. (ADEC 1987)

Settling Ponds

Settling ponds are containment areas designed to remove solids from effluent through simple settling (ADEC 1987). These structures are similar in form and function to tailings impoundments and are used primarily by large-scale placer operations. Settling ponds are usually created by constructing a dam composed of tailings across the downstream end of the mined cut. When the next cut is mined, most of the extracted sediment is captured in this new pond. Thus, as mining progresses, a series of ponds emerge. Often the main recycle pond remains intact. Settling ponds should be accurately sized and should provide for the sum of the following:

- Sediment storage volume
- Retention time volume
- Storm surge volume. (ADEC 1987)

According to the Alaska Department of Environmental Conservation, settling ponds have a length to width ratio of 2:1. Narrow ponds are less effective at removing sediment because water flows more rapidly through the pond, scouring and resuspending the sediment. Ponds should be distant from the bypass and should have adequate emergency spillways to minimize potential damage from floods. Multiple ponds (i.e., ponds in series) generally provide better treatment than one large pond.




Key

| | |
|---|---|
| A | Flow from upstream pre-settling or settling ponds where as much sediment as possible has been removed. |
| B | Coarse tailings berm to dissipate energy of incoming water. |
| C | Main recycle pond. |
| D | Dike (to prevent short circuiting through pond). |
| E | Peninsula on which recycle pump is located (so floating debris will not accumulate at pump). |
| F | Impermeable (as much as possible) dike. |
| G | Outlet structure (see Figures 10A and 10B for details). |
| H | Polishing pond. |
| I | Recycle pipeline (to washing plant). |

Notes

1. Short-circuiting across a pond can be avoided by placing outlets across from inlets and/or by using berms or baffles to control flow paths.
2. The water velocity entering the pond can be decreased by reducing the slope of the tailrace as it enters the pond or by placing some boulders or large rocks where water enters the pond as shown above.
3. Spillways should be located away from recycle pump(s) to lessen the threat of damage from high water;
4. The pump should be set on the end of a small (10-foot) peninsula jutting out into the pond. This will allow the wind to blow floating sticks and debris back and forth in the pond without causing them to accumulate around the pump intake;
5. A floating boom or net can also be used to prevent floating debris from accumulating near the pump suction;
6. In a multiple pond system, a berm of very coarse tailings can often be used to filter out much of the floating debris;
7. In a single pond system, sediment removal from the tailrace and pre-settling ponds is more crucial to successful, long-term operation.
8. Discharge from properly functioning settling ponds should not be routed through old, filled ponds where it might pick up solids.

**Figure 1-12. Settling/Recycle Pond**

(Source: ADEC 1987)

Settling/recycle ponds in combination remove sediment from process water before it is returned to the wash plant for reuse (Figure 1-12).

Recreational and small-scale gold placer miners do not usually use settling ponds. Applying this management technology to small operations results in disproportionately large in-stream or riparian area disturbances. The use of settling ponds by small-scale gold placer miners also presents the risk of increased erosion at the site. In sum, the reduction in sediment discharge must justify the additional sediment likely to be produced by pond construction and stream diversion.

Flocculants

Flocculants could potentially be used as a final polishing step to reduce turbidity in a small volume of effluent from a recycle system (ADEC 1987). Chemically assisted settling may involve the addition of polymers to aid in the removal of suspended solids. For small gold placer mining operations, the addition of chemicals to the settling pond increases beneficiation costs. The danger of chemical spills and the potential for improper use of chemicals by recreational miners probably outweighs potential improvements in settling.

## 1.6 ENVIRONMENTAL EFFECTS

Most environmental effects associated with placer mining activities concern water quality. Historically, the most severe impacts have been physical disturbances to stream channels and the addition of large quantities of sediment downstream. As regulations governing placer mining evolved to address these problems, environmental impacts became less severe, although, through the mid-1980s, water quality impacts from placer mining continued to be documented. In 1988, effluent limitations were placed on placer mines through the NPDES program (40 CFR 440 Subpart M).

Available data on environmental impacts of placers is often dated with the majority of information collected prior to 1988. Annual reports from the ADEC, and one study conducted since the effluent limitations were enacted, are discussed to provide a limited evaluation of the current status of environmental impacts.

Prior to the initiation of any regulatory controls, placer mining operations, as previously mentioned, created significant disturbances within stream channels. Little or no effort was made to recontour waste rock piles to resemble the premining topography. Natural revegetation of mined areas from Alaska to California ranges from none to complete. Depending on the remaining substrate, natural stream patterns in some areas may take a century to return. These operations were also responsible for generating large quantities of sediment and increasing concentrations of heavy metals, including arsenic, copper, lead and mercury, downstream from mining activities (ADEC 1986; Clark 1970; Holmes 1981).

This section does not purport to be a comprehensive examination of environmental effects that can occur or that actually occur at mining operations. Rather, it is a brief overview of some of the potential problems that

can occur under certain conditions. The extent and magnitude of contamination depend on highly variable site-specific factors that require a flexible approach to mitigation. EPA is aware that many of the potential problems can be, and generally are, substantially mitigated or avoided by proper engineering practices, environmental controls, and regulatory requirements.

### 1.6.1 Surface Water

Surface water quality impacts are typically due to the addition or disturbance of sediments during mining. Increases in turbidity levels, total suspended solids (TSS), some dissolved solids (primarily heavy metals), and settleable solids (SS) are all concerns. Physical disturbances of stream channels also effect wetlands and wildlife.

A study of mined and unmined streams conducted in Alaska during the 1985 field season showed that total suspended solids were elevated in a number of actively mined streams. During this time period, sediment ponds were employed at some operations and provided a wide range of effectiveness. Downstream uses; water supply, aquatic life, and recreation were precluded as a result of the increased sediment loads in two of the three streams studied. Fine sediments were readily carried downstream in response to increased stream flows (spring runoff); therefore the severity of localized impacts could change with time as sediments were picked up and redeposited in different locations downstream (ADEC 1986).

The same study found that total dissolved solids were not categorically increased as a result of mining activities, although levels of iron, manganese, cadmium, mercury, copper and arsenic were elevated below mining operations in some streams. (It is not clear from the study whether these concentrations are expressed as total or dissolved). A study of water quality within the Circle District, Alaska, conducted in 1983, showed elevated levels of total arsenic, copper, lead, and zinc, and elevated levels of dissolved arsenic and zinc downstream from placer mining activity. Mercury and cadmium levels were not elevated downstream from mining. Concentrations of dissolved constituents are typically of more concern in terms of water quality as the dissolved fraction is available for uptake by living organisms (ADEC 1986; LaPierriere et al. 1985).

The presence of metals in mined streams is dependant on the constituents of the pay streak and the pH of the water. Arsenic behaves somewhat differently than other metals and, in actively mined streams, is associated with settleable solids, those particles smaller than 75 microns (silt and clay). Studies indicate that 84 to 88 percent of the arsenic attached to the suspended solids can be removed in settling ponds given sufficient retention time. Dissolved forms and those attached to particles smaller than 25 microns will not settle out and will be carried downstream in the mining effluent. There were no discussions that presented possible controls for other heavy metals (ADEC 1986).

Turbidity is a measure of light transmission, measured in nephelometric turbidity units (NTU). Data collected in 1985 showed turbidity ranging from 0.02 to 24 NTU upstream from mining activities; downstream from mining, turbidity ranged from 19 to 6,600 NTU. The effects of the increase in turbidity is addressed below as part of the discussion of wildlife impacts (ADEC 1986).

The effectiveness of the 1988 regulations in reducing the severity of environmental impacts has yet to be fully determined; however, the situation appears to be improving. The ADEC 1990 Annual Mining Report states that the percentage of miners whose sampled wastewater contained 0.2 ml/l or less of settleable solids had drastically improved from 1984 through 1990 (ADEC 1991). During 1989 and 1990 however, most mines requested modifications of their turbidity requirements. The regulatory requirement for turbidity was 5 NTU above the baseline level; modifications were granted based on the dilution factor provided by the receiving stream, and averaged 587 NTU (ADEC 1991).

The 1991 ADEC Annual Mining Report states that 99 percent of the mines that had a discharge and were sampled did not exceed the 0.2 ml/l limit. The report also states that the trend in settleable solids and turbidity data continue to improve (ADEC 1992). In 1991, a study of water quality associated with two mines in Alaska was conducted to evaluate the effect of reduced sediment discharges. The study evaluated the concentrations of five metals upstream from mining and in mining effluent at two locations in Alaska, one along the Fairbanks Creek and the other along Porcupine Creek. Table 1-2 presents a summary of the turbidity and arsenic data.

**Table 1-2. Turbidity and Arsenic Levels in Two Alaskan Creeks [1]**

| Location | Turbidity[2] | Total Arsenic |
|---|---|---|
| Fairbanks Creek<br>Upstream location | 1.7 NTU | 30 ug/l |
| Fairbanks Creek<br>Downstream location | 44 NTU | 89 ug/l |
| Porcupine Creek<br>Upstream location | 0.76 NTU | 1.8 ug/l |
| Porcupine Creek<br>Downstream location | 51 NTU | 9.1 ug/l |

[1] Data are mean values for water samples collected every six hours over a four day period during the summer of 1991.

[2] Turbidity is measured in nephelometric turbidity units (NTUs).

As indicated by the referenced data, turbidity increased at both sampling locations downstream of mining. Neither creek exceeded the standards for cadmium, copper, lead or zinc (data not presented). Concentrations of total arsenic levels were higher downstream than upstream concentrations. The arsenic level at one mine was within the site-specific water quality limits[1]. The total arsenic concentration below the second mine exceeded water quality standard values (sample mean 89 *ug*/L, maximum 112 *ug*/L).

[1] Alaska Water Quality Standards Workbook, ADEC, 1991.

### 1.6.2 Ground Water

The information regarding placer mining effects on ground water is sparse. One water table study conducted in Alaska found that impacts on stream hydraulics caused changes in the ground water flow regime. The study also reports that in mined stream basins, specific conductance was higher and dissolved oxygen concentrations were lower in aquifers than in the streams themselves. The differences in dissolved oxygen and conductance were not significant between aquifers and streams in unmined stream basins. The study concluded that sedimentation, as a result of mining, impacted the water quality of alluvial aquifers within mined stream basins (Bjerklie and LaPierriere 1985). Additionally, the study suggested that increased fines deposition in stream basins may reduce communication between surface water and alluvial ground water, thereby creating local zones of depression in underlying aquifers.

### 1.6.3 Soil

By the very nature of most placer operations, soil is disturbed during mining. In many cases, topsoil is removed and set aside for future use when reclaiming a site. Redirection of stream flow and use of bulldozers and related equipment will impact soil stability and may cause greater soil erosion. Heavy equipment may denude the soil surface and cause compaction of soil, and alter soil properties such as porosity and infiltration. Loss of soil fines may decrease the water retention capacity of soils which may in turn reduce populations of microorganisms in topsoil. The degree of soil disturbance will vary from site to site and there are measures being used to minimize erosion and other impacts to soil. In Alaska, frozen ground or permafrost may suffer greater long-term damage due to the sensitivity of the environment. Specific data on soil disturbances were not available.

### 1.6.4 Wetlands

Mining activities, particularly those mining recent alluvial deposits are likely to impact wetlands during the removal of vegetation and soils as well as the removal of the gravels that support wetland hydrology. Reclamation of the hydrologic, soil and vegetation parameters that support wetlands is currently an inexact science and the level of success in these efforts is yet to be determined on a large-scale basis.

No discussions of placer mining impacts on wetlands were located, nor has information regarding the acreage impacted by placer operations with U.S. Army Corps of Engineers Section 404 permits been obtained. However, a discussion of Section 404 dredge permits is included in the regulatory section of this report.

### 1.6.5 Wildlife

Wildlife is impacted by placer mining through the physical disturbance of stream channels, the addition of sediments to the streams, and the presence of human activities and heavy equipment in what are typically remote areas.

Aquatic and terrestrial wildlife may be impacted by the disturbance of stream beds and adjacent alluvium by mining activities. Mining may present a physical barrier to fish migration through disruption or diversion of the active channels. Analysis of data collected during the 1985 field season found that the greater the length of disturbance within a mined stream channel, the lower the fish density upstream. The riparian areas disturbed by mining activities are typically used by birds and mammals for food, shelter and watering. Studies indicate that even on properly reclaimed areas, wildlife values are low for the first 10 to 15 years or until a relatively diverse riparian community can develop (ADEC 1986).

High sediment concentrations and turbidity adversely impact fish and aquatic invertebrates. The direct impacts from sediment on arctic grayling, the principal game fish within many Alaskan streams, include gill damage, reduced fertility, and changes in blood chemistry. Reproduction is inhibited when spawning grounds are lost to siltation and eggs are suffocated when covered by excess sediment. Additionally, fry show decreased survival rates in waters with high levels of sediment (ADEC 1986; Reynolds 1989).

Increases in turbidity levels do not cause direct effects on fish populations but can interfere with visual activities such as feeding and spawning. Additionally, a study of primary productivity (measured by dissolved oxygen and chlorophyll concentrations) showed a loss of productivity within streams impacted by mining. In the most severely impacted streams, primary productivity dropped to zero. The decreases in productivity, and the corresponding reduction in the food available at the lowest level of the food chain, were directly related to increases in turbidity (Reynolds 1989; Van Nieuwenhuyse and LaPierriere 1986).

Streams provide a general habitat for native fish populations. In addition, specialized stream habitats may be needed by certain species for spawning and rearing. Mining tends to eliminate many of the irregularities in a stream channel that provide variations in habitat such as bank and channel vegetation, shade, pools, riffles and bed texture. Some impacts from mining that might not threaten the life of individual fish may greatly affect the habitat needed by the species for successful spawning and rearing of a new generation of fry. Furthermore, mining can disrupt the food chain by adversely affecting the conditions necessary for the production of aquatic plants and invertebrates.

Although the impact to stream populations was not evaluated, Ray et al. in their 1992 study of two Alaskan creeks noted changes in water temperature, pH, dissolved oxygen, and specific conductivity. (Ray et al. 1992) Altering parameters such as these can impact aquatic ecosystems. Increases in dissolved metals in soil or water may also adversely effect wildlife.

## 1.7 MITIGATING MEASURES AND REMEDIATION

### 1.7.1 Tailings

The bare surfaces of tailings piles are often far above the summer water table and may have dry soils during the summer. Dry soils limit plant colonization and can cause tailings piles to stagnate in the earliest stages of plant succession. Smoothed tailings piles created by current reclamation practices are generally still too high above the summer water table for the establishment and growth of the desired plant species. Thus, the rate of plant succession is not increased by smoothing operations. Peat and topsoil respread onto tailings piles may actually retard plant succession by absorbing rainwater and keeping the underlying sediments even drier than they would be without peat. This hinders root penetration into the soil. Even grasses seeded onto reclamation areas can reduce soil moisture and inhibit or delay the establishment and growth of native plants in northern Alaska (Cooper and Beschta 1993).

One study found that for natural revegetation to be successful, the surface soil texture must contain at least 10% fine sand, silt and/or clay. Also, the soil moisture level must be between slightly dry and moist for natural revegetation to occur, in other words, the surface six inches must be moist, but not saturated during at least part or all of the growing season. Finally, colonizing type plants must be adjacent or very close on the up-wind side of the disturbed area to provide the seeds necessary for natural revegetation (Davidson 1993).

### 1.7.2 Stream Channel

Placer mining of streams can severely alter the existing natural channel. Impacts include: removal of large, instream substrate, including boulders and woody debris; clearing of riparian vegetation from the floodplain; relocation (diversion) and straightening (reducing sinuosity and increasing gradient) of the stream channel; and isolating side channels from the main channel (Blanchet and Wenger 1993).

Scannell (1993) states that a stream system can be considered to have three conditions: what it used to be, which we may not even know; what it is now, which we can determine through sampling; and what it can become. We can often predict what it can become and what uses it can support by the type of stream channel, the flooding pattern of the stream, and even by how much money is available for reclamation. In his study, Scannell stressed that we should not equate the attainable habitat with what we perceive to be the undisturbed habitat. Instead, this study suggested that we define new habitat goals for the stream channel and work to attain them. Although it may not be practical to reclaim the hundreds of miles of disturbed stream habitat or to restore these streams to natural, or pre-mined, conditions, we can consider these streams in terms of what beneficial uses they now support and what attainable uses they might have (Scannell 1993).

Streams channels provide native species of fish with habitats necessary for migration, spawning and rearing. In addition, stream quality influences the aquatic productivity of benthic invertebrates which in turn provide food for larger fish. As a result, wildlife, and especially aquatic wildlife, can be impacted by disruptions to any of the various habitats necessary for any of the stages in the life-cycle of a species. However, in restoring

a disturbed stream channel, care must be taken not to try and force-fit a specific habitat to the existing topography of a site. Another study pointed out that stream channel gradients must be allowed to vary in relation to the topography. In the long-term, variation in channel planform, shape and gradient will provide a variety of fish habitat throughout the stream such as pools, runs, riffles, and rapids (Latoski and Chilibeck 1993).

In remediating a mined portion of stream channel, Blanchet and Wenger (1993) identified several restoration measures that can be employed to improve fish habitat such as:

- Replacing large stream substrate, including rocks and/or wood, to increase pool habitat and cover in disturbed channel reaches
- Revegetating disturbed streambanks to increase nearshore cover and wood debris supply
- Developing side channel or slough access for fish fry in disturbed areas
- Accessing adjacent abandoned settling ponds and old channels to provide additional offchannel rearing habitat.

This study went on to describe several methods for constructing instream structures to provide an increase in habitat diversity. These structures include boulders and boulder clusters keyed into the channel bottom; vortex rock weirs which are cross channel boulder structures V'ed slightly upstream and with a spacing between individual boulders; log barbs consisting of wooden logs keyed into the streambank between the high and low water levels and with the instream portion pointing upstream; root wads installed and anchored into instream pools to provide additional cover within the pool; and spruce tree revetments utilizing beetle-killed trees felled and attached along the stream bank using earth anchors to provide diverse shelter and cover for fish fry even in relatively swift water (Blanchet and Wenger 1993).

### 1.7.3 Floodplain

Floodplains provide a means by which streams can maintain a level of equilibrium with the stream channel during times of flood. A natural floodplain provides room for a flooded stream to spread out and slow down, thereby reducing the erosive force of the water. Vegetation on the floodplain further helps to dissipate the energy of a flood-swollen stream and also helps to anchor the sediments to prevent erosion. In fact, floodplains are often the site of sediment deposition. This deposition helps to enrich the soils and make them more fertile.

Placer mining can destroy a stream's natural floodplain, replacing a broad sinuous channel and floodplain with a deep narrow channelized stream that concentrates all of its erosive power in a small area of disturbed sediments. The inevitable result is increased erosion of the stream channel and banks and increased turbidity of the down stream water.

Floodplains can be rebuilt following placer mining and stabilizing vegetation can be reestablished either through reseeding or mature plantings. Individual site conditions may dictate the means for rebuilding the floodplain. To protect against erosion, stream channels should be armored with the coarsest material available. Gravels from piles left by mining can be used to fill in settling ponds, old stream channels and other unnatural depressions. Excess gravels can be blended into the valley slope along the floodplain's margin. Depending on the geometry of the valley and stream channel, floodplains can be located on one or both sides of a stream. Typically floodplains are located on the inside of bends or meanders and along both sides in straight reaches. Double terraces can be constructed with the lower terrace designed to carry a 20 to 50 year flood, and the capacity of the upper terrace designed to carry a 100 year flood (Karle 1993).

One of the problems to be considered when rebuilding a floodplain after mining has disturbed the valley is the occurrence of a large flood before revegetation can occur. The choice between reseeding and mature plantings may be based on the probability of a damaging flood occurring before seedlings can become well enough established to withstand a flood. The probability of a flood occurring within a given period of time can be calculated using the following equation from Karle (1993). The probability **J** that a flood **P** will be equalled or exceeded in **N** years is:

$$J=1-(1-P)^N$$

For example, in an estimated five year time period for revegetation to occur, there is a 67% probability that a 5-year flood will occur or be exceeded, or a 41% probability that a 10-year flood will occur or be exceeded, and a 23% probability that a 20-year flood will occur or be exceeded (Karle 1993).

To prevent erosion of the floodplain and to encourage sediment deposition from floodwaters, brush can be planted in clumps or in linear plantings perpendicular to the stream channel. In addition, small circular ridges made by the tracks of a bulldozer driving in a pattern of tight turns can be effective in trapping precipitation runoff and small particles of sediment and airborne seeds as they tumble across the roughened surface. These small ridges have also been shown to be effective in trapping sediment when inundated by a flood (Karle 1993).

### 1.7.4 Soils

Soils are more than a veneer of inorganic dirt or fine-grained mineral particles over bedrock. A true soil is a combination of both mineral and organic (living and dead) material. Top soils are especially rich in organic matter. Plants require many nutrients provided by soils for proper health and growth. In some cases, revegetation after placer mining may be as simple as stabilizing the site and allowing natural revegetation to occur. In other cases, it may require replacing top soil and reseeding or replanting.

According to Helm (1993), one aspect of plant establishment is the formation of mycorrhizae on the plant roots. Mycorrhizae are symbioses between plants and fungi which are essential for growth of most plant

species under field conditions. The fungi help the plant absorb nutrients from the soil while the plant provides energy for the fungi. However, microbial communities in the rooting zone may be disrupted by natural or man-made disturbances such as glaciers, floods or placer mines.

In reestablishing vegetation on a mined site, mycorrhizal fungi propagules may enter the rooting zone of plants by natural dispersal or by their presence in topsoil or soil transfer treatments. Many placer mines are long and narrow and have a good source of propagules next to the site. Topsoil that is fresh or has not been stockpiled for too long may have viable fungi propagules present. If not, the rooting zone of seedlings or cuttings can be treated (or inoculated) with viable soil from the rooting zone of nearby plants. Different plant species can survive for varying lengths of time without mycorrhizae and studies are still underway to fully understand the requirements of mycorrhizal formation (Helm 1993).

### 1.7.5 Mined Land Remediation

To be truly successful, remediation of a mined area needs to be undertaken with a unified ecosystem approach. Piecemeal attempts at solutions will generally not fully or successfully restore a section of placer mined stream channel. The goal of a remediation program should include the restoration of the stream channel, floodplain, and vegetation to recreate a valley bottom ecosystem similar to that occurring in undisturbed streams (but not necessarily identical to the conditions existing in a given stream prior to mining). This interaction will restore the ecological functions of these ecosystems. Goals should also be to initiate natural plant succession processes on the streambanks, floodplain and any non-floodplain portions of the mined area which will allow succession to operate at a rate similar to that on natural floodplains.

Latoski and Chilibeck (1993) state that miners must be made aware that cost effective restoration begins at the planning stage. Restoration requirements can then be integrated into the mining operation with minimal cost to the miner (e.g., stockpiling organic material and boulders, separating overburden and washed materials, etc.).

In order to implement a successful remediation project, miners should start with a clear statement of realistic goals or objectives. This should be more than just a simple recitation of the procedures to be used in restoring the stream after mining has ceased; otherwise, the restoration project may become an effort to apply a specific technique regardless of results rather than achieve a specific condition in the stream. With clear objectives identified beforehand, proper site-specific measures can be employed so that effective stream remediation is much more easily achieved.

## 1.8 CURRENT REGULATORY AND STATUTORY FRAMEWORK

Gold placer mining activities must meet the requirements of both Federal and state regulations. Environmental statutes administered by EPA or the states, such as the Clean Water Act (CWA), apply to mining sites regardless of the status of the land on which they are located. The extent to which other Federal regulations apply depends on whether a mining operation is located on federally owned land. Federal regulations exist for operations on lands managed by the U.S. Bureau of Land Management (BLM), the U.S. Forest Service (FS), the U.S. Fish and Wildlife Service (FWS), the National Park Service (NPS), and other management agencies. In addition, the U.S. Army Corps of Engineers has promulgated rules for construction and mining activities that have the potential to impact wetlands and navigable waters. Finally, operations must comply with a variety of state requirements, some of which may be more stringent that Federal requirements.

This section summarizes the existing Federal regulations that may apply to gold placer operations. It also provides an overview of the operational permitting and water quality and on quality regulations in two gold placer states, Alaska and Colorado.

### 1.8.1 Environmental Protection Agency Regulations

#### 1.8.1.1 Resource Conservation and Recovery Act

The EPA implements the Resource Conservation and Recovery Act (RCRA) to protect human health and the environment from problems associated with solid and hazardous wastes. Mining wastes are included in the Act's definition of solid waste and in 1978, when EPA proposed regulations for the Subtitle C hazardous waste program, special management standards were proposed for mining wastes. However, in 1980, RCRA was amended to include what is known as the Bevill Amendment (§3001(b)(3)(A)). The Bevill Amendment provided a conditional exclusion from RCRA Subtitle C hazardous waste requirements for wastes from the extraction, beneficiation, and processing of ores and minerals.

The exemption was conditioned upon EPA's preparation of a report to Congress on the wastes and a subsequent regulatory determination as to whether regulation under Subtitle C was warranted. EPA met its statutory obligation with regard to extraction and beneficiation wastes with the 1985 *Report to Congress: Wastes from the Extraction and Beneficiation of Metallic Ores, Phosphate Rock, Asbestos, Overburden from Uranium Mining, and Oil Shale*. In the subsequent regulatory determination (51 FR 24496; July 3, 1986), EPA indicated that extraction and beneficiation wastes (including gold mining and milling wastes) should not be regulated as hazardous but should be regulated under a Subtitle D program specific to mining waste.

EPA subsequently studied processing (i.e., smelting and refining) wastes and in 1990 submitted its *Report to Congress on Special Wastes From Mineral Processing*. This report covered 20 specific mineral processing wastes; none involved gold processing wastes. In June 1991, EPA issued a regulatory determination (56 FR

27300) stating that regulation of these 20 mineral processing wastes as hazardous wastes under RCRA Subtitle C is inappropriate or infeasible. Any mineral processing wastes not specifically included in this list of 20 wastes no longer qualifies for the exclusion (54 FR 36592).

As discussed above, wastes from the extraction and beneficiation of minerals (including gold placer operations) are generally excluded from RCRA Subtitle C requirements by the Bevill Amendment and EPA's subsequent regulatory determination. EPA interprets this exclusion to encompass only those wastes uniquely associated with extraction and beneficiation activities: the exclusion does not apply to wastes that may be generated at a facility but are not uniquely related to extraction or beneficiation. For example, waste solvents that meet the listing requirements as a hazardous waste under 40 CFR Section 261.31 and are generated at an extraction or beneficiation facility by cleaning metal parts (e.g., activities not uniquely related to extraction or beneficiation) are considered listed hazardous wastes and regulated as such. These wastes must be managed as any other hazardous waste, subject to the Federal requirements in 40 CFR Parts 260 through 271 (or State requirements if the State is authorized to implement the RCRA Subtitle C program), including those for manifesting and disposal in a permitted facility.

#### 1.8.1.2 Clean Water Act

Under Section 402 of CWA (33 USC §1301, et seq.), all point source discharges to waters of the United States from industrial and municipal sources must be permitted under the National Pollutant Discharge Elimination System (NPDES). A point source is defined as any discreet conveyance, natural or manmade, which includes pipes, ditches, and channels. NPDES permits are issued by EPA or delegated states.

Under Sections 301 and 302, NPDES permittees must meet specified effluent limitations established under the CWA. Effluent limitations may be either technology-based or water-quality-based. With respect to technology-based limitations, there are separate limitations applicable to *existing sources* of discharges. They include, but are not limited to, best practicable technology (BPT) and best available technology economically achievable (BAT). Also, under the New Source Performance Standards (NSPS), new sources must use the best available demonstrated technology (BADT).

Technology-based limitations specifically applicable to the gold placer mine subcategory of the Ore Mining and Dressing Point-Source Category are codified in 40 CFR 440 Subpart M. These standards are only applicable to large placer mining operations (defined as mines which beneficiate more than 1,500 cubic yards of ore per year or dredges handling more than 50,000 cubic yard of ore per year). There are no regulations under the CWA specific to small placer mine operations.

The effluent limitation guidelines contain a storm exemption for a treatment systems designed, constructed, and maintained to contain the maximum volume of flow which would result from four hours of beneficiation plus a five-year, six-hour rainfall. Such facilities must meet best management practice (BMP) standards, as well. BMP standards require that NPDES permits include, to the greatest extent possible, provisions

addressing such things as surface water diversions, berm construction, and pollutant materials storage (U.S. EPA 1988).

In addition to such technology-based limitations, an NPDES permit may contain water-quality-based limitations. The CWA requires EPA to ensure that discharges of pollutants from a point source into waters of the United States will not interfere with the water quality. States are required to develop water quality standards to protect the designated uses of the receiving water. Where technology-based standards are inadequate to provide such water quality protection, water quality-based effluent limitations must be developed. Permit writers must determine that the technology-based standards are sufficient to ensure that such standards are being met.

Some discharges from mine sites do not meet the definition of point source discharge because they are not controlled through a discrete conveyance. These types of discharges are frequently considered nonpoint source discharges. Under Section 319 of the CWA, states are required to prepare nonpoint-source assessment reports and to develop programs to address such discharges.

Under Section 402, EPA promulgated regulations in 1990 requiring NPDES permit applications for point source storm water discharges from industrial facilities, including active and inactive/abandoned mine sites contaminated by contact with overburden, raw material, etc.. These facilities were required to submit permit applications by October 1, 1992 (U.S. EPA 1990b). Under EPA's strategy to implement permitting for industrial sources of storm water, EPA and some delegated States have issued general permits which cover mining sites. Some mining sites will be addressed with individual permits. However, these general permits do not address inactive mines on Federal lands; for these, EPA is developing a separate set of general permits.

In recent years in Alaska, the State Water Quality Standards for turbidity (normally 5 NTU above background) and total arsenic (0.05 mg/L) have been incorporated into NPDES permits. The turbidity limit may be modified depending upon the amount of dilution provided by the receiving stream. In 1989 and 1990, for example, there were 363 and 64 applications, respectively, for NPDES placer mining permits. From the 1989 applications, 338 (93%) received modified turbidity limitations allowing greater than 5 NTU; in 1990, 60 (94%) received similar modifications. (ADEC 1990.)

#### 1.8.1.3 Dredged and Fill Material

Under Section 404 of the CWA, the U.S. Army Corps of Engineers (COE) is authorized to issue permits for the discharge of dredged or fill materials, including that from gold placer mining operations, into navigable waters at specified disposal sites (Permit form 4345). Such permits may only be issued after notice and the opportunity for public hearings has been provided. A State may administer its own permit program

governing the discharge of dredged and fill materials into navigable waters by submitting to EPA a detailed description of the proposed program (and generally obtaining approval of such program) in accordance with the CWA.

Also under Section 404, EPA is authorized to prohibit the specification (i.e., use) of a defined area (or restrict the use of such an area) as a disposal site whenever EPA determines that, after notice and the opportunity for a hearing, discharge of such materials will have an unacceptable adverse effect on municipal water supplies, shellfish beds, fishery areas, wildlife, or recreational areas (in making this determination EPA must consult with the COE). The CWA requires that in specifying a particular disposal site in a 404 permit, the COE must apply guidelines developed by the EPA, in conjunction with COE. These guidelines are found at 40 CFR 230. The guidelines are intended to restore and maintain the chemical, physical, and biological integrity of waters of the United States.

Section 404 authority has been construed to extend to all waters of the United States, not just navigable waters (33 CFR 328.1). Waters of the United States have been construed to include "wetlands." Therefore, the COE issues permits for discharges to wetlands, as well as other waters of the United States. Gold mining operations (including placer operations) have a significant potential to physically restructure wetlands (U.S. EPA 1992a).

EPA and the COE use the same definition of wetlands (the U.S. Fish and Wildlife Service uses another definition). The definition is:

> The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 323.2(c)).

The issuance of a permit by COE may be subject to the requirements of the National Environmental Policy Act (NEPA), as such issuance is deemed a major Federal action significantly affecting the quality of the human environment (Section 511[c]).

The COE (or a State to which permit program authority has been delegated) may issue individual or general (i.e., Statewide, nationwide, regional) permits. The COE (or an authorized State) may issue a general permit, after notice and an opportunity for public hearing, for any category of activities involving discharges of dredged or fill materials where the COE (or the State) finds that the activities in such category are similar in nature and will cause only minimal adverse environmental effects when considered individually and cumulatively. General permits are widely used to speed up the Section 404 permitting-process, because they do not require detailed, case-specific review. Such permits are issued to the public at large and authorize specified activities in wetlands and other waters (U.S. EPA 1992b).

Until 1986, all discharges into waters of the United States from mining operations, including placer mining, were regulated by the COE under Section 404 as discharges of dredged materials. However, in this same year, EPA and the COE entered into an agreement (updated in 1990) which clarified the jurisdiction of the two agencies with respect to placer mining-related discharges. The agreement established that point source discharges from placer mining operations would be subject to NPDES permitting by EPA under Section 402, but that some discharges of materials incidental to such operations may still be considered dredged or fill materials, subject to Section 404 permitting by COE (U.S. EPA 1991). Such materials subject to COE permitting include material used in sediment pond construction and the filling of dredge pits. Materials from gold placer mining operations are subject to NPDES permitting as a waste discharge (U.S. EPA 1992a).

In Alaska (see following discussion of *State* permits), the State issues a Certificate of Reasonable Assurance that proposed discharges to waters in the State will be in compliance with the Alaska Water Quality Standards and the Alaska Coastal Management Plan (Department of Environmental Conservation, 1990).

Alaska recommends that if it is likely that a mining activity will affect a "wetland" (which includes all saturated soils and permafrost) a Section 404 permit application should be filed. The COE will decide whether or not the operation is likely to have an effect on a wetland. Such a decision (a "jurisdictional determination") may be based upon a field inspection of the site or on maps of Alaska (Alaska, DNR, Division of Mining, undated).

### 1.8.2 Department of the Interior

#### 1.8.2.1 Bureau of Land Management

Gold placer operations on Federal land are subject to Bureau of Land Management (BLM) regulations. All mining claims located on lands managed by the BLM are subject to BLM regulation to prevent "unnecessary and undue degradation" of the Federal lands and resources involved. The BLM's authority to regulate mining claim operations under this "unnecessary and undue degradation" standard derives from the Federal Land Policy and Management Act of 1976 (FLPMA), the statute which sets out the BLM's general land management and planning authority. Exploration sites are subject to the less-than-5-acre exemption or must submit a plan of operation if greater than 5 acres.

BLM does not have a program geared specifically towards placer mining; placer operations are handled in the same manner as other mining operations with the same permitting, reclamation and bonding requirements. (BLM 1993a, 1993b.)

The BLM's general surface management regulations governing mining claim operations, which include gold mining operations, are found at 43 CFR Part 3809. These regulations cover general design, operating and reclamation standards, monitoring requirements, bonding requirements, environmental review requirements, and remedies for noncompliance. They establish three general use categories for mining operations, each eliciting different levels of oversight by the BLM. These categories are (1) casual use operations (i.e., those

that normally result in only negligible disturbances of Federal lands and resources and that require no prior notice to or approval from the BLM), (2) notice-level operations (i.e., those that involve disturbances of 5 acres or less for which the operator must notify the BLM prior to commencing surface disturbing activities), and (3) plan-level operations (i.e., disturbances of greater than 5 acres, and operations in some specified areas, for which the operator must obtain BLM approval of a plan of operations prior to commencing activity).

All operations, including casual use and operations under either a notice or a plan of operations, must be conducted to prevent unnecessary or undue degradation of the Federal lands. All operations must also be reclaimed and must comply with all applicable State and Federal laws, including air and water quality standards such as those established under the CAA and the CWA.

All plan-level operations, regardless of operation type (e.g., strip, open-pit, dredge, and placer) will be required to post a bond. Bond amounts are to be set at the discretion of the BLM (up to $2,000 per acre), depending on the nature of the operation, the record of compliance, and whether it is covered by a satisfactory State bond.

Mining claims located in BLM wilderness study areas are generally subject to stricter regulation than other mining claims. The regulations covering mining in wilderness study areas are found at 43 CFR Part 3802.

The BLM has the authority to issue leases for gold on certain acquired (as opposed to public domain) lands. Although this is rarely done, such leases would be covered by the general regulations applicable to hardrock leasing found at 43 CFR Part 3500.

The National Environmental Policy Act (NEPA) of 1969 requires Federal agencies to consider the environmental impact of proposed activities. BLM uses the NEPA process to review proposed mining operations. A site may require an Environmental Assessment (EA) or an Environmental Impact Statement (EIS).

#### 1.8.2.2 National Park Service and Fish and Wildlife Service

Location of new mining claims is generally prohibited in most areas managed by the National Park Service (NPS) and the Fish and Wildlife Service (FWS). Neither the NPS nor the FWS have a specific program for gold placer operations. Regulations at 36 CFR Part 9 govern activities on land managed by the NPS under patented and unpatented mining claims in existence prior to inclusion of the land under the NPS. The NPS regulations restrict water use, limit access, and require permits and complete reclamation.

The regulations of 50 CFR Part 29 govern mining activities under mineral rights on lands managed by the FWS. The FWS regulations are fairly general and require that operations prevent, to the greatest extent possible, the damage, erosion, pollution, or contamination of the area. Leasing on FWS land is allowed only when operations are not incompatible with the aims of the refuge or other FWS center.

### 1.8.3 Department of Agriculture (Forest Service)

Forest Service regulations are similar to BLM regulations and provide for consultation with appropriate agencies of the U.S. DOI to review technical aspects of proposed plans of operation. Unlike BLM, the Forest Service regulations do not specify acreage limitations. Although the BLM has general management authority for the mineral resources on Forest Service lands, the BLM regulations governing activities under mining claims do not apply to units of the Forest Service. Instead, surface uses associated with operations under mining claims on Forest Service lands are governed by regulations in 36 CFR Part 228, Subpart A. The general regulations apply to placer operations, however; there are no special provisions for these operations.

The Forest Service requires a notice of intent to operate; this notice is filed with the district ranger. If the district ranger determines that the operations will be likely to cause significant disturbance of surface resources, the operator must submit a proposed plan of operations. Neither a notice of intent nor a proposed plan of operation are required for the locating or marking of mining claims, mineral prospecting that will not cause significant surface disturbance, operations that do not involve mechanized equipment or the cutting of trees, or uses that will be confined to existing roads.

Like the BLM, the Forest Service may require an environmental assessment or environmental impact statement according to the National Environmental Policy Act (NEPA) program. Bonds are required to cover the cost of reclamation. Regulations specific to mining operations in Wilderness Areas are addressed in 36 CFR Part 293.

### 1.8.4 State Programs

#### 1.8.4.1 Alaska

Exploration, claim staking, permitting, mining, and reclamation in Alaska is regulated by several State agencies. (Federal agencies also issue permits for activities in Alaska; see above). Among the State regulatory agencies with regulatory authority applicable to gold placer mining operations are: the Department of Natural Resources' Division of Mining; the Alaska Department of Environmental Conservation; and the Alaska Department of Fish and Game. State permitting authorities are discussed below. Also included is an overview of Alaska's reclamation and bonding regulations, as they apply to gold placer mining operations.

The Annual Placer Mining Application

The Annual Placer Mining Application (APMA) form must be completed and submitted to the Division of Mining (DoM) for all mining activities except for lode or hardrock mining. The APMA form is *not* itself a permit, but rather an application which may serve as the basis for the issuance of a number of required permits in Alaska. If this form is submitted along with a $100 application fee, the completed form is sent by DoM to numerous Alaska (and Federal) agencies, such as the Alaska Department of Fish and Game (see discussion of "Title 16 permits" below) and may, at the discretion of receiving agencies, serve as the basis for issuance of their respective permits. Federal agencies which receive copies of the APMA include the Federal

land managers (Forest Service or Bureau of Land Management) (if the site is on Federal lands) and the National Park Service (if the site is on land under its control).

The APMA saves time for miners in that they may not have to complete individual permit applications for each permit required in the State. However, the APMA will not suffice as the application for a NPDES or Section 404 permit, as specific permit application forms are required for such permits. Also, since acceptance of the form for the issuance of a particular permit (e.g., National Park Service permit) is discretionary, the particular agency receiving the permit application form may request that additional or supplemental information accompany the APMA form.

The APMA form includes a reclamation plan form and a Statewide bond pool form (see following discussion on reclamation and bonding regulations). The bonding pool was established in Alaska for operations over five acres and which are on State land and for all unreclaimed areas on Bureau of Land Management operations. The total cost to join the pool is $150 per acre.

The application requests information concerning the intended placer mining method (e.g., suction dredge, bucket line dredge), make-up water supply, recycling/settling pond system (e.g., length and depth), overburden, access, and exploration trenching and drilling. Also, the form contains a *Coastal Zone Management (CZM) Certification Statement* (Certification Statement) that must be completed by applicant's whose proposed operation is located in the Coastal Zone. The Certification Statement is intended to satisfy the requirements of the Federal Coastal Zone Management Act, which requires, among other things, that applicants for permits to conduct activities affecting land or water use in Alaska's coastal area provide certification that the activities will comply with the standards of the Alaska Coastal Management Program (State of Alaska, Department of Natural Resources, Division of Mining 1992).

Title 16 Permit

This permit is issued by the Alaska Department of Fish and Game under Alaska law. Its purpose is to protect Alaska's anadromous fish, especially salmon. The mining activity must not interfere with the safety of the fish. Also, the Department's permitting authority extends to the establishment of a "fishway," which means basically that mine sites must provide adequate passage for the fish. Title 16 permits require the best management practices be applied to ensure that normal flow of creek is segregated from active mining area.

Dam Safety

The Alaska Department of Natural Resources, Division of Water issues permits to ensure dam safety. Plans for dam construction must be reviewed and approved by the Division prior to construction, and monitoring is conducted during construction to ensure compliance with the approved plans. The State has three categories of dams based on hazard risks: high, significant and low risk. The categories are essentially similar to that used by the Army COE. Dams that are categorized as high or significant risk require inspections at a minimum of once every three years. Low risk dams require inspections at least once every five years.

Inspections are the responsibility of the dam operator, although the State reviews and approves qualifications of the individuals or firms selected to perform the inspections. (Alaska DNR 1993.)

According to the laws and regulations of the State, a permit is required to close or abandon a dam. The applicable State statute is the Alaska Dam Safety Act (1987); Dam Safety Regulations (1989) are contained in 11.A8293 Article 3. (Alaska DNR 1993.)

Other State Permits

Other permits are required by the State for activities related to gold placer mine operations, but are outside the scope of this examination. One such permit concerns water access rights of miners. Generally, a permit to allow miners' access to waters for mining operations is required from the DNR's Division of Land and Water.

Reclamation and Bonding

Under Alaska Statute 27.19, Alaska requires reclamation plans and bonding for all material mining operations on State, Federal, municipal, and private lands, where such operations involve a mined area of five acres or more. (The APMA, discussed previously, includes forms to address these requirements). Also, BLM requires reclamation bonding of all operations on Federal lands regardless of size.

The regulations promulgated pursuant to Statute 27.19 contain reclamation performance standards which require that miners reclaim areas disturbed by mining operations so that any surface that will not have a stream flowing over it is left in stable condition. "Stable condition" is one which allows for "...the reestablishment of renewable resources on the site within a reasonable period of time by natural processes" and which can be expected to return waterborne soil erosion to pre-mining levels within one year after the reclamation is completed and can achieve revegetation.

Reclamation regulations also address bonding requirements and reclamation plan submittal and approval. At least 45 days before commencement of mining activities, a miner must submit a proposed reclamation plan to the State for approval. Within 30 days of determining that the plan is complete, the State must approve, disapprove, or conditionally approve the plan. The plan does not take effect until the miner satisfies the bonding requirements.

Plans submitted on forms other than the one provided by the State (i.e., APMA) must include information such as:

- list of all properties, mining locations, and leases on which the mining operations are to be conducted;
- a map showing the vicinity of the operation;

- general description and diagram of the operation and mined area, including acreage to be mined in each year covered by the plan;
- estimated number of yards or tons of overburden or waste and ore/materials to be mined each year; and
- a description of the reclamation measures to be taken, including a time schedule.

In addition to plan submittal (and approval), *all miners* except for exempt miners (discussed below), must comply with bonding provisions. Bonding requirements allow for any number of options to satisfy the financial assurance provisions. Some of the options include:

- participating in a statewide bonding pool (which basically allows a miner to pay into a pool each year 15% of the miner's total bond amount for the year, plus an annual fee of five percent the total bond amount [this usually results in a bonding pool deposit of $112.50 per acre and a fee of $37.50 per acre]);
- posting a performance bond [either a corporate surety bond or a personal bond accompanied by a letter of credit, certificate of deposit, or cash or gold deposit]; or
- posting a general performance bond assuring that reclamation standards are met and which is for no less than $750 per acre of mined area (11 AAC 97 1992).

Operations smaller than five acres are exempt from bonding requirements, as well as the requirement to submit a reclamation plan. However, such exempt miners must file, annually, a "letter of intent" prior to commencement of mining activities. The letter must include most of the information required for non-exempt mining operation required in reclamation plans, but non-exempt miners do not have to obtain approval of the data in the letter. The data required in the letter of intent includes the following: a list of properties and mining location or leases on which operations will be conducted; a map of the general vicinity of the mining operation; and total acreage to be reclaimed in the year covered by the letter of intent.

#### 1.8.4.2 Colorado

The primary State mining law is the 1976 Colorado Mined Land Reclamation Act (MLRA) (34-32-101 et seq. C.R.S.), which succeeded the Colorado Open Land Mining Act of 1973. (ELI 1992)

Colorado has a number of placer mines, although the number in actual operation at any one time varies. Almost all of the placer mines in Colorado operate on an intermittent basis, fluctuating seasonally or with market prices. Colorado does not have specific regulations for placer mining; placer mines in the state must adhere to the same regulations as other mines. Colorado regulations are fairly generic for all mining operations; specific requirements are written into each individual permit (Colorado DNR 1993).

The Colorado Department of Natural Resources, Division of Minerals and Geology administers the MLRA, while the Mined Land Reclamation Board issues rules and regulations, reviews permits, and oversees

enforcement. Nonpoint source and ground water discharges at mining operations also are under the jurisdiction of the Division of Minerals and Geology.

Although Colorado does not have specific guidance or policy for placer operations, some of the applicable mining program elements are highlighted below.

Mining and Reclamation

All placer operations must have a permit if they mine and sell gold. Regular operating permits are required for mining operations affecting ten acres or more, or extracting 70,000 tons/annually (mineral and/or overburden). The State issues limited impact operation permits to facilities less than ten acres in size. A further distinction is made for those operations that are less than ten acres and are located in or adjacent to stream channels, or on certain Federal or State recreational or wilderness lands. Approximately 50 percent of the State's placer operations are less than ten acres in size. Special applications for two acre limited impact facilities are processed on an expedited basis and require financial assurance bonds of only $1500 (ELI 1992; Colorado DNR 1993). New mines require reclamation permits under the MLRA prior to beginning operations.

A notification of temporary cessation is required if a facility will cease operations for more than 180 days. The facility must ensure that the facility is stabilized prior to cessation, and the Division of Minerals and Geology may conduct inspections to verify facility compliance with this. The Mined Land Reclamation Board typically reviews the temporary cessation notice (Colorado DNR 1993). Because most placer operations in the State are intermittent, the temporary cessation policy is particularly important to placer mining operations. A five year period is allowed for temporary cessation; after an inactive period of five years, a facility must begin reclamation. A facility may apply for a second five year period of inactivity, although the Mined Land Reclamation Board will conduct a thorough review of the facility plans prior to authorization.

All permits issued by the Mined Land Reclamation Board require financial assurances, including placer operations. The dollar amount of financial assurances varies depending on the type and extent of operation, and the estimated reclamation costs. Financial assurances are required throughout the life of the permit until reclamation has concluded. Concurrent reclamation of placer operations is encouraged by the State through bond mechanisms. Bonds are typically lower for facilities conducting concurrent reclamation. Usually a disturbed acreage limitation is listed in a facility's reclamation permit, no more than two acres can be disturbed at any one time for example, and prior to excavating a new area the old area must be reclaimed (Colorado DNR 1993).

Counties with zoning requirements may issue, through the zoning committees, a certificate of designation, which is akin to a land-use permit. The level of involvement of Counties in issuing mining permits is quite variable throughout the State. Sites on public lands may be jointly reviewed by the State and BLM or Forest Service.

Surface Water Discharges

Water quality and releases related to mining are regulated by the Colorado Department of Health, Water Quality Control Division and the Water Quality Control Commission under the State's Water Quality Control Act. Water quality standards are set by the Division, and permits are issued for discharges to surface water through NPDES/Colorado Discharge Permit System (CDPS) permits. Colorado has a federally-approved NPDES program. The Permits and Enforcement Section, Industrial Unit, of the Water Quality Division issues CDPS permits, which are required for all active mines that have a point source discharge to surface water.

There is a CDPS general permit for placer mining. The general permit covers water used to transport alluvial material through a separator, runoff crossing the disturbed area, surface and ground water associated with placer mining activities, and other process water as determined by the Water Quality Control Division (ELI 1992). There is a CDPS general permit for Stormwater Discharges Associated with Metal Mining Operations, Permit No. COR-040000, issued September 14, 1992, and valid through September 30, 1996 (Colorado DOH 1992). Site specific dredge permits (per Section 404 of CWA) may also be required at some placer sites.

Colorado has a Passive Treatment of Mine Drainage (PTMD) program for controlling drainage that is not subject to NPDES/CDPS requirements. The PTMD program approves construction, operation, and sets standards for systems used to control mine drainage. The program covers biological, geochemical and physical drainage control or treatment measures such as cascades, settling ponds, and man-made wetlands (standard reclamation measures are not included under PTMD). (ELI 1992.)

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**APPENDIX 1-A**

**ACRONYMS**

## ACRONYM LIST

| | |
|---|---|
| ADEC | Alaska Department of Environmental Conservation |
| AMD | acid mine drainage |
| AWQC | Ambient Water Quality Criteria |
| BAT/BPJ | best available technology/best professional judgment |
| BLM | Bureau of Land Management |
| BMP | best management practice |
| BPJ | best professional judgment |
| CAA | Clean Air Act |
| CCD | continuous countercurrent decantation |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CWA | Clean Water Act |
| DHEC | Department of Health and Environmental Control |
| dscm | dry standard cubic meter |
| FLPMA | Federal Land Policy and Management Act |
| FS | Forest Service |
| FWS | Fish and Wildlife Service |
| HDPE | high-density polyethylene |
| HRS | Hazard Ranking System |
| ICS | individual control strategy |
| IM | Instruction Memorandum |
| kg | kilogram |
| lb | pound |
| LOEL | Lowest-Observed Effect Level |
| MCL | Maximum Contaminant Level |
| mg/L | milligrams per liter |
| MSHA | Mine Safety and Health Administration |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NIOSH | National Institute for Occupational Safety and Health |
| NMEID | New Mexico Environmental Improvement Division |
| NPDES | National Pollutant Discharge Elimination System |
| NPL | National Priorities List |
| NPS | National Park Service |
| NSPSs | New Source Performance Standards |
| NTIS | National Technical Information Service |
| oz/t | troy ounces per ton |
| PME | Precision Metals Extraction. Ltd. |
| ppm | parts per million |
| PSD | prevention of significant deterioration |
| RCRA | Resource Conservation and Recovery Act |
| RI/FS | Remedial Investigation and Feasibility Study |
| ROD | Record of Decision |
| SHDG | sediment-hosted disseminated gold |
| SIP | State Implementation Plan |
| TSCA | Toxic Substance Control Act |

**ACRONYMS (Continued)**

| | |
|---|---|
| TSS | total suspended solids |
| *ug*/L | microgram per liter |
| USC | U.S. Code |
| U.S. DOI | U.S. Department of the Interior |
| U.S. EPA | U.S. Environmental Protection Agency |
| USGS | United States Geological Survey |
| VLDPE | very low-density polyethylene |

**APPENDIX 1-B**

**COMMENTS SUBMITTED BY U.S. BUREAU OF MINES ON DRAFT GOLD PLACER PROFILE**

[Comments were not copied for this electronic version of the Industry Profile. Copies of the comment document may be received from U.S. EPA, Office of Solid Waste, Special Waste Branch.]

**APPENDIX 1-C**

**RESPONSE TO COMMENTS SUBMITTED BY
U.S. BUREAU OF MINES
ON DRAFT GOLD PLACER PROFILE REPORT**

Response to Comments Submitted by
U.S. Bureau of Mines
on Draft Gold Placer Profile Report

Written comments on the placer gold mining report were received from the U.S. Bureau of Mines. Most comments were of a technical nature and were incorporated into the report. However, one comment made by the Bureau of Mines suggested that the report convert all units of measurement to the metric system (i.e., weight, length, distance, etc.). The Bureau also suggested the possibly of including both troy ounces and metric weights. Although much of the industry is moving towards metric measurements, EPA did not adopt this comment because it was felt that the units used in this report are well understood within the placer mining industry; the use of these measurements was only incidental to the purpose of this report; and the effort needed to convert them to the metric system was not warranted.

# SITE VISIT REPORTS: ALASKA PLACER MINES

# 2.0 SITE VISIT REPORTS: ALASKA PLACER MINES

## 2.1 INTRODUCTION

This section of the Gold Placer Technical Resource Document presents summaries of three placer mining operations: Polar Mining Inc.; Alf Hopen; and Cook's Mining. EPA visited these Alaska placer sites during the summer of 1992 to gain a better understanding of typical placer operations. The site visit reports are abbreviated due to the relatively limited size of each mining operation. EPA spent approximately one-half day at each site, viewing the mining and sluicing operations.

## 2.2 POLAR MINING, INC.

EPA visited Polar Mining's Lower Goldstream Creek operation on July 15, 1992. The following individuals participated in the site visit: Dan May of Polar Mining, Inc., Kathleen M. Charlie of the Alaska Department of Natural Resources, Steve Hoffman from EPA's Mining Waste Section, and Ingrid Rosencrantz of SAIC (EPA's contractor).

### 2.2.1 General Facility Description

The Polar Mining, Inc.'s Lower Goldstream operation is located on private land in Goldstream Valley, approximately 12 miles northwest of downtown Fairbanks (see Figure 2-1

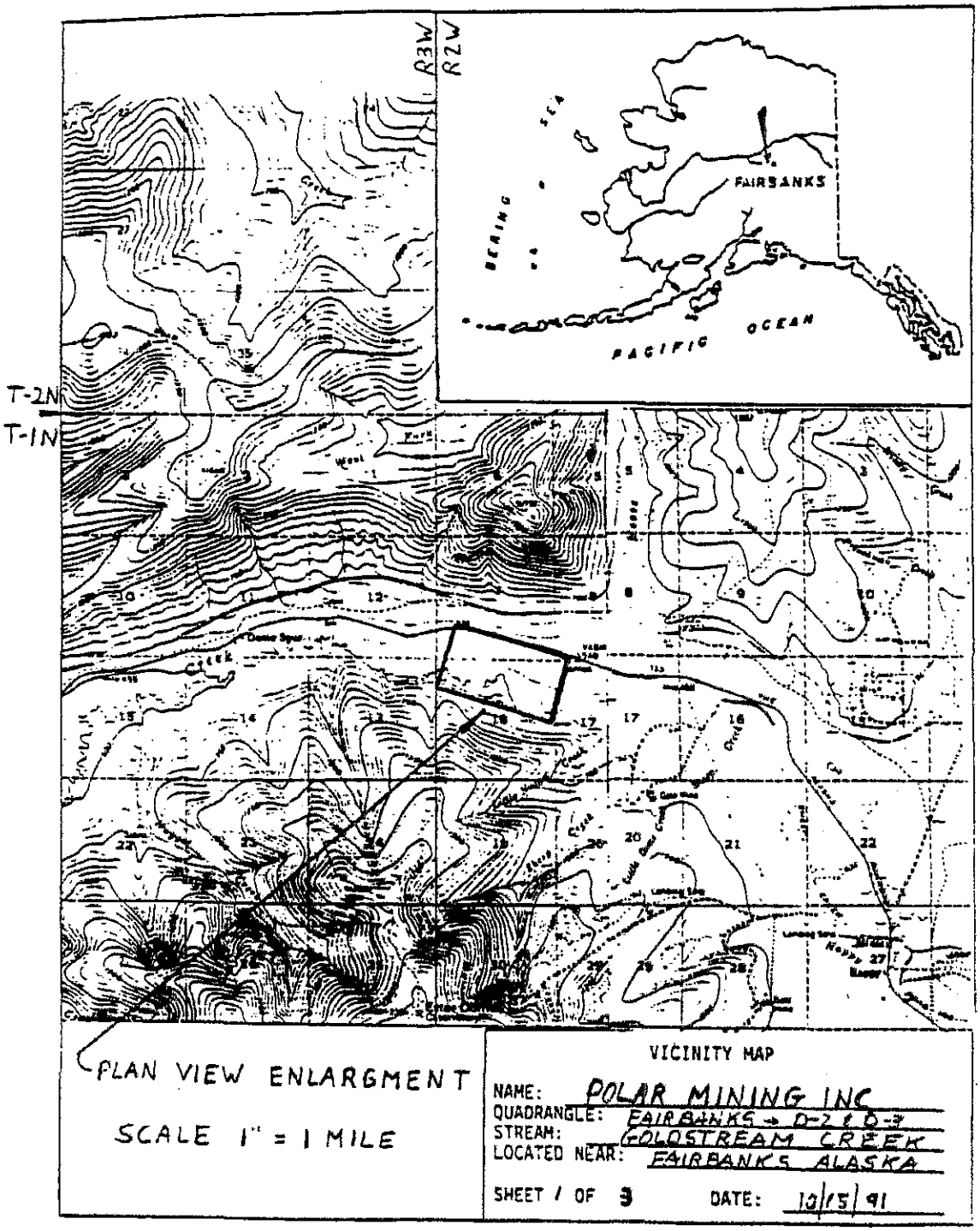



**Figure 2-1. Polar Mining, Inc., Vicinity Map**

(Source: Polar Mining Inc., 1992 APMA)

). Originally patented in 1938 by the Fairbanks Exploration Company, the land on which Polar Mining operates is now owned by the Alaska Gold Company (Memorandum, August 9, 1988). Donald May, founder and president of Polar Mining, owns and manages the mine, while his son Dan May acts as vice-president and maintenance supervisor for the company. Polar Mining commenced work on Goldstream Creek in 1987. The company "Overview" states that the mine employs 30 local residents 12 months a year on a monthly payroll of over $100,000. The company also operates a gold placer mine on nearby Fish Creek. ("Overview," August 1, 1988; "Miners rig up converted Cat," April 14, 1991; Polar Mining, Inc., October 14, 1991)

Polar Mining's Lower Goldstream operation is the largest open pit placer gold mine in the Fairbanks area in 1992. The total volume of material mined in 1992, including strippings (soils presumably used for reclamation) and overburden removed, was 2,200,000 cubic yards. The estimated volume of material beneficiated during the 1992 mining season was 500,000 cubic yards. Based on this information, the stripping ratio for the Lower Goldstream operation approached 4:1 (waste:ore). The total area of the mining operation in 1992, including stripped areas, mining cuts, overburden and tailing stockpiles and disposal areas, temporary stream diversions, stream bypasses, and settling ponds, is approximately 29 acres. The estimate does not include the camp and access roads. (Polar Mining, Inc., 1992 Annual Placer Mining Application F927278)

In 1992, Polar Mining reclaimed 35 acres, both concurrently with mining and at the end of the mining season. Polar Mining reshaped the reclaimed area to blend with the surrounding physiography using tailings, strippings, and overburden. The company also stabilized the area so that it will retain sufficient moisture to allow for natural revegetation. Polar Mining spread stockpiled topsoil, overburden muck, and, if necessary, settling pond silts, over the contoured mine workings to promote natural plant growth that can reasonably be expected to revegetate the area within five years. (Polar Mining, Inc., 1992 APMA)

Unlike most placer mines, the Lower Goldstream operation was active year-round, with the possible exception of four weeks in late December and early January (Polar Mining's 1992 APMA indicates that the intended dates of operation are January 20, 1992, through December 20, 1992). Although the projected dates of operation suggest a year-round mining operation at Lower Goldstream Creek, the estimated number of sluice days for the 1992 season was 150.

The description that follows applies to the original Lower Goldstream operation as presented in an "Overview" of Polar Mining's placer mining activities in the Fairbanks area. A 1988 NPDES Compliance Inspection Report corroborates this account. During the site visit in July 1992, mining operations resembled those represented in Figure 2-2

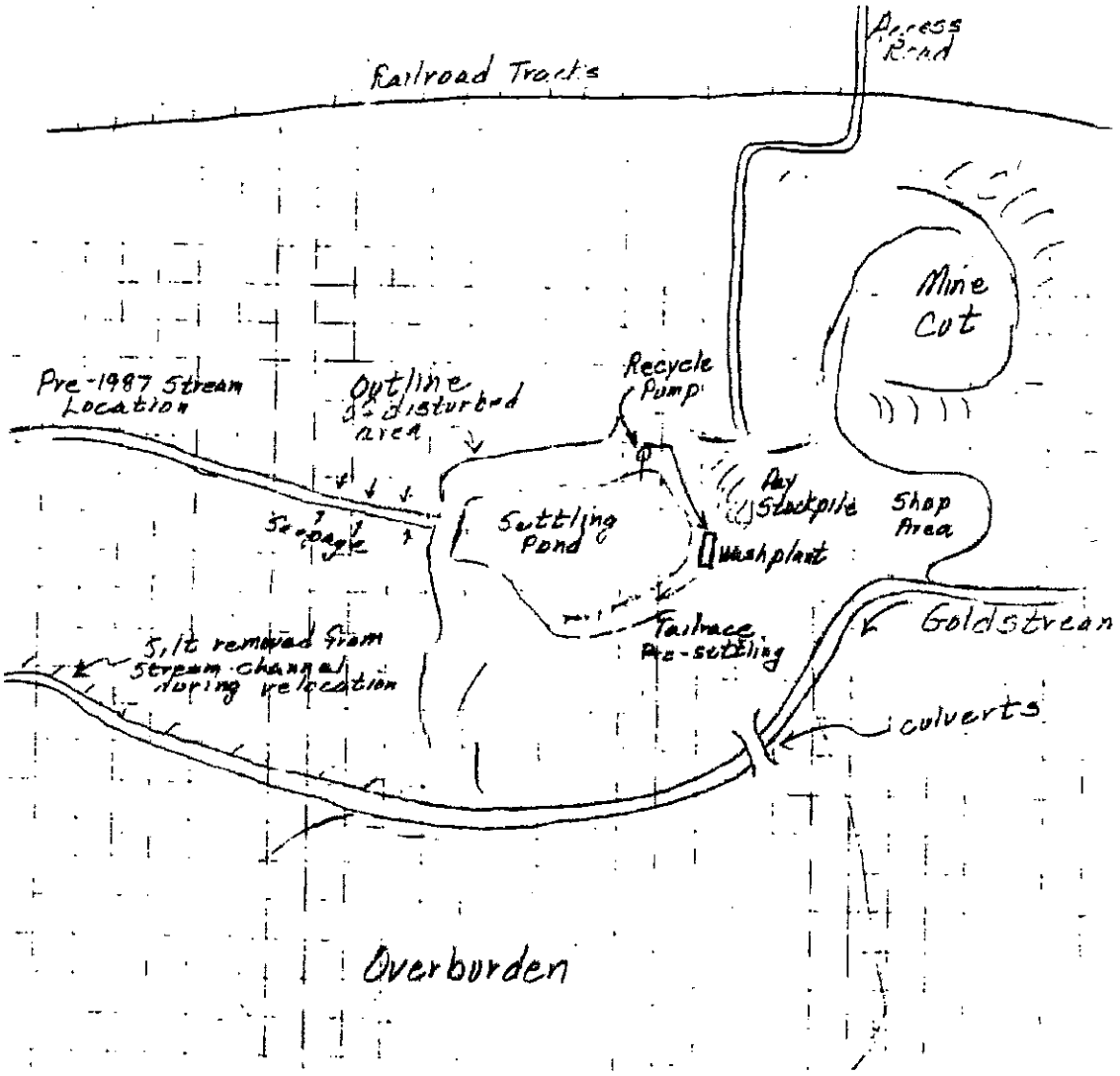



**Figure 2-2. Sketch of Lower Goldstream Creek Mining Operation**

(Source: ADEC, Placer Mine Inspection Form)

, only farther upstream.

During the cold winter months when the ground is frozen, Polar Mining used drilling and blasting techniques to remove frozen silt overburden, and then uses large scrapers to haul the overburden to a dump site either adjacent to the mine pit or in the immediate vicinity of the pit. According to the company "Overview," since the frozen silt overburden contains very little moisture, there is no water or mud discharge into the surrounding lowlands or Goldstream Creek when the overburden thaws in the spring. During the summer, the scrapers haul the gold placer pay gravels from the bottom of the pit to a trommel wash plant and sluice box, which is 30 feet wide by 10 feet long. Overburden from the Lower Goldstream operation consists of gravel to an average depth of 10-30 feet and organic material to an average depth of 20 feet. Total depth to pay gravel, therefore, is approximately 30-50 feet. ("Overview," August 1, 1988; Polar Mining, Inc., 1992 APMA)

Ground water entering the cut provides the source of make-up water, which is generated by seepage infiltration at an estimated volume of 10 gallons per minute. Goldstream Creek does not supply any water to the mining operation, nor does it receive any discharges. One hundred percent of the stream is bypassed by the operation, although the 1992 APMA indicates that channels are planned to connect obsolete recycle ponds to Goldstream Creek. According to the company "Overview," wash water is 100% recycled and is temporarily contained in these large recycle/settling ponds before it is transported to the recovery plant. Polar Mining did not use any chemical treatment to extract gold from the gravels. ("Overview," August 1, 1988; Polar Mining, Inc., 1992 APMA)

Before Polar Mining initiated activity at the Lower Goldstream operation in 1986, the company relocated the Goldstream Creek channel, diverting the Creek south of the original wash plant location and settling pond as they are depicted in the 1988 Placer Mine Inspection Form (see Figure 2-2). Mine cuts now follow the original streambed. At the time of the 1988 sampling inspection, Polar Mining moved overburden from the mine cut south across Goldstream Creek and stockpiled ore near the wash plant with scrapers. The wash plant facility consisted of a large trommel and a sluice box. Discharge from the sluice box is routed to a large recycle pond. According to the 1992 APMA, the recycle pond was approximately 750 feet long by 500 feet wide by 35 feet deep. A 300-horsepower pump directed the water to the wash plant through a 12-inch return line at an estimated rate of 3,500 gallons per minute. According to an internal Environmental Quality Memorandum from Paul Bateman to Pete McGee dated August 9, 1988, Polar Mining used total recycle in its operations and runs a zero discharge operation. During the 1988 site visit, however, water was being pumped from the bottom of the pit and was apparently being discharged to the tundra. During the 1992 EPA site visit, no discharges to tundra were observed. (Overview, August 1, 1988; Polar Mining, Inc., 1992 APMA)The 1992 Reclamation Plan provided for two distinct mine cuts labeled 1992-1 and 1992-2 (see Figures 2-3

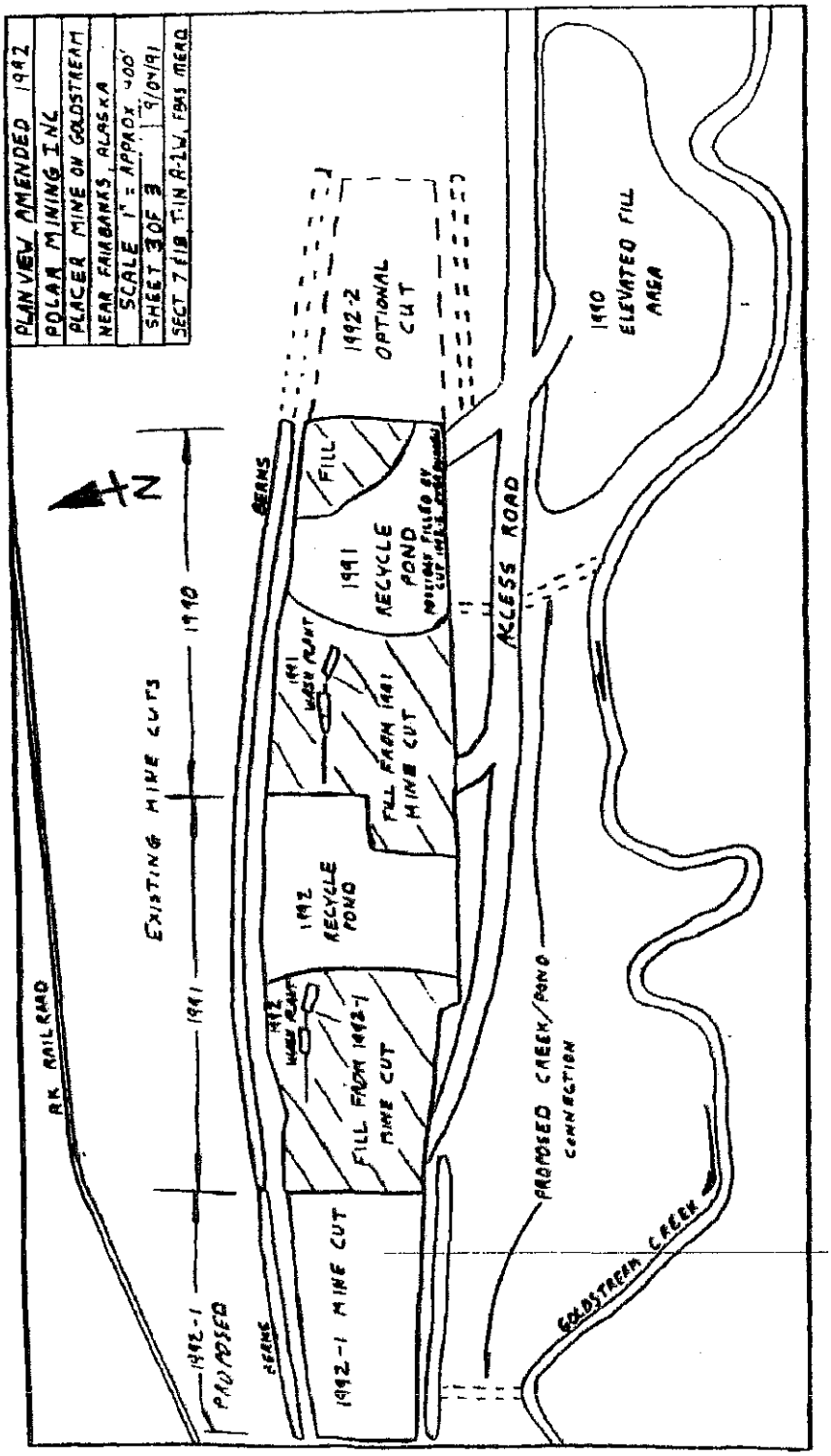



**Figure 2-3. Plan View of Lower Goldstream Creek Operation, Amended 1992**

(Source: Polar Mining, Inc., 1992 APMA)

and 2-4). Mine cut 1992-1 was scheduled to begin stripping operations in the late fall of 1991, whereas the

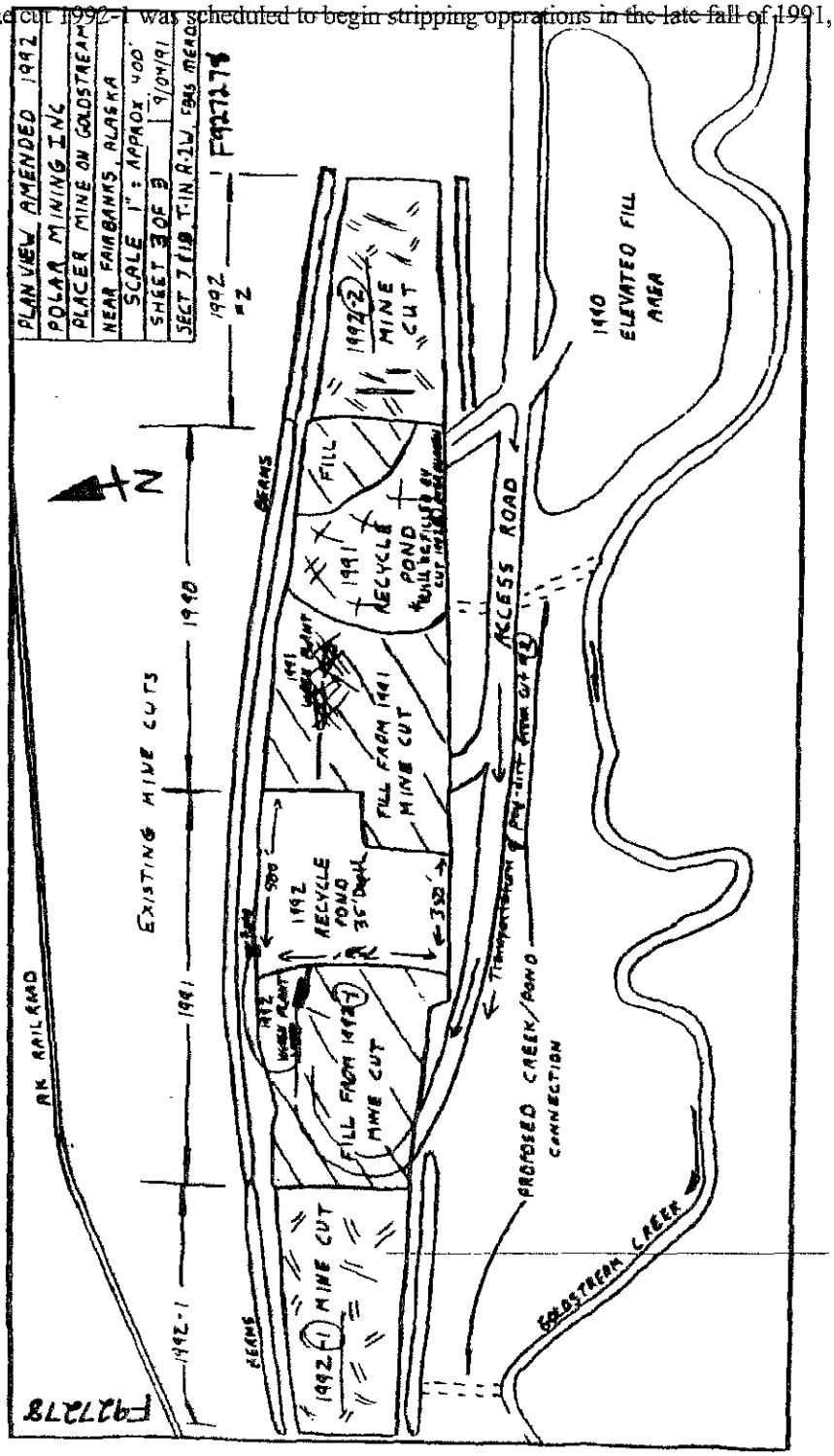



**Figure 2-4. Second Plan View of Lower Goldstream Creek Operation, Amended 1992**

(Source: Polar Mining, Inc., 1992 APMA)

second proposed cut was optional. (Polar Mining, Inc., October 14, 1991)

The proposed 1992-1 mine cut lies adjacent to and west of the 1991 mine cut. It is estimated to be 1,200 feet long by 450 wide by 35 feet deep, disturbing approximately 12.4 acres. Polar Mining planned to stockpile material along the north and south sides of the cut to create two topsoil/vegetation berms, disturbing an additional 2.8 acres. Each berm will each measure 1,200 feet long by 50 feet wide (at the base) by 12 feet high. Polar Mining plans to deposit the overburden removed from this cut in the 1991 mine cut, starting from the west side. A portion of the approximately 500,000 bank cubic yards[1] will also be used in the construction of a wide dike across the 1991 cut, dividing the cut to form a recycle pond out of the remainder of the cut. The pay gravels will be concentrated on a pad constructed on top of the dike, and the tailings that are not stockpiled for future sale will fill in the mined out cuts. (Polar Mining, Inc., October 14, 1991)

Upon completion of the 1992-1 cut, Polar Mining planned to level the berms along the north and south sides of the cut and forge a connection between the cut and Goldstream Creek, allowing the cut to fill with water and become a large pond as deep as 25 feet with at least one shallow sloping side. Polar Mining will also leave the 1992 recycle pond open after contouring the surrounding areas.

Several shallow areas in the pond will be available for waterfowl loafing and feeding. (Polar Mining, Inc., October 14, 1991)

Adjacent to the east side of the 1990 mine cut is the optional mine cut (1992-2). If mined, this cut would be approximately 1,100 feet long by 425 feet wide by 57 feet deep, covering about 10.7 acres. An additional 2.5 acres along the north and south perimeters of the cut will be stockpiled, creating topsoil/vegetation berms that measure 1,100 feet long by 50 feet wide (at the base) by 12 feet high. Polar Mining plans to deposit the overburden removed from the optional cut in the de-watered 1991 recycle pond area, completely filling it in. The remainder of the approximately 800,000 bank cubic yards of overburden would be put in the east end of the 1991 mine cut. Polar Mining would transport the pay gravels to the 1992 wash plant location and would put the tailings that are not stockpiled for future use back in the mined out cuts. Polar Mining plans to treat the 1992-2 cut like the 1992-1 cut upon completion of mining by leveling the berms and connecting the cut to Goldstream Creek. (Polar Mining, Inc., October 14, 1991)

If the optional cut (1992-2) is not mined, then Polar Mining will smooth the area around the recycle pond and connect the pond to Goldstream Creek. This pond would also have several shallow sloping areas that may render it acceptable for waterfowl habitat. (Polar Mining, Inc., October 14, 1991)

[1]A bank cubic yard is the volume of material, usually pay dirt, equivalent to one cubic yard in situ (i.e., in its original, undisturbed place in the ground). This volume does not include a swell factor or reduction in volume resulting from screening.

More than 10,000 gallons of fuel are stored on-site in above-ground tanks with capacities greater than 660 gallons. Fuel containment berms surround the storage containers, but the berm area was not lined. A fuel company tanker truck makes an average of 55 trips per year, transporting as much as 8,000 gallons of fuel per trip. The mine site is reached via an existing access road off Murphy Dome Road. Other equipment used on-site to facilitate overburden removal, beneficiation, and reclamation activities include two D10 dozers, one Demag H121 excavator, three 773 rock trucks, one 988B leader, one 235 excavator, one 16G grader, and a blast hole drill rig. On an annual basis, Polar Mining used 1,200,000 pounds (approximately 600 tons) of explosives to excavate, specifically ammonium nitrate fuel oil (ANFO). (Polar Mining, Inc., 1992 APMA)

In its proposed 1992 Reclamation Plan (a section of the 1992 APMA), Polar Mining projected that, given the economic conditions at the time and the mining methods being used, the company was approaching the end of the current minable ore reserve at the Lower Goldstream Creek operation. Polar Mining's plans for continued mining operations at the Lower Goldstream mine site beyond the 1992 season were unclear at the time of issuance of the 1992 Reclamation Plan. There was some discussion of a small underground operation or of continued surface mining on a much smaller scale. (Polar Mining, Inc., October 14, 1992)

### 2.2.2 Regulatory Requirements and Compliance

Polar Mining operates its Lower Goldstream mine site with several permits. Polar Mining has been issued an NPDES Wastewater Discharge Permit (Number AK-004635-3) by EPA.

Polar Mining was first issued the Department of the Army, Corps of Engineers (COE) "404" permit (Number 4-870729) on September 30, 1988, for the placement of 4,187,100 cubic yards of dredged and fill material in 98 acres of wetlands to construct a dike, topsoil berms and overburden stockpile areas, and the placement of fill material for reclamation activities. In December 1989 Polar Mining requested that a permit modification granting authorization to move the proposed 1990 mining cut approximately one mile downstream of the area permitted for 1990 and to construct topsoil berms for the 1991 mining season. The land previously permitted for 1990 was to be left undisturbed. To facilitate ore access and subsequent reclamation activities, Polar Mining also requested authorization to create a pad from the majority of the fill material and expressed its intention to stabilize the pad when it finished mining from that cut. Polar Mining intended to use previous mine cuts as process water recycle ponds or as receiving pits for material from the next mine cut. Polar Mining stated that the pad was necessary because not all overburden could be returned to each completed excavation; overburden material has a swell factor of 30-40%. (Department of the Army, December 17, 1991)

The COE permit (Number M-870729) was modified on January 11, 1990, to the allow Polar Mining to place approximately 961,100 cubic yards of dredged and fill material into approximately 19.4 acres of wetlands to stockpile topsoil and waste barren overburden for the 1990 and 1991 mining cuts. All other conditions of the original permit remained the same. (Department of the Army, August 22, 1991)

The COE permit was again modified (Number N-870729) on August 22, 1991 to extend the time limit for completing the authorized work, and the modified permit now expires September 30, 1994. (Department of the Army, August 22, 1991)

The Alaska Department of Fish and Game (ADF&G) issued Polar Mining a permit (Number FG92-III-0002), informing the company that Goldstream Creek supports resident fish species (grayling) in the area of the proposed channel excavations from the recycle pond to Goldstream Creek. The ADF&G advised Polar Mining that the excavations could obstruct the efficient passage and movement of fish. The ADF&G permit included the following stipulations to reduce potential erosion and barriers to fish passage (Alaska Department of Fish and Game, January 6, 1992):

1. The outlet channel(s) shall not be connected to Goldstream Creek prior to completion of mining-related activities in the ponds;

2. The outlet channels shall be excavated to the same depth as the bottom of Goldstream Creek where the channels enter Goldstream Creek;

3. The outlet channels shall be 12-15 feet wide at the water surface with banks graded to a stable slope; and

4. The permittee shall plug the outlet channels (with a 100-foot plug) to the original ground surface level if ADF&G identifies fish entrapment related fish kills within the ponds or potential fish entrapment related fish fills within the ponds prior to 1995.

Polar Mining does not need a permit from a state or federal land management agency to conduct its operations because the Goldstream Creek is on private land, although a permit is required from the COE for the disturbance of wetlands.

EPA is not aware of any state, federal, or local government regulations for mine noise control to the surrounding community. The Mine Health Safety Administration (MHSA), however, does regulate noise at mines to protect workers. The MHSA and the Alaska State Mine Inspector inspected the Lower Goldstream operation on June 25, 1988, and found the mine to be in compliance with all MHSA safety requirements. Winter blasting was monitored by the State Mine Inspector, who coordinated with the Pacific Powder Company to take seismic and decibel readings of each blast. The State Mine Inspector found all blasts to be within the recommended standards of noise and seismic ground shock for a residential area.

The 1988 "Overview" mentions noise-related problems at the Lower Goldstream operation. A small group of local Goldstream residents initially opposed the Lower Goldstream operation, their primary complaint being noise, but their first complaints were about visual impacts. To mitigate these impacts, Polar Mining constructed a large berm between the pit and the residential area to deflect noise away from the area homes. Polar Mining also reduced operational hours and the size of the blasts to minimize their effects. This group of Goldstream residents requested that the Alaska Department of Environmental Conservation (ADEC) hold

a public hearing on the ADEC certification of the COE permit. The public hearing was held on August 8, 1988 in Fairbanks. The issue of noise levels was raised, but most concerns involved water quality and wetlands. The State did not take any action based on this hearing ("Overview," August 1, 1988; Memorandum, August 9, 1988)

In Alaska, bonding is required for all mining operations having a mined area of five acres or greater. The area must be bonded for $750.00 per acre, unless the miner can demonstrate that a third party contractor can do the required reclamation for less than that amount. Polar Mining submitted $4,350.00 to the Alaska Department of Natural Resources (DNR) for payment into the State Wide Bonding Pool to meet the bonding requirements. (Polar Mining, 1992 APMA; Alaska DNR, State Wide Bond Pool Form)

According to the site manager, at the time of the 1992 EPA visit, the site was in compliance with all of its permits. (Polar Mining, 1992 APMA; Alaska DNR, State Wide Bond Pool Form)

## 2.3 ALF HOPEN

EPA visited Alf Hopen's Little Eldorado Creek operation on July 15, 1992. The following individuals participated in the site visit: the operator Alf Hopen, Kathleen M. Charlie of the Alaska Department of Natural Resources, Steve Hoffman from EPA's Mining Waste Section, and Ingrid Rosencrantz of SAIC (EPA's contractor).

### 2.3.1 General Facility Description

Alf Hopen operated a gold placer mine on Little Eldorado Creek in the Fairbanks mining district near Cleary, Alaska. The Little Eldorado Creek mining operation is an historic site, as evidenced by Mr. Hopen's discovery of fire pits at the site that had been used previously to thaw the layer of permafrost overlying the pay dirt. Mr. Hopen leased the land from the Alaska Gold Company and operated on both federal and private (patented) claims. The 1992 Reclamation Plan for the Little Eldorado Creek operation states that the total area to be mined in 1992 is 8 acres, excluding the camp and roads. The operator conducted reclamation on an equal amount of acreage in 1992, both concurrently with mining and at the end of the mining season. The topographical map attached to the 1992 Annual Placer Mining Application (APMA Number F925866) suggests that work is being performed at an elevation of slightly less than 1,050 feet. The site is fairly steep. Access to the mine site is by means of existing roads.

Mr. Hopen runs a seasonal operation at the Little Eldorado Creek mine site. He first started mining at this site on August 15, 1991. The planned dates of operation for the 1992 season are May 1 through October 15, with an estimated 120 sluice days during the season. Three employees work at the site. The mining operation is projected to be completed in 1992, but if work remains to be done when the season ends, then mining and reclamation activities will be finished in 1993.

During the EPA site visit on July 15, 1992, Mr. Hopen stated that he moves 1,500 cubic yards of loose material daily. He estimated that this material comprises 20-30 feet of overburden and 6-8 feet of pay dirt. The pay strip is narrow with some side pay. Overburden was pushed to the sides, while a backhoe shovelled the pay dirt to the washing plant, where classification with a shaker screen precedes sluicing. The 1992 Reclamation Plan states that the total volume of material mined, including strippings and overburden, is 70,000 cubic yards. It is unclear from the references available what the ratio is of material moved to material concentrated. The 1992 APMA estimated that during approximately 120 days, Mr. Hopen will beneficiate 600 cubic yards of material daily, which amounts to approximately 60,000 cubic yards annually. The estimates from the 1992 Reclamation Plan and APMA for total material mined and total material concentrated (70,000 cubic yards and 60,000 cubic yards, respectively) suggest a very low ratio of overburden to pay dirt. No explosives are used at this site.

The Little Eldorado Creek operation employed two sluice boxes. The larger sluice box measured 20 feet long by 4 feet wide and has a solitary channel. This sluice had 16 feet of double expanded metal riffles on nomad matting and 4 feet of hydraulic riffles that emit 4 pounds of pressure run over astroturf matting. The smaller sluice, whose dimensions are 12 feet by 34 inches, also has astroturf (door mats).

Mr. Hopen did not employ any chemical treatment in his operation. The equipment used on-site includes a D-8 and D-9 Cat bulldozer, a 980-C Cat loader, a 7/8 cubic yard Insley backhoe, a 1 1/4 cubic yard dragline, a 10x12 pump, and a 6"-pump.

Mr. Hopen had diverted Little Eldorado Creek around the mining operation. According to the 1992 APMA, the diversion ditch provides that 100 percent of the creek bypasses the mine cuts. Mr. Hopen wanted to operate with 100 percent process water recycle, but actually discharged from the fourth pond. The source of the make-up water supply is ground water gain from the cut through seepage infiltration. Make-up water was added 24-hours a day at an estimated rate of 50 gallons per minute (gpm), or 70,000 gallons per day (gpd). The Placer Plan Review Worksheet indicates that the sluice flow, which is the amount of water withdrawn, is 2,000 gallons per minute (gpm). The 1992 APMA indicates that the existing dam is 150 feet long by 15 feet high, with the width of the dam at the base measuring 50 feet and narrowing to 16 feet at the crest, but it is unclear which pond this dam blocks. The 1992 APMA indicated that Mr. Hopen's operation does not have a discharge. A narrative attachment to the 1992 APMA and sketch sheet states that settling ponds had to be built farther downstream than usual in order to create an area sufficiently wide to enable the operator to safely isolate a creek bypass with no possible future pond erosion problem. Additional settling ponds will be built in newly mined cuts as mining progresses upstream. The stream will be returned to the original channel at the end of the mining season as part of the reclamation procedures, at which time it will be permanently channeled around the settling ponds and stabilized.

There is a large percentage of rock in the tailings that will be left behind in old cuts for stream channeling as part of the reclamation plan. All discharge water will be filtered through old dredge tailings after the settling

ponds and will not go directly into the creek. The new road will be used as a dike for a temporary stream bypass. The road will be built on dragline tailings from the old open cut.

The description of the recycle/settling pond system in the 1992 APMA differs from the EPA site visit findings. It appears that the operator found it necessary to add a fourth pond to the planned three-pond system to facilitate settling so that the water would be sufficiently clear for re-use in the washing plant. The 1992 APMA (and attached sketch) indicates that the operation uses a pre-settling pond, a small pond (#1), and a larger recycle pond (#2). The site visit revealed that a pre-settling pond was not used. Instead, the main settling pond, which is 60 feet wide and 6-12 feet deep, overflowed into a smaller secondary pond below it on the hillside. The secondary pond discharges to the pump (or recycle) pond, which in turn directs water back to the wash plant for re-use. The recycle pump has 170 horsepower and feeds water through a 12"-line at an estimated rate of 2,000 gpm. In addition to these three ponds is a fourth (and final) settling pond. The Alaska Department of Environmental Conservation (ADEC) reviewed the 1992 APMA and found the water control and wastewater treatment systems adequate.

Fuel was stored onsite in tanks. Fuel containment berms surround the storage area, which were lined. A fuel truck and offsite storage vessels also function as fuel storage mechanisms. Approximately 4,600 gallons of fuel may be stored at one time. A tanker truck transports approximately 4,000 gallons per trip, and the number of trips varies. As part of clean-up, Mr. Hopen burns and buries garbage. No trash is left lying around. Waste oil is contained and removed from the mining site.

### 2.3.2 Regulatory Requirements and Compliance

Mr. Hopen has not received any Notices of Violation (NOVs) with respect to the Little Eldorado Creek operation, nor has there yet been a Federal inspection.

Mr Hopen operates on Little Eldorado Creek with an NPDES Wastewater Discharge Permit (Number AK-004451-2) from EPA. He received a turbidity modification for the NPDES permit that was calculated using a discharge rate of 10 gpm and that permits the discharge of wastewater with a turbidity of up to 195 NTU. Discharges (seepage) greater than 10 gpm may require that the discharge be cleaner than 195 NTU during periods of low creek flow.

Mr. Hopen also has a Corps of Engineers "404" Permit Number (D-890661). ADEC declined to review or comment on the Little Eldorado Creek activity as it was proposed in the COE permit application. This non-action constituted a waiver of the state's opportunity to certify the proposed activity. Any modification to the activity could require future certification.

The Alaska Department of Fish and Game (ADF&G) reviewed the 1992 APMA and decided that a permit from ADF&G was not necessary for the proposed placer mining operation on Little Eldorado Creek. The reason given by ADF&G to substantiate this decision was as follows: "The stream is not known to support fish in the area of your proposed mining activity. Your proposed mining plan does not indicate activities will

occur in waters specified by the Commissioner as important for the spawning, rearing, or migration of anadromous fish." (Letter from Ron Somerville, Deputy Commissioner, ADF&G, to Alf Hopen, February 18, 1992)

Al Hopen submitted $1,200 to the Alaska Department of Natural Resources (DNR) for payment into the State Wide Bonding Pool to meet the bonding requirements of Alaska Statute 27.19 for the disturbed area sketched and described in the 1992 APMA and Reclamation Plan. Bonding for Federal claims encompasses the total area of the mining operation, including the camp site, access roads, and areas to be stripped for mining during the next season. For private claims, bonding covers the active mining "footprint," which does not include the camp and access roads. It does, however, include all areas that are part of the mining operation: stripped areas, mining cuts, overburden and tailing stockpiles and disposal areas, temporary stream diversions, stream bypasses, and settling ponds.

## 2.4 COOK'S MINING

EPA visited Cook's Mining Fairbanks Creek operation on July 15, 1992. The following individuals participated in the site visit: the operator John Cook, Kathleen M. Charlie of the Alaska Department of Natural Resources, Steve Hoffman from EPA's Mining Waste Section, and Ingrid Rosencrantz of SAIC (EPA's contractor).

### 2.4.1 General Facility Description

Cook's Mining operated a gold placer mine located approximately 20 miles north of Fairbanks, Alaska on federal mining claims (F-52493 through F-52500) at the upper head of Fairbanks Creek, a tributary of Fish Creek, which flows into the Little Chena River. The Steese/White Mountains District of the Bureau of Land Management (BLM) is responsible for the management of this land under the General Mining Law of 1872. Patricia S. Franklin owns the claims, and John Cook operates the mine. The Upper Fairbanks Creek operation is reached by following Steese Highway north toward Cleary Summit, and then taking Fairbanks Creek Road five miles east of Cleary Summit. (Cook's Mining 1992 Annual Placer Mining Application (APMA); Alaska Department of Environmental Conservation (ADEC), December 19, 1989)

The 1992 mining season represented the fifteenth year of production at the Upper Fairbanks Creek site, and Cook's Mining anticipated that two years remain before the site will be closed. (Cook's Mining, March 31, 1992). The 1992 APMA was the source of the following general facility description.

Cook's Mining operated on a seasonal basis from approximately June 1 through October 1, employing three to four workers. The company worked an estimated 100 sluice days during the mining season. The total volume of material to be mined in 1992, including strippings and overburden to be removed, was 200,000 cubic yards. The estimated volume of material beneficiated during the 1992 mining season was 65,000 cubic yards. Based on this information, the stripping ratio for the Cook's Mining Upper Fairbanks Creek operation was approximately 3:1 (waste:ore). The total area of the mining operation in 1992, including stripped areas,

mining cuts, overburden and tailing stockpiles and disposal areas, temporary stream diversions, stream bypasses, and settling ponds, was approximately 5-6 acres. The estimate does not include the camp and access roads (Cook's Mining, 1992 APMA).

In 1992, Cook's Mining planned to reclaim 10-15 acres, both concurrently with mining and at the end of the mining season. Cook's Mining will reshape the site to blend with surrounding physiography using mine tailings and overburden. The company will spread stockpiled topsoil/organic debris over the reshaped site. Cook's Mining will ensure that fine sediment captured in the settling ponds is protected from washout and left in a stable condition at the end of the season. Finally, Cook's Mining will restore disturbed stream areas to facilitate natural restoration of fish and wildlife habitat. (ADEC, Decision Record, December 19, 1989)

Cook's Mining removed approximately 31 feet of overburden, consisting of 30 feet of gravel and one foot of organic material. Cook's Mining then fed the pay gravels to a trommel wash plant and sluice box, which measures 24 feet long by four feet wide and has three channels with a 2:1 slope. Cook's Mining concentrates an estimated 700 cubic yards of material daily. No chemical treatment is used at the Upper Fairbanks Creek operation. (Cook's Mining, 1992 APMA)

Ground-water gain from the mine cut and Fairbanks Creek supply the make-up water. Stream flow at this point in the valley is 300 to 400 gallons per minute, while ground-water infiltration can add another 50 gallons per minute. The Fairbanks Creek operation has an intermittent, variable discharge. When Cook's Mining began sluicing for a new cut, it can take up to two weeks for the stream to fill a new recycle pond. Until the pond fills, there is no discharge; after it fills, there is a discharge of 300-400 gallons per minute, 24 hours a day, seven days a week.

The operation is near the head of the valley where the stream runs at a low volume. Cook's Mining needs the stream flow as make-up water for the ponds to keep up with the outgoing pond seepage that would diminish the reservoirs if the company diverted the stream around the mine site. However, Cook's Mining tried to divert the stream to one side of the cut or the other whenever it is feasible so that the equipment does not run in the stream while mining activities are in progress. Since the valley is extremely narrow and has steep sides, Cook's Mining cannot make the stream fully bypass the mining cut or ponds without constructing a large, expensive notch along the length of the south side of the valley, which would destroy the hillside and would not serve any practical purpose. The quality of the water discharge from the mine site has been good enough that Cook's Mining does not find it necessary to construct such a drastic stream bypass. Fairbanks Creek filters through several miles of dredge tailings downstream from the Cook's Mining operation, then emerges again as surface flow. (Cook's Mining, attachment to 1992 APMA; Cook's Mining, "Mining Plans," 1987)

As the mining operations advance, the valley narrows, and the wet groundcover associated with the bottom of the valley diminishes. As of March 31, 1992, approximately 40 feet of valley bottom width was considered wet groundcover. Cook's Mining removed this material and stacked it on the hillside to form an overburden pile 75 feet wide by 1,800 feet long, by 40 feet high. (Cook's Mining, March 31, 1992)

Cook's Mining operated two pay channels in this valley, one being the lower channel previously described as having 40 feet of wet groundcover. Cook's Mining was uncovering a bench deposit on the north slope of the valley. This is a very dry hillside area, and the overburden that is removed from this bench is pushed directly into the previous bench cut that was just mined. Dry material is therefore being pushed into a dry hole in the hillside far from the bottom of the valley. (Cook's Mining, March 31, 1992)

Ponds were planned for the lowest point of the valley on the cleaned bedrock, and six berms will line the ponds and measure 100 feet long, by 45 feet wide, by 25 feet tall. Cook's Mining will build these berms using the material previously accounted for in the overburden piles stacked along the side of the cut on the south side of the valley. (Cook's Mining, March 31, 1992)

The recycle/settling pond system had been built in mining cuts behind the most current operation as it progresses up the valley. Each pond differs from the others because the overburden from new cuts is deposited in previous cuts, and then the company builds settling ponds from the area available after it finishes stripping the cuts. Although the ponds vary significantly, an average set of dimensions for one of Cook's Mining's settling ponds is 200 feet long by 100 feet wide by 30 feet deep. The recycle pump is a 60-horsepower instrument that sends an estimated 800 gallons per minute of water through an 8-inch return line.

There is at least one existing dam and at least one more dam to be constructed. The existing dam is described as being 150 feet long and 30-50 feet high. The width of the dam is 40 feet at the crest and 75-100 feet at the base.

Approximately 3,000 gallons of fuel are stored on-site in tanks with capacities larger than 660 gallons and in a tanker on wheels. Fuel containment berms do not surround the fuel storage containers. A truck from town transports approximately 2,500 gallons of fuel on each of its 10 trips to the site.

Cook's Mining uses the following equipment to accomplish the tasks described: two John Deere 850 dozers to strip and push pay dirt; one Cat 225 excavator to divert the stream, prospect, and sluice; one John Deere 444 rubber tire loader to move tailings; one D9L Cat dozer for stripping; and miscellaneous trucks, pumps, and generators to support the stripping and sluicing activities.

### 2.4.2 Regulatory Requirements and Compliance

Cook's Mining had an NPDES permit (Number AK-004632-9) from EPA. EPA granted Cook's Mining a turbidity modification that allows the company to discharge waste water with a turbidity of up to 16 nephelometric turbidity units (NTU), a modification that was calculated using a discharge rate of 50 gallons per minute. Seepage greater than 50 gallons per minute could require Cook's Mining to maintain a discharge cleaner than 16 NTU during periods of low creek flow. (ADEC, April 7, 1992) Since Fairbanks Creek is not known to support fish in the area of the Cook's Mining operation, the Alaska Department of Fish and Game (ADF&G) did not require a permit.

In Alaska, bonding is required for all mining operations having a mined area of five acres or greater. The area must be bonded for $750.00 per acre, unless the miner can demonstrate that a third party contractor can do the required reclamation for less than that amount. Cook's Mining submitted $2,250.00 to the Alaska Department of Natural Resources (DNR) for payment into the State Wide Bonding Pool to meet the bonding requirements. (Cook's Mining, 1992 APMA; Alaska DNR, State Wide Bond Pool Form)

## 2.5 REFERENCES

Alaska Annual Placer Mining Application, with attachments, February 3, 1992.

Alaska Placer Plan Review Worksheet, April 3, 1992.

Alaska Department of Environmental Conservation. 1992a (March 20). Letter from William D. McGee, Alaska Department of Environmental Conservation, to Alf Hopen.

Alaska Department of Environmental Conservation. 1992b (April 7). Letter from William D. Morgan, Alaska Department of Environmental Conservation, to Alf Hopen.

Alaska Department of Environmental Conservation. 1992c (April 7). Letter from William D. Morgan to John Cook, Cook's Mining.

Alaska Department of Environmental Conservation. December 19, 1989. Decision Record, with attachments.

Alaska Department of Environmental Conservation. June 3, 1988. Placer Mine Inspection Form, with an EPA NPDES Compliance Inspection Report cover sheet dated August 2, 1988 and signed by Conrad Christianson.

Alaska Department of Fish and Game. 1992a (January 6). Letter to Dan May, Polar Mining, Inc.

Alaska Department of Fish and Game. 1992b (February 18). Letter from Ron Somerville, Alaska Department of Fish and Game, to Alf Hopen.

Alaska Division of Mining Approved Reclamation Plan, approved by John E. Wood, May 6, 1992.

Alaska Department of Natural Resources Case File Abstract, February 21, 1992.

Alaska Department of Natural Resources State Wide Bond Pool Form, April 27, 1992.

Alaska Department of Natural Resources. 1988 (August 1). "Overview: Polar Mining, Inc." An executive summary of the Lower Goldstream operation faxed from the Alaska Department of Natural Resources.

Cook's Mining. 1987. "Mining Plans." Letter from John Cook; recipient unknown.

Cook's Mining. 1992a (January 6). 1992 Annual Placer Mining Application (Number F926973), with attachments. Submitted to the Alaska Department of Environmental Conservation by John Cook.

Cook's Mining. 1992b (March 31). Letter from John Cook to Kevin Morgan, Department of the Army.

Memorandum. August 9, 1988. From Paul Bateman to Pete McGee regarding Public Hearing Summary.

Polar Mining, Inc., 1992 Annual Placer Mining Application (Number F927278), with attached maps. December 23, 1991. Signed by Dan May, Operator, Polar Mining, Inc.

Polar Mining, Inc. October 14, 1991. Letter from Daniel May to the Reclamation Commissioner, Division of Mining, with enclosed sketches.

United States Department of the Interior, Bureau of Land Management. Environmental Assessment (EA Log Number AK-080-89-041).

U.S. Department of the Army, U.S. Army Engineer District, Alaska. 1991 (August 22). Permit modification issued by Timothy R. Jennings to Polar Mining, Inc.

U.S. Department of the Army. December 17, 1991. Letter from Timothy R. Jennings to William D. McGee, with enclosed sketches.

# SITE VISIT REPORT:

# VALDEZ CREEK MINE

# CAMBIOR ALASKA INCORPORATED

# 3.0 SITE VISIT REPORT: VALDEZ CREEK MINE CAMBIOR ALASKA INCORPORATED

## 3.1 INTRODUCTION

### 3.1.1 Background

The U.S. Environmental Protection Agency (EPA) is currently developing a mining program under the Resource Conservation and Recovery Act (RCRA). To date, EPA has initiated several information gathering activities to characterize mining wastes and mining waste management practices. EPA has also chartered a Policy Dialogue Committee under the Federal Advisory Committee Act to encourage discussion of mining-related issues by representatives of EPA and other Federal agencies, States, industry, and public interest groups. As part of these ongoing efforts, EPA is gathering data related to waste generation and management practices by conducting visits to mine sites. As one of several site visits, EPA visited the Valdez Creek Mine on July 13, 1992.

Sites to be visited were selected by EPA to represent both an array of mining industry sectors and different regional geographies. All site visits have been conducted pursuant to RCRA Sections 3001 and 3007 information collection authorities. When sites have been on Federal land, EPA has invited representatives of the land management agencies (Forest Service/Bureau of Land Management). State agency representatives and EPA regional personnel have also been invited to participate in each site visit.

For each site, EPA has collected information using a three-step approach: (1) contacting the facility by telephone to get initial information, (2) contacting state regulatory agencies by telephone to get further information, and (3) conducting the actual site visit. Information collection prior to the site visit is then reviewed and confirmed at the site.

In preparing this report, EPA collected information from a variety of sources including Cambior Inc., and the State of Alaska. The following individuals participated in the Valdez Creek Mine site visit on July 13, 1992:

Cambior Alaska, Incorporated

Bob Walish, General Manager
907-694-4653

U.S. Environmental Protection Agency

Steve Hoffman, Chief, Mine Waste Section, Office of Solid Waste
703-308-8413

Science Applications International Corporation

Ingrid Rosencrantz, Environmental Scientist
703-734-2508

3.1.1.1 General Description

The Valdez Creek Mine was the largest placer gold mine in North America in 1992 and is operated by Cambior Alaska, Incorporated. The operation is owned by Camindex Mines (25 percent share holder) and Cambior Alaska, Incorporated (75 percent share holder). The operation is located near Cantwell, Alaska, 110 miles south of Fairbanks, along the Denali Highway (Figure 3-1)

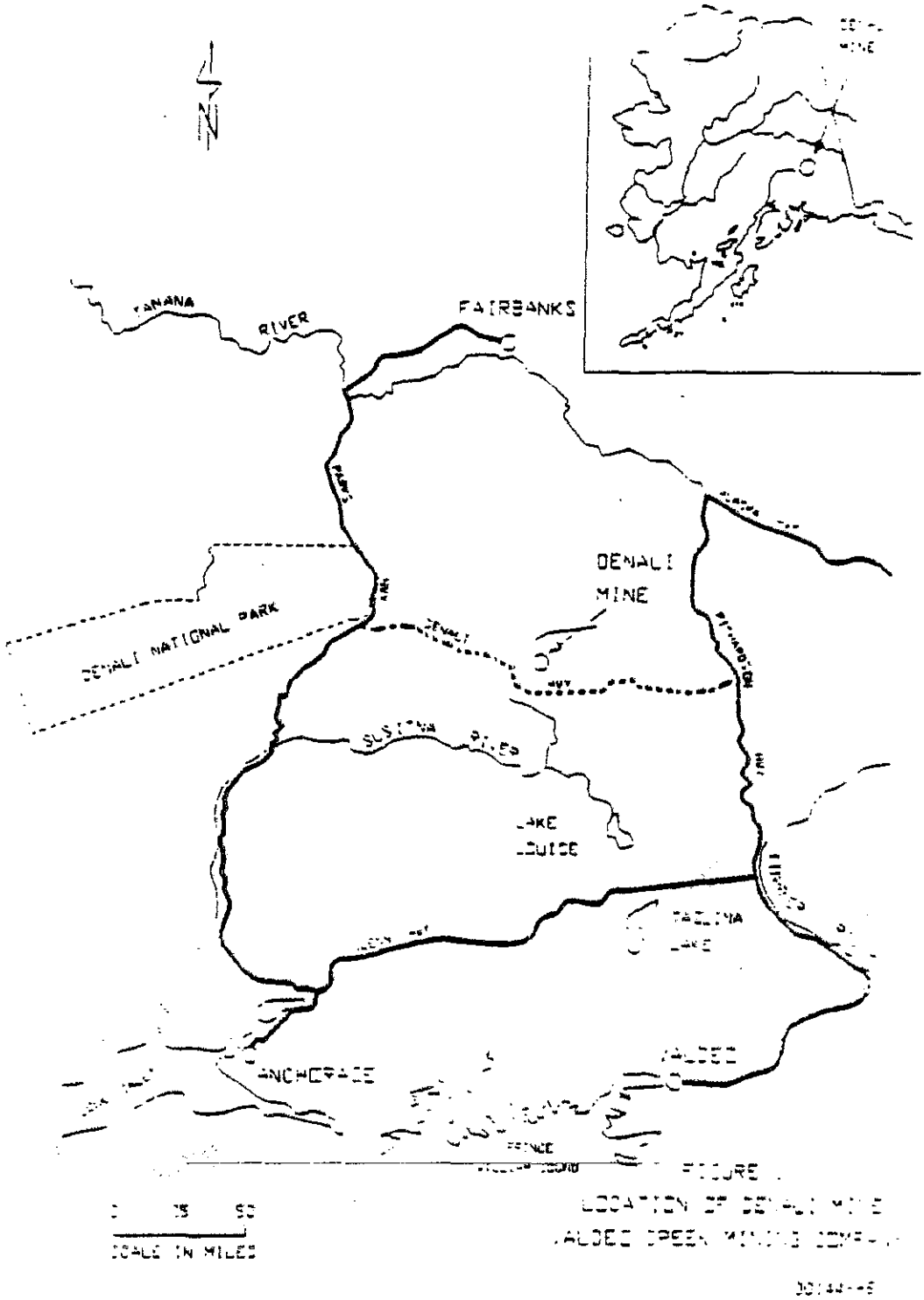



**Figure 3-1. Facility Location Map**

(Source: Environmental Assessment 1990)

The mine extracted loosely consolidated alluvial material from the valley bottom to a depth of 180 to 200 feet. Gold bearing pay-gravel is passed through a wash plant (a sluice system) to gravity concentrate the gold. Additional gold concentration is conducted using a jig, Knudsen bowl and magnetic separation.

Typically, pay-gravels have been located in deeply-buried paleochannels north of the active channel of Valdez Creek. However, in the area where mining was taking place, the active channel of Valdez Creek converges with the area to be mined, overlying the paleochannels. In order to access portions of the mine, the facility had diverted Valdez Creek around the mine. Diversion structures include a diversion dam, spillway and ditch.

The facility held placer mining claims in the area that cover 19,880 non-contiguous acres of Federal Land under jurisdiction of the Bureau of Land Management. According to facility personnel, the most recent active operations are currently disturbing approximately 67 new acres of BLM land, not including land previously disturbed. As shown in Figure 3-2

| AREA | USE | ACREAGE | RECONTOUR | PLANT |
|---|---|---|---|---|
| A | DEVIL PIT | 5 0 | 90 | 90 |
| B | SETTLING PONDS | 14 2 | | |
| C | TAILINGS AREA | 9 6 | | |
| D | CAMP & SHOPS | 10 2 | 87 | 88 |
| E | TAMMANY CUT | 7 3 | 89 | 90 |
| F | ROADS, WASTE AREAS | 5 0 | 89 | 89 |
| G | A-2 WASTE | 13 2 | 86 | 87 |
| H | PL-PIT | 10 9 | 89 | 90 |
| I | PL- WASTE | 5 3 | 88 | 89 |
| J | A-2 WASTE | 6 9 | 87 | 87 |
| K | A-2 PIT | 10 2 | 90 | 91 |
| L | A-2 WASTE | 14 9 | 86-87 | 88 |
| M | A-3, A-4 WASTE | 22 2 | 88 | 88 |
| N | STAGING AREA | 18 8 | 88 | 89 |
| O | PIT A-4 | 7 9 | 89 | 89 |
| P | PIT A-3 | 16 9 | 89 | 89 |
| Q | A-3 WASTE | 26 8 | 89 | 89 |
| R | PIT A-3 ext | 4 0 | 89 | 89 |
| S | A-5 WASTE | 12 9 | 88 | 88 |
| T | PIT A-5 | 21 6 | 90 | 90 |
| U | PIT A-6 | 45 0 | 91 | 91 |
| V | PIT A-7 | 44 6 | 91 | 91 |
| V1 | DIVERSION | 26 6 | 92 | 92 |
| V2 | DIVERSION | 40 1 | 92 | 92 |

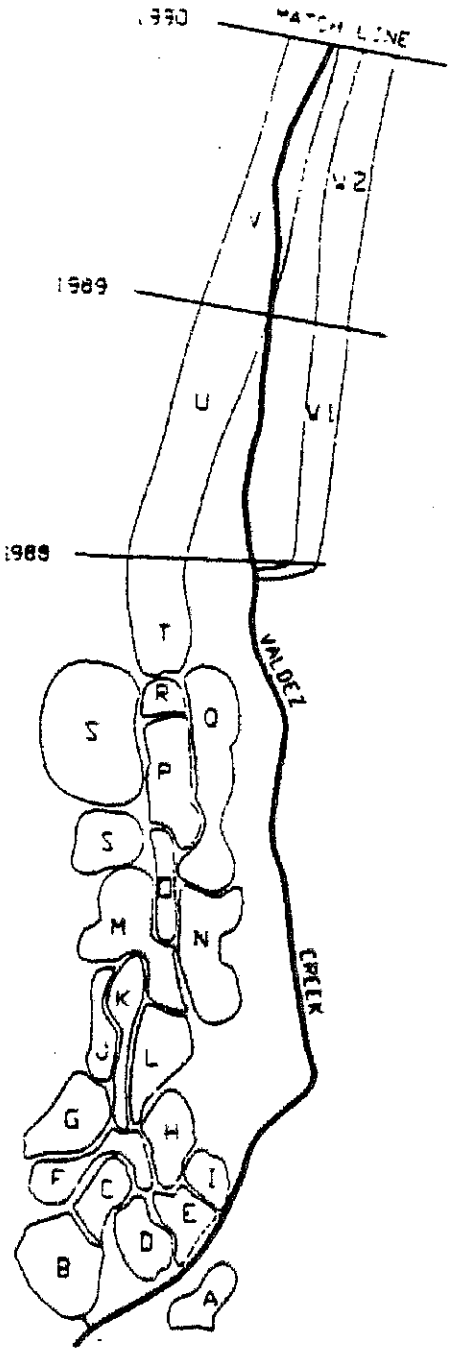



FIGURE 1
DENALI MINE WORK AREAS
VALDEZ CREEK MINING COMPANY
SHEET 1 OF 2

0 1000 2000
SCALE IN FEET

30143-60

**Figure 3-2. Denali Mine Work Areas**

(Source: Valdez Creek Mining Company, Plan of Operations)

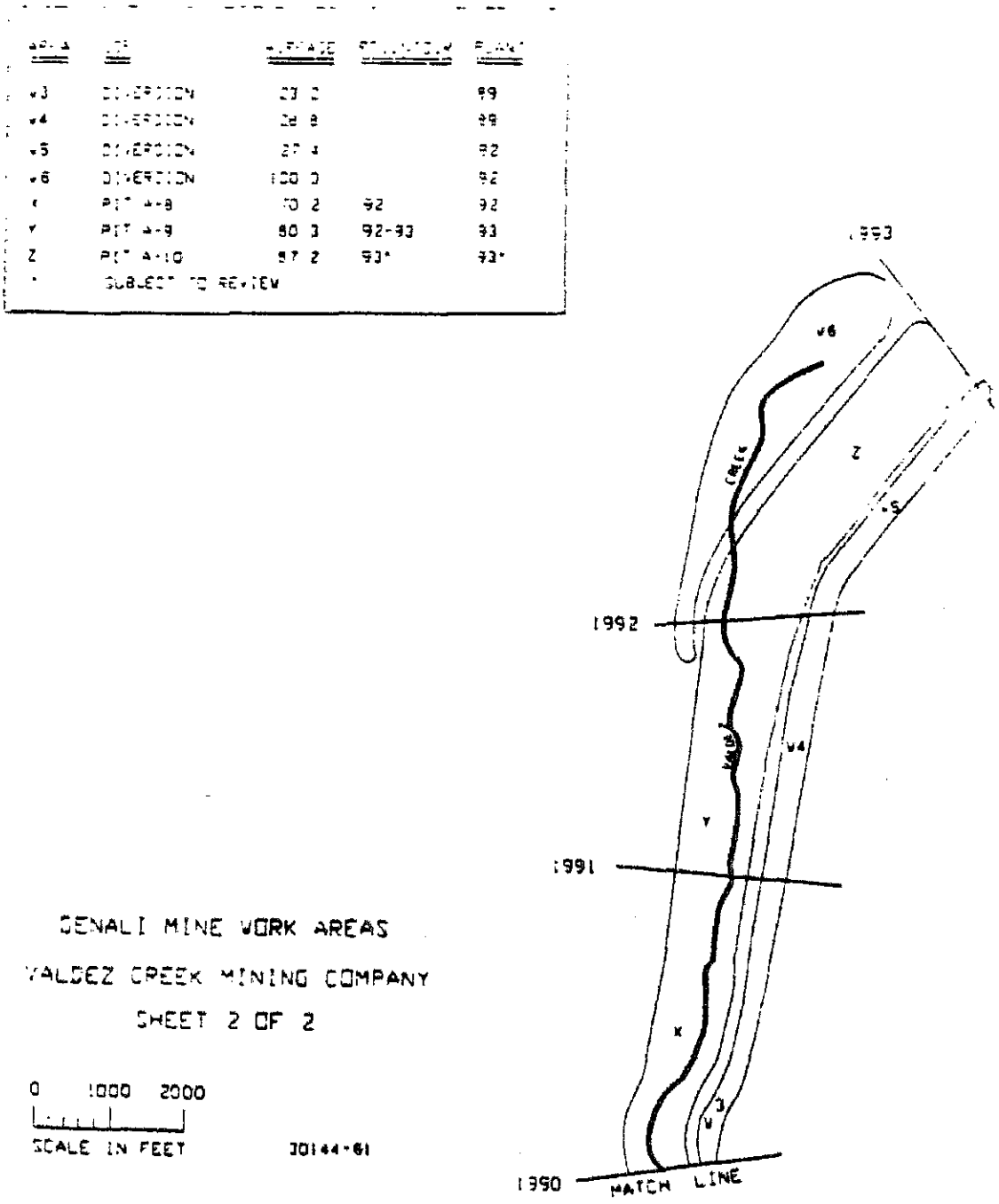



**Figure 3-2. Denali Mine Work Areas (continued)**

(Source: Valdez Creek Mining Company, Plan of Operations)

, the total area of land disturbed at the mine, including past mining activity, is on the order of 807 acres (BLM 1990). In addition to Valdez Creek Mine, there are other smaller mines further up the Valdez Creek valley.

Open pit mining began at the site in 1984. Cambior Incorporated purchased the existing mining operations in November 1989 and shut down the operation in November 1990 to construct a new wash plant and settling/tailings impoundments (Cambior, 1991). According to facility personnel, the operation reopened in August 1990, with mining in the A7 pit beginning in March 1991.

Mining began in the area in 1903, with the discovery of placer deposits. After a small "rush" in 1904 and 1905, mining activity in the area was variable with techniques such as drift mining, booming and hydraulicking used to access and excavate the pay dirt. According to the Environmental Assessment, three different mining companies held the Valdez Creek property from 1913 to 1949 and conducted a considerable amount of mining. Mining in the area was substantially reduced until open pit mining began in 1984.

### 3.1.2 Environmental Setting

The mine is located in the Clearwater Mountains area, part of the Alaska Range. Valleys in the region were occupied by the Susitna, West Fork, and Valdez Creek glaciers during past periods of glaciation. Glacial features in the valley include medial, lateral, end, and ground moraines. Valdez Creek is a tributary to the Susitna River; the Susitna River flows into the Cook inlet on the south coast of Alaska. The mine is located at approximately 3,000 above sea level. The climate is harsh during most of the year, with extreme cold conditions from October through April or May. Temperatures range from summers highs in the 50's to winter lows in the -40's range (Valdez Creek Mining Co. 1988) Mean annual precipitation is estimated to be between 10 and 12 inches per year. Most of this falls as snow from February through May. The Environmental Assessment (BLM 1990) estimated that up to 9 inches of the annual precipitation budget (12 inches) is lost by sublimation and evapotransporation, and that 2.4 inches run off via Valdez Creek, the remainder recharges ground water.

Vegetation is typical of cold climate species. In the valley bottom, conifers (scattered black spruce) are mixed with grasses and alder. Further up the valley slopes, the vegetation grades into tundra species including dwarf birch, mountain avens, dwarf willows, cranberry, and other species. There are no threatened or endangered plant species in the area. (BLM 1990)

Wildlife in the area include caribou, moose, wolf, black and brown bear, fox, and beaver. None of these species occur in large numbers and according to site personnel, no threatened or endangered species occur in the area. Valdez Creek supports populations of grayling and lake trout. The stream diversion required to conduct mining activity in pits A-7 through A-10 resulted in the operator having to transport the fish around the diversion. Grayling migrate upstream in the spring, following breakup, for spawning. The fish are captured in a pool located below the mine and are trucked a short distance up stream. (BLM 1990)

#### 3.1.2.1 Geology

The geology at the site consists of poorly-sorted glacial and fluvial material deposited above bedrock. The sedimentary deposits consist of glacially worked alluvial and fluvial sediments deposited by the Susitna, West Fork and Valdez glaciers during past glaciation (Valdez Creek Mining Co. 1988). Material from volcanic ash outfalls are also present in the area.

The site contains paleochannels cut during interglacial periods by the ancestral Valdez Creek. These channels contain the sediments (fluvial deposits) where placer gold material has been naturally concentrated (Figure 3-3

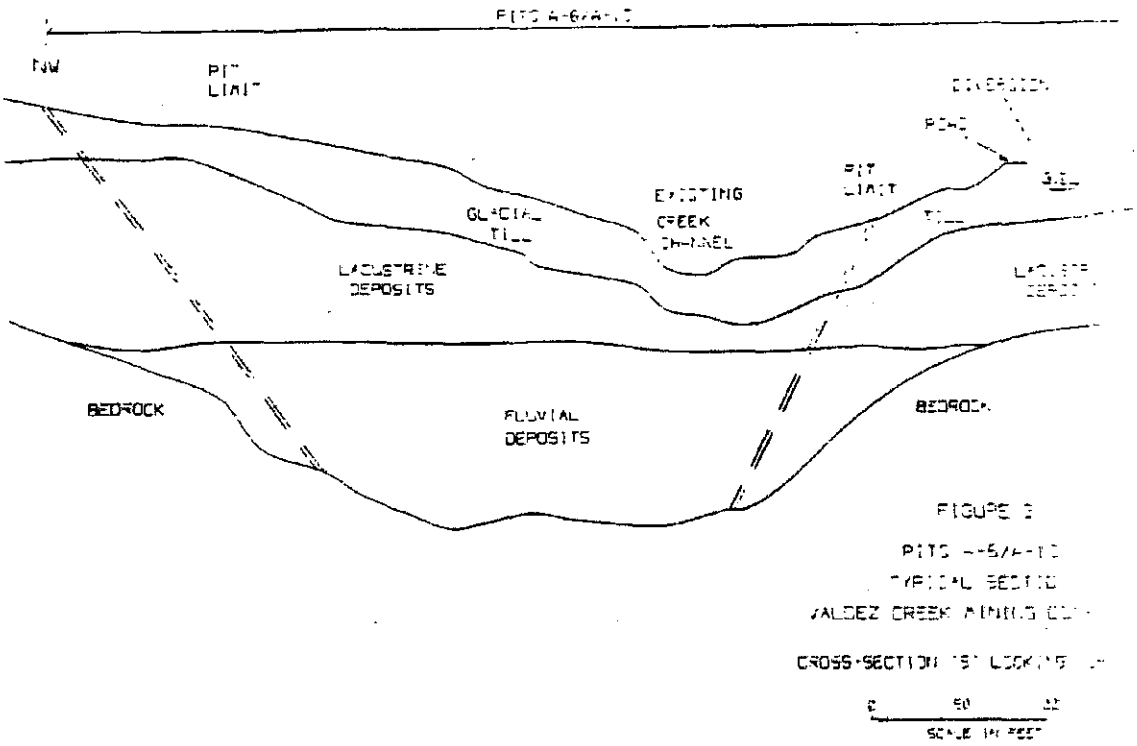



**Figure 3-3. Typical Cross Section of Pits A-6 Through A-10**

(Source: Valdez Creek Mining Company, Plan of Operations)

). This material is sometimes referred to as pay-gravel or pay-dirt. Overlying these are the lacustrine and outwash features characteristic of a glacial environment. Height of the section above bedrock averages 200 feet.

There are two pay gravel deposits mined at the site. The main deposit conforms to the bedrock floor and is approximately 20 feet thick, while a second newer deposit is in a canyon incised in the main deposit that reaches an additional depth of 40 feet. Where possible, both deposits are mined; however, the difficulty of delineating the newer deposit because of its irregular channel path often results in leaving the deposit unmined.

Soils are typical of cold climates at high altitudes and latitudes. Dominant soils are Histic and Pergelic Cryaquepts that are wet during the summer. Soils are prone to high runoff and erosion because they have a low permeability and slopes in the Valdez Creek valley are high. Topsoil in the area is very shallow and generally nutrient deficient. Although permafrost does occur in the area, none has been encountered at the Denali Mine (BLM 1990).

3.1.2.2 Surface Water

The Valdez Creek valley watershed covers an area of 60 square miles. The Creek flows 17 miles from Grogg Lake to the Susitna River. Mining operations are concentrated on the lower portion of the valley, two miles upstream from the Susitna River. In this area, Valdez Creek has been diverted by the mining company in order to access to ore beneath the active stream channel (see Section 3.2). A diversion dam has been constructed upstream of the active pit. The dam impounds water, which then flows through the diversion channel approximately one mile until rejoining with the stream. The diversion channel is lined and covered with rip-rap. The Creek is then returned to its original channel below the mine, before entering the Susitna River. In addition to the Creek diversion system, the facility has two small diversion ditches on either side of the valley to intercept runoff before it reaches the pit. Water from these diversion ditches flows to two settling ponds.

Over most of its course, Valdez Creek flows as a single, confined channel. The channel is braided above the diversion dam and then from below the mine to its confluence with the Susitna River. Background water quality tests in the stream show a turbidity of 0.4 nephelometric turbidity units (NTU), with settleable solids of less than 0.1 ml/l. Storm runoff can increase these levels to 1,500 NTU, with settleable solids reaching 10.3 ml/l. (BLM 1990)

Discharge from the Creek is estimated to be 300 cubic feet per second (cfs) in late March and up to 900 cfs in late May and early June. The 25-year flood is estimated to flow at 2,700 cfs. All of the facilities are within the 100-year floodplain. (BLM 1990)

3.1.2.3 Ground Water

As discussed above in the geology section, the site is underlain by unconsolidated glacial and fluvial material above bedrock. Till is interbedded with lenses of gravel in the upper portions of the profile that discharge an estimated 10 to 30 gallons per minute (gpm) of ground water. In the area just above the bedrock, a 10 foot zone of gravel, cobbles, and boulders discharge up to 50 gpm. (BLM 1990) Transmissivity in the till is estimated to be approximately $10^{-5}$ cm/sec (Valdez Creek Mining Co. 1988). According to the facility's Solid Waste Permit Application, the regional water table is a ten or more feet into the bedrock, 170 to 200 feet below the surface and water production is limited. Additional information concerning the hydrologic regime at the site was not obtained.

The facility operated eight dewatering wells that pump ground water from the area prior to and during mining. According to facility personnel, five wells are located above the diversion dam, which is upstream of the active pit, and 3 wells are located below the dam in the mine area. The water was discharged to the diversion system directly below the diversion dam. Additional information on these 8 dewatering wells was not obtained.

The facility operated three drinking water wells onsite. Wells A and B provided less than 10 gallons per minute and were used during normal operations. Well C was only used during winter operations. Well water was tested monthly for coliform, quarterly for volatile organics and once every 4 years for gross $\alpha$. Depths of these wells and results of the testing were not obtained.

## 3.2 FACILITY OPERATION

### 3.2.1 General Overview

Cambior's Valdez Creek Mine recovered over 75,000 ounces of gold annually, making it the largest placer operation in North America in 1992. Reserves are estimated to be 216,843 raw ounces with grades that average 0.1 ounces per cubic yard. Typically, mining progressed up the valley, with ore hauled by truck to a wash plant for gravity concentration and waste rock trucked to backfill previously excavated pits. The Plan of Operations for the period from 1990 to 1994 called for moving 35,590,000 cubic yards of overburden to access 4,450,000 cubic yards of pay gravel.

According to Cambior personnel, the Company employed 155 people onsite and operated 365 days each year. Two shifts ran each day for 10.5 hours. Three crews cycle in and out: 14 days on, one week off. Accommodations for the crews are ATCO trailers purchased from the Alyeska Company, where they were used along the Trans-Alaska Pipeline. Some employees prefer to live offsite in a camp on BLM land close to the facility referred to as Little Idaho. Water, sewage, and electricity is supplied by the facility.

### 3.2.2 Extraction

As discussed above, open pit mining of paleochannels north of Valdez Creek began in 1984. Camindex Mines has been a partial owner since the start of the project (at various percentages). Cambior acquired a 26

percent share of the mine in 1989, 49 percent in May 1990, and, effective January 1991, the ownership is: Cambior 75 percent, Camindex 25 percent. In August 1990 the operators shut down the operation to make operational changes. Until then, pay-gravels had been located in deeply-buried paleochannels separate from the active channel of Valdez Creek. However, as mining progressed up-valley, the paleochannels converged with the active channel of Valdez Creek. In order to access the ore, the facility constructed a diversion system for Valdez Creek. During this same inactive period, the facility also constructed a new wash plant and settling impoundments. Upon completion of construction in March 1991, mining began again with excavation from Pit A7.

#### 3.2.2.1 Excavation

The Operating Plan for 1990 through 1994 laid out the progression of mining activities. Figure 3-2 is a plan view of pit, waste, tailing, and facility building locations. The acreage for each use is identified, total area for all the activities identified is 807 acres. The operation was mining in the area A-7 (labeled area V and located at the top of the figure), and continuing upstream through A-10. Table 3-1

**Table 3-1. Estimated Volumes of Overburden and Pay-Gravel**
(Source: Valdez Creek Mining Company, Plan of Operations)

**MASS BALANCE**

**DENALI MINE 1990-94**

| PIT NAME | DC-1 | A-7 | A-8 | A-9 | A-10 | Totals |
|---|---|---|---|---|---|---|
| Acreage | 6 | 67.3 | 70.2 | 80.2 | 22.3 | 246 |
| Overburden Cu. Yd.* | 640 | 9100 | 9100 | 8250 | 8500 | 35590 |
| Pay Gravels Cu. Yd.* | 110 | 700 | 740 | 1600 | 1300 | 4450 |

* In thousands

provides the estimated volume of overburden and pay gravels in each of these areas.

Pit A7 was being mined in 10 phases, with 2 or 3 phases in operation at any one time. Each phase of the current pit is 400 to 650 feet wide (in the direction perpendicular to the stream channel), 180 to 200 feet deep, and 400 to 600 feet long.

At any one time, there was approximately 1,200 feet of open cut (e.g., a 1,200 foot length of valley bottom, 400-650 foot wide) being mined and backfilled. The top 180 feet of material is waste rock with pay gravel reaching a depth of 20 feet below the waste rock. The facility was extracting an average of approximately 34,000 cubic yards of material each day. Of this, 3,000 cubic yards pass through the wash plant when it is operating, leaving approximately 90 percent of the material moved as waste.

There were two pay gravel deposits in the area of Pit A7. The main deposit conforms to the bedrock floor, while a second newer deposit is in a canyon incised in the main deposit that reaches an additional depth of 40 feet. Where possible, both deposits are mined; however, the difficulty of delineating the newer deposit because of its irregular channel path often results in leaving the deposit unmined.

Initially the area was dewatered by pumping from withdrawal wells located near the diversion dam. Before excavating, a new section is drilled and blasted using ANFO to loosen or "fluff up" the unconsolidated material thereby making it easier to load and haul. The Company purchased ammonium nitrate and mixes it with fuel oil onsite. Waste rock is then mucked up and trucked to previously mined pits for disposal. The company used two front shovels, one with a 13-yard$^3$ bucket and one with a 11-yard$^3$ bucket and a Caterpillar front-end loader with a 12-yard$^3$ bucket to muck waste rock, and eight 85-ton Caterpillar trucks to haul the waste rock. Pay gravel was mucked with a backhoe having either a six-yard$^3$ or nine-yard$^3$ bucket and trucked to the wash plant. Usually smaller 50 ton trucks are used to haul pay dirt. The facility also used four dozers to work the dumps and the roadways.

3.2.2.2 Water Management

During the site visit, EPA observed water in the bottom of the pit and noted the plasticity of the soils as trucks traveled in the area. According to facility personnel this is due to characteristics of the glacial till overburden. To help with water management in the active area of the pit, the facility maintained two small diversion ditches on either side of the valley above the mined area to intercept runoff before it reaches the pit. In addition, the area to be mined was dewatered by eight ground water wells. Water from these wells is pumped to the diversion channel. According to facility personnel, five wells are located above the diversion dam above the mine and three wells are located below the dam. The water was discharged to the diversion system directly below the dam. Additional information on these eight dewatering wells was not obtained.

To access pay-gravels in pits A-7 through A-10 a temporary stream diversion was built. According to facility personnel, the diversion dam, is approximately 200 feet wide and over 25 feet tall with a crest width of approximately 50 feet (the dam was observed during the site visit). The area impounded during breakup

reaches a maximum of approximately 100 acres, two to three times the normal impoundment size of 25 acres. Typically, the water is only a few feet deep; however at breakup it may reach 10 feet in depth. The diversion ditch leads approximately 5,000 feet downhill, from the diversion dam to where it discharges to the creek. The entire diversion ditch is lined with a synthetic liner and rip-rap to prevent erosion and downcutting.

Peratrovich, Nottingham & Drage, Inc. were retained to prepare an engineering study for the diversion. The final design allowed a two stage implementation. Stream flow would be diverted to a channel 500 feet south and parallel to the natural stream. The stage I channel would be 5,385 feet long and the stage II channel would be 5,385 feet long for a total length of 10,755 feet. The channel invert was planned to be 20 feet wide at the base and 30 feet wide to the top and 2 to 2.5 feet deep. The diversion channel was to be designed to accommodate flow up to 2,700 cfs, equivalent to the 25 year flood event. Average flow is expected to be 700 cfs.

### 3.2.3 Beneficiation

The wash plant that concentrates the gold is strictly a mechanical system, no chemical additives were used. Additional gold concentration is conducted in a guarded and secured room using a jig, Knudsen bowl, table, and magnetic separation.

Pay-gravel was delivered to the wash plant by truck and dumped into a vibrating grizzly feeder. Water is added to the grizzly through pipe-mounted sprayer heads at the rate of 1,500 gallons per minute. The grizzly discards material larger than six inches in diameter. Material less than six inches in diameter passes to double-deck vibrating screens. Additional water is added to the screens at the rate of approximately 1,500 gallons per minute. The screens reject material larger than 3/4 inches in diameter. This material is carried by conveyor to a pile and is used by the facility for road repair. The facility does not have nugget trays to separate nuggets from the waste rock; they are assessing whether it would be economical to install them.

Fine material passing the screens is passed to a make-up tank where water may be added to make a slurry of 14 to 20 percent solids. According to facility personnel, the wash plant operation used approximately 3,000 gpm of water; most of this is added by spray bars at the grizzly and vibrating screen. From the make-up tank, a Warman slurry pump transfers the slurry to a series of sluices. The wash plant is operating with seven sluice boxes. Two types of sluices are used: five are 34 feet long, sloping 1.25 inches per foot. Four of these are running at any one time. Hungarian riffles are 1.5 inches high and are spaced two inches apart. Below the riffles, the lower 20 percent of the sluices are fitted with expanded metal over astroturf. Two newer sluices use a modified Hungarian riffle one inch high spaced one inch apart. The slope is two inches per foot in the riffle portion and 1.25 inches per foot in the expanded metal portion. A Nomad matting is used under the expanded metal section.

The sluices serve to allow the gravity concentration of gold from other less dense particles. No chemicals are added; the operation is entirely mechanical. The relatively more dense gold accumulates in the lee of the riffles and in the matting, with the remainder of the slurry (water and less dense gangue) flowing over the

riffles to become tailings. Tailings from the sluice boxes empty into a pump box where they are pumped to one of three settling ponds (also called tailings ponds).

The sluices were shut down and cleaned of gold every one or two days. Matting is picked and washed. The material is put in buckets and carried to the gold room. In the gold room, magnetic separation is used to separate heavy minerals such as magnetite from the gold. Following this, a jig, a table, and a Knudsen bowl are used to further separate gold from gangue. In a jig, slurry flows horizontally through a box with a screen top through which water is pulsed, separating more dense from less dense material. A table is an inclined table with small channels. The quantities of waste generated in this operation were not obtained; however quantities are minimal compared to the amount of tailings generated.

As discussed above, tailings were sent to settling ponds. There are three settling ponds in this system; the system is designed to allow settling of tailings and recycling of the water to the wash plant. Two ponds are unlined and the dam on the remaining pond is lined at one end of the pond. The operation discharged a low solids slurry from the wash plant into the primary sluice pond, which discharged to the secondary sluice pond and then to the tertiary sluice pond, where water is reclaimed and pumped back to the wash plant operation. These ponds are actually old mining pits A4 and A5 and are called the E4 and E5 wash plant ponds by the facility. According to facility personnel, each was approximately five acres in size with the deepest being 20 feet and the others ranging in depth from five to 10 feet. The ponds had a total capacity of 340 acre-feet (Cambior 1990). This pond system is intended to totally recycle all wash plant water. In addition to wash plant water, effluent from dewatering the pit was also discharged to these ponds (Cambior 1990).

Cambior had structural integrity problems with the first pond. This pond has failed twice, in 1991 and 1992. At the time of the site visit, the pond had been reconstructed and lined and Cambior was refilling the pond with water to test its integrity. Cambior expects a final permit for this pond when the construction is finished. These pond failures are discussed in more detail in Section 4.

As discussed above, water use in the wash plant was estimated by facility personnel to be approximately 3,000 gpm. Water sources for the operation include recycled water from the sluice ponds, which constitutes about 90 percent of the total flow. The remaining flow is make-up water from Valdez Creek (BLM 1990). Figure 3-4

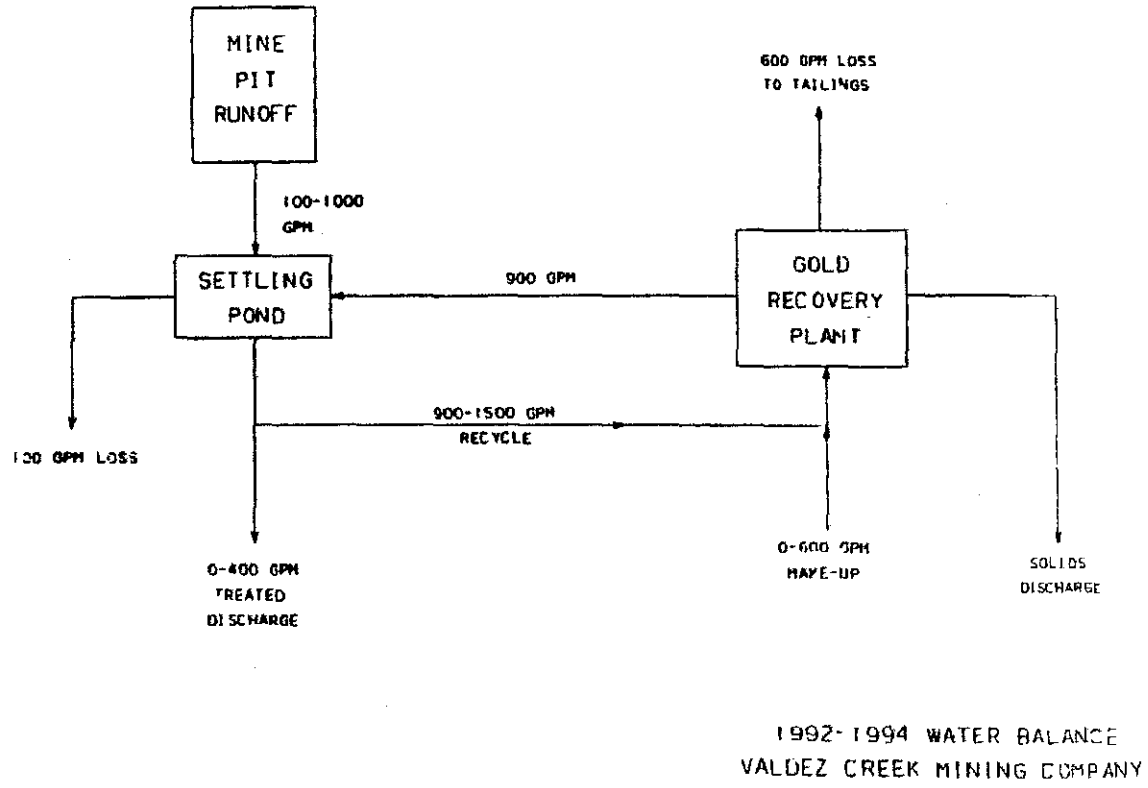



**Figure 3-4. Water Balance for 1990 Through 1991**

(Source: EA 1990)

is a diagram showing the 1990 through 1991 water balance according to the Environmental Assessment. Note that the total volume used at the wash plant estimated in the Environmental Assessment differs from the estimate provided for current usage.

#### 3.2.3.1 Ancillary Facilities

If the plant is shut down or if there is excessive runoff, the settling ponds discharge to a system of older settling ponds (called the Willow Creek Ponds). These ponds are old settling ponds that were constructed during previous operations.

Any discharge from the new settling pond system is routed through a series of ditches to the uppermost pond of the old pond system, which consists of six ponds. Discharge to the Creek from the old system is through an outlet from the Willow Creek Number 1 dam, the NPDES discharge point. (Cambior 1990)

A pump station has the capacity to supply 4,400 gpm to the plant. More detailed information on the pump station was not obtained. The facility operates three diesel boilers to provide steam during winter operations. There are steam lines under the ore pile keep the ore pile from freezing.

## 3.3 MATERIALS AND WASTE MANAGEMENT

Wastes and materials managed onsite at the Valdez Creek placer mine include large volumes of waste rock and tailings, as well as used or spilled material not uniquely related to mining. In addition other materials, such as mine water are generated onsite. Because these material ultimately become wastes when intended for disposal, they are also addressed here.

### 3.3.1 Waste Rock

Waste rock was generated during excavation of the pit and consists of overburden removed to access the ore. Waste rock typically consists of poorly sorted glacial material with some lenses of well sorted gravels and cobbles. As discussed previously, according to the Environmental Assessment, the facility extracted approximately 34,000 cubic yards of material each day. During operation, approximately 3,000 cubic yards passed through the wash plant per day. According to facility personnel, the waste to ore ratio is about 11 to 1. Table 3-1 provides the estimated volume of overburden and pay gravels in each of the planned areas. Based on Table 3-1, the stripping ratio for Pit A7 is approximately 13:1 (waste to ore).

Most waste rock is used to backfill older pits, however, there is always an amount remaining to be disposed of elsewhere due to swelling caused by the excavation. The swell factor or ratio for materials at this site was not obtained. The excess waste rock is piled onsite. As discussed later in this section, a solid waste landfill is located on one of the waste rock piles. Chemical analysis of the waste rock was not obtained.

### 3.3.2 Tailings

Tailings generated at the Valdez Creek Mine can be categorized into three types: one type consist of oversize material generated during the initial stages of washing; a second type consists of a low solids slurry generated as discharge from the wash plant; the third type is generated during final concentration of the gold in the gold room. The volume of tailings generated from each different part of the operation varies greatly, with discharge from the wash plant at a rate of 3,000 gpm, while tailings from the final concentration may be measures in terms of buckets per day.

Tailings separated during initial stages of washing include anything larger than 3/4 inches. This material is generated at both the grizzly (material greater than 6 inch) and the vibrating screens (material greater than 3/4 inch) of the wash plant. Tailings may also contain gold nuggets, discarded from the washplant due to size. According to the facility this material was stored in piles and used to maintain roads onsite. Tailings from the final stages of concentration, where gold concentrate is further separated from gangue using magnetic separation, a jig, a table, and a Knudsen bowl, consist of fine gangue minerals. This material was poured back into the system at the top of the sluice.

The highest volume of tailings generated was the low solids slurry discharged from the wash plant to the sluice ponds. The slurry consists of the less dense gangue minerals (all material less than 3/4 inch that was introduced to the wash plant) and water. Because no chemical additives are used in the wash plant, none are expected in the tailings. Constituent analysis of the water was not obtained.

As discussed previously, these tailings were discharged to a settling pond system. After settling, process water is then reused in the wash plant. The settling pond system is made of three settling ponds in a series with water pumped back to the wash plant from the third pond; only the dam between the first and second pond is lined. According to facility personnel, the ponds were constructed in two old mining pits; each is approximately five acres in size with the deepest being 20 feet and the other two ranging in depth from five to 10 feet. The ponds have a total capacity of 340 acre-feet (Cambior 1990). Dam and other construction-related details were not obtained. This pond system is intended to totally recycle all wash plant water. In addition to wash plant water, an unspecified volume of effluent from dewatering the pit is also discharged to these ponds (Cambior 1990). Information was not obtained on the estimated amount of water lost to seepage from this pond system.

Although the settling pond system is generally operated as a zero discharge system, during periods of high runoff or plant shutdown, excess water is routed through ditches to the uppermost of six additional settling ponds (Cambior Mining 1990). The lowest of the ponds discharges wastewater to Valdez Creek through a NPDES discharge point. These ponds, called the Willow Creek Ponds, allow additional settling of suspended solids prior to discharge to the Creek. Originally, the ponds were used as settling ponds during previous operations. According to facility personnel, the Willow Creek Ponds are constructed on native compacted soil. At the time of the site visit, the facility was not using the wash plant so mine water and other process water was being discharged to these ponds rather than being pumped back to the wash plant.

The size and theoretical efficiency of these settling ponds is presented in Table 3-2. The Environmental

**Table 3-2. Theoretical Efficiency of Settling Ponds**
(Source: BLM 1990)

Theoretical Efficiency of Settling Ponds
at Denali Mine (existing)

| Structure | Surface Area (acres) | *Water Flow (gpm) | **Overflow (gpm/A) |
|---|---|---|---|
| Settling Pond #1 | 3.90 | 5000 | 1282 |
| | | 1000 | 256 |
| | | 4400 | 1128 |
| Settling Pond #2 | 3.80 | 5000 | 1316 |
| | | 1000 | 263 |
| | | 4400 | 1157 |
| Settling Pond #3 | 4.20 | 5000 | 1191 |
| | | 1000 | 238 |
| | | 4400 | 1047 |
| Settling Pond #4 | 16.9 | 5000 | 295 |
| | | 1000 | 59 |
| | | 4400 | 260 |
| Settling Pond #5 | 8.50 | 5000 | 588 |
| | | 1000 | 118 |
| | | 4400 | 517 |

* Process water rate through system. Maximum flow 5000 gpm, minimum probable 1000 gpm, design flow 4400 gpm.

** To obtain adequate sedimentation, the settling pond is recommended to have an overflow rate of not more than 3700 gal/min/acre. (The overflow rate is the flow rate di ded by the surface area of the settling pond.) To obtain maximum sedimentation, the overflow rate should not be more than 860 gal/min/acre.

Assessment and Facility personnel identify five ponds while a letter from Cambior to EPA Region 10 identifies six ponds. According to facility personnel, the additional pond is a small mining pit that water flows through before it reaches the willow creek ponds. Information on the quantity and frequency of settling pond discharge to these settling ponds was not obtained. However, discharge from the lowest pond in the Willow Ponds system through the NPDES discharge point is presented in Table 3-3

Table 3-3. NPDES Discharge Rates
(Source: Cambior 1990)

**INSTANTANEOUS DAILY FLOW MEASURMENTS[1]**

**WILLOW CREEK MINE NO. 1 DISCHARGE PIPE**
**(GPM)**

**MONTHS OF:**

| DATE | SEPTEMBER | OCTOBER | NOVEMBER |
|---|---|---|---|
| 1 | | 63 | 848 |
| 2 | | N.R. | 1058 |
| 3 | | N.R. | 351 |
| 4 | | N.R. | 230 |
| 5 | | 17 | N.R. |
| 6 | | 5 | N.R. |
| 7 | | 17 | 230 |
| 8 | | 17 | 351 |
| 9 | 2268 | 17 | 230 |
| 10 | 2213 | 17 | 351 |
| 11 | 2268 | 17 | N.R. |
| 12 | 1290 | N.R. | 230 |
| 13 | 1172 | N.R. | 134 |
| 14 | 574 | 17 | N.R. |
| 15 | 179 | N.R. | N.R. |
| 16 | 134 | 37 | OUTLET FROZEN |
| 17 | N.R.[2] | N.R. | OUTLET FROZEN |
| 18 | 17 | 17 | OUTLET FROZEN |
| 19 | 17 | 17 | OUTLET FROZEN |
| 20 | 17 | 5 | OUTLET FROZEN |
| 21 | 17 | 5 | OUTLET FROZEN |
| 22 | 134 | 0 | OUTLET FROZEN |

[1] California Pipe Method.

[2] N.R. = No Reading.

**Table 3-3. NPDES Discharge Rates (continued)**

| DATE | SEPTEMBER | OCTOBER | NOVEMBER |
|---|---|---|---|
| 23 | 5 | 0 | OUTLET FROZEN |
| 24 | 134 | 0 | OUTLET FROZEN |
| 25 | 63 | 0 | OUTLET FROZEN |
| 26 | 134 | N.R. | OUTLET FROZEN |
| 27 | 63 | N.R. | OUTLET FROZEN |
| 28 | 37 | N.R. | OUTLET FROZEN |
| 29 | 63 | 134 | OUTLET FROZEN |
| 30 | 63 | 1058 | OUTLET FROZEN |
| 30 | ---- | 494 | OUTLET FROZEN |

. This discharge is monitored for arsenic, settleable solids and turbidity. According to a single sample taken (date of sampling not obtained), both turbidity and arsenic were slightly above background levels but well below NPDES limits. (Cambior 1990) See Section 3.4 for more information on NPDES compliance.

### 3.3.3 Other Materials

In addition to mining wastes and materials, the facility generated wastes and materials from routine operations that are not uniquely related to mining. These activities include equipment maintenance, spill clean-up, etc. The facility operated a permitted landfill for disposal of solid waste generated onsite. The main purpose of this landfill is to contain incinerator ash and residue and oil spill material from routine activities at the site. The cell for oil spill material, which is to contain approximately 3500 cubic yards of waste, was located on an old waste rock pile. The cell had a single liner and a leak detection system installed below the liner. During the site visit, facility personnel reported that the containment cell is being re-sealed as the original seams were not sufficiently sealed. As of the date of EPA's site visit, no material had been disposed of in the lined cell. Disposal was expected to begin once the seams have been effectively sealed. According to the Solid Waste Permit Application, the landfill is located away from surface water and is over 200 feet above the regional water table. (Valdez Creek Mining Company 1988) Additional construction details and current usage were not obtained. The oil spill material was generated by previous operators. According to facility personnel, prior to 1988, previous operators disposed of used oil by dumping it into a pit for burning and tires were added to keep the flame burning.

The facility had two methods of trash disposal, a putrescible waste incinerator, and an "air curtain burn box." The incinerator was used for disposal of domestic waste. (Valdez Creek Mining Company 1988) According

to facility personnel, wood and other large debris are burned in the burn box, a large steel container. Ash from these operations was disposed of in the landfill. (Valdez Creek Mining Company 1988)

Waste oil was blended with diesel fuel and burned in waste oil furnaces. Wash water was directed to a sump where a skimmer removes grease and oil, which are also burned in the waste oil furnaces. Spent solvents from parts washing were also mixed with the waste oil and burned. The facility has a State permit for the waste oil furnaces. The furnaces were made by Clean Energy Inc. and have a 500,000 BTU capacity. Approximately 8,800 gallons of used oil was generated and burned in June of 1992.

Antifreeze was recycled on site. The facility designed and constructed an antifreeze distillation unit in order to recycle antifreeze. Because of the quantities of antifreeze used, and the difficulty and expense of transporting antifreeze to such a remote site, the facility found recycling of the antifreeze to be cost effective. The quantity of antifreeze recycled was not obtained.

Most of the facility's tires were hauled to a dump in Glenellen. Some tires are also used for lightpole anchors. The facility stored scrap iron and steel, such as worn undercarriages, bucket teeth, chain, plate steel, and pipe, in a forty foot hopper and sent it to a recycler in Anchorage. Approximately 120 tons per quarter is been recycled in this manner. Aluminum is also sent to a recycler at an approximate rate of 20 cubic yards a quarter.

The facility operated two septic systems, one for the main site and one for campers. An additional septic system is located at the Little Idaho camping area.

There are four 15,000 gallon diesel tanks and two 10,000 gallon diesel tanks on site, and this storage area is lined and bermed. Other items stored onsite include antifreeze, solvents, gear lubricant, ANFO, and propane. According to facility personnel, all tanks are above ground. Table 3-4

**Table 3-4. Storage Tank Summary**

| Tank Description | Location | Contents | Capacity (Gal.) | Containment (Gal.) | Factor of Safety |
|---|---|---|---|---|---|
| Gasoline Storage | Main Camp | Unleaded Gasoline | 6,000 | 35,000 | 5.8 |
| Diesel Storage | Main Camp | No. 1 Diesel | 15,000 | 21,000 | 1.4 |
| Diesel Storage | Main Generator Installation | No. 1 Diesel | 500 | 600 | 1.2 |
| Lubricant and Waste Oil Storage | Cold Storage Building | Motor Oil<br><br><br>Hydraulic Fluid<br>Ethylene Glycol<br>Transmission Fluid<br>Petroleum Naphtha<br>Grease<br>Waste Oil<br>Blending Tank<br>Blending Oil | 3,000<br>3,000<br>1,000<br>3,000<br>3,000<br>550[1]<br>275[1]<br>400lbs<br>16,000[2]<br>6,000<br>10,000 | 14,500[3] | 1.3 |
| Miscellaneous Drum Storage | Maintenance Shops | Transmission Fluid<br>Petroleum Naphtha | 220[1]<br>110[1] | Operating Controls[4] | N/A |
| Diesel Storage | Wash Plant Generator | No. 1 Diesel | 500 | 6,000 | 12.0 |
| Diesel Storage | Sample Laboratory Generator | No. 1 Diesel | 250 | 300 | 1.2 |
| Diesel Storage | Operations Staging Area | No. 1 Diesel<br><br><br>Transmission Fluid<br>Petroleum Naphtha and Lubricants | 15,000<br>15,000<br>15,000<br>27,50[1] | 350,000 | 23.3 |
| Diesel Storage | ANFO Mix Truck | No. 1 Diesel | 230 | Operating Controls[4] | N/A |
| Aviation Fuel Storage | Airstrip | Aviation Fuel | 275 | | |
| Diesel Storage | Pump Installation | No. 1 Diesel | 120[5] | | |
| Diesel/Lubricant Storage | Mobile Fueling and Lubrication Equipment | No. 1 Diesel Fuel/ Lubricants | 3,000<br>1,300 | Operating Controls4 | N/A |

**Notes:** [1] Drum Storage (Capped 55 gallon drums on pallets).
[2] Waste Oil Storage Tank active level is less than or equal to 2/3 capacity (10,700) gallons).
[3] Containment capacity for Lubricant and Waste Oil Storage includes 5,000 gallons existing curb capacity, 7,000 gallon existing sump capacity, and 2,500 gallon proposed additional curb capacity.
[4] Operating controls include temporary berms, regular inspections and specific operating practices as appropriate.
[5] Fuel storage at any given pump installation does not exceed 120 gallons.

Source: Spill Prevention Control and Countermeasures Plan and Oil Discharge Prevention and Contingency Plan, January, 1992.

provides a list of tanks onsite.

## 3.4 REGULATORY REQUIREMENTS AND COMPLIANCE

The Valdez Creek Mine was subject to both State and Federal regulatory requirements and their attendant permits. Because the operation is located on Federal land under the jurisdiction of the Bureau of Land Management, the facility has prepared a Plan of Operations to satisfy BLM requirements. The facility has an NPDES permit issued by the EPA Region X, as well as several dredge and fill permits from the Army Corp of Engineers. State permits include dam safety and solid waste disposal. The State of Alaska has an optional annual placer mining permit; according to facility personnel, Cambior has not applied because the permit is optional. The State has no reclamation requirements; however, BLM has requirements for reclamation with a schedule of acreage in the Plan of Operations.

### 3.4.1 Federal Permits

#### 3.4.1.1 Bureau of Land Management

Because the facility is located on Federal lands, BLM requires a Plan of Operations. BLM approved the Valdez Creek Plan of Operations on June 19, 1990; the Plan is effective for five years.

Reclamation requirements include a schedule for reclamation of acreage, as specified in the Plan of Operations. The Plan addresses smoothing of the pit walls, creek beds, old ponds and old roads. The facility is working on areas U and V this year, and is using aerial seeding as a method as hydroseeding has not worked well in the past (see Figure 3-2). The facility recontours slopes to 3:1 or shallower. Grass, clover and willow have been seeded. According to the facility, the total acreage reclaimed in 1992 is approximately 180 acres; the facility plans to reclaim 135 new acres and 45 old (previously reclaimed) acres each year. Specific details describing any problems that may arise with reclamation, other than access to areas with the hydroseeding equipment, were not obtained. According to facility personnel, immediate plans for reclamation include the A6 Pit this year (see Figure 3-2).

#### 3.4.1.2 Army Corp of Engineers

The facility has an Army Corp of Engineers CWA Section 404 permit for construction of the diversion dam. It was issued on August 11, 1990 and expires in 1995. The Corps. has also issued smaller permits for culverts and other smaller disturbances. These permits were not obtained.

#### 3.4.1.3 Environmental Protection Agency

NPDES Permit

The Environmental Protection Agency's Region X Office has issued an NPDES permit to the facility. The permit, number AK002497-0, was issued on July 10, 1989 and is effective for five years. Effluent limitations set in the permit include: Turbidity 398 NTU's above background; settleable solids 0.2 ml/l; and

total arsenic 0.05 mg/l. As discussed previously, discharge is from the Willow Ponds system through a pipe in Willow Creek dam. Table 3-3 shows discharge rates for a season. Discharges may be exempt from the numeric limits if the facility qualifies for the "Storm exemption" in part I.D. of the permit. They apparently availed themselves of this exemption three times from December 1990 to November 1991, when storm events exceeded the 5-year 6-hour storm (the quantity required to be stored to qualify for the storm exemption). The facility is required to monitor their discharge once per season for arsenic and turbidity and once per day (during discharge) for settleable solids.

According to a single sample taken (date of sampling not obtained), both turbidity and arsenic were slightly above background levels but well below permit limits. In addition, there were three exceedances of the settleable solids, two in May and one in August 1991. According to the facility, these exceedances reflect natural events. (Cambior 1990) Additional compliance data was not obtained.

Hazardous Waste

Cambior generates hazardous waste at the Valdez Creek mine in the laboratory and is considered a conditionally exempt small quantity generator. The waste, mercuric nitrate, is generated in a solution from washing of the amalgam bead used in analysis of drill cores in the lab. The SIC code is 1041. The facility has a generator ID Number, AKD982656761.

### 3.4.2 State Permits

#### 3.4.2.1 Dam Safety

The facility has State Dam Safety Permits, which are divided into 3 sections: the settling ponds (also called Willow Creek ponds); the diversion dam (also called the Aspen 4 Dam); and the sluice ponds. There are 5 Willow Creek Ponds, each is approximately 10 acres each. They were constructed of native compacted soils with no liner or grout and have decants and spillways.

The diversion dam, as described previously, is approximately 200 feet wide and over 25 feet tall with a crest width of approximately 50 feet. The area impounded during breakup is two to three times the normal impoundment size of 25 acres and reaches a maximum of approximately 100 acres. Typically, the water is only a few feet deep; but at breakup it may reach 10 feet in depth. The diversion ditch leads approximately 5,000 feet downhill, from the diversion dam to the point where it discharges to the creek. The diversion ditch is lined with a synthetic liner and rip-rap to prevent erosion and downcutting.

The sluice ponds are actually old mining pits A4 and A5 and are called the E4 and E5 wash plant ponds. There are actually three ponds in this system, each approximately five acres in size with the deepest being 20 feet and the others ranging from five to 10 feet deep. The dam between the first and second ponds is lined with a synthetic liner due to seepage problems. The ponds are used to recycle water from the wash plant. Tailings are discharged from the wash plant into the primary settling pond, which discharges to the secondary

settling pond and then to the tertiary settling pond, where water is reclaimed and pumped back to the wash plant. Cambior has had several problems with pond 2, which has failed twice. At the time of the site visit, the dam had been reconstructed and lined and Cambior was refilling the pond with water to test its integrity. Cambior expects a final permit for this pond when the construction is finished.

3.4.2.2 Diversion Channel

On November 2, 1992, the Alaska Department of Environmental Conservation issued a Certificate of Reasonable Assurance, in accordance with Section 401 of the Clean Water Act of 1977, for the placement of fill material into wetland areas. Approximately 30,229,400 cubic yards of fill will be discharged into 317 acres of waters of the U.S. (wetlands) for the construction of the 4800 foot long Stage II lined diversion channel. The existing one mile long Stage I diversion channel has been designated, by this Department, as a mixing zone for the flushing of the new lined channel. As a condition of the Department's issuance of the Certificate of Reasonable Assurance, Cambior is required to have a third party conduct water quality monitoring, for turbidity and settleable solids, during the actual flushing of the new channel.

3.4.2.3 Alaska Fish and Game

Alaska Fish and Game has issued a permit to move fish from below the facility to above the diversion dam during spawning. Cambior has retained the services of Potterville Specialties Service and Northern Alaska Fisheries Services to move the fish each year. The activities take place several days each week over a period of about a month and a half in the spring. According to Cambior personnel, the facility appears to be dealing with two distinct fish populations.

3.4.2.4 Solid Waste Permit

The facility has permits for two landfills, a putrescible waste incinerator, and an "air curtain burn box." (Valdez Creek Company 1990). According to facility personnel, the facility also has a permit to operate used oil furnaces; this permit was not obtained during EPA's site visit. According to facility personnel, oil filters are no longer burned in the burn box as specified in the permit by direction of a DEC inspector.

According to the Alaska Department of Environmental Conservation (DEC), the facility has one Solid Waste Disposal Permit, which expires in November 1993. The permit allows for the seasonal disposal of oily soil, incinerated camp waste, and non-combustible residue into lined containment cells at the mine site. There is no limit as to the number of individual cells that can be developed under this permit.

Used oil filters were previously being burned in the burn box. State regulations concerning open burning, prohibit the burning of oily wastes or other materials that give off black smoke, without written permission from the Department. Due to a potential air quality violation, Cambior personnel were instructed by a Department inspector to dispose of used oil filters in the lined containment cells.

Currently, new State Solid Waste Management Regulations are being developed in preparation of the new EPA Solid Waste Regulations that will become effective no later than October 1993. At this time, it is uncertain how these new regulations will affect the renewal of Cambior's solid waste disposal permit.

### 3.4.3 Inspections and Compliance Incidents

3.4.3.1 Inspections

Department of Environmental Conservation

According to Cambior personnel, DEC inspects the facility once per year to review waste management, including the incinerator and burn box, the septic system, trash and other solid waste disposal, as well as water quality. According to the Alaska DEC, there were three inspections during 1991 and one inspection in 1992 (as of November 1992). The most recent unannounced inspection occurred approximately three weeks prior to EPA's site visit. According to Cambior, the inspector verbally noted erosion on the side of the diversion channel caused by breakup but did not send a report to the facility in writing. According to Cambior, the State typically does not send inspection reports to the facility unless there is a serious problem.

The Little Idaho campground is located on land within the claim block that Cambior Ak leases from BLM. Little Idaho is not a public campground and is restricted by Cambior to employee use only. The drinking water and wastewater disposal systems at the camp serve a bath/toilet house and RV dump station available to campers. There are no individual water or sewer hookups to the camping spaces. The campground is used seasonally during summer months only.

Construction approval, for both water and sewer systems, was issued by this Department in the Summer of 1992. The sewer system, after construction, was put into use by Cambior without a final operating approval from this Department. A 30-day interim operational approval was issued for the water system only, which expired September 6, 1992. Final operational approvals for these systems have not yet been issued, and are pending submittal and approval of engineers as-builts of the installed sewer system and satisfactory water sample analysis results on the water system.

Bureau of Land Management

Representatives from the BLM visited the site one week prior to EPA's site visit. BLM voiced concern about uncontrolled camping. Little Idaho is a permitted camping area for employees provided by Cambior. The BLM expressed concern over camping outside of designated areas by others visiting the area. The number of visitors increases especially during hunting season. According to Cambior personnel, Little Idaho is outside of the active mining area on public land.

Mine Safety and Health Administration

The Mine Safety and Health Administration inspects the facility twice a year. The most recent inspection prior to EPA's site visit was in March of 1992. There were a number of violations cited with the most serious addressing a ladder in a culvert with no safety loops and "dumpover," where a truck backs to the very edge of a pit and dumps its load. The preferred method is to dump and then use a dozer to push material to the edge of the pit. Noise and dust at the washer plant, and at drills and dozers were also reviewed with no citations issued. The fines for this inspection totalled approximately $600.

3.4.3.2 Compliance Incidents

Waste Oil

According to facility personnel, an oil spill was identified in the area surrounding the generator shack. The facility attributed the release to drips over several years of operation. Approximately 75 cubic yards of contaminated soil were excavated and will be disposed on site in a containment cell permitted by the State. According to facility personnel, prior to 1988, previous operators disposed of used oil by dumping it into a pit for burning and tires were added to keep the flame burning. According to Alaska DEC, some, but not all, of the contaminated soil has been excavated and disposed of in a containment cell covered by the Solid Waste Disposal Permit. In addition, in 1991, extensive oil spill contamination was discovered in an outside area known as the "dead line," which is used for heavy equipment storage and repairs. The Department required that a third party consultant conduct a site assessment and corrective action plan for these two contaminated areas. To date, these two contamination issues are still unresolved.

During this Department's June 1992 inspection, it was noted that Cambior had improved maintenance practices and preventative procedures to help prevent soil contamination. Small quantity releases occur fairly often at the mine site from such things as equipment hydraulic line breakage, and outside equipment maintenance, including oil and fluid changes, and leakage of fluids from equipment awaiting repairs.

A contaminated waste management plan, submitted by Cambior on September 9, 1992 was found to be unacceptable to the Department. The plan included a spring cleanup of contamination occurring during the winter months, periodic cleanup during the summer months, and "reportable" spills to be cleaned up immediately. The plan did not include how a determination would be made to insure adequate cleanup or how appropriate minimum target cleanup levels would be met. State regulations require all spills to be cleaned up immediately. Cambior is revising their waste management plan to meet state regulations and the concerns of the Department.

Fuel Spill

According to facility personnel, approximately three to four years ago a truck dumped fuel on the ground. No additional details concerning this spill were obtained.

Dam Failure

October 27, 1991, the first pond of the three sluice ponds used by the facility failed and released approximately 50 million gallons of tailings water into Valdez Creek. As required by the Alaska DEC, the facility conducted TCLP testing on the sediments and found no toxic contamination. The Department further required the deposited sediments to be pulled back from the creek to prevent spring breakup high water flows from eroding the sediments and creating a water quality violation of turbidity and settleable solids. Stabilization of the slope, and silt fences to protect the quality of the creek, were also required by the Department. During the actual releases, it is highly suspected that water quality standards were drastically exceeded downstream within Valdez Creek. On May 25, 1992, the same pond failed during testing and approximately 15 million gallons of water were released into the creek. At the time of the site visit, the dam had been reconstructed, with a liner and piezometers, and facility personnel were preparing to fill and retest it. No other details on these failures were obtained. It is unclear whether the releases of water caused exceedance of arsenic and other water quality standards downstream on Valdez Creek. According to the DEC, water quality monitoring was not conducted by Cambior during the two dam failure events.

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## APPENDIX 3-A

## COMMENTS SUBMITTED BY CAMBIOR ALASKA INC., ON DRAFT SITE VISIT REPORT

The letter reproduced in this appendix accompanied a copy of the draft site visit report on which Cambior Alaska Inc., had made comments and corrections. A copy of the marked-up draft is not reproduced here for brevity's sake. In general, Cambior's comments were clarifying in nature, providing information that the draft report indicated had not been obtained during the site visit or correcting minor factual errors in the draft. EPA's response to Cambior's comments are provided in Appendix B.

**APPENDIX 3-B**

**EPA RESPONSE TO COMMENTS SUBMITTED BY CAMBIOR ALASKA INCORPORATED ON DRAFT SITE VISIT REPORT**

EPA Response to Comments Submitted by
Cambior Alaska Incorporated
on Draft Site Visit Report

EPA has revised the report to incorporate all of the comments and suggestions made by Cambior Alaska Incorporated. In some cases, EPA made minor changes to wording suggested by Cambior in order to attribute the changes to Cambior or to enhance clarity.

**APPENDIX 3-C**

**COMMENTS SUBMITTED BY THE STATE OF ALASKA ON DRAFT SITE VISIT REPORT**

**APPENDIX 3-D**

**EPA RESPONSE TO COMMENTS SUBMITTED BY THE STATE OF ALASKA ON DRAFT SITE VISIT REPORT**

EPA Response to Comments Submitted by
The State of Alaska
On Draft Site Visit Report

EPA has revised the report to incorporate all of the comments and suggestions made by the State of Alaska. In some cases, EPA made minor changes to wording suggested by the State.

Attachment D1

# Effects of Suction Dredging

# A Summary of Dredging Publications

Written by Joe Cornell

Draft of April 16, 2001

This article is a summary of facts and conclusions found in about two dozen published articles about the effects of suction dredging. The purpose of this study is to present the known facts to the general public. It is expected that only facts and truths can lead to a rational end to the controversies over multiple use of the public lands.

The number of articles directly about effects of dredging are limited. Publications about fish habitat are legion. Most of the articles were garnered from the internet. A few had been around for a long time.

The total of 27 publications contained reports on some 13 separate studies of dredging effects and 7 reviews of accumulated findings and existing regulations. Three older articles discuss effects of sediment from historic mining or sediment in general. One of these, Dr. Wards ODOGAMI Bulletin #10, is also remarkable because the Oregon Dept. of Fish and Wildlife tried to recover and suppress this article some years back. Dr. Ward's conclusions apparently go against some current prevailing doctrines.

No publications were directly ignored, but there are too many related articles in published bibliographies to review them all. The initial deadline for this article was April 23 [2001], the end of the comment period on the local mineral withdrawals. That and the remarkable consistency of the reports permits a public disclosure of findings at this time.

A request to Siskiyou Regional Education Project (SREP) returned no real reference, either for or against. They were specifically asked for photocopies or bibliography of articles about the effects of suction dredging. Their packet contained only local newspaper clippings, some immoderate environmental magazines from Australia promoting "uncivil" acts, and a couple of slick products pushing the Siskiyou National Monument. This is even though they have been known to reference Harvey et al (1995) in public and in court (SREP vs. Rose, 1999).

Reference numbers are keyed to the related bibliography. All studies were by government agencies, universities, and professional organizations. All studies are certainly main-stream and reasonably scientific.

Harvey et al (1995)

Harvey et al (1995) is a review of publications and potential problems, as well as recommendations for future management at the watershed level. This seems to be about the only article quoted by immoderate environmentalists. It does record every possible thing that could be used to suggest there might be significant harm. It doesn't come to any conclusion about whether or not dredging should be allowed.

After the over-environmentalistic excesses at the end of the Clinton administration, Harvey et al (1995) can also be viewed in a different light. The study was requested and funded by the Clinton Forest Service. Immoderate environmentalists, those who are trying to end multiple use, seem to think that this article gives them something that the earlier publications didn't. Therefore, this article appears to be a gift to the extremists whose interests were improperly pushed at the end of the Clinton era.

# Summary of Conclusions

All statements from the articles are referenced. Your present reporter's comments are not.

## Miner's Efforts

A majority of dredge operations studied did not work long periods or disturb large areas of the stream bed.[9] Of the 200 miners studied, only 57 spent more than 500 hours per season.[16] Thus, it appears that dredgers mostly worked afternoons in the summer, even before the setting of the dredging season between hatching and spawning. That's partly because it takes half a day to drive out there and mornings in the mountains can be cool, even in summer.

## Water Quality: Turbidity, Sediment, Temperature

Water quality was impacted only during the actual operation of a suction dredge, which generally was only 2 to 4 hours of actual operation.[9] The primary effect of suction dredging was increased turbidity and total filterable solids downstream from the dredge from 30 to 150 meters.[14, 16] Naturally occurring minerals, such as copper and zinc sulfides, may be stirred up from stream bed sediments.[16] Dredge plumes, although visible, were probably of little direct consequence to fish and invertebrates.[19] Movement rate of suction dredging equals 0.7% of natural rates.[3]

Deposited sediment decreased exponentially downstream with distances from dredging.[20] Suspended sediment returned to ambient levels 30 to 60 meters downstream.[8, 20] In a few cases, sediment went further downstream than found in other studies because of steep stream gradient and fine sediment.[18] Maximum sediment concentrations were only a minute fraction of the great loads needed to impact fish feeding and respiration.[19]

Dredge mining had little, if any, impact on water temperture.[9]

## Fish: Eggs, Young, and Adults

Mortality of fish eggs by dredging ranged by species from 29% to 100% and were generally greater than that of hatchery stock of the same age.[5] Presence of silt during nonerosion periods results in bottom deposition which is damaging to fry production.[17] This is why the dredging season was set between hatching and the next spawning.

There's no doubt that too much sediment is bad for fish eggs. However, dredging can improve permeability and velocity of water in gravel.[11] Intergravel permeability at one site increased, although not significantly; no changes in downstream permeability were noted.[20] A five-inch dredge could improve the intergravel environment for both fish eggs and benthos.[11] Weighing all factors, dredging can improve the gravel environment for both fish eggs and aquatic insects, especially if the operator mined uniformly in one direction, as opposed to a pocket and pile method.[11]

The amount of colloidal fines in the Rogue River below (historic) placer mines was too small to adversely effect young fish eggs or fish food.[25] It was found that the thin intermittent layer of gritty sediment (less than 1/8 inch) from (historic) placer mining did not interfere with oxygen supply to fish eggs.[25]

Placer mining debris is typically chemically inert and does not take oxygen from the stream or add toxic agents to the water.[25] Hydraulic placer mining debris was typically just stream sand and gravel that had been left behind as the streams meandered.[25]

The tank tests at Reed College showed that young fish live well up to thirty days in good water mixed with natural soil materials.[25] The tests used sediment loads from two to three times as large as the extreme load contributed to the Rogue River by maximum conditions of hydraulic placer mining.[25]

Of course, dredging should not be conducted while young salmonids reside in the gravel.[2] Because of the short mining season, fry emergence and rearing did not appear to be impacted to a high degree by dredging.[9] Juveniles used dredge holes, and their feeding, growth, and production did not seem to be impacted.[9] In contrast to Sigler et al (1984), young steelhead in Canyon Creek sought out dredge plums to feed on exposed invertebrates.[9, 10, 19]

Dr. Ward reviewed another study, which found young Alaskan salmon suffered no ill effects from heavy sediment loads ten times that found at Agness (from historic mining).[25]

Adult fish are not acutely affected or likely to be sucked into dredges.[7] Dace, suckers, steelhead, juvenile steelhead and salmon fed on exposed invertebrates, rested, and held in dredge holes.[9] Adult salmon have been observed to spend considerable time within yards of active dredgers and to hold in the dredged holes.[19] Feeding, growth, and production did not seem to be impacted at the current level of dredge activity.[9]

Salmonids spawned in the vicinity of the previous season's dredging, but, in one study, salmonids redds were not located in tailing piles.[9] The gravels dispersed by the high stream flows, which included dredge tailings, certainly composed a portion of the suitable spawning gravels each year.[9] Dredge tailings have been observed to provide good salmonid spawning ground due to the loose condition of the sand and gravel.[9] In some places, mining debris may provide the best or only habitat.[9, 10]

At the present level of activity, anadromous salmonids and habitat were only moderately affected.[25] Impacts on fish and habitat were moderate, seasonal, and site specific.[25] With restrictions, even large dredges have minimal impact on moderate to large-sized waterways.[2] The essence of Dr. Ward's findings is that the placing of muddy water from (historic) placer mining operations in the Rogue River drainage is not inimical to fish and fish life.[25] Sediment from dredging is much less than that of historic mining.

## Invertebrates

The abundances of several species of aquatic insects and riffle sculpin were adversely affected, but only at and immediately downstream from the dredge site.[8] Due to differences between species... the lack of significant differences between control and dredged stations observed for some taxa is not surprising.[6] The dredging did not significantly reduce the number of invertebrates.(9) Only 7.4% of benthic insects died from going through a dredge.[11] The effects of dredging... were not severe enough to cause differences in mean numbers of invertebrates or in diversity indices.[18]

Effects on the benthic community are highly localized.[6, 8] All settled back to the bottom within 40 feet of the dredge.[11] Impacts on aquatic insect abundance were limited to the area dredged.[20] Most of the recolonization of benthic invertebrates was completed after 38 days.[5]

Impacts of dredging to invertebrates were minimal.[25] Effects of dredging on insects and habitat were minor compared to bed-load movement due to large stream flows during storms and from snowmelt.[18]

Several studies all reported that invertebrates recolonized dredge sites within 30 to 45 days.[5, 14] Substantial recovery of invertebrates occurred rather rapidly, and disturbance occurred only close downstream from the dredge.[16] The 45 day recolonization experiment indicates not only a rapid recovery but also a rapid recovery in the total numberof insects over time.[6] Almost all taxa found on cobble substrates take part in the recolonization of sand and gravel areas.[6] Dredging can improve the gravel environment for aquatic insects, as well as fish eggs.[11]

## Stream Channel and Banks

Dredging or highbanking of bank materials should be prohibited as this may create turbidity and stream bank instability, unless there is a holding pond.[2] Stream-side vegetation should not be removed.[2] Only a few dredgers undercut banks, thus channelizing the stream, removing vegetation and accelerating bank erosion.[25] Camping in the riparian zone caused some damage.[12] Survey suggested that mining of the stream

banks caused more damage than dredging.[12] Moving of large boulders alters the stream bed.[12] Boulders and logs should be replaced, if removed, for fish habitat.[2] Few miners caused adverse impacts.[12]

Changes to stream bed were major but localized, such as excavation to bedrock in a hole.[18] Disturbed stream reaches were only a few tens of meters.[8, 14] Stream bed alterations are probably more long-lived on streams with controlled flows than on those with flushing flows.[8, 19] Where flushing flows occur, substrate changes are gone in from one month to one to three years.[8, 16, 17] Holes and piles in the center of the stream are usually gone after one winter.[19] Piles along the banks may linger.[19] This is similar to piles left by historic miners.[19] Pool habitat created at the dredge site may compensate for pool loss immediately downstream.[20]

## Natural Variation

Fish and invertebrates displayed considerable adaptability to dredging, probably because the stream naturally has substantial seasonal and annual fluctuations.[6] All measurements of dredge effects turned out to be within the natural variation of the local environment.[24] Stream environments are typically dynamic and variable due to floods, natural inputs of sediment from landslides, and other sources, especially dams.[25] Salmon and steelhead runs were established in past climates much rougher at times than today's, even with mining.[25] That is, in the Ice Age precipitation, landslides, and sediment loads were often much greater than today.[25]

The fish runs did not decline during the first and greater episode of mining.[25] Thus, it's likely that the lesser mining of the 1930's is not the reason for the decline in fish runs at that time.[25] The main difference between the two times are the dams, industrial wastes, and agricultural withdrawals of the later period.[25]

In the mid-seventies, Willard Street, local historian and author, told your present reporter that the end of the great fish runs of the Rogue River had coincided with the beginning of the agricultural withdrawals, not with mining. In the early 1990's, agricultural withdrawals are oversubscribed and that inforcement is poor, at best.

## Cumulative Effects

Cumulative effects of suction dredging have probably not been fully determined, but there is considerable evidence of only localized and temporary effects from multiple dredges.[6, 7, 9, 12] Studied were the effects of six dredges in a 2 km stretch, [6] 40 dredges on an 11 km stretch,[7] up to 24 dredges on 15 km,[9] and 270 dredges in a part of the Sierra Nevada.[12] Three years of monitoring on the Chugach National Forest found no noticeable impact to water quality from dredges of 6 inches or less.[10]

"If there were a cumulative effect of dredging, an increasing number of taxa should have declined in abundance after June at downstream stations."[8] No such decline appeared in the data.[8] There is a need for additional study of cumulative effects and other items.[9, 16, 26] However, no authors declared that effects were serious enough to warrant a change of law and end of dredging rights.

## Conclusions about the Conclusions

Studies to date have not shown any actual effect on the environment by suction dredging, except for those that are short-term and localized in nature.[14, 21] Effects were significant, but localized.[8] The size of the impact zone varies.[8] A six-inch dredge is appropriate where substrate gravel size is large, but a large aperture may be disruptive in a small channel.[11] Suction dredging effects could be short-lived on streams where high seasonal flows occur.[6, 7, 9] The greatest potential for damage is at low flow.[15]

Even though cumulative effects and some other questions have not been thoroughly studied, there has been nothing to date to substantiate closure of the small-scale mining operations.[23] Even with the absence of data, environmental groups were active to close down mining citing unsubstantiated possible discharge violations.[23] The effects of suction dredging would appear to be less than significant and not deleterious to fish.[26]

## Regulations and Future Management

Current regulations of size and season appear adequate to protect habitat, with some future adjustments.[18, 25, 27] Suction dredges of larger than 4 inches generally have more than de minimis effects on the aquatic environment and therefore require authorization.[21] The DEI by the State of California stated that, "based on best available data, it is anticipated that the regulations, as amended by the proposed project, will protect fish and other related aquatic dependent resources and will not cause significant effects to the environment or deleterious effects to fish."[26]

Harvey et al (1995), at the request of the Forest Service, reviewed existing studies and recommended analyzing dredging effects by watershed.[27] California, Idaho, Washington, and Oregon manage dredging with the conclusion that, with mitigations, effects are insignificant.[27]

## Present Researcher's Conclusions

As in most aspects of life, risk of negative effects cannot be reduced to nothing. However, consistency of the findings indicate that doesn't seem to be necessary. It would seem that existing regulations, monitoring and periodic upgrade of regulations would be

enough to prevent significant negative effects. Just in case the price of gold should triple, procedures should be put in place for limiting the number of operations in heavily dredged reaches. This should be based on some scientific study or determination. Of course, numerous operations only occur in the very few areas where there's still some gold to be found.

The Corps of Engineers eloquently summarizes the current situation:

"Four-inch and smaller dredges have inconsequential effects on aquatic resources.[21] This is an official recognition of what suction dredgers have long claimed; that below a certain size, the effects of suction dredging are so small and so short-term as to not warrant the regulations being imposed in many cases."[21]

"The U.S. Environmental Protection Agency (EPA), has ignored this concept, although numerous studies, including the EPA's own 1999 study of suction dredging, repeatedly and consistently support the Corps finding de minimis effects.[21] The reports consistently find no actual impact of consequence on the environment, and so almost always fall back to the position that potential for impact exists."[21]

"The regulatory agencies should be consistently and continually challenged by the dredging community to produce sound, scientific evidence that support their proposed regulations.[21] To regulate against a potential for harm, where none has been shown to exist, is unjustifiable and must be challenged."[21]

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16. Prussian et al, 1999
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18. Somer and Hassler, 1992
19. Stern, 1988
20. Thomas, 1985
21. US Army Corps of Engineers, (1994)
22. US Dept. of Agriculture, (1997)
23. USGS, 1998
24. Wanty et al, 1997
25. Ward, 1938
26. State of California, 1997
27. Harvey et al, 1995

# BIBLIOGRAPHY
## OF THE
# EFFECTS OF SUCTION DREDGING

Draft of April 15, 2001

By: Josiah Cornell

Actual studies of the effects of suction dredging are few. Articles about the general effects of sediment and other disturbances to streams are numerous, and they may be found in the bibliographies of articles included here.

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**(1.) Author(s):** Ames, Frank, compiler, 1995
**Title:** Excerpts From Suction Dredge Studies
**Source:** Published by the Washington Alliance of Miners and Prospectors
**Purpose:** To compile information about dredging effects on entrainment, feed and fish, flushing flows, sediment, effects of silt on fish, effects on spawning, changes in the stream bed, temperature, turbidity, and water quality.
**Method(s):** Excerpts from published articles
**Conclusion(s):** Conclusions are recorded under the names of the excerpted authors.
**Notes:** This is a compilation of excerpts from published articles about effects of dredging.

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**(2.) Author(s):** Badali, P.J., 1988
**Title:** Effects of Suction Dredging on Fish and Benthic Invertebrates
**Source:** Western Mining Council and State of Idaho Dept. of Water Resources, Recreational Dredging Seminar
**Purpose:** To gather together available facts from scientific publications
**Method(s):** Summary of articles and conclusions
**Conclusion(s):** Dredging should not be conducted while young salmonids reside in the gravel. Dredging or "highbanking" of bank materials should be prohibited as this may create turbidity and stream bank instability, unless there is a holding pond. Stream side vegetation should not be removed. Boulders and logs should be replaced, if removed, for fish habitat. **With these restrictions, even large dredges have minimal impact on moderate to large-sized waterways.** (emphisis added)
**Notes:** Summarized articles are included under the authors' names

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**(3.) Author(s):** Michael F. Cooley, Oct. 16, 1995
**Title:** A comparison of stream materials moved by mining suction dredge operations to the natural sediment rates
**Source:** USDA Siskiyou National Forest
**Purpose:** To compare amount of material moved by dredging versus natural rates
**Method(s):** Compared rates from several studies
**Conclusion(s):** **Sediment rates from suction dredging are only a minor fraction of natural rates in mountainous terrain.** (emphisis added)

(4.) **Author(s):** Gough, L., et al, 1997

**Title:** Placer Gold Mining in Alaska-Cooperative Studies on the Effect of Suction Dredge Operations on the Forty-mile River.

**Source:** USGS Fact Sheet 155-97, October 1997

**Purpose:** To evaluate possible negative effects of dredging, such as increasing the load of toxic metals and turbidity and decreasing the number and diversity of aquatic biota.

**Method(s):** Sampling of metals in rocks and stream bedloads of the watershed; sampling of turbidity and stream chemistry below dredge operations.

**Conclusion(s):** Published in Wanty et al, 1997

**Notes:** A description of the metals study; results were reported in Wanty et al, 1997.

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(5.) **Author(s):** Griffith, J.S., and Andrews, D.A., 1981

**Title:** Effects of a small suction dredge on the fishes and aquatic invertebrates in Idaho streams.

**Source:** North American Journal of Fisheries Management 1:21-28

**Purpose:** To evaluate some of the effects on aquatic organisms from use of small suction dredges.

**Method(s):** A small dredge was operated on four small Idaho streams and mortality and recolonization was assessed. Dredging was deliberately done during emergence of fry.

**Conclusion(s):** Mortality of fish eggs ranged by species from 29% to 100% and were generally greater than that of hatchery stock of the same age. Most of the recolonization of benthic vertebrates was completed after 38 days. Survival of entrained vertebrates that settled on the surface was not assessed.

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(6.) **Author(s):** Harvey, B.C., 1980

**Title:** Effects of Suction Dredge Mining on Fish and Invertebrates in California Foothill Streams

**Source:** M.S. University of California at Davis

**Purpose:** to determine the impact of small (8-inch and less) suction dredges on fish and invertebrates in foothill streams

**Method(s):** field study with in-stream sampling of control areas and dredge sites. The effect of a number of dredges in a limited area of stream was investigated, six dredges in a 2km section of stream.

**Conclusion(s):** The overall effect of dredging on the benthic community appears highly localized. Due to differences between species... the lack of significant differences between control and dredged stations observed for some taxa is not surprising. Fish and invertebrates displayed considerable adaptability to dredging, probably because the stream naturally has substantial seasonal and annual fluctuations. The 45 day recolonization experiment indicates not only a rapid recovery in the total number of insects over time, but also that almost all taxa found on cobble substrates take part in the recolonization of sand and gravel areas. Flushing winter flows can greatly reduce the long term impact of dredging.

---

(7.) **Author(s):** Harvey, B.C., McCleneghan, K., Linn, J.D., Langley, C.L., 1982

**Title:** Some Physical and Biological Effects of Suction Dredge Mining

**Source:** California Dept. of Fish and Game Lab Report No. 82-3

**Purpose:** to examine the effects of dredging on turbidity, settleable solids, and sedimentation rate, aquatic insects, and fish

**Method(s):** Field surveys

**Conclusion(s):** Effects were significant, but localized. The abundance of several species of aquatic insects and rifle sculpin were adversely affected, and the size of the impact zone varies. No additive effects were detected on the Yuba River from 40 active dredges on an 11 km stretch. The area most impacted was from the dredge to about 30 meters downstream, for most turbidity and settleable solids. Sedimentation rates fell back to ambient after 60 meters. Stream bed alterations are probably more long-lived on streams with controlled flows than on those with flushing flows. Effects on the benthic community are highly localized. Where flushing flows occur, substrate changes are gone in one year.

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**(8.) Author(s):** Harvey, Bret C., 1986

**Title:** Effects of suction gold dredging on fish and invertebrates in two California streams

**Source:** North American Journal of Fisheries Management, 6:401-409, 1986

**Purpose:**

**Method(s):**

**Conclusion(s):** **Adult fish are not acutely affected or likely to be sucked into dredges.** Benthic communities were significantly altered, but alterations were localized and associated with changes in degree of embeddedness of cobbles and boulders. Suction dredging effects could be short-lived on streams where high seasonal flows occur. Six small dredges (<6in.) on a 2 km stretch had no additive effects. ***"If there were a cumulative effect of dredging, an increasing number of taxa should have declined in abundance after June at downstream stations."*** **No such decline appeared in the data.** *"Fish and invertebrates apparently were not highly sensitive to dredging in general, probably because the streams studied naturally have substantial seasonal and annual fluctuations in flow, turbidity, and substrate."* Substrate changes were gone after one year. (emphisis added)

**Notes:** From the compilations

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**(9.) Author(s):** Hassler, T.J., Somer, W.L., Stern, G.R., 1986

**Title:** Impacts of Suction Dredge Mining on Anadramous Fish, Invertebrates and Habitat in Canyon Creek, California

**Source:** California Cooperative Fishery Research Unit, U.S. Fish and Wildlife Service, Humboldt State University, Cooperative Agreement No. 14-16-0009-1547, Work Order No. 2, Final Report

**Purpose:** To evaluate impacts of suction dredge mining on fish, invertebrates, and habitat.

**Method(s):** Similar to McCleneghan and Johnson (1983), interviews and subjective site observations.

**Conclusion(s):** Studied 24 3" to 6" dredges along 15 km stretch. "Dredges on Canyon Creek seemed to be spaced far enough apart, and operated at low enough levels during the study not to result in cumulative effects. Most visible effects were gone after one year. At the present level of activity, anadromous salmonids and habitat were only moderately affected. Fish congregate and feed where dredging displaces and exposes benthic invertebrates. The dredging did not significantly reduce the number of invertebrates. Steelhead fed opportunistically. Impacts of dredging on invertebrates were minimal. Salmonids spawned in the vicinity of the previous season's dredging, but salmonid redds were not located in the tailing piles. The gravels dispersed by the high stream flows, which included dredge tailings, certainly composed a portion of the suitable spawning gravels each year. Because of the short mining season, fry emergence and rearing did not appear to be impacted to a high degree by dredging. Juveniles used

dredge holes, and their feeding growth, and production did not seem to be impacted. A majority of dredge operations studied did not work long periods or disturb large areas of the streambed. Dace, suckers, and juvenile steelhead and salmon fed, rested, and held in dredge holes. Dredge mining had little, if any, impact on water temperature. Water quality was impacted only during the actual operation of a suction dredge, which was generally only 2 to 4 hours of actual operation. Those few dredgers who undercut banks channelized the stream, removed vegetation and accelerated bank erosion. Impacts on fish and habitat were moderate, seasonal, and site specific. **Current regulations of size and season appear adequate to protect habitat.** Three referenced studies had found that salmonids spawned in tailings. (emphisis added)

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**(10.) Author(s):** Huber, C., and Blanchet, D., 1992

**Title:** Water quality cummulative effects of placer mining on the Chugach National Forest, Kenai Peninsula, 1988-1990

**Source:** U.S. Forest Service, Chugach National Forest, Alaska Region

**Purpose:**

**Method(s):**

**Conclusion(s):** Three years of monitoring on the Chugach National Forest found no noticeable impact to water quality from dredges of 6 inches or less.

---

**(11.) Author(s):** Lewis, R., 1962

**Title:** Results of Gold Suction Dredge Investigation, Memorandum of September 17

**Source:** California Dept. of Fish and Game, Sacramento, Ca.

**Purpose:** Part of a study of suction dredge effects.

**Merthod(s):** A rented 5-inch dredge was operated

**Conclusion(s):** Only 7.4% of benthic insects died from going through a dredge, although it varied by order. All settled back to the bottom within 40 feet of the dredge. Fish appeared and began to feed as soon as dredging started. The turbidity plume was 200 feet long. A five-inch dredge could improve the intergravel environment for both fish eggs and benthos. A six inch dredge is appropriate where substrate gravel size is large, but a large aperture may be disruptive in a small channel. Dredging improved permeability and velocity of water in gravel. **Weighing all factors, dredging can improve the gravel environment for both fish eggs and aquatic insects, especially if the operator mined uniformly in one direction as opposed to a pocket and pile method.** (emphisis added)

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**(12.) Author(s):** McCleneghan, K., and Johnson, R.E., 1983

**Title:** Suction Dredge Gold Mining in the Mother Lode Region of California, Environmental Services Branch, Administrative Report 83-1

**Source:** State of California Dept. of Fish and Game

**Purpose:** To evaluate some effects of suction dredge mining

**Method(s):** Field surveys included 200 interviews with miners, over 200 sites were assessed, observations at dredge sites, and subjective determinations of damage estimates

**Conclusion(s):** Study of the impacts of 270 dredges with up to 10 inch intake. Of the 200 miners, only 57 spent more than 500 hours per season, the average was 235 hours per season. Few miners caused adverse impacts. Damage that does occur is of concern because of a high number of dredgers in the state. Some damage was from the few miners camping in the riparian zone. Survey suggested that mining of the stream banks caused more

damage than dredging. Moving of large boulders alters the stream bed. Types of damage were not described or quantified. Because of the number of miners in California at the time, there was a need to fully examine the effects of dredging.

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**(13.) Author(s):** Nelson, R.L., McHenry, M.L., and Platts, W.S., 1991
**Title:** Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats
**Source:** American Fisheries Society Special Publication 19:425, 1991
**Purpose:**
**Method(s):**
**Conclusion(s):** General, not related to suction dredging. Sediment accrues in streams naturally and is not a normal component of salmonid habitat. Major disruption of the system occurs when placer sediment delivery substantially exceeds the natural level and the amounts of sediment deposited and the turbidity becomes excessive, as from hydraulic mining.

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**(14.) Author(s):** North, Phillip A., 1993
**Title:** A Review of the Regulations and Literature Regarding the Environmental Impacts of Suction Gold Dredges
**Source:** U.S. Environmental Protection Agency
**Purpose:**
**Method(s):**
**Conclusion(s):** **Adult fish are not acutely effected or likely to be sucked into suction dredges.** Several studies all reported that invertebrates recolonized dredge sites within 30 to 45 days. Disturbed stream reaches were only a few tens of meters. For four studies reviewed, **impacts are local and of short duration** when certain limitations are placed on dredge activity. Water quality is impacted for a distance downstream range of a few meters to 30 meters. (emphisis added)
**Notes:** From Ames excerpts

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**(15.) Author(s):** Oregon Dept. of Fish and Wildlife, 1980
**Title:** Recreational Mining Can Be Compatible with Other Resources
**Source:** Oregon Dept. of Fish and Wildlife, 1976 and revised 1980
**Purpose:** To educate dredgers to reduce negative effects
**Method(s):** A three page summary document, not a study in itself.
**Conclusion(s):** Very little turbidity results from normal use of smaller suction dredges (4-inch or less) in stream gravels. The majority of heavy suspended solids settles out within a few yards of the sluice box. Severe turbidity and resulting siltation occur when bank materials are washed into the stream. Harassment of adult fish and disturbance of eggs and fry occur when dredging takes place during the critical times of spawning and hatching. The greatest potential for damage is at low flow.

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**(16.) Author(s):** Prussian, A.M., Royer, T.V., and Minshall, G.W., 1999
**Title:** Impact of suction dredging on water quality, benthic habitat, and biota in the Fortymile River, Ressurrection Creek, and Chatanika River, Alaska
**Source:** Dept. of Biological Sciences, Idaho State Univ., EPA Pocatello, Idaho
**Purpose:** To study impacts of dredging on water quality, benthic habitat, and biota
**Method(s):** Background sampling and sampling at dredge sites

**Conclusion(s):** The primary effect of suction dredging was increased turbidity, total filterable solids, and copper and zinc concentrations (from stream bed sediments) downstream from the dredge for about 150 meters. **These were larger dredges, 8 and 10 inches.** High flows redistribute dredge tailings after 1 to 3 years. Substantial recovery of invertebrates rather rapidly, and disturbance occurred only close downstream from the dredge. It appears that **impacts of small-scale dredging are primarily contained within the dredged area and immediately downstream and persist about one month after the mining season.** More study is needed to fully quantify dredging effects. (emphisis added)

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**(17.) Author(s):** Shaw, P.A., and Maga, J.A., 1942
**Title:** The Effect of Mining Silt on Yield of Fry from Salmon Spawning Beds
**Source:** California Dept. of Fish and Game
**Purpose:** To show the extent of damage from mine tailings
**Method(s):** Compared yield of fry from salmon eggs from similar nests in areas with and without mining silt, using hatchery troughs. Silt and mud from mining holding ponds were mixed with water and introduced to some nests
**Conclusion(s):** Presence of silt during nonerosion periods results in bottom deposition which is damaging to fry production.
**Notes:** About historic mining, not dredging.

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**Author(s):** Sigler, J. W., Bjornn, T.C., Everest, F.H., 1984
**Title:** Effects of chronic turbidity on density and growth of steelhead and coho salmon.
**Source:** Transactions of the American Fisheries Society 113:142-150
**Purpose:**
**Method(s):**
**Conclusion(s):**

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**(18.) Author(s):** Somer, W.L., and Hassler, T.J., 1992
**Title:** Effects of Suction-Dredge Gold Mining on Benthic Invertebrates in a Northern California Stream.
**Source:** Pub. In North American Journal of Fisheries Management 12:244-252; authors are U.S. Fish and Wildlife Service
**Purpose:** To investigate the effects on benthic invertebrates and habitat of two suction dredges
**Method(s):** use of artificial substrate samplers and drift samplers above and below dredges
**Conclusion(s):** **Adult fish are not acutely affected or likely to be sucked into dredges.** Young salmon and steelhead fed on insects dislodged by dredging. Changes to stream bed were major but localized, such as excavation to bedrock in a hole. Effects of dredging on insects varied with taxa and were site-specific. **Effects were not severe enough to cause differences** in mean numbers of invertebrates or in diversity indices. **Habitat changes were minor** compared to bed-load movement due to large stream flows during storms and from snowmelt that removed holes and flushed sediment from study site. **California regulations for dredge aperture size and season appeared adequate to protect fish and habitat at the level of dredging observed.** Cumulative effects of dredging, especially during low flow years, need to be assessed. Sediment went further downstream than other studies because of the steep stream gradient and fine sediment. (emphisis added)

**(19.) Author(s):** Stern, Gary R., 1988

**Title:** Effects of suction dredge mining on anadramous salmonid habitat in Canyon Creek, Trinity County, California

**Source:** M.S. thesis, Humboldt State University

**Purpose:**

**Method(s):**

**Conclusion(s):** Most streams with mobile beds and good annual flushing flows should be able to remove the instream pocket and pile creations of small suction dredges, although some regulated streams with controlled flows may not. Holes and piles in the center of the stream are usually gone after one winter. Piles along the bank may linger. This is similar to piles left by historic miners. In several studies, adult salmon have been observed to spend considerable time within yards of active dredges and to hold in dredged holes. **Dredge plumes, although visible, were probably of little direct consequence to fish and invertebrates. Maximum sediment concentrations were only a minute fraction of the great loads needed to impact fish feeding and respiration.** In contrast to Sigler et al, young steelhead in Canyon Creek sought out dredge plumes to feed on exposed invertebrates. (emphisis added)

**Notes:** From Ames excerpts

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**(20.) Author(s):** Thomas, V.G., 1985

**Title:** Experimentally Determined Impacts of a Small Suction Gold Dredge on a Montana Stream

**Source:** North American Journal of Fisheries Management

**Purpose:** To determine dredging effects on aquatic insects and bottom habitat.

**Method(s):** A small suction dredge was operated with before and after observations, not for gold recovery.

**Conclusion(s):** Suspended sediment returned to ambient levels 30.5 meters downstream. Deposited sediment decreased exponentially downstream with distance from dredging. Impacts on aquatic insect abundance were limited to the area dredged. Pool habitat created at the dredge site may compensate for pool loss immediately downstream. Intergravel permeability at the site increased, although not significantly; no downstream changes in permeability were noted. **This study has found no violations to date to substantiate closure of the small-scale mining operations. Even with the absence of data, environmental groups were active to close down mining on the river citing unsubstantiated possible discharge violations.** (emphisis added)

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**(21.) Author(s):** US Army Corps of Engineers

**Title:** Special Public Notice 94-10

**Source:** US Army Corps of Engineers, SPN 9410, Sept. 13, 1994

**Purpose:** To show the finding of de minimis (inconsequential) effects on aquatic resources for 4-inch and less suction dredges and hand mining.

**Method(s):** results of field studies and court decisions

**Conclusion(s):** **Four-inch and smaller dredges have inconsequential effects on aquatic resources.** ***"This is an official recognition of what suction dredgers have long claimed; that below a certain size, the effects of suction dredging are so small and so short-term as to not warrant the regulations being imposed in many cases. The U.S. Environmental Protection Agency (EPA), has ignored this concept, although numerous studies, including the EPA's own 1999 study of suction dredging,***

***repeatedly and consistently support the Corps finding de minimis effects. The reports consistently find no actual impact of consequence on the environment, and so almost always fall back to the position that potential for impact exists. Studies to date have not shown any actual effect on the environment by suction dredging, except for those that are short-term and localized in nature."*** Suction dredges of larger than 4 inches generally have more than de minimis effects on the aquatic environment and therefore requires authorization. (emphisis added)

***"The regulatory agencies should be consistently and continually challenged by the dredging community to produce sound, scientific evidence that support their proposed regulations. To regulate against a potential for harm, where none has been shown to exist, is unjustifiable and must be challenged."*** (emphisis added)

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**(22.) Author(s):** US Dept. of Agriculture, 1997
**Title:** Suction Dredging in the National Forests
**Source:** US Dept. of Agriculture, 1997
**Purpose:** To make sure that dredging is done in a manner consistent with current law and good natural resource management
**Method(s):** an educational handout to the public
**Conclusion(s):** **When done properly, legal dredging must be allowed by law and effects are acceptable** (emphisis added)

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**(23.) Author(s):** USGS, 1998
**Title:** Certain mining operations have not hurt pristine Alaskan River
**Source:** News Release, U.S. Dept. of the Interior, U.S. Geological Survey, USGS Fact Sheet-0155-97, Oct. 27, 1998
**Purpose:**
**Method(s):**
**Conclusion(s):**
**Notes:** See Wanty et al, 1997

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**(24.) Author(s):** Wanty, R.B., Wang, B., and Vohden, J., 1997
**Title:** Studies of suction dredge gold-placer mining operations along the Fortymile River, eastern Alaska
**Source:** USGS Fact Sheet 154-97
**Purpose:** To evaluate possible negative effects of dredging, such as increasing the load of toxic metals and turbidity and decreasing the number and diversity of aquatic biota
**Method(s):** Sampling of metals in rocks and stream bedloads of the watershed; sampling of turbidity and stream chemistry below dredge operations
**Conclusion(s):** **All measurements of dredge effects on turbidity and geochemistry turned out to be within the natural variation of the local environment.** See Prussian et al (1999) for other results. (emphisis added)

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**(25.) Author(s):** Ward, H.B., 1938
**Title:** Placer Mining on the Rogue River, Oregon, in its Relation to the Fish and Fishing in that Stream.
**Source:** Oregon Dept. of Geology and Mineral Industries Bull. 10
**Purpose:** To determine the true facts as to... the effect of muddy (hydraulic) mine water on fish and fish life.

**Method(s):** Field observations, measurements of turbidity, etc., and tank studies of fish in turbid water.

**Conclusion(s):** **The essence of Dr. Ward's findings is that the placing of muddy water from placer operations in the Rogue River drainage is not inimical to fish and fish life.** The amount of colloidal fines in the Rogue River below placer mines is too small to adversely effect young fish eggs or fish food. Hydraulic placer mining debris is just more stream sand and gravel. It is typically chemically inert and does not take oxygen from the stream or add toxic agents to the water.

In Alaska, an exam of salmon in silty water due to mining found no damage to gills. **Young salmon suffered no ill effects from heavy sediment loads ten times that found at Agness from hydraulic mining.**

The tank tests at Reed College showed that **young fish live well up to thirty days in good water mixed with natural soil materials. The tests used sediment loads from two to three times as large as the extreme load contributed to the Rogue River by maximum conditions of hydraulic placer mining. The thin intermittent layer of placer mining gritty sediment (less than 1/8 inch) seen along Rogue River would not interfere with oxygen supply to fish eggs.**

Stream environments are typically dynamic and variable due to floods, natural inputs of sediment from landslides, and other sources, especially dams. Salmon and steelhead runs were established in past climates much rougher at times than today's, even with mining. That is, in the Ice Age precipitation, landslides and sediment loads were often much greater than today.

The fish runs did not decline during the first and greater episode of mining. This, it's likely that the lesser mining of the 1930's is not the reason for the decline in fish runs at that time. The main difference between the two times are the dams, industrial wastes, and agricultural withdrawals of the later period. (emphisis added)

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**(26.) Author(s):** State of California Department of Fish and Game

**Title:** Draft Environmental Impact Report Adoption of Amended Regulations for Suction Dredge Mining, 1997

**Source:**

**Purpose:** To determine whether or not to amend the current state regulations governing suction dredging in California.

**Method(s):** EIS

**Conclusion(s):** "Based on best available date, it is anticipated that the regulations, as amended by the proposed project, will protect fish and other related aquatic dependent resources and will not cause significant effects to the environment or deleterious effects to fish." **The effects of suction dredging would appear to be less than significant and not deleterious to fish.** There is a need for additional study of CE and other items. (emphisis added)

---

**(27.) Author(s):** Harvey, B.C., Lisle, T.E., Vallier, T., and Fredley, D.C., September 29, 1995

**Title:** Effects of Suction Dredging on Streams: A Review and Evaluation Strategy

**Source:** Pursuant to a Charter by USFS, April 18, 1995

**Purpose:** to review conclusions of existing publications about effects and provide recommendations for future management processes.

**Method(s):** Review of existing publications

**Conclusion(s):** More study needs to be done, and management of dredging needs to be approached from a watershed (cumulative effects) level.

## ADDITIONAL REFERENCES NOT YET ADDED

**Author(s):** Anonymous (1996)
**Title:** Effects of recreational Suction Dredge Operations on Fish and Fish Habitat: A literature Review in Association with a Petition of the Idaho Gold Prospectors Association to the Idaho Land Board.
**Source:** Konopacky Environmental, Meridian, Idaho, Proj. No. 064-0
**Purpose:**
**Method(s):**
**Conclusion(s):**

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**Author(s):** Gurtz, M.E., and Wallace, J.B., 1984
**Title:** Substrate-mediated response of stream invertebrates to disturbance
**Source:** Ecology 65:1556-1569
**Purpose:**
**Method(s):**
**Conclusion(s):**

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**Author(s):** Meehan, W.R., 1971
**Title:** Effects of gravel cleaning on bottom organisms in three southeast Alaska Streams.
**Source:** Progressive Fish-Culturist 33:107-111
**Purpose:**
**Method(s):**
**Conclusion(s):**

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**Author(s):** Orcutt et asl (1968)
**Title:**
**Source:**
**Purpose:**
**Method(s):**
**Conclusion(s):**

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**Author(s):** Prokopovich, N.P., and Nitzberg, K.A., 1982
**Title:** Placer mining and Salmon Spawning in American River Basin, California
**Source:** Bulletin of the Association of Engineering Geologists 19:67-76
**Purpose:**
**Method(s):**
**Conclusion(s):**

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**Author(s):** Sigler, K.V., et l, 1984
**Title:** Effects of chronic turbidity on density and growth of steelhead and coho salmon.
**Source:** Trans. M. Fish Soc. 113:142-150
**Purpose:**
**Method(s):**
**Conclusion(s):**

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WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

# Effects of Small-Scale Gold Dredging on Arsenic, Copper, Lead, and Zinc Concentrations in the Similkameen River

March 2005

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# Effects of Small-Scale Gold Dredging on Arsenic, Copper, Lead, and Zinc Concentrations in the Similkameen River

by

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# Table of Contents


Page

List of Appendices ..... ii

List of Figures ..... iii

List of Tables ..... iv

Abstract ..... v

Acknowledgements ..... vi

Introduction ..... 1

Review of Existing Metals Data ..... 3

Project Description ..... 6

Study Design ..... 7
- Ambient Samples ..... 7
- Effluent Samples ..... 8
- Plume Samples ..... 8
- Number of Samples ..... 9

Methods ..... 10
- Field Procedures ..... 10
- Laboratory Procedures ..... 11

Data Quality ..... 12

Results and Discussion ..... 13
- River Flow ..... 13
- Ambient Water Quality ..... 14
- Dredge Effluents ..... 15
- Dredge Plumes ..... 18
- Comparison with Water Quality Criteria ..... 21
- Effect of Multiple Dredges ..... 22

Conclusions ..... 24

References ..... 25

# List of Appendices

A. Results from Analyzing Metals and Organic Compounds in Similkameen River Sediment Samples

B. Metals Data for Ecology Routine Monitoring Station 49B070, Similkameen River at Oroville

C. Site Locations and Other Information on the Similkameen River Gold Dredge Samples

D. Results on Laboratory Duplicates for the Similkameen River Gold Dredge Study

E. Results on Field Blanks for the Similkameen River Gold Dredge Study

# List of Figures

Page

Figure 1. The Similkameen River ..... 1

Figure 2. A Small-scale Gold Dredge ..... 2

Figure 3. Arsenic Concentrations in Similkameen River Sediments ..... 3

Figure 4. Arsenic Concentrations in Similkameen River Water Samples ..... 5

Figure 5. Locations of Gold Dredge Samples Collected in the Similkameen River during 2004 ..... 7

Figure 6. Monthly Average Flow in the Similkameen River, Showing Flows When Gold Dredge Samples were Collected ..... 13

Figure 7. Metals Concentrations in Similkameen River Gold Dredge Effluents ..... 17

Figure 8. TSS, Turbidity, and Metals Concentrations Below Three Gold Dredges in the Similkameen River ..... 20

# List of Tables

Page

Table 1. Applicable Washington State Water Quality Criteria for Metals ..... 4

Table 2. Number and Type of Samples Collected for the 2004 Similkameen Gold Dredge Study ..... 9

Table 3. Sample Containers, Preservation, and Holding Times for Water Samples ..... 10

Table 4. Laboratory Procedures ..... 11

Table 5. Ambient Water Quality Conditions in the Similkameen River During the 2004 Gold Dredging Season ..... 14

Table 6. Metals Concentrations in Effluent Samples from Gold Dredges Operating in the Similkameen River During 2004 ..... 15

Table 7. Variability of Replicate Gold Dredge Effluent Samples ..... 16

Table 8. Results from Sampling Gold Dredge Effluent Plumes in the Similkameen River During 2004 ..... 18

Table 9. Percent Increases in TSS, Turbidity, and Metals Concentrations Measured 200 Feet Below Three Gold Dredges in the Similkameen River ..... 19

Table 10. Metals Concentrations in Similkameen River Gold Dredge Effluent and Plume Samples Compared to Criteria for Protection of Aquatic Life ..... 21

Table 11. Estimated Number of Dredges Required to Increase Metals Concentrations in the Similkameen River by 1%, 10%, and 100% ..... 23

# Abstract

A field study was conducted to determine if small-scale gold dredges operating in the Similkameen River exacerbate current exceedances of the human health criteria for arsenic or result in violations of aquatic life criteria for arsenic, copper, lead, or zinc. Dredge effluents were analyzed from 14 sites on the river, and discharge plumes were sampled below three dredges. Data were also obtained on ambient metals concentrations, total suspended solids, and turbidity.

Results showed that the metals concentrations discharged from small-scale gold dredges are not a significant toxicity concern for aquatic life in the Similkameen River. Although this activity will exacerbate exceedances of arsenic human health criteria, it would take very large numbers of dredges to effect a 10% change in the river's arsenic levels, even at low-flow conditions.

# Acknowledgements

The authors of this report thank the many miners who gave permission to sample the effluent from their gold dredges. We very much appreciate the cooperation and friendly reception Ecology personnel received at the 2004 Gold Dredge Rally in Oroville. Special thanks to Jim Creegan for his efforts to help us obtain samples and to Mark Erickson and Greg Christensen of the Resources Coalition for their support and cooperation in the sampling effort at the rally.

The authors also would like to acknowledge the good work of staff at the Ecology Manchester Environmental Laboratory in analyzing the samples for this project, especially Dean Momohara, Meredith Jones, Aileen Richmond, Sara Sekerak, Jamie Martin, and Sally Cull.

Samples for this study were collected with the assistance of Chris Coffin, Ray Latham, and Terry Wittmeier of the Ecology Central Regional Office.

# Introduction

The Similkameen River is located in north-central Washington (Figure 1). During the public comment period on the *Lower Similkameen River Arsenic Total Maximum Daily Load* submittal report (Peterschmidt and Edmond, 2004), concerns were raised by the community and the Colville Confederated Tribes regarding the potential impact of small-scale gold dredging on arsenic concentrations in the river. An earlier laboratory simulation conducted by the Washington State Department of Ecology (Ecology) had concluded that arsenic and other metals would be rapidly diluted downstream of a dredge (Johnson, 1999). The applicability of these data to field conditions was called into question.

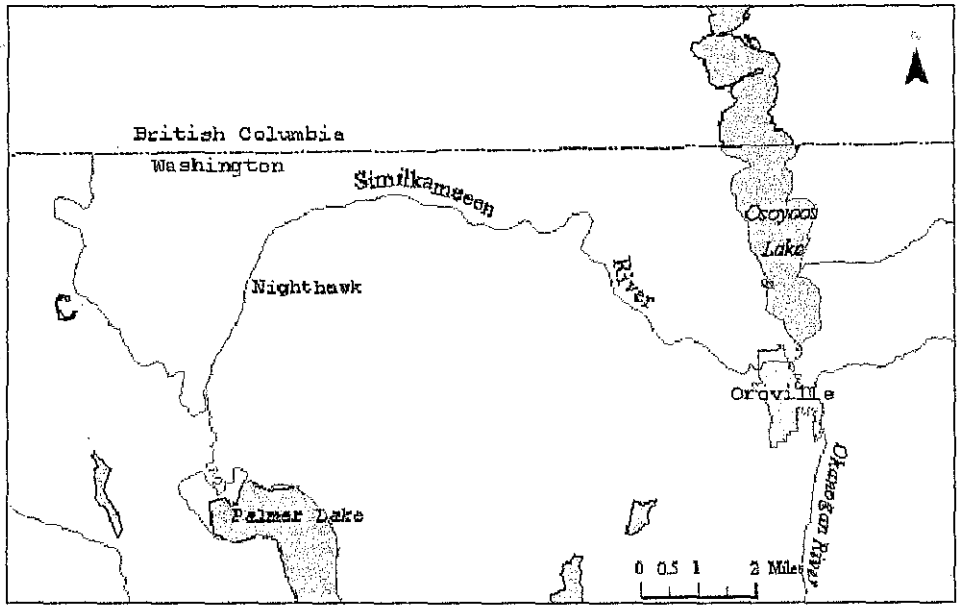



Figure 1. The Similkameen River

Dredging activities have been traditionally allowed on the Similkameen under mineral prospecting leases from the Washington State Department of Natural Resources (DNR). It is difficult to quantify the actual amount of dredging that occurs. The Ecology Central Regional Office (CRO) has observed up to 20 dredges on the river, although only some are in operation at any one time.

The dredging season is limited to July 1 through September 30, to protect salmon spawning. There are no restrictions on where dredging can be done along the length of the river. Dredging operations and high banking are limited to the wetted perimeter of the stream, or, with appropriate water rights, to within 200 feet inland of the ordinary high water mark.

The Washington Department of Fish and Wildlife (WDFW) is the lead agency regulating small-scale mining and prospecting. Their *Gold and Fish* pamphlet constitutes the Hydraulic Project

Approval (HPA) permit that small-scale prospectors and miners must comply with when conducting activities covered in the pamphlet. Exceptions to the pamphlet, authorization for other mining and prospecting activities, or use of other equipment types than authorized in *Gold and Fish* can be granted through issuance of a written HPA. Among other regulations, WDFW requires a minimum 200-foot separation between dredges. The role of Ecology in this activity is to administer water quality standards to prevent interferences with or harm to beneficial uses of state waters.

A typical commercially available dredge is pictured in Figure 2. A 4-inch diameter intake nozzle is the maximum currently allowed under authority of the *Gold and Fish* pamphlet and is most commonly used by small-scale prospectors and miners. Larger dredges can and have been permitted on the Similkameen River in the past.

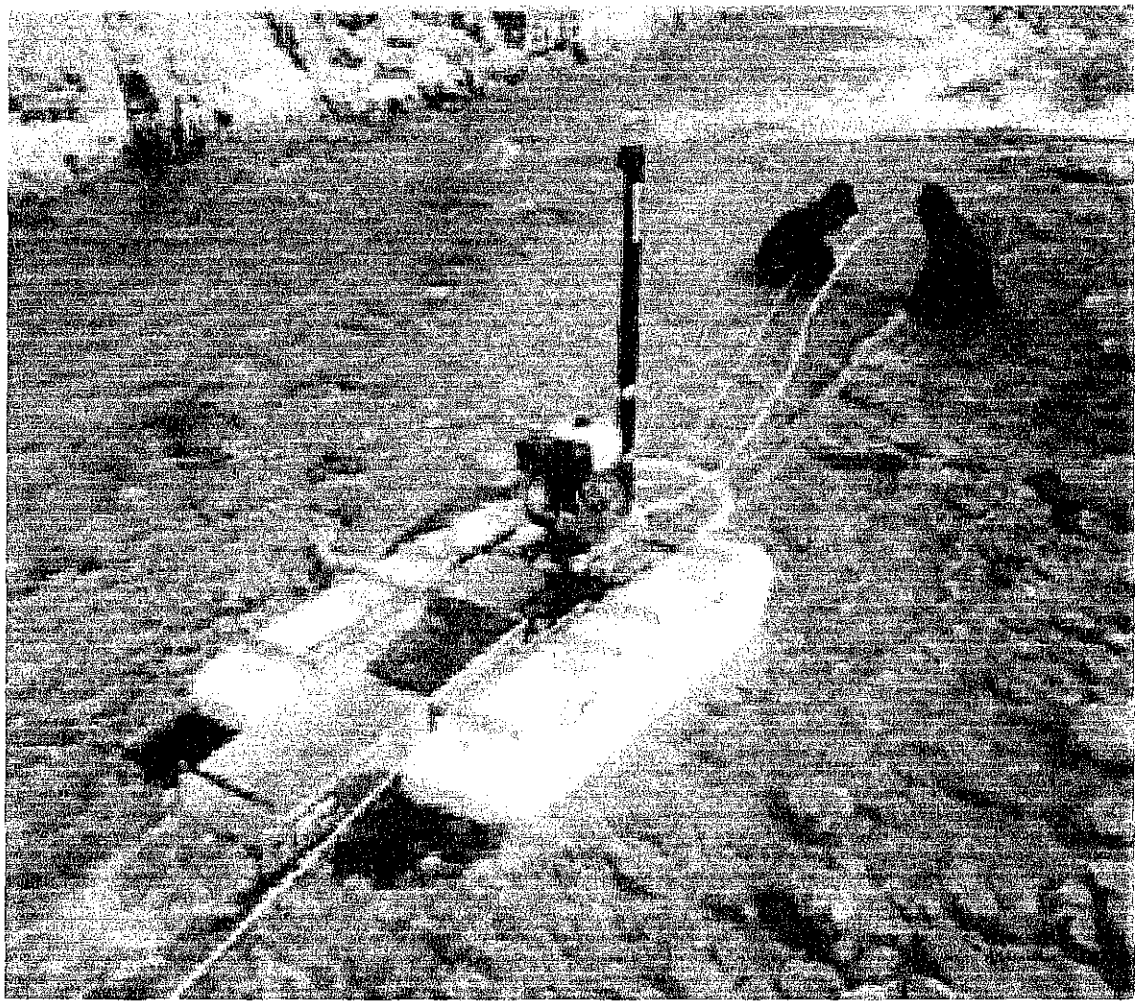


Figure 2. A Small-scale Gold Dredge
(http://www.keenceengineering.com/pamphlets/howdredge.html).

# Review of Existing Metals Data

Except for arsenic, the level of chemical contamination in Similkameen River sediments is relatively low, both for metals and organic compounds (Johnson and Plotnikoff, 2000; Colville Confederated Tribes, unpublished data). Appendix A has a summary of Ecology's sediment chemistry data for the Similkameen.

Arsenic concentrations generally range from 10 – 50 mg/Kg[1] (Figure 3). Samples in the vicinity of Nighthawk and Oroville have exceeded a recently proposed Washington state sediment quality guideline of 20 mg/Kg for protection of aquatic life (Avocet Consulting, 2003). Most Washington rivers and streams have less than 10 mg/Kg arsenic in their sediments (Johnson, 2002a).

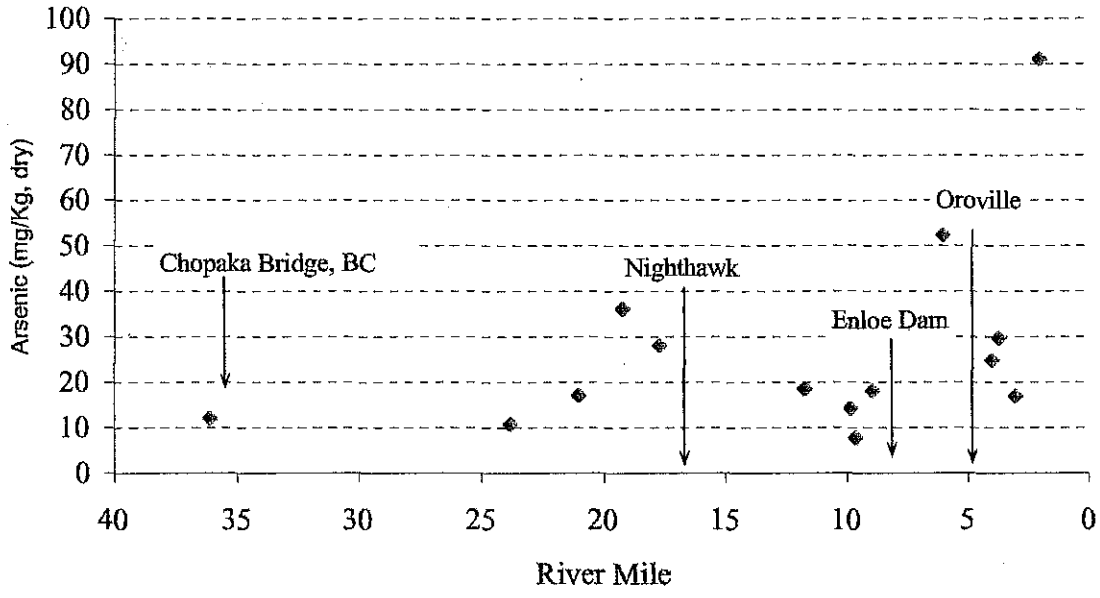



Figure 3. Arsenic Concentrations in Similkameen River Sediments (from Johnson, 2002a)

Arsenic is also elevated in the Similkameen water column, with concentrations of 1.0 - 5.0 ug/L[2] typically being encountered (Johnson, 2002a). Most Washington rivers have arsenic concentrations ranging from 0.2 – 1.0 ug/L (Johnson, 2002b). Other metals are not substantially elevated in the Similkameen River. Appendix B has Similkameen River metals data for 1995 - 2004 from Ecology's routine monitoring station at Oroville.

[1] mg/Kg = parts per million
[2] ug/L = parts per billion

A technical study conducted for the Similkameen River arsenic TMDL concluded that the major source of the higher arsenic concentrations was tailings from historical mining activity in British Columbia (Johnson, 2002a). Resuspension of contaminated sediments was identified as a potentially important source of arsenic to the water column.

Water quality criteria for metals being analyzed in the present study are shown in Table 1. Like most Washington rivers, the natural background concentration of arsenic in the Similkameen exceeds the very low human health criteria of 0.018 and 0.14 ug/L. Washington's human health criteria are from the EPA National Toxics Rule and are based on a one-in-one million excess cancer risk from consuming fish and water, or fish only. There are no equivalent human health criteria for copper, lead, or zinc. The aquatic life criteria shown below for arsenic, copper, lead, and zinc are not exceeded in the Similkameen River.

Table 1. Applicable Washington State Water Quality Criteria for Metals (ug/L)

| | Aquatic Life Criteria* | | Human Health Criteria | |
|---|---|---|---|---|
| Metal | Acute | Chronic | Fish + Water Consumption | Fish Consumption |
| Arsenic | 360 | 190 | 0.018† | 0.14† |
| Copper** | 9.2 | 6.5 | - - | - - |
| Lead** | 31 | 1.2 | -- | - - |
| Zinc** | 66 | 60 | - - | - - |

WAC 173-201A
*applies to dissolved metals
†applies to total inorganic arsenic
**criteria adjusted for 52 mg/L hardness (lowest recorded during present study)

Arsenic has been shown to increase going downstream from Chopaka, B.C. (river mile 36) to Oroville (Figure 4). This is primarily due to the Palmer Lake outlet at r.m. 19.5, a major arsenic source to the lower river. Palmer Lake has been contaminated by inflows from the Similkameen River and may have additional local sources of arsenic. (Johnson, 2002)

The previously mentioned dredging simulation study conducted by Ecology involved mixing predetermined amounts of Similkameen River water and sediment to approximate a dredged material slurry (the Elutriate Test described in Plumb (1981)). After shaking for 30 minutes, the supernatant from the mixture was allowed to settle, then filtered and analyzed. The samples used in this test were obtained near Eagle Rock (r.m. 11.7) and just above Enloe Dam (r.m. 8.9), areas where dredging was either underway or planned. Arsenic concentrations were 14 - 18 mg/Kg in the bulk sediments and 3.9 ug/L in the river water.

Results of the simulation showed that arsenic, copper, lead, and zinc were the metals of primary interest. Arsenic concentrations in the elutriate were 5 – 10 times higher than the river water used in the test. Copper and lead exceeded aquatic life criteria by factors of 2 – 4. Zinc approached half its aquatic life criteria values. A point source dilution model applied to these

data suggested that at least a five-fold dilution would occur immediately downstream of a dredge during low-flow conditions. It was concluded that water quality concerns were probably negligible for metals, at least with respect to individual dredges.

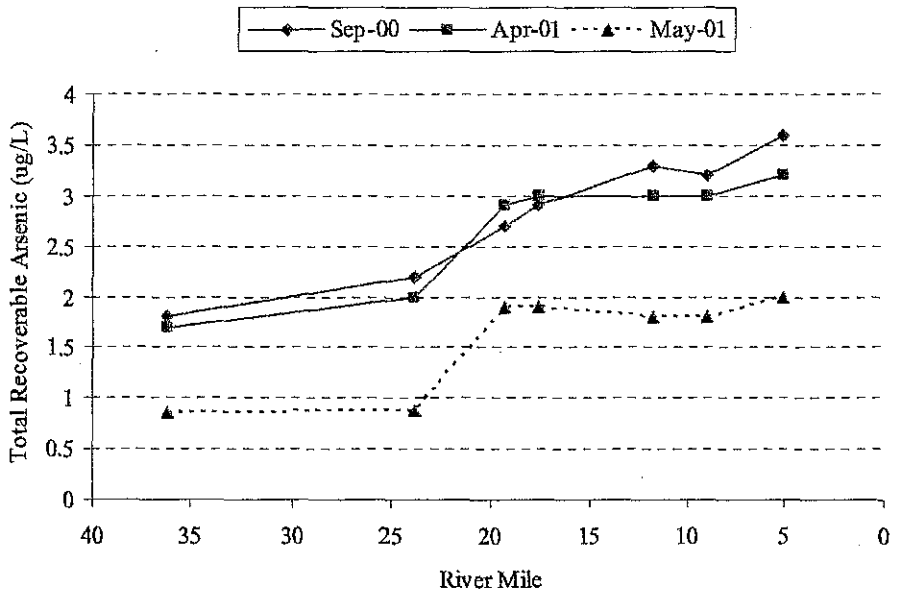



Figure 4. Arsenic Concentrations in Similkameen River Water Samples (from Johnson, 2002a).

# Project Description

In response to the concerns expressed by the community and Tribe, Ecology conducted a field study to obtain water samples in the vicinity of small-scale gold dredges operating in the Similkameen River during the summer of 2004. The objectives of the study were to determine if dredging: 1) exacerbates current exceedances of the human health criteria for arsenic, or 2) results in violations of the aquatic life criteria for arsenic, copper, lead, or zinc. The study was not designed to assess compliance with the state turbidity standard or to determine the effect of dredging on total suspended solids (TSS) concentrations in the river.

Three types of water samples were collected for the study: Ambient samples were collected in the upper river to determine background concentrations for the metals and other parameters of interest. Effluents were sampled from dredges operating at 14 sites along the river to represent a range of substrates and associated metals concentrations. Finally, the turbidity plumes downstream of three dredges were sampled at selected distances to gage the downstream extent of the impacted area.

Clean sampling techniques and low-level analytical methods were used to analyze arsenic, copper, lead, and zinc. TSS, turbidity, and hardness were also measured. Hardness was needed to calculate the water quality criteria for copper, lead, and zinc. Some data were also obtained on effluent flow rates and stream velocities in the vicinity of the dredges. River discharge was determined from the gaging station operated by the U.S. Geological Survey (USGS) at Nighthawk (http://nwis.waterdata.usgs.gov/usa/nwis/discharge).

Field work was conducted once each month during the July 1 – September 30 period when dredging is permitted. The study was conducted by the Ecology Environmental Assessment Program with field assistance provided by CRO. The samples were analyzed by the Ecology Manchester Environmental Laboratory.

# Study Design

Samples for the gold dredge study were collected on June 30 - July 1, August 18 - 19, and September 21 - 22, 2004. Monthly average river flow during this period typically ranges from 3,029 cfs (July) to 616 cfs (September).

The first set of samples corresponded to the July 1 opening of the mineral prospecting work window. The second sample set was collected during a Resources Coalition dredge rally held in Oroville on August 18 - 22, an event designed to generate interest and improve understanding of small-scale gold dredging. The third sample set was intended to assess dredging impacts during September low flow.

## Ambient Samples

Background concentrations for the metals and other parameters of interest were determined by analyzing water samples collected in the Similkameen River approximately 3 ½ miles below Nighthawk (Figure 5). This location is in the upper part of the reach where most dredgers work. The ambient samples were collected on June 30, the day before the opening of the dredging season, and again in the early morning of August 19 and September 22 before dredgers began working the river.

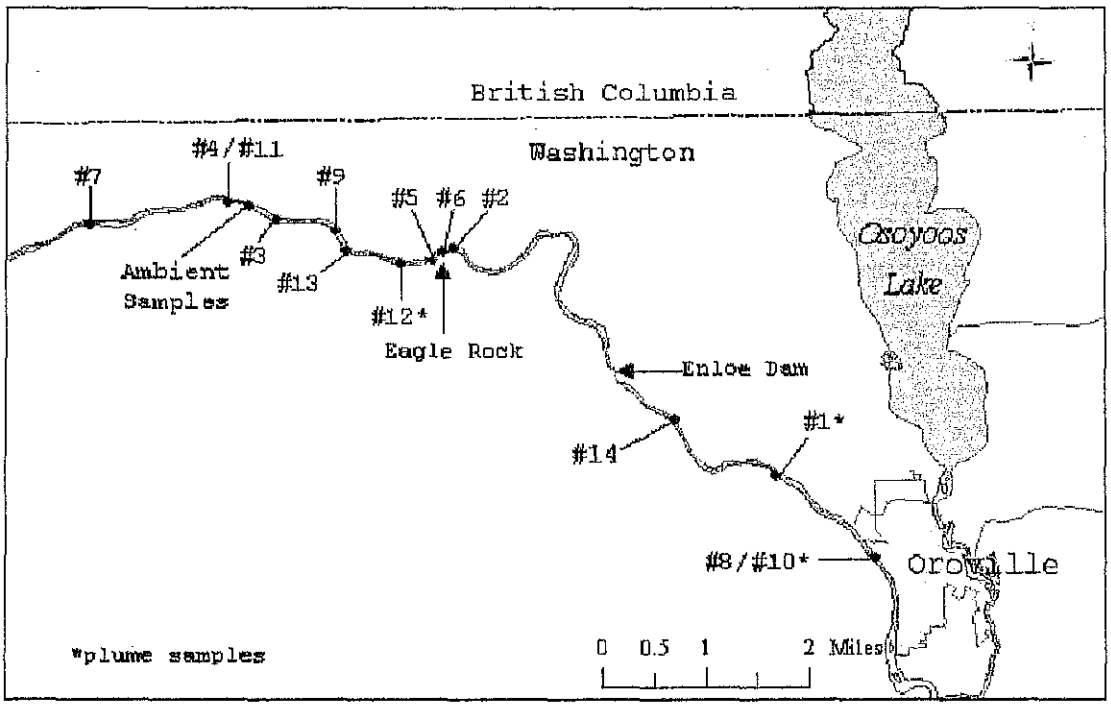



Figure 5. Locations of Gold Dredge Samples Collected in the Similkameen River during 2004

Three replicate samples were collected on each of the above dates and analyzed for total recoverable[3] and dissolved arsenic, copper, lead, and zinc, turbidity, and hardness. In addition to establishing background conditions, the results provided information on particulate vs. dissolved metals which was needed to evaluate the effluent data.

## Effluent Samples

Dredging primarily occurs from a few miles below Nighthawk (r.m. 17.5) down to Oroville near the mouth of the river. Dredges operating at the 14 sites shown in Figure 5 were opportunistically sampled. An attempt was made to distribute the sampling effort equally up and down the river. No samples were obtained in the reservoir behind Enloe Dam as dredges normally do not operate there.

A single sample was collected from each dredge at the point the discharge left the sluice box. For dredge operations where the turbidity plume was being sampled, three effluent samples were collected.

In an effort to obtain a representative time-dependent composite, the effluent samples were collected by filling a one-liter sample bottle in small increments over a five-to-ten minute period. The samples were allowed to settle for approximately one hour and then ½ liter decanted into sample containers. This procedure removed sand and other large particles that would normally settle out of the water column. A settling time of one hour was selected based on the settleable solids analysis in EPA Method 160.5.

The effluents were analyzed for total recoverable arsenic, copper, lead, and zinc.

For selected dredges, the effluent flow rate was estimated from discharge velocity measurements and the dimensions of the sluice box. River velocity and substrate characteristics were also recorded.

Detailed information on the location of the effluent sampling sites, dredge descriptions, flows, and substrate characteristics can be found in Appendix C.

## Plume Samples

The plumes from three dredges operating under different flow regimes – one each in July, August, and September – were sampled to gage the downstream extent of the impacted area (Figure 5). Three samples each were collected at 10, 50, and 200 feet below the dredge, staggered over approximately a 30-minute period. A marked polyethylene line with a float at the far end was attached to the back of the dredge to locate downstream sampling points. The distance of the furthest downstream sample was based on the *Gold and Fish* pamphlet requirement that dredges be separated by 200 feet.

[3] Total recoverable metals refers to a laboratory procedure where a sample is subjected to strong acid digestion prior to analysis. A total metals analysis employs a more thorough digestion of the sample. A total recoverable analysis is typically done for surface water samples and, for present purposes, is essentially equivalent to total metals.

Three separate effluent samples were collected at the same time the plume was being sampled. A single sample was also collected immediately upstream of the dredge suction hose for comparison with the plume. The effluent was analyzed for total recoverable metals.

The upstream and plume samples were analyzed for total recoverable arsenic, dissolved copper, lead, and zinc, TSS, turbidity, and hardness. Arsenic was analyzed as total recoverable for comparison to the human health standards, which are based on inorganic arsenic. Most of the arsenic in the Similkameen River water is in inorganic form (Johnson, 2002a). Measuring inorganic arsenic directly would have significantly increased the cost of the study. Total recoverable arsenic can reasonably be compared to the dissolved aquatic life criteria, since they differ only slightly from the older total recoverable criteria on which they are based. Copper, lead, and zinc were analyzed as dissolved for direct comparison with the aquatic life standards.

## Number of Samples

The number and type of samples collected for this project are summarized in Table 2.

Table 2. Number and Type of Samples Collected for the 2004 Similkameen River Gold Dredge Study

| Sample Type | No. of Sites | Samples per Site | Sub-total | Analyses |
|---|---|---|---|---|
| Ambient River | 1 | 9 | 9 | TR As, Cu, Pb, Zn; Diss Cu, Pb, Zn; TSS; turbidity; hardness |
| Above Dredge | 14 | 1 | 14 | TR As; Diss Cu, Pb, Zn; TSS; turbidity; hardness |
| Dredge Effluent | 14 | 1-3 | 20 | TR As, Cu, Pb, Zn |
| Dredge Plume | 3 | 9 | 27 | TR As; Diss Cu, Pb, Zn; TSS; turbidity; hardness |
| Bottle Blanks | 1 | 3 | 3 | TR As, Cu, Pb, Zn |
| Filter Blanks | 1 | 3 | 3 | Diss As, Cu, Pb, Zn |
| | | Total = | 76 | |

TR = total recoverable
Diss = dissolved

# Methods

## Field Procedures

Table 3 lists the sample size, container, preservation, and recommended holding time for each study parameter. Sample containers were obtained from Manchester Laboratory. Metals sampling procedures followed the guidance in EPA (1995) *Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*. All samples were taken as simple grabs or grab composites.

Table 3. Sample Containers, Preservation, and Holding Times for Water Samples

| Parameter | Minimum Quality Required | Container | Preservative* | Holding Time |
|---|---|---|---|---|
| Metals | 250 mL | 500 mL Teflon bottle | $HNO_3$ to pH<2, 4°C | 6 months |
| Hardness | 100 mL | 125 mL poly bottle | $H_2SO4$ to pH<2, 4°C | 6 months |
| TSS | 1,000 mL | 1,000 mL poly bottle | Cool to 4°C | 7 days |
| Turbidity | 100 mL | 500 mL poly bottle | Cool to 4°C | 48 hours |

*dissolved metals samples filtered in the field (0.45 micron)

Metals samples were collected directly into pre-cleaned 500 mL (plume and ambient samples) or 1 L (effluent samples) Teflon bottles. The effluent samples were allowed to settle and were then decanted, as previously described. Samples for dissolved metals were filtered in the field through a pre-cleaned 0.45 um Nalgene filter unit (#450-0045, type S). The filtrate was transferred to a new pre-cleaned 500 mL Teflon bottle. The whole water and filtered water samples were preserved to pH <2 with sub-boiled 1:1 nitric acid, carried in small Teflon vials. Teflon sample bottles, Nalgene filters, and Teflon acid vials were cleaned by Manchester, as described in Kammin et al. (1995), and sealed in plastic bags. Non-talc nitrile gloves were worn by personnel filtering the samples. Filtering was done in a glove box constructed of a PVC frame and polyethylene cover.

Flow was measured with a Marsh-McBirney meter and top-setting rod. A hand-held GPS was used to record sampling locations. All samples were placed in polyethylene bags, held on ice for transport to Ecology HQ, and then taken by courier to Manchester Laboratory within one to two days of collection. Chain-of-custody procedures were followed (Manchester Environmental Laboratory, 2003).

## Laboratory Procedures

Table 4 shows the analytical methods used in this project.

Table 4. Laboratory Procedures

| Analyte | Sample Matrix | Sample Prep Method | Analytical Method |
|---|---|---|---|
| Arsenic, Copper, Lead, Zinc | whole water | $HNO_3$/HCl digest | EPA 200.8 |
| Copper, Lead, Zinc | filtered water | analyze directly | EPA 200.8 |
| Hardness | whole water | N/A | EPA 200.7 |
| TSS | whole water | N/A | EPA 160.2 |
| Turbidity | whole water | N/A | EPA 180.1 |

N/A = not applicable

# Data Quality

Manchester Laboratory prepared written quality assurance reviews on the quality of the chemical data for this project. The reviews include an assessment of sample condition on receipt at the laboratory, compliance with holding times, instrument calibration, procedural blanks, laboratory control samples, matrix spike and matrix spike duplicate recoveries, and duplicate sample analyses. No significant problems were encountered that compromise the accuracy, validity, or usefulness of the data. The quality assurance reviews and complete chemical data for this project are available from the author.

The precision of the data reported here can be assessed from results of duplicate analyses conducted on selected samples (Appendix D). Dissolved metal determinations agreed within 10%. Total recoverable metals agreed within approximately 20%, except 36% for zinc in one sample. Results for TSS, turbidity, and hardness were also in close agreement.

Field blanks were analyzed to detect metals contamination arising from sample containers or the filtration procedure. Bottle blanks were prepared at Manchester Laboratory by filling the Teflon sample bottles with deionized water. Filter blanks were prepared by filtering half the contents of a bottle blank. The field blanks were treated the same as samples.

Bottle and filter blanks were analyzed on three occasions during the project (Appendix E). There was a trace amount of zinc in the filter blanks (0.56 – 1.1 ug/L). The other metals were not detected in either type of blank. This demonstrates that the sample collection, preservation, and filtration procedures were not contributing significant amounts of metals to the samples.

# Results and Discussion

## River Flow

Figure 6 compares historical average flow in the Similkameen River with the flows encountered when samples were collected for the 2004 gold dredge study. The data are from USGS monitoring station #12442500 at Nighthawk.

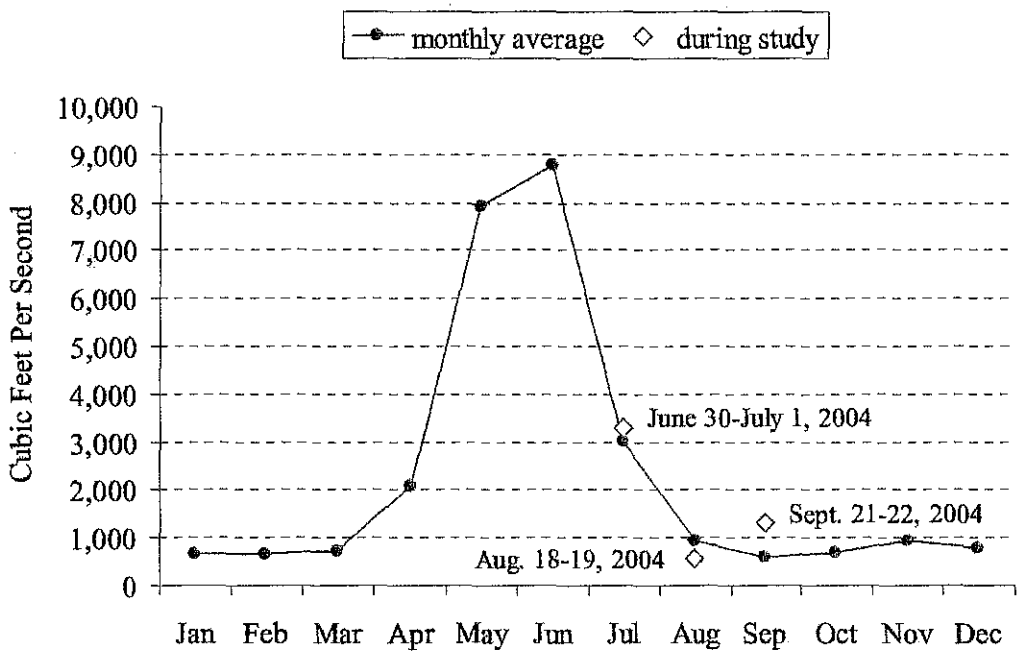



Figure 6. Monthly Average Flow in the Similkameen River, Showing Flows When Gold Dredge Samples were Collected (USGS station 12442500, 1928 – 2002).

As shown in Figure 6 and summarized below, river flows during gold dredge sampling were representative of the range of summer flows normally encountered in the Similkameen. Dry August weather resulted in low-flow conditions that were not anticipated to occur until the following month. Wet weather caused higher than normal discharge during the September sample collection.

| Month | Average Flow | |
|---|---|---|
| | Historical | During Sampling |
| July | 3,029 cfs | 3,300 cfs |
| August | 936 cfs | 581 cfs |
| September | 616 cfs | 1,320 cfs |

## Ambient Water Quality

Ambient levels of TSS, turbidity, metals, and hardness measured in the Similkameen during the 2004 dredging season are summarized in Table 5. As previously described, these samples were collected in the upper part of the reach where dredging is done, but when no dredges were operating. Each data point represents results from three replicate samples. Variability within each sample set was minimal.

Table 5. Ambient Water Quality Conditions in the Similkameen River During the 2004 Gold Dredging Season [mean ± standard deviation of three replicates collected at river mile 14.0; no dredges operating]

| Parameter | June 30 | August 18 | September 21 | Overall Mean* |
|---|---|---|---|---|
| TSS (mg/L) | 10 ± 0 | 3 ± 0.5 | 5 ± 0 | 6 |
| Turbidity (NTU) | 4.2 ± 0.4 | 2.2 ± 0.1 | 2.4 ± 0.05 | 2.9 |
| Tot. Rec. Arsenic (ug/L) | 3.9 ± 0.1 | 4.2 ± 0 | 2.2 ± 0.1 | 3.4 |
| Dissolved Arsenic (ug/L) | 2.7 ± 0.1 | 4.2 ± 0 | 1.8 ± 0 | 2.9 |
| Tot. Rec. Copper (ug/L) | 2.3 ± 0.2 | 1.2 ± 0 | 1.4 ± 0 | 1.6 |
| Dissolved Copper (ug/L) | 0.82 ± 0.05 | 0.84 ± 0.01 | 0.97 ± 0.1 | 0.88 |
| Tot. Rec. Zinc (ug/L) | 1.7 ± 0.1 | <1.0 | 1.2 ± 0.1 | 1.3 |
| Dissolved Zinc (ug/L) | 0.92 ± 0.1 | 1.1 ± 0.1 | 2.2 ± 1.5 | 1.4 |
| Tot. Rec. Lead (ug/L) | 0.14 ± 0.02 | <0.10 | 0.18 ± 0.01 | 0.14 |
| Dissolved Lead (ug/L) | <0.02 | <0.10 | 0.09 ± 0.05 | 0.07 |
| Hardness (mg/L) | 52 ± 0.4 | 82 ± 0.1 | 61 ± 0.02 | 65 |

*detection limit used for non-detects

TSS, turbidity, and total recoverable zinc, copper, and lead varied directly with flow. The levels were highest in July (September for lead) and lowest in August. The highest total recoverable arsenic concentrations were in August. Hardness varied inversely with flow, reflecting the relatively greater contribution of groundwater when river discharge is low.

TSS and turbidity ranged from 3 - 10 mg/L and 2.2 - 4.2 NTU, respectively. Concentrations of total recoverable metals ranged from 2.4 - 4.2 ug/L for arsenic, 1.2 - 2.3 ug/L for copper, <1.0 - 1.7 ug/L for zinc, and <0.10 - 0.18 ug/L for lead. Total recoverable zinc and lead were below detection limits during the low flows of August.

Dissolved metals concentrations were 1.8 - 4.2 ug/L for arsenic, 0.82 - 0.97 ug/L for copper, 0.92 - 2.2 ug/L for zinc, and <0.02 - 0.09 ug/L for lead. Because of a zinc background in the filtration procedure, the dissolved results slightly exceeded total recoverable in most of the August and September samples. Trace zinc contamination is frequently encountered when analyzing at the low ppb level.

These results are consistent with historical data on the Similkameen River (Appendix B; Johnson 1997, 2002a). At the time of the gold dredge study, ambient levels of dissolved arsenic, copper, lead, and zinc were one to two orders of magnitude lower than the aquatic life criteria (see Table 1). Total recoverable arsenic exceeded the more restrictive human health criteria by one to two orders of magnitude. As discussed earlier in this report, arsenic concentrations in most rivers and streams naturally exceed the EPA human health criteria, although to a lesser extent than in the Similkameen. There are no human health criteria for copper, lead, or zinc.

## Dredge Effluents

Metals concentrations measured in effluents from gold dredges operating in the lower Similkameen River are shown in Table 6. These data are for total recoverable metals.

Table 6. Metals Concentrations in Effluent Samples from Gold Dredges Operating in the Similkameen River During 2004 [ug/L, total recoverable]

| Site No. | Date | Arsenic | Copper | Zinc | Lead |
|---|---|---|---|---|---|
| #1 | July 1 | 3.8 | 2.3 | 1.9 | 0.23 |
| #2 | July 1 | 6.2 | 6.1 | 5.2 | 0.69 |
| #3 | August 18 | 6.4 | 4.7 | 9.1 | 0.67 |
| #4 | August 18 | 6.6 | 9.3 | 9.4 | 0.97 |
| #5 | August 18 | 6.6 | 8.3 | 7.3 | 1.1 |
| #6 | August 18 | 6.3 | 5.1 | 4.2 | 1.3 |
| #7 | August 18 | 4.6 | 2.4 | 1.8 | 0.16 |
| #8 | August 18 | 7.4 | 4.4 | 3.3 | 0.47 |
| #9 | August 19 | 5.6 | 3.3 | 3.0 | 0.39 |
| #10 | August 19 | 7.3 | 3.7 | 4.4 | 0.46 |
| #11 | August 19 | 8.0 | 5.4 | 7.4 | 0.75 |
| #12 | September 21 | 2.6 | 2.9 | 2.0 | 0.47 |
| #13 | September 21 | 3.3 | 4.7 | 3.6 | 0.62 |
| #14 | September 22 | 2.6 | 2.0 | 1.8 | 0.26 |
| | mean = | 5.5 | 4.6 | 4.6 | 0.61 |
| | minimum = | 2.6 | 2.0 | 1.8 | 0.16 |
| | maximum = | 8.0 | 9.3 | 9.4 | 1.3 |

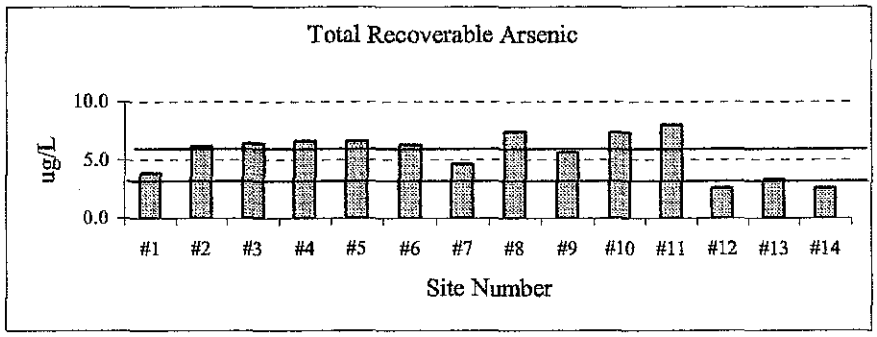
Although collected at 14 different locations and at varying stages in the dredging process, metals concentrations in the effluents did not differ greatly between sites. Minimum and maximum concentrations were within a factor of 2 for arsenic, factors of 4 - 5 for copper and zinc, and a factor of 8 for lead. Average concentrations were 5.5 ug/L arsenic, 4.6 ug/L copper, 4.6 ug/L zinc, and 0.61 ug/L lead. As described earlier, these samples were decanted, so did not include sand and other particles that would rapidly settle out of the water column following discharge.

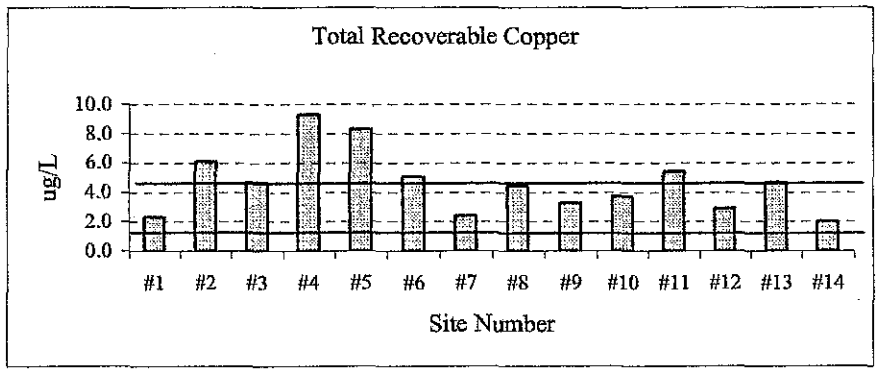
Most of the effluent data are based on single samples composited over a five-to-ten minute period. Three separate composites were analyzed in conjunction with turbidity plume sampling at sites #1, #10, and #12. These samples were collected over a period of approximately 30 minutes (i.e., three five-to-ten minute composites per site) and also showed a low level of variability (Table 7). The average of the three composites is shown in Table 6.

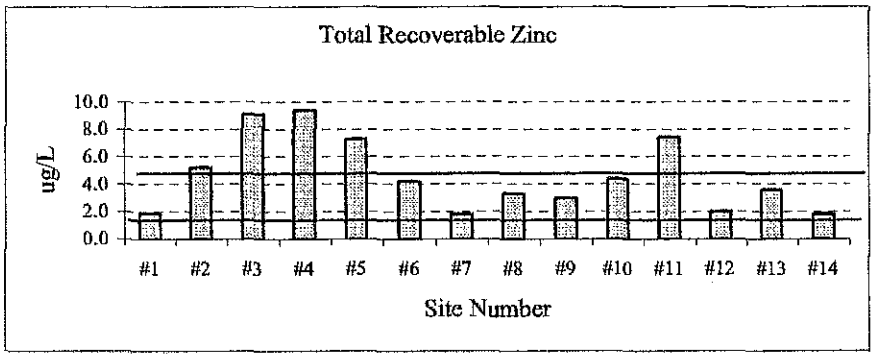
Table 7. Variability of Replicate Gold Dredge Effluent Samples [ug/L, total recoverable]

| Site No | Date | Time | Arsenic | Copper | Zinc | Lead |
|---|---|---|---|---|---|---|
| #1 | July 1, 2004 | 115-1125 | 5.0 | 2.5 | 1.9 | 0.26 |
| " | " | 1335-1345 | 3.2 | 2.3 | 2.1 | 0.21 |
| " | " | 1155-1205 | 3.3 | 2.2 | 1.6 | 0.23 |
| | | mean ± s.d.= | 3.8 ± 0.8 | 2.3 ± 0.1 | 1.9 ± 0.2 | 0.23 ± 0.02 |
| #10 | Aug 18, 2004 | 1513-1518 | 7.1 | 3.2 | 3.8 | 0.41 |
| " | " | 1523-1528 | 7.8 | 4.9 | 5.5 | 0.58 |
| " | " | 1538-1543 | 7.0 | 3.0 | 3.9 | 0.38 |
| | | mean ± s.d.= | 7.3 ± 0.4 | 3.7 ± 0.9 | 4.4 ± 0.8 | 0.46 ± 0.1 |
| #12 | Sept 21, 2004 | 1330-1335 | 2.6 | 2.9 | 2.1 | 0.56 |
| " | " | 1338-1343 | 2.7 | 3.2 | 2.0 | 0.48 |
| " | " | 1345-1350 | 2.5 | 2.6 | 1.9 | 0.38 |
| | | mean ± s.d.= | 2.6 ± 0.1 | 2.9 ± 0.2 | 2.0 ± 0.1 | 0.47 ± 0.1 |

A perspective on the potential these effluents have to affect metals concentrations in the river can be gained from a comparison with the ambient data (Figure 7). Zinc and lead appear to be the metals of greatest potential concern, with effluent concentrations being up to approximately 10 times higher than ambient levels. Arsenic, on the other hand, exceeded background by a factor of 2 or less, suggesting a minimal impact. These data indicate that the potential for these metals to be increased due to dredging in the Similkameen River is, in decreasing order, zinc, lead, copper, and arsenic.



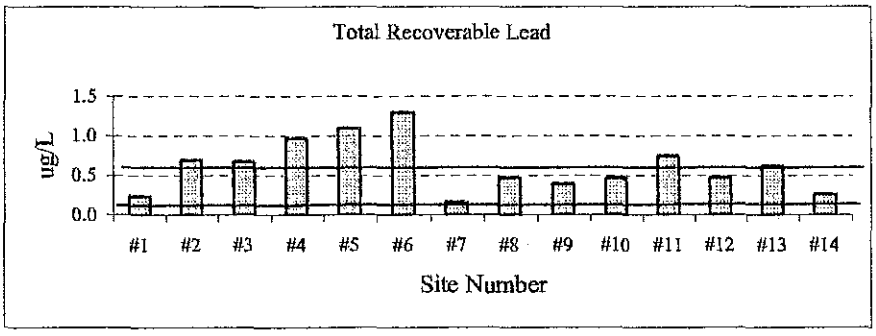




Figure 7. Metals Concentrations in Similkameen River Gold Dredge Effluents

## Dredge Plumes

Turbidity plumes were sampled behind three gold dredges, one each at sites #1, #10, and #12. The results are summarized in Table 8. Each data point represents results from three replicate samples taken over approximately a 30-minute period. The effluent data are for total recoverable metals, while the plume and upstream data are for dissolved metals, except for total recoverable arsenic. (See Study Design for an explanation of analyzing total recoverable vs. dissolved metals.)

Table 8. Results from Sampling Gold Dredge Effluent Plumes in the Similkameen River During 2004 [mean ± standard deviation of three samples, except a single sample collected above each dredge]

| Parameter | Turbidity (NTU) | TSS (mg/L) | Diss. Zinc (ug/L) | Diss. Copper (ug/L) | Diss. Lead (ug/L) | T.R. Arsenic (ug/L) | Hardness (mg/L) |
|---|---|---|---|---|---|---|---|
| **Site #1, July 1** | | | | | | | |
| Above dredge | 4.3 | 10 | <0.50 | 1.0 | <0.02 | 3.7 | 52 |
| Dredge effluent* | N/A | N/A | 1.9 ± 0.2 | 2.3 ± 0.1 | 0.23 ± 0.02 | 3.8 ± 0.8 | N/A |
| 10 ft. downstream | 10 ± 3.0 | 86 ± 45 | 1.1 ± 0.2 | 0.83 ± 0.02 | <0.02** | 9.8 ± 5.1 | 54 ± 1 |
| 50 ft. downstream | 7.6 ± 3.0 | 68 ± 23 | 1.1 ± 0.2 | 0.83 ± 0.02 | <0.02† | 9.4 ± 5.4 | 54 ± 2 |
| 200 ft. downstream | 5.2 ± 1.0 | 20 ± 3 | 0.6 ± 0.1 | 0.87 ± 0.09 | <0.02 | 5.0 ± 0.7 | 53 ± 0.1 |
| **Site #10, August 18** | | | | | | | |
| Above dredge | 0.8 | 1 | 0.68 | 0.76 | <0.10 | 5.3 | 88 |
| Dredge effluent* | N/A | N/A | 4.4 ± 0.8 | 3.7 ± 0.8 | 0.46 ± 0.09 | 7.3 ± 0.4 | N/A |
| 10 ft. downstream | 12 ± 0.5 | 32 ± 7 | 2.0 ± 0.7 | 0.86 ± 0.01 | <0.10 | 9.8 ± 1.9 | 90 ± 0.3 |
| 50 ft. downstream | 3.6 ± 1.0 | 7 ± 2 | 1.3 ± 0.1 | 0.81 ± 0.01 | <0.10 | 6.0 ± 0.1 | 89 ± 0.4 |
| 200 ft. downstream | 1.4 ± 0.2 | 3 ± 0.5 | 1.1 ± 0.2 | 0.81 ± 0.01 | <0.10 | 5.4 ± 0 | 88 ± 0.3 |
| **Site #12, September 21** | | | | | | | |
| Above dredge | 3.0 | 7 | <0.50 | 0.94 | 0.032 | 2.2 | 59 |
| Dredge effluent* | N/A | N/A | 2.0 ± 0.08 | 2.9 ± 0.2 | 0.47 ± 0.07 | 2.6 ± 0.1 | N/A |
| 10 ft. downstream | 11 ± 0.5 | 44 ± 9 | 0.88 ± 0.1 | 0.99 ± 0.01 | 0.039 ± 0.001 | 4.0 ± 0.4 | 60 ± 0 |
| 50 ft. downstream | 6.9 ± 0.1 | 23 ± 3 | 2.8 ± 0.9 | 1.1 ± 0.1 | 0.040 ± 0.003 | 2.8 ± 0.1 | 59 ± 0 |
| 200 ft. downstream | 4.0 ± 0.9 | 8 ± 2 | 0.93 ± 0.3 | 0.94 ± 0.01 | 0.035 ± 0.002 | 2.4 ± 0.1 | 59 ± 0 |

N/A = not analyzed
*dredge effluent data are total recoverable metals
**one detection at 0.028 ug/L
†one detection at 0.027 ug/L

River flows at the time of sample collection were 3,300 cfs (site #1), 581 cfs (site #10), and 1,320 cfs (site #12). Current velocities at the dredge sites ranged from 1.5 to 2.5 feet per second, and water depths were between 1.5 and 4 feet. The substrates were cobble with varying amounts of sand and gravel.

Downstream changes in the plume can be better visualized in Figure 8 which plots average TSS, turbidity, and metals concentrations. Zinc was below detection limits in the August and September upstream samples, and lead was below detection limits in most of the July and August samples. The detection limit was plotted where these metals were not detected.

Table 9 compares the upstream TSS, turbidity, and metals concentrations with the average concentrations measured in the furthest downstream samples 200 feet below the dredge. The differences between the three sites illustrate the variability inherent in a dredge plume mixing under different conditions of river flow and turbulence.

Table 9. Percent Increases in TSS, Turbidity, and Metals Concentrations Measured 200 Feet Below Three Gold Dredges in the Similkameen River

| Site No. | TSS (mg/L) | Turbidity (NTU) | Tot. Rec Arsenic (ug/L) | Dissolved Copper (ug/L) | Dissolved Zinc (ug/L) | Dissolved Lead (ug/L) |
|---|---|---|---|---|---|---|
| #1 | 100 | 21 | 35 | 0 | 20 | ND |
| #10 | 200 | 75 | 2 | 7 | 62 | ND |
| #12 | 14 | 33 | 9 | 0 | 86 | 9 |
| mean = | 100 | 43 | 15 | 2 | 56 | 9 |

ND = not detected

At 200 feet, complete mixing with the river had not occurred. On average, TSS concentrations 200 feet downstream of the dredges were twice as high (100% increase) as upstream of the dredges. Turbidity and dissolved zinc levels at 200 feet were half again as high as upstream (43 – 56% average increase). There was only a modest increase in arsenic, copper, and lead (2 – 15%).

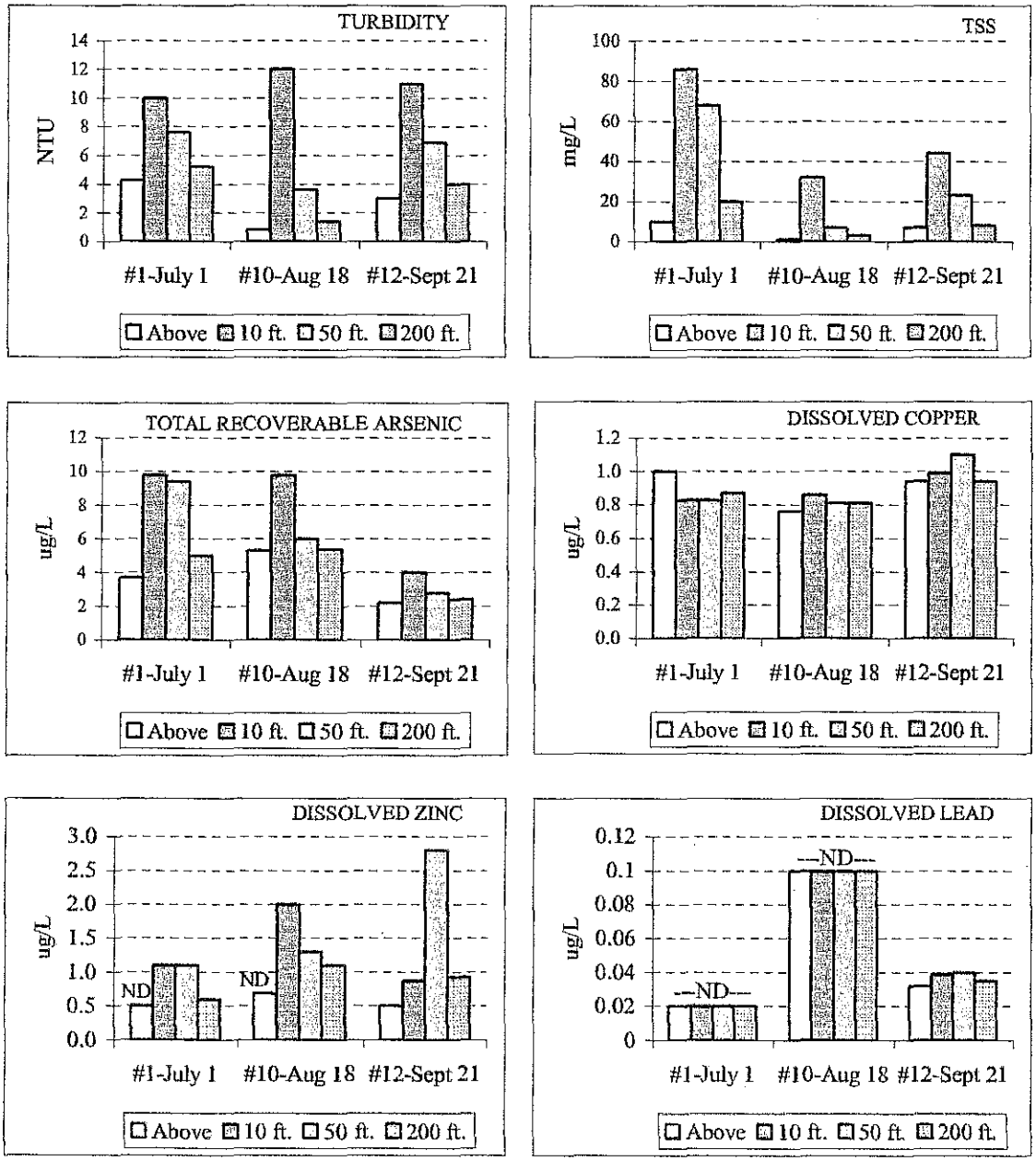



Figure 8. TSS, Turbidity, and Metals Concentrations Below Three Gold Dredges in the Similkameen River (mean of three grabs; ND = not detected).

## Comparison with Water Quality Criteria

Table 10 compares the metals concentrations measured in Similkameen gold dredge effluents and dredge plumes with Washington state criteria for the protection of aquatic life. Copper, lead, and zinc toxicity varies inversely with hardness. The criteria were calculated for a hardness of 52 mg/L, the lowest recorded in the study.

Table 10. Metals Concentrations in Similkameen River Dredge Effluent and Plume Samples Compared to Criteria for Protection of Aquatic Life (ug/L)

| | Arsenic | Copper | Lead | Zinc |
|---|---|---|---|---|
| Concentration Range in Effluents* (n=18) | 2.6 - 8.0 | 2.0 - 9.3 | 0.16 - 1.3 | 1.8 - 9.4 |
| Concentration Range Measured in Plume† (n=27) | 2.3 - 17 | 0.79 - 1.2 | <0.02 - 0.043 | <0.5 - 4.1 |
| Acute water quality criterion** | 360 | 9.2 | 31 | 66 |
| Chronic water quality criterion** | 190 | 6.5 | 1.2 | 60 |

*total recoverable metals
†dissolved metals except total recoverable arsenic
**dissolved metals at 52 mg/L hardness (lowest recorded in study)

Based on analyzing 14 effluents and 27 plume samples, it appears that small-scale gold dredges have little or no potential to cause exceedances of aquatic life criteria in the Similkameen River. Arsenic and zinc concentration in dredge related samples were one to two orders of magnitude lower than criteria. Copper and lead concentrations were at or below criteria, except for one or two effluent samples that slightly exceeded (sites #4, #5, and #7).

The criteria comparison in Table 10 is a worst-case assessment in several respects:

1. Metals concentrations in the effluents and plumes would be subjected to further dilution in the river.
2. Subsamples for the effluent composites were only taken when the suction hose was in contact with the streambed. A true time-weighted composite would have included subsamples when the intake was lifted off the bottom – as periodically occurs – and only river water was being pumped through the dredge, resulting in lower average concentrations in the discharge.
3. Less restrictive water quality criteria would apply at other times of the dredging season when hardness levels are higher. For example, the acute criteria for copper increase from 6.5 to 9.6 ug/L going from a hardness of 52 mg/L (June 2004) to 82 mg/L (August 2004).
4. Once the effluents are discharged, the metals will partition into dissolved and particulate fractions. The dissolved fraction is the primary toxicity concern.

As previously described, ambient arsenic concentrations in the Similkameen River substantially exceed the Washington State human health criteria of 0.018 and 0.14 ug/L, due to natural conditions which have been exacerbated by historic land-based mining activity. The relative impact of dredge effluents on the already elevated arsenic concentrations in the river is assessed below.

## Effect of Multiple Dredges

The metals concentrations measured in gold dredge effluents during the present study were at or below aquatic life criteria. Therefore, criteria exceedances would not be anticipated in the Similkameen River, regardless of the number of dredges operating. A series of dilution calculations were done to estimate what effect multiple dredges would have on metals concentrations in the river. As a point of reference, the maximum number of dredges Ecology personnel have observed on the Similkameen is approximately 20.

The calculations were done for both the average September flow and the 7-day, 10-year low flow, 616 cfs and 182 cfs, respectively (USGS Nighthawk gage). The August ambient data (Table 5) were used for the upstream metals concentrations. At that time the river was at 581 cfs. The detection limit was used for zinc and lead.

Average metal concentrations were used for the dredge effluents (Table 6), adjusted for the fraction that would be expected to be in the dissolved phase (based on the dissolved/total recoverable ratios in Table 5). Effluent flow rates ranged from 0.4 - 1.2 cfs, averaging 0.7 cfs (Appendix C); 1.0 cfs was used in the calculations. It was assumed the dredges operated continuously.

The results of the dilution calculations are in Table 11. During average September flows, it is estimated that somewhere between 17 and 57 dredges operating continuously would be required to increase dissolved zinc, lead, and copper concentrations in the Similkameen River by 10%. It would take between approximately 200 and 520 dredges to have the same effect on total recoverable and dissolved arsenic, respectively. In order for zinc, lead, or copper concentrations to be doubled in the river, anywhere from 170 to 570 dredges would need to be operating. Arsenic concentrations in the dredge effluents are too low to cause an increase of that magnitude, regardless of river flow.

At the 7-day, 10-year low flow in the Similkameen, relatively few dredges could effect a 10% change in copper, lead, and zinc concentrations. It would take 50 or more continuously operating dredges to double concentrations of these metals.

As demonstrated elsewhere in this report, a 100% increase in the ambient arsenic, copper, lead, or zinc concentrations in the Similkameen River would not result in exceedances of aquatic life criteria.

Table 11. Estimated Number of Dredges Required to Increase Metals Concentrations in the Similkameen River by 1%, 10%, and 100% [see text for assumptions and data used]

| | @ Average September Flow - 616 cfs | | |
|---|---|---|---|
| | 1% | 10% | 100% |
| Tot. Rec. Arsenic | 20 | 200 | ** |
| Dissolved Arsenic | 52 | 520 | ** |
| Dissolved Copper | 6 | 57 | 570 |
| Dissolved Lead | 3 | 31 | 310 |
| Dissolved Zinc | 2 | 17 | 170 |

| | @ 7-Day, 10-Year Low Flow - 182 cfs | | |
|---|---|---|---|
| | 1% | 10% | 100% |
| Tot. Rec. Arsenic | 6 | 59 | ** |
| Dissolved Arsenic | 15 | 150 | ** |
| Dissolved Copper | 2 | 17 | 170 |
| Dissolved Lead | 1 | 9 | 92 |
| Dissolved Zinc | 1 | 5 | 51 |

**effluent concentration too low to result in 100% increase

# Conclusions

Results of this study show that the concentrations of arsenic, copper, lead, and zinc discharged from small-scale gold dredges operating in the Similkameen River are not a significant toxicity concern for aquatic life. Although this activity will exacerbate the exceedances of the arsenic human health criteria that already occur, it would take very large numbers of dredges to effect a 10% change in the river's arsenic levels, even at low-flow conditions.

These conclusions may not apply to the sediment deposits behind Enloe Dam. This material could have different physical/chemical properties that the sediments evaluated in the present study.

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# Appendices

A. Results from Analyzing Metals and Organic Compounds in Similkameen River Sediment Samples

B. Metals Data for Ecology Routine Monitoring Station 49B070, Similkameen River at Oroville

C. Site Locations and Other Information on the Similkameen River Gold Dredge Samples

D. Results on Laboratory Duplicates for the Similkameen River Gold Dredge Study

E. Results on Field Blanks for the Similkameen River Gold Dredge Study

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Appendix A-1. Results of Metals and Cyanide Analyses on Similkameen River Sediment Samples (mg/Kg, dry weight)

| Site No. | Date | Sample No. | Depth Interval | Iron | Aluminum | Manganese | Zinc | Copper | Arsenic | Chromium | Nickel | Lead | Cadmium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | UPPER RIVER | | | | | | | |
| 1 | 29-Aug-95 | 358246 | 0-2 cm | **12900** | **7030** | **236** | **35** | **22** | **12** | **12** | **12** | **2.4** | 0.3 U |
| 2 | 23-Aug-98 | 398060 | 0-10 cm | **14000** | **6980** | NA | **32** | **25** | **11** | **13** | **11** | **3.3** | 0.5 U |
| | | | | | | PALMER LAKE - NIGHTHAWK | | | | | | | |
| 3 | 24-Aug-98 | 398061 | 0-10 cm | **15700** | **7790** | NA | **35** | **28** | **17** | **15** | **15** | **3.9** | 0.5 U |
| 4 | 30-Aug-95 | 358244 | 0-2 cm | **19500** | **10700** | **389** | **56** | **60** | **30** | **21** | **19** | **5.4** | 0.3 U |
| 4 | 24-Aug-98 | 398062 | 0-10 cm | **19900** | **10100** | NA | **48** | **51** | **43** | **22** | **19** | **5.4** | 0.5 U |
| 5 | 30-Aug-95 | 358243 | 0-2 cm | **17000** | **8490** | **300** | **46** | **43** | **46** | **18** | **17** | **4.5** | 0.3 U |
| 5 | 24-Aug-98 | 398063 | 0-10 cm | **13400** | **7040** | NA | **29** | **17** | **9.5** | **11** | **9.1** | **2.4** | 0.5 U |
| | | | | | | EAGLE ROCK | | | | | | | |
| 6 | 24-Aug-98 | 398064 | 0-10 cm | **14700** | **7230** | NA | **33** | **24** | **19** | **13** | **12** | **3.0** | 0.5 U |
| | | | | | | ENLOE DAM | | | | | | | |
| 7 | 23-Aug-98 | 398065 | 0-10 cm | **14200** | **7080** | NA | **31** | **18** | **12** | **13** | **12** | **2.4** | 0.5 UJ |
| 7 | 30-Sep-99 | 408020 | 0-1 ft | NA | NA | NA | **36** | **21** | **15** | **15** | **11** | **3.2** | **1.1** |
| 7 | 30-Sep-99 | 408021 | 1-2 ft | NA | NA | NA | **31** | **13** | **7** | **11** | **7.8** | **2.0** | **0.86** |
| 8 | 30-Sep-99 | 408022 | 0-1 ft | NA | NA | NA | **32** | **13** | **7.8** | **12** | **8.6** | **2.2** | **0.81** |
| 8 | 30-Sep-99 | 408023 | 1-2 ft | NA | NA | NA | **30** | **12** | **7.2** | **11** | **7.9** | **2.0** | **0.79** |
| 9 | 30-Aug-95 | 358242 | 0-2 cm | **16200** | **8940** | **305** | **50** | **45** | **21** | **18** | **16** | **4.1** | 0.3 U |
| 9 | 23-Aug-98 | 398066 | 0-10 cm | **14600** | **7275** | NA | **32** | **21** | **14** | **14** | **12** | **2.8** | 0.5 U |
| 9 | 30-Sep-99 | 408024 | 0-1 ft | NA | NA | NA | **33** | **17** | **10** | **13** | **9.2** | **2.3** | **0.94** |

Note: Detections highlighted in **BOLD**
NA = not analyzed
U = not detected at or above reported value
J = estimated value
UJ = not detected at or above reported estimated value

Appendix A-1. (continued)

| Site No. | Date | Sample No. | Depth Interval | Silver | Beryllium | Thallium | Mercury | Antimony | Selenium | Cyanide |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | UPPER RIVER | | | | | | |
| 1 | 29-Aug-95 | 358246 | 0-2 cm | 0.3 U | NA | NA | 0.01 U | NA | 0.4 U | NA |
| 2 | 23-Aug-98 | 398060 | 0-10 cm | **0.66** | **0.24** | **0.38** J | **0.012** | 4 UJ | 0.3 U | 0.10 U |
| | | | | PALMER LAKE - NIGHTHAWK | | | | | | |
| 3 | 24-Aug-98 | 398061 | 0-10 cm | **0.78** | **0.28** | **0.50** J | **0.018** J | 4 UJ | 0.3 U | 0.10 U |
| 4 | 30-Aug-95 | 358244 | 0-2 cm | **0.30** J | NA | NA | **0.012** | NA | 0.4 U | NA |
| 4 | 24-Aug-98 | 398062 | 0-10 cm | **0.83** | **0.38** | 0.3 U | **0.029** | 4 UJ | 0.3 U | 0.10 U |
| 5 | 30-Aug-95 | 358243 | 0-2 cm | **0.30** J | NA | NA | 0.01 U | NA | 0.4 U | NA |
| 5 | 24-Aug-98 | 398063 | 0-10 cm | **0.59** | **0.24** | 0.3 U | **0.031** | 4 UJ | 0.3 U | 0.10 U |
| | | | | EAGLE ROCK | | | | | | |
| 6 | 24-Aug-98 | 398064 | 0-10 cm | **0.74** | **0.23** | 0.3 U | **0.0085** | 4 UJ | 0.3 U | 0.10 U |
| | | | | ENLOE DAM RESERVOIR | | | | | | |
| 7 | 23-Aug-98 | 398065 | 0-10 cm | **0.58** | **0.21** | 0.3 U | **0.0072** | 4 UJ | 0.3 U | 0.10 U |
| 7 | 30-Sep-99 | 408020 | 0-1 ft | 2 U | **1.3** | 0.3 U | **0.013** | 5 UJ | 0.3 U | NA |
| 7 | 30-Sep-99 | 408021 | 1-2 ft | 2 U | **0.97** | 0.3 U | 0.01 U | 5 UJ | 0.3 U | NA |
| 8 | 30-Sep-99 | 408022 | 0-1 ft | 2 U | **1.2** | 0.3 U | 0.01 U | 5 UJ | 0.3 U | NA |
| 8 | 30-Sep-99 | 408023 | 1-2 ft | 2 U | **1.0** | 0.3 U | 0.01 U | 5 UJ | 0.3 U | NA |
| 9 | 30-Aug-95 | 358242 | 0-2 cm | 0.3 U | NA | NA | **0.012** | NA | 0.4 U | NA |
| 9 | 23-Aug-98 | 398066 | 0-10 cm | **0.73** | **0.23** | 0.3 U | **0.014** J | 4 UJ | 0.3 U | 0.10 U |
| 9 | 30-Sep-99 | 408024 | 0-1 ft | 2 U | **1.1** | 0.3 U | 0.01 U | 5 UJ | 0.3 U | NA |

Note: Detections highlighted in **BOLD**
NA = not analyzed
U = not detected at or above reported value
J = estimated value
UJ = not detected at or above reported estimated value

Appendix A-2. Results from Analyzing Semivolatiles, PCBs, and Pesticides in Core Samples Collected behind Enloe Dam in September 1999 (ug/Kg, dry weight; only detected compounds shown)

| Site No: | 7 | | 8 | | 9 |
|---|---|---|---|---|---|
| Location: | Upper Reservoir | | Middle Reservoir | | Lower Res. |
| Depth Interval (cm): | 0-30 | 30-60 | 0-30 | 30-60 | 0-30 |
| Sample No: | 408020 | 408021 | 408022 | 408023 | 408024 |
| **Semivolatiles** | | | | | |
| Polyaromatic Hydrocarbons | | | | | |
| Naphthalene | **13** | 6.7 U | **7.8** J | 12 U | **7.9** J |
| 1-Methylnaphthalene | **14** | 6.7 U | **5.8** J | **5.6** J | **7.6** J |
| 2-Methylnaphthalene | **17** | 6.7 U | **9.2** J | **8.2** J | **10** J |
| Fluorene | **8.9** J | 6.7 U | 12 U | 12 U | 12 U |
| Phenanthrene | **55** | **4.2** J | **8.9** J | **8.0** J | **12** J |
| Anthracene | **23** | 6.7 U | 12 U | 12 U | 12 U |
| Fluoranthene | 13 U | **4.2** J | **8.7** J | 12 U | **9.7** J |
| Pyrene | **8.4** J | 6.7 U | **6.6** J | **6.3** J | **7.7** J |
| Benzo(a)anthracene | 13 U | **5.2** J | 12 U | **9.4** NJ | 12 U |
| Chrysene | 13 U | 6.7 U | 12 U | 12 U | **9.6** J |
| Total PAH | **139** | **14** | **47** | **38** | **64** |
| Miscellaneous Compounds | | | | | |
| 2-Methylphenol | **8.5** | 6.7 U | 12 U | 12 U | **5.9** J |
| 4-Chloro-3-Methylphenol | 13 U | 6.7 U | 12 U | 12 U | **17** |
| 2-Nitroaniline | 13 U | 6.7 U | 12 U | 12 U | **36** |
| 3-Nitroaniline | **49** | 6.7 U | 12 U | 12 U | 12 U |
| Dibenzofuran | **12** J | 6.7 U | **6.4** J | **6.3** J | **7.0** J |
| Retene | **522** | **7.9** | **83** | **48** | **203** |
| Carbazole | **1.2** J | 6.7 U | 12 U | 12 U | 12 U |
| Di-N-butylphthalate | **3490** E | 54 U | 386 U | 711 U | 243 U |
| Butylbenzylphthalate | 26 U | **10** | 19 U | 23 U | 22 U |
| **PCBs** | ND | ND | ND | ND | ND |
| **Chlorinated Pesticides** | ND | ND | ND | ND | ND |
| **Organophosphorus Pesticides** | ND | ND | ND | ND | ND |
| **Nitrogen Pesticides** | ND | ND | ND | ND | ND |

Note: Detections highlighted in **BOLD** NJ = evidence analyte is present; value is an estimate
U = not detected at or above reported value E = estimated value that exceeds the calibration
J = estimated value ND = not detected

Appendix B. Metals Data for Ecology Routine Monitoring Station 49B070, Similkameen River @ Oroville (ug/L)

| Date | Arsenic | | Cadmium | | Chromium | | Copper | |
|---|---|---|---|---|---|---|---|---|
| | Diss. | Tot. Rec. | Diss. | Tot. Rec. | Diss. | Tot. Rec. | Diss. | Tot. Rec. |
| 09-Oct-95 | | | 0.04 U | 0.1 U | | 1 U | 0.609 | 0.7 |
| 11-Dec-95 | | 21.6 | 0.04 U | 0.1 U | | 4 | 2.51 | 10.1 |
| 12-Feb-96 | | 1.94 | 0.02 U | 0.1 U | | 5 U | 0.972 | 1.5 B |
| 15-Apr-96 | | 3.6 | 0.077 J | 0.1 U | | 1.5 | 5.21 J | 5.2 |
| 11-Jun-96 | | 6.27 | 0.022 | 0.1 U | | 1.4 | 1.39 | 6.3 |
| 13-Aug-96 | | 3.78 | 0.04 | 0.1 U | | 0.4 U | 0.846 | 1.3 |
| 15-Oct-96 | | 2.77 | 0.019 | 0.1 U | | 0.4 U | 0.759 | 1.1 J |
| 10-Dec-96 | | 1.9 | 0.019 | 0.1 U | | 0.4 U | 0.48 | 0.7 |
| 15-Apr-97 | | 2.04 | 0.02 U | 0.1 U | | 0.27 | 1.21 | 2.3 |
| 10-Jun-97 | | 8.28 | 0.02 U | 0.1 U | | 1.4 | 1.44 | 8.7 |
| 12-Aug-97 | | 4.18 | 0.02 U | 0.1 U | | 0.2 U | 0.881 | 1.1 |
| 15-Dec-98 | | | 0.02 U | | | | 0.554 | |
| 11-May-99 | | | 0.02 U | | | | 1.22 | |
| 02-May-00 | | 3.4 | | | | | | |
| 06-Jun-00 | | 4.6 | | | | | | |
| 11-Jul-00 | | 2.1 | | | | | | |
| 15-Aug-00 | 5.4 | 4.4 | | | | | | |
| 05-Sep-00 | | 3.3 | | | | | | |
| 04-Oct-00 | | 2.6 | | | | | | |
| 08-Nov-00 | | | | | | | | |
| 06-Dec-00 | | | | | | | | |
| 17-Jan-01 | | | | | | | | |
| 07-Feb-01 | | | | | | | | |
| 07-Mar-01 | | | | | | | | |
| 04-Apr-01 | 2.36 | 2.25 | | | | | | |
| 09-May-01 | 1.6 | 2.35 | | | | | | |
| 06-Jun-01 | | | | | | | | |
| 08-Oct-02 | 3.09 | 3.07 | 0.1 U | 0.1 U | 0.42 | 0.5 U | 0.81 | 0.99 |
| 03-Dec-02 | 2.06 | 1.93 | 0.02 U | 0.1 U | 0.75 | 0.5 U | 0.51 | 0.75 |
| 04-Feb-03 | 1.73 | 1.61 | 0.02 U | 0.1 U | 0.3 | 0.5 U | 0.74 | 1.01 |
| 08-Apr-03 | 1.64 | 1.7 | 0.1 U | 0.1 U | 0.5 U | 0.5 U | 0.5 U | 1.39 J |
| 03-Jun-03 | 1.5 | 4.33 | 0.02 U | 0.1 U | 0.25 U | 1.3 | 1.18 | 4.57 |
| 05-Aug-03 | 6.37 | 5.61 | 0.02 U | 0.1 U | 0.4 | 0.5 U | 0.77 | 0.98 |

B = The analyte was detected in the method blank.
U = The analyte was not detected at or above the reported result.
J = The analyte was positively identified. The associated numerical result is an estimate.

Appendix B. (continued)

| Date | Lead | | Mercury | Nickel | | Zinc | | Hardness |
|---|---|---|---|---|---|---|---|---|
| | Diss. | Tot. Rec. | Total | Diss. | Tot. Rec. | Diss. | Tot. Rec. | |
| 09-Oct-95 | 0.03 U | 0.1 U | 0.001 U | 1 U | | 1.1 | 5.9 B | 86 |
| 11-Dec-95 | 0.362 | 1.5 | 0.001 | 1 U | | 5 U | 14.1 B | 82 |
| 12-Feb-96 | 0.025 | 0.1 | 0.001 U | 0.586 | | 1.2 B | 5 U | 76 |
| 15-Apr-96 | 0.72 J | 0.8 | 0.002 | 1.62 J | | 4.2 B | 4.8 | 63 |
| 11-Jun-96 | 0.032 | 0.8 | 0.004 | 0.508 | | 1.1 | 10.8 B | 43 |
| 13-Aug-96 | 0.02 U | 1 | 0.001 U | 0.615 | | 1 | 3.4 B | 78 |
| 15-Oct-96 | 0.087 | 0.1 U | 0.002 U | 0.6 | | 1.4 J | 3.5 J | 98 |
| 10-Dec-96 | 0.03 U | 0.2 | 0.001 U | 0.5 | | 0.76 | 4 J | 95 |
| 15-Apr-97 | 0.02 U | 0.2 | 0.002 U | 0.73 | | 0.49 | 14.6 | 95 |
| 10-Jun-97 | 0.03 | 0.9 | 0.002 U | 0.562 | | 3.37 | 13 J | 45 |
| 12-Aug-97 | 0.039 | 0.2 | 0.002 U | 0.602 | | 1.81 | 2.2 | 87 |
| 15-Dec-98 | 0.02 U | | 0.002 U | 0.898 | | 0.77 | | 112 |
| 11-May-99 | 0.027 | | 0.003 | 0.665 | | 1.4 J | | 66 |
| 02-May-00 | | | | | | | | |
| 06-Jun-00 | | | | | | | | |
| 11-Jul-00 | | | | | | | | |
| 15-Aug-00 | | | | | | | | 95.4 |
| 05-Sep-00 | | | | | | | | 88.6 |
| 04-Oct-00 | | | | | | | | 90.1 |
| 08-Nov-00 | | | | | | | | 86.8 |
| 06-Dec-00 | | | | | | | | 104 |
| 17-Jan-01 | | | | | | | | 103 |
| 07-Feb-01 | | | | | | | | 103 |
| 07-Mar-01 | | | | | | | | 73.2 |
| 04-Apr-01 | | | | | | | | 103 |
| 09-May-01 | | | | | | | | |
| 06-Jun-01 | | | | | | | | 46.7 |
| 08-Oct-02 | 0.02 U | 0.14 | 0.002 U | 0.49 | 0.81 | 1 U | 5 U | 94.6 |
| 03-Dec-02 | 0.036 | 0.1 U | 0.0033 | 0.73 | 0.71 | 1 U | 5 U | 97.8 |
| 04-Feb-03 | 0.02 U | 0.1 U | 0.002 U | 0.39 | 0.46 | 1 U | 5 U | 81.4 |
| 08-Apr-03 | 0.02 U | 0.11 | 0.004 U | 0.62 | 0.91 | 1.1 | 5 U | 79.4 |
| 03-Jun-03 | 0.041 | 0.44 | 0.0066 | 0.39 | 1.33 | 1.3 | 5.7 | 38.3 |
| 05-Aug-03 | 0.02 U | 0.1 U | 0.002 U | 0.54 | 0.66 | 1 U | 5 U | 94.7 |
| | | | | | | | | 38.3 |

B = The analyte was detected in the method blank.

U = The analyte was not detected at or above the reported result.

J = The analyte was positively identified. The associated numerical result is an estimate.

Appendix C. Site Locations and Other Information on Similkameen River Gold Dredge Samples

| Site No.<br>Date<br>Owner | Site Description | River Mile<br>Latitude<br>Longitude* | Dredge Description<br>and Operation | Effluent Flow<br>Stream Depth/Velocity†<br>Substrate | Ecology<br>Personnel |
|---|---|---|---|---|---|
| #1<br>1-Jul-04<br>Creegan | Approx. 500 ft.<br>below BNRR bridge,<br>left bank | 6.5<br>48 56 54<br>119 27 40 | "Precision" dredge, 5" intake<br>reduced to 4", 250 gpm pump,<br>6-8 feet off bank | 1.2 cfs<br>2.5 ft. / 2.3 fps<br>cobble w/ gravel & sand | Peterschmidt<br>Johnson |
| #2<br>1-Jul-04<br>Lease | Approx. 100 yards<br>below Eagle Rock,<br>left bank | 10.8<br>48 58 58<br>119 32 05 | Custom, 6" intake reduced to<br>4", 1,200-1,500 gpm pump,<br>6 feet off bank | 1.2 cfs<br>3 ft. / 0.9 fps<br>cobble w/ sand | Peterschmidt<br>Johnson |
| #3<br>18-Aug-04<br>Ching | S-turn @ irrigation<br>canal crossing,<br>left bank | 13.7<br>48 59 15<br>119 32 25 | Stilt mounted, 2.5"intake,<br>6.5 hp, working in<br>streamside hole | no data<br>1.5 ft. / 1.4 fps<br>cobble and boulders | Coffin<br>Latham |
| #4<br>18-Aug-04<br>Sweeney | Approx. 1/2 mile<br>upstream of S-turn,<br>left bank | 14.1<br>48 59 20<br>119 34 36 | Floating dredge, 3" intake,<br>5 hp pump, 3 feet off bank | no data<br>1 ft. / 0.9 fps<br>boulders | Coffin<br>Latham |
| #5<br>18-Aug-04<br>Hard | Approx. 1 mile<br>above Eagle Rock,<br>left bank | 11.1<br>48 58 51<br>119 32 24 | Floating dredge, 4" intake,<br>5 hp pump | no data<br>3 ft. / 2.2 fps<br>bedrock w/ fines | Coffin<br>Latham |
| #6<br>19-Aug-04<br>Franklin | Above Eagle Rock,<br>left bank | 10.9<br>48 58 53<br>119 32 17 | "Keene" dredge, 4" intake,<br>5 hp pump | no data<br>1.3 ft. / 2.5 fps<br>cobble and bedrock | Coffin<br>Latham |
| #7<br>18-Aug-04<br>Estes | Approx. 2 miles<br>below Nighthawk<br>left bank | 15.8<br>48 29 12<br>119 33 58 | "Keene" triple sluice, 4" intake,<br>300-450 gpm, 20 feet off bank | no data<br>1.4 ft. / 0.35 fps<br>large cobble w/ fines | Coffin<br>Latham |
| #8<br>18-Aug-04<br>Wade | River Oaks RV Resort,<br>left bank | 5.2<br>48 56 13<br>119 26 35 | "Dahlke Polydredge", 4" intake,<br>300 gpm, 5 hp pump,<br>20 feet off bank | 1.0 cfs<br>1.5 ft / 0.5 fps<br>cobble | Johnson<br>Wittmeier |

Appendix C. (continued)

| Site No.<br>Date<br>Owner | Site Description | River Mile<br>Latitude<br>Longitude* | Dredge Description<br>and Operation | Effluent Flow<br>Stream Depth/Velocity†<br>Substrate | Ecology<br>Personnel |
|---|---|---|---|---|---|
| #9<br>19-Aug-04<br>- - | Approx. 1.5 miles<br>above Eagle Rock,<br>left bank | 13<br>48 59 08<br>119 33 39 | 3" intake, 5.5 hp pump,<br>20 feet off bank | 0.2 cfs<br>1.3 ft. / 0.7 fps<br>cobble and gravel | Peterschmidt<br>Johnson |
| #10<br>18-Aug-04<br>Wade | River Oaks RV Resort,<br>left bank | 5.2<br>48 56 13<br>119 26 35 | "Dahlke Polydredge",<br>4" intake, 300 gpm, 5 hp pump,<br>20 feet off bank | 1.0 cfs<br>1.5 ft / 0.5 fps<br>cobble | Johnson<br>Wittmeier |
| #11<br>19-Aug-04<br>- - | Approx. 1/2 mile<br>above S-turn,<br>left bank | 14.3<br>48 59 20<br>119 34 50 | Custom dredge, 4" intake,<br>5.5 hp pump, 30 feet off bank | 0.4 cfs<br>2 ft. / 0.3 fps<br>cobble | Peterschmidt<br>Johnson |
| #12<br>21-Sep-04<br>Chase | "Boat ramp",<br>left bank | 13.3<br>48 58 50<br>119 32 32 | Floating dredge, 4" intake,<br>7 hp pump, 10 feet off bank | 0.5 cfs<br>1.5 ft. / 0.85 fps<br>cobble and gravel | Peterschmidt<br>Johnson |
| #13<br>21-Sep-04<br>Miltner | Approx. 1 mile<br>above Eagle Rock,<br>left bank | 12.8<br>48 58 54<br>119 33 24 | Floating dredge, 4" intake,<br>5.5 hp pump, 10 feet off bank | 0.4 cfs<br>0.9 ft. / 1.3 fps<br>cobble w/ gravel & silt | Peterschmidt<br>Johnson |
| #14<br>22-Sep-04<br>- - | Approx. 1 mile<br>below Enloe Dam,<br>left bank | 8.5<br>48 57 41<br>119 29 46 | Floating dredge, 2.4 inch intake,<br>6.5 hp pump, 15 feet off bank | - -<br>- -<br>boulders | Peterschmidt |

*NAD 27

†immediately upstream of dredge intake hose

Appendix D. Results on Laboratory Duplicates for the Similkameen River Gold Dredge Study (laboratory splits)

| Sample Type: | Ambient River Water | | | | | | Dredge Effluent | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample No.: | 274080 | 274080-dup | RPD | 344230 | 344230-dup | RPD | 274087 | 274087-dup | RPD | 344242 | 344242-dup | RPD |
| Tot. Rec. Zinc (ug/L) | 1.6 | 2.3 | 36 | <1.0 | <1.0 | 0 | 2.1 | 2.0 | 5 | 3.5 | 4.0 | 13 |
| Tot. Rec. Copper (ug/L) | 2.4 | 2.5 | 4 | 1.2 | 1.2 | 0 | 2.3 | 2.3 | 0 | 3.2 | 3.1 | 3 |
| Tot. Rec. Lead (ug/L) | 0.12 | 0.15 | 22 | <0.10 | <0.10 | 0 | 0.21 | 0.21 | 0 | 0.40 | 0.42 | 5 |
| Tot. Rec. Arsenic (ug/L) | 3.7 | 4.0 | 8 | 4.2 | 4.2 | 0 | 3.2 | 3.2 | 0 | 7.1 | 7.1 | 0 |
| Dissolved Zinc (ug/L) | 1.0 | 1.1 | 10 | 1.2 | 1.1 | 9 | N/A | N/A | - - | N/A | N/A | - - |
| Dissolved Copper (ug/L) | 0.82 | 0.83 | 1 | 0.87 | 0.83 | 5 | N/A | N/A | - - | N/A | N/A | - - |
| Dissolved Lead (ug/L) | <0.02 | <0.02 | 0 | <0.10 | <0.10 | 0 | N/A | N/A | - - | N/A | N/A | - - |
| Dissolved Arsenic (ug/L) | 2.8 | 2.8 | 0 | 4.2 | 4.2 | 0 | N/A | N/A | - - | N/A | N/A | - - |
| TSS (mg/L) | 10 | 10 | 0 | 2 | 3 | 40 | N/A | N/A | - - | N/A | N/A | - - |
| Turbidity (NTU) | 3.7 | 4.2 | 13 | 2.2 | 2.2 | 0 | N/A | N/A | - - | N/A | N/A | - - |
| Hardness (mg/L) | 52 | 52 | 0 | | | | N/A | N/A | - - | N/A | N/A | - - |

RPD = relative percent difference (range of duplicates as percent of duplicate mean)
N/A = not analyzed

Appendix E. Results on Field Blanks for the Similkameen River Gold Dredge Study (ug/L)

| Sample Type | Date | Zinc | Copper | Lead | Arsenic |
|---|---|---|---|---|---|
| Bottle Blank | 30-Jun-04 | <1.0 | <0.10 | <0.10 | <0.10 |
| Filter Blank | " | 0.56 | <0.10 | <0.02 | <0.10 |
| Bottle Blank | 18-Aug-04 | <1.0 | <0.10 | <0.10 | <0.10 |
| Filter Blank | " | 1.1 | <0.10 | <0.10 | <0.10 |
| Bottle Blank | 21-Sep-04 | <1.0 | <0.10 | <0.10 | <0.10 |
| Filter Blank | " | <0.50 | <0.10 | <0.02 | <0.10 |

EPA Suction Dredge Study - 1999

EPA Suction Dredge Study - 1999 Attachment D3

Note: This is the full text of this report, but the accompanying tables are lacking. You may download the full report with tables in Adobe pdf format at
http://www.isu.edu/departments/bios/Minshall/Publications/Report.pdf

Impact of suction dredging on water quality, benthic habitat, and biota in the Fortymile River, Resurrection Creek, and Chatanika River, Alaska

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FINAL REPORT
June 1999

Table of Contents

Summary
Part I - Suction Dredging in the Fortymile River
Introduction
Methods
Results
Discussion
Part II - Recreational Dredging in Resurrection Creek
Introduction
Methods
Results and Discussion
Acknowledgments
Literature Cited

Summary

This report describes the results of our research during 1997 and 1998 into the effects of commercial suction dredging on the water quality, habitat, and biota of the Fortymile River and recreational dredging on Resurrection Creek and the Chatanika River. On the Fortymile River, water chemistry, heavy metal concentrations, riverbed morphology, algal (periphyton) standing crop, and aquatic macroinvertebrate abundance and diversity were measured in relation to commercial suction dredging for both years. The focus of our work on the Fortymile in 1997 was on an 8-inch suction dredge (Site 1), located on the mainstem and a 10 inch dredge located on the South Fork (Site 2a). Our research in 1998 included (1) resampling the 1997 sites on the mainstem and SF Fortymile to determine recovery after one year, (2) sampling a dredge site on the South Fork to examine for possible spatial variability in the effects of large-scale suction dredging on benthic communities (3) sampling a dredge site on the North Fork Fortymile to determine whether impact and recovery differ from conditions on the South Fork and the mainstem, and (4) again sampling unmined sites on the NF and SF to better document suspected background differences between the two forks in terms of macroinvertebrate communities. In all of the suction-mined sites studied, dredges were operated by experienced

miners. Sampling was performed at fixed transects above and below the dredge locations. Additional sampling above the confluence of the North and South Forks revealed differences in background conditions in these two main tributaries.

At Site 1, dredge operation had no discernable effect on alkalinity, hardness, or specific conductance of water in the Fortymile. Of the factors we measured, the primary effects of suction dredging on water chemistry of the Fortymile River were increased turbidity, total filterable solids, and copper and zinc concentrations downstream of the dredge. These variables returned to upstream levels within 80-160 m downstream of the dredge. The results from this sampling revealed a relatively intense, but localized, decline in water clarity during the time the dredge was operating. The impact of suction dredging on water clarity and heavy metal concentrations may be greater or lesser than we measured, depending on the type of material the dredge is excavating.

The cross-sectional profiles indicate that the impact of the dredge piles relative to the width of the Fortymile River was small. After one year, dredge piles at Site 1 had largely disappeared following the scouring flows that accompany snow-melt in the Fortymile drainage. However, at Site 2, dredge piles were clearly discernable after one year. Macroinvertebrate abundance and diversity were greatly reduced in the first 10 m below the dredge at Site 1 during 1997, relative to the upstream reference site. For example, macroinvertebrate abundance was reduced by 97% and the number of taxa by 88% immediately below the dredge. The abundance and diversity of macroinvertebrates returned to values seen at the reference site by 80 to 160 m downstream of the dredge. A similar decline in macroinvertebrate abundance and diversity was observed at Site 2a. One year after dredging at both Site 1 and Site 2, recovery of macroinvertebrate diversity appeared to be substantial. The cumulative effect of suction dredging on the biota of the Fortymile is a function of the number of dredges operating concurrently, the size of the dredges, the strategy and effectiveness of their operators, and the rate and extent of re-colonization on the excavated dredge piles.

We compared conditions in the North Fork versus the South Fork of the Fortymile under the hypothesis that the greater background mining activity (of all types) on the SF would result in reduced macroinvertebrate abundance and diversity. We also expected that suction dredging would be relatively less harmful at already impacted sites than at sites that were less disturbed. An increase in macroinvertebrate density was found in the NF, relative to the SF, and this we attributed to the lower variability of benthic organic matter and greater amounts of periphyton standing crop that occurred in the NF. We could discern no natural reason for this difference and therefore attribute this result to the greater disturbance in the SF from all forms of mining, historic and current.

The second component of this project is to examine the effects of recreational suction dredging on smaller streams in Alaska. In 1997, sampling was conducted on a single site on Resurrection Creek, a designated recreational mining stream on the Kenai Peninsula. In 1998, sampling was conducted on the Chatanika River, known to be popular for recreational dredging. The Chatanika River was sampled at a location north of Fairbanks. The results from Resurrection Creek indicated that there was no difference in the

macroinvertebrate community between the mining area and the locations downstream of the mining area, in terms of macroinvertebrate density, taxa richness, EPT richness, or food resources. Results from the Chatanika showed slight downstream decreases in macroinvertebrate density, but all other measures remained similar to those of the reference area. In general, our results are in agreement with other studies that have found only localized reductions in macroinvertebrate abundance in relation to small-scale suction dredging.

## Part I - Suction Dredging in the Fortymile River

### Introduction

This report describes the results of research performed during 1997 and 1998 to determine the possible impacts of commercial suction dredging on the water quality, benthic habitat, and biota of the Fortymile River, Alaska (hereafter, Fortymile). Also described in this report are the impacts by recreational dredging on the Chatanika River and Resurrection Creek. This is the first study of its kind to describe the effects of suction dredge mining on river ecosystems in Alaska.

In stream ecosystems, aquatic macroinvertebrates have become the primary assessment tool for resource managers (see Barbour et al. 1996, Cairns and Pratt 1993). Several characteristics of aquatic macroinvertebrates, as a group, have led to their general acceptance as reliable indicators of ecological condition: (1) they are generally immobile (relative to fish), (2) they consist of a relatively large number of species that, collectively, display a range of sensitivities and responses to various types of habitat degradation, (3) they tend to be ubiquitous throughout streams and rivers, and (4) they are relatively easy to sample and identify. For these reasons, our assessment of the effect of suction dredging on the Fortymile, Chatanika, and Resurrection focused on macroinvertebrates. In addition to aquatic macroinvertebrates, water chemistry, streambed geomorphology, algal (periphyton) standing crop, and benthic organic matter (BOM) standing crop also were measured in relation to suction dredging for both years. The latter two components form the food base for stream herbivores and detritivores and are vital to the production and recovery of aquatic macroinvertebrates. Variations in the sampling method between years are described in the Methods section.

Historically, gold mining occurred throughout the Fortymile basin and several types of operations are still active, including placer mining, hydraulic mining, and suction dredging. Large scale placer mining also occurs in some sections of the Chatanika River and historically in the lower reaches of Resurrection Creek. Our research was limited to investigations on the effects of suction dredging. We addressed two general topics: (1) the effect of relatively large (8-10 inch) commercial suction dredges on ecological conditions in the Fortymile and (2) the general effect of smaller (2-6 inch) recreational suction dredges on benthic habitat and biota in the Chatanika River and Resurrection Creek. Part I of this report presents the results from the Fortymile; Part II describes results of small-scale mining within the recreational mining sites.

Suction dredging typically involves excavating the deeper, largely uninhabited sediments and depositing them on top of the ecologically more important surface substrates. Sorting and re-deposition of substrata moved through a dredge were expected to alter the

streambed geomorphology and create "dredge piles" downstream of the dredges. Our effort here was directed toward determining the size (height, width) of the dredge piles, relative to the cross-sectional width of the river. This type of physical disturbance of benthic substrata generally reduces periphyton standing crop, BOM, and macroinvertebrate density. Thus, substrata moved through the dredge were expected to support less periphyton than substrata in undisturbed areas of the river (see Peterson 1996). Abundance and diversity of macroinvertebrates also were expected to be sharply reduced in dredged areas, as physical tumbling of substrata is known to kill and/or dislodge associated organisms (see Resh et al. 1988 for review), in addition to reducing the available food base.

The impact of commercial suction dredging on benthic organisms was evaluated in 1997 on the South Fork and the mainstem Fortymile River (Fig 1.). One site was also sampled in the North Fork near the confluence of the North and South Forks. In addition to resampling the 1997 mainstem and South Fork dredge sites in 1998, we expanded our sampling to include one dredge site on the North Fork and two additional dredge sites on the South Fork. We also sampled three reference sites unaffected by mining activity on the North and South Forks, including the 1997 North Fork Confluence site. Overall, our goals for 1998 were (1) to determine the potential for recolonization of the previous year's dredge spoils, (2) to expand the spatial scale of our sampling by including sites that were dredged early (June), and late (September) in the season, and in different geomorphic settings (inside and outside of a meander bend), (3) to sample dredged sites in a less-disturbed portion of the basin (North Fork) than our other sites, and (4) to compare impact and recovery potentials of dredge mining between more disturbed (South Fork), and less disturbed (North Fork) streams in the same basin.

The research on recreational dredging was designed to assess the potential impacts on the aquatic macroinvertebrate community in streams from geographically diverse locations and streams known to have annually repeated, relatively, intense mining occur in the same location. Several potential sites were examined but most proved to be unsuitable for study because of the absence of discrete areas of concentrated suction dredging confounded by other disturbances. Resurrection Creek contains a section of stream designated for recreational mining activity by the State Department of Fish and Game and the U.S. Forest Service and is located on the Kenai Peninsula in Southcentral Alaska. The Chatanika River has no such designation that we know of, however it appears that mining is restricted to a section of river near Milepost 60 on the Steese Highway. The Chatanika River site is known to receive a sizeable amount of suction dredge activity throughout its available mining season.

Methods

Sampling Design - The majority of our work on the Fortymile in 1997 was conducted at a single site, with an 8-inch suction dredge operated by an experienced miner (hereafter, Site 1). Site 1 was located approximately 13 kilometers (8 miles) upstream of the Taylor Highway-Fortymile River Bridge (approximately 141° 30' W, 65° 17' N; Township 7 south, Range 32 east). Sampling was performed at fixed transects above, within, and below the dredge location (Fig. 2). Work at this site occurred from 14 through 17 August 1997, under baseflow conditions. Less intensive sampling also was conducted

above and below a larger (10 inch) dredge located on the South Fork Fortymile also by a veteran miner (Site 2a), and near the mouth of the North Fork Fortymile (NF, Site 4). Sampling at Site 2a and in the NF was performed from 17-18 August 1997 and was restricted to recently dredged piles and un-dredged reference areas because the dredge was not active at the time, due to elevated water levels and turbidity following an intense rainstorm over an extensive part of the basin.

During 1998, we returned to both Site 1 and Site 2a to determine the degree to which the areas dredged in 1997 had recovered relative to the reference areas. At Site 1, the previous year's dredge piles were re-sampled using the same design as in 1997. At Site 2a, the area that had been dredged in 1997 was re-sampled and another location, of different mining history and geomorphic setting, was studied for the first time (2b). During 1998, we also sampled a dredge site located on the NF Fortymile (Site 3) to increase the spatial extent of the study and to determine if the NF and SF respond differentially to effects of suction dredging. Also in 1998 the reference site near the mouth of the NF was resampled and a comparable unmined site on the SF just upstream of the confluence was added for better evaluation of potential SF/NF background differences.

The Before-After-Control-Impact (BACI) approach is a powerful and generally accepted sampling design for detecting environmental impacts (e.g., Smith et al. 1993, Stewart-Oaten et al. 1986, Green 1979). For the present study, a BACI design was used for water chemistry and turbidity sampling at Site 1. Water samples were collected prior to and during dredge operation (Before and After) as well as upstream and downstream of the dredge (Control and Impact). Single measurements' were made at each of ten transects. It was not possible to employ a BACI design for periphyton and macroinvertebrate measurements because of the logistic problems associated with using an actual dredge and the limited amount of time available for sampling under baseflow conditions. Instead, samples at Site 1 were collected upstream and downstream of the dredge while the dredge was in operation. Five macroinvertebrate and periphyton samples were collected at each transect, except the 0 m, 5 m, and 10 m transects. Sampling the 0 m, 5 m, and 10 m transects individually was not practical due to the narrow width of the dredge piles; collection of five samples across their limited width was not possible. Therefore, ten macroinvertebrate and periphyton samples were collected from the 0-10 m area to document conditions immediately below the dredge. At Site 2a, sampling was limited to recent dredge piles located 25, 35, and 70 m below the moored dredge, and a reference transect located 250 m upstream of the dredge. Although the dredge was not in operation during sampling at Site 2a, it had been in operation during the preceding week. Finally, the samples from the reference area at Site 2a were used with similarly collected samples from the mouth of the NF to compare conditions in the two forks of the Fortymile River.

In 1998, five macroinvertebrate and periphyton samples were taken from the reference, mined, 20 m, and 40 m locations at Site 1 to determine the extent of recovery after one year. No mining occurred at Site 1 during the 1998 study period. At Site 2a, samples were taken from the reference, 35 m, and 70 m transects. At Site 2b, slightly downstream of Site 2a, samples were taken from three locations that had been dredged along the inside of a meander bend.

Ten samples were taken from an "Upper" location that had been dredged in late September 1997. Five samples were taken from two dredged areas slightly downstream of the upper location that had been dredged within the preceding week. We sampled a single dredge site on the NF that had been dredged with a 10 inch dredge within the previous 10 days of our sampling. Samples were taken at locations that had been dredged, no attempt was made to document the downstream extent of mining disturbance at this site because of inconsistent (patchy) dredge operations by the Site 3 dredge operators. Ten samples were taken from a location not affected by mining in the NF, as well as from each of three transects within the mined area. In addition to the dredged locations within the Fortymile basin, ten samples were taken from unmined locations in both the SF and NF near their junction with the mainstem (Sites 4 and 6). A second NP location was sampled on request by the US Geological Survey after an upwelling of groundwater containing arsenic and other heavy metals was located on the North Fork and is described in detail below. Ten samples were taken from this location and were compared to samples taken from upstream of the upwelling.

Field and Laboratory Methods - The methods used throughout this study are standard and widely accepted techniques in stream ecology. Published reference sources provide detailed instructions regarding these methods (Hauer and Lamberti 1996, APHA 1995, Cuffney et al. 1993, Porter et al. 1993, Platts et al. 1983). These references often provide multiple methods for sampling a given variable. We selected the techniques that were most applicable to our work on the Fortymile; specific details and modifications used on the Fortymile are described below.

Turbidity, the inverse of water clarity, and specific conductance, a measure of the amount of total dissolved mineral salts in the water, were measured on location with portable meters (Hach model 2100P and Orion model 135, respectively) immediately after collection of the water samples. The meters were calibrated on a regular basis, as indicated in the manufacturer's instructions. Water samples for alkalinity and hardness were stored in insulated containers after collection to minimize chemical and biological activity in the water. For analysis, the samples were sent to the Stream Ecology Center, Idaho State University. The alkalinity and hardness of each sample was determined in the laboratory using standard titration methods (APHA 1995).

Samples for total filterable solids were filtered on location within 3 hours of collection. The filters containing the samples were stored in insulated containers to minimize bacterial degradation of filtered organics. Upon completion of the field sampling, the samples were sent for analysis to the Stream Ecology Center, Idaho State University. These samples were analyzed by determining the amount of mass lost on combustion at 550°C for 3 hours. The amount of mass lost on combustion is equivalent to the organic mass of the sample and is referred to as ash-free dry mass (AFDM). Standard procedures were used to determine the AFDM of the samples (APHA 1995). Total settleable solids were measured on-site immediately after sample collector using Imhoff cones; settleable solids were measured only while the dredge was in operation.

Water samples from the Fortymile River were collected for determination of heavy metal concentrations using the "clean hands/dirty hands" procedure as prescribed by the US Environmental Protection Agency. All materials (sample containers, filters,

coolers, etc.) and protocols used in the collection of heavy metal samples were provided by US EPA. Samples were sent for analysis to the US EPA laboratory in Manchester, WA. In 1998, macroinvertebrates were collected to examine the potential of these organisms to concentrate heavy metals within their tissues. Macroinvertebrates were collected from four locations: Alder Creek, Polly Creek, and two locations on the NP Fortymile. Alder and Polly creeks are tributaries to the mainstem of the Fortymile; Alder served as the reference site and Polly as a site that has been mined historically and currently experiences some mining activity. On the NF Fortymile, the USGS has identified an area of upwelling groundwater that potentially is a source for dissolved heavy metals in that river. One of the NF Fortymile sites from which macroinvertebrates were collected was located above this possible heavy metal source, the other downstream of it. After collection, the invertebrates were immediately frozen and kept frozen until analysis. Analysis of the metal concentrations within the invertebrate tissues was conducted by James Crock at the USGS, Mineral Resources Program, Denver. To obtain a sufficient mass of tissue for analysis, all individuals from a site were combined; thus the results are based on a single measurement per site. The invertebrates were dried, pulverized, and weighed. The material was then transferred to a Teflon™ vessel and digested in 10 mL of concentrated nitric acid. One mL of the solution was diluted to 10 mL and analyzed using the USGS standard ICP-MS method. Mercury was determined using a cold vapor-atomic fluorescence spectrometry on a separate 1 mL aliquot diluted to 10 mL in sodium dichromate/nitric acid (James Crock, personal communication).

Description of streambed morphology was accomplished by developing cross-sectional profiles (see Platts et al. 1983) of the river at the transects described above (Fig. 2). Distance out from a fixed location on the bank was measured along a (Kevlar) cable stretched taut across the river. At numerous points across the width of the river, the distance from the cable to the water surface and the total water depth were measured.

All macroinvertebrate sampling was done with a Portable Invertebrate Box (PIB) sampler that was modified for use in water deeper than the height of the sampler. The PIB sampler encompassed 0.093 m2 of streambed (the sampler was approximately 30 cm on a side). The sampler was placed into position on the streambed and held in place by one operator while the second operator disturbed the substrata enclosed by the sampler to dislodge the organisms. A removable 250p.m mesh net was attached to the downstream end of the sampler to collect the dislodged organisms. Although designed to be used in deep water, the current velocity of the Fortymile precluded use of the sampler at most deep-water locations, particularly those in the center of the river. At some deep-water locations, SCUBA techniques were used to collect the samples; SCUBA was required for collection of approximately 5% of the samples collected within the sediment plume. In general, all macroinvertebrate samples were collected from near-shore habitats, approximately 2-30 meters from the bank. This is the same distance from the bank in which the dredge was operating.

Following collection, each sample was placed into a labeled plastic bag (Whirl-pak brand) to which approximately 10-15 ml of concentrated formalin was added to preserve the organisms. In the laboratory, the contents of each macroinvertebrate sample were

spread-out in a white sorting tray and all organisms removed. The sorting was accomplished with the aid of a dissecting microscope of 10X magnification. The organisms were then identified to the lowest feasible taxonomic level, usually genus, using published taxonomic references, primarily Merritt and Cummins (1996), Wiggins (1996), and Stewart and Stark (1993). A reference collection was established and voucher specimens are located in the Stream Ecology Center, Pocatello at Idaho State University.

Periphyton samples were collected from individual rocks located just upstream of each macroinvertebrate sample. Processing was done immediately after collection of the rock and followed the procedures of Robinson and Minshall (1986). Briefly, the process involved removing all material within an enclosed area (3.14 cm2) from the rock surface. The removed material was then suctioned onto a pre-fired, glass microfiber filter (Whatman GF/F). Filters were frozen with liquid nitrogen in a modified dewar flask (Taylor-Wharton model 3DS) and sent to the Stream Ecology Center, Idaho State University for processing. Periphyton samples were extracted with reagent grade methanol (Holm-Hansen and Riemann 1978) and the 1997 chlorophyll-a content was determined with a spectrophotometer (Gilford Instruments model 2600). The 1998 chlorophyll-a samples were analyzed using a fluorometer in order to detect very low concentrations. Following centrifugation, approximately 3 ml of the sample was removed and used in the chlorophyll-a determination, the remaining material was used for measuring the AFDM of the sample as described above under total filterable solids.

Results

Water Chemistry and Clarity

At Site 1, dredge operation had no discernable effect on alkalinity, hardness, or specific conductance in the Fortymile (Fig. 3). Alkalinity ranged from <20 to >50 mg CaCO3/L, regardless of whether or not the dredge was operating. Hardness ranged from approximately 80 to 115 mg CaCO3/L. Both alkalinity and hardness displayed a large amount of variability in the immediate vicinity of the dredge whether or not the dredge was operating. Values of alkalinity and hardness measured at 320 m below the dredge were similar during operation of the dredge to values measured when the dredge was not in use (Fig. 3). Specific conductance showed only slight spatial and temporal variation during our sampling. Values ranged from 131 to 135 µS/cm, with a small decrease immediately downstream of the dredge, when in operation (Fig. 3). Turbidity and total filterable solids (TFS) both displayed an increase below the dredge (Fig. 4). During operation of the dredge, turbidity increased from values around 1 NTU upstream of the dredge to values of approximately 25 NTU immediately downstream of the dredge. The elevated turbidity declined rapidly downstream and by 160 m ( 525 ft) turbidity had returned to values measured upstream of the dredge. No such increase in turbidity was recorded when the dredge was not in operation. TFS showed a pattern similar to that of turbidity, increasing from 3 mg AFDM/L upstream of the dredge to 46 mg AFDM/L immediately downstream of the dredge (Fig. 4). As with turbidity, TFS did not display an increase downstream of the dredge when the dredge was not operating. Regardless of whether or not the dredge was operating, a longitudinal increase in TFS was measured from 80 m to 320 m downstream of the dredge. At 160 m downstream of the dredge, values of TFS were 28 and 23 mg AFDM/L during operation and non-operation,

respectively. Total settleable solids showed a pattern very similar to that observed for TFS (Fig. 5).

During operation of the dredge, specific conductance and turbidity were measured across the width of the Fortymile at 0, 5, 10, 20, and 320 m downstream of the dredge to identify the proportion of the river width affected by the dredge plume. Specific conductance was unaffected by the dredge plume which was located along the right bank, but did decrease near the left bank (Fig. 6). This decrease was most likely due to groundwater and/or a small tributary that joined the Fortymile on the left bank just upstream of the study area.

Unlike specific conductance, cross-sectional measurements of turbidity from within the dredge plume showed a large increase, relative to areas outside the plume (Fig. 7). However, at 320 m downstream of the dredge, cross-sectional variation in turbidity was quite low, ranging from 1.2 to 2.5 NTU. During this sampling, the dredge was operating in close proximity to the right bank. Under these conditions, the plume tended to remain near the right bank and did not extend to the center of the river. In terms of turbidity, approximately 7% of the river width was affected by the dredge plume for a distance of less than 320 m.

Heavy Metals

For the unfiltered samples, two metals, copper and zinc, showed distinct increases downstream of the dredge (Fig. 8). Total copper increased approximately 5-fold and zinc approximately 9-fold at the transect immediately downstream of the dredge, relative to the concentrations measured upstream of the dredge. For both metals, the concentrations declined to near upstream values by 80 m downstream of the dredge. The pattern observed for total copper and zinc concentration is similar to that for turbidity and TFS (see Fig. 4), suggesting that the metals were in particulate form, or associated with other sediment particles. The results of sampling for dissolved heavy metals area are shown in Table 1. Zinc, arsenic, and copper displayed an average value downstream of the dredge that was greater than the average value measured upstream of the dredge (note that samples sizes are low, particularly upstream of the dredge). Copper displayed the greatest change, increasing by approximately 3-fold downstream of the dredge. Dissolved lead concentrations did not appear to be affected by operation of the dredge. Values of dissolved mercury actually were greater upstream of the dredge, suggesting that any effect of the dredge was likely within the range of natural variation. (The operator reported observing deposits of liquid mercury within the sediments he was working.) For both dissolved and total concentrations, budgetary limitations precluded multiple sampling across either space or time, thus the results of heavy metal sampling are only indicative of likely conditions.

Due to the low densities of macroinvertebrates in the dredge plume (and in the Fortymile in general) and the short exposure times, no macroinvertebrates were collected for heavy metal tissue analysis downstream of the suction dredge. However, results from the 1998 analysis of macroinvertebrate tissues suggest that these organisms are capable of concentrating heavy metals at least under conditions of chronic exposure. Although the data are preliminary in nature, several metals showed substantially greater concentration in the invertebrates from Polly Creek (mined) than from Alder Creek (reference), including mercury, zinc, molybdenum, and arsenic (Table 2). Other metals, such as copper and nickel, did not exhibit

substantial differences between the two sites. The upwelling area identified by the USGS as a potential source of metals in the NF Fortymile did not appear to be influencing metal concentrations in macroinvertebrates. For the metals listed above, nickel was the only metal that showed a substantial increase (Table 2).

Channel Morphology

Site 1- Cross-sectional profiles were mapped to quantify the extent of the dredge piles relative to the width of the river. At Site 1 only the pile created most recently, 0 m downstream of the dredge, was visible with our profile mapping (Fig. 9). At the transects 5 and 20 m downstream of the dredge the piles were visually obvious due to the light color of the excavated material compared to undisturbed riverbed. However, the piles did not appear as distinct "mounds" in the measurements made at these transects. One year after active dredging occurred, the distinct mounds seen in Figure 8 at the 0 m transect were no longer apparent. There was no discernable dredge pile at the 5 and 20 m areas. Figure 9 is based on detailed mapping along the right bank of the river and is drawn to scale to represent the conditions within the streambed relative to the depth of the river in that area. There is a large width:depth ratio for Site 1 as indicated by Figure 10. Discernable dredging activity can be seen within the first 5 m from the right bank. The area that this particular dredge operation affected was about 6% the width of the river.

Site 2a- In August 1997 partial cross-sectional profiles were measured every 5 meters, beginning slightly downstream of dredging activity and continuing for 110 meters, to map a series of dredge piles along the right bank of the South Fork of the Fortymile (Appendix A). In July 1998 three transects were re-measured to map the change in location of the dredge piles (Fig. 1). The dredge pile at 30 m shows a shift towards the center of the stream, though the overall size remained essentially the same after one year. A profile of the 40 m transect produced similar results. Remaining partial cross-sectional profiles are presented in Appendix A.

Site 2b- In July 1998 a second site on the South Fork was included in our sampling to determine if there are spatial differences in dredging effects on biota. Cross sectional profiles were measured. Full cross-sectional profiles were completed for the "upper" pile in 1998 which had been dredged in September of 1997 (Fig. 12) and partial cross-sections were measured for the upper, middle, and lower locations (Figs. 13 and 14). Easily discernable dredge piles were observed and measured between 0, 5, and 10 m below a reference transect at the upper location for Site 2b. Partial cross-sectional profiles also were measured to determine the longitudinal extent of the upper dredge pile (Fig 13). According to our measurements, the upper dredge pile tapered off at about 35 m. Profiles for the middle and lower dredge areas show another dredge pile beginning between 80 and 100 m. The lower dredge pile begins at about 130 m and continues slightly past 140 m (Fig 14). The middle and lower dredge areas were mined about 7 days prior to our sampling at Site 2b.

Site 3- Cross-sectional profiles also were measured at Site 3 in the North Fork. Entire width profiles were measured every 20 m along this reach (Fig. 15) and partial profiles were measured at various distances between each full profile (Fig. 16). Dredging was active at the 0 m and 10 m locations and between the 40 and 60 m locations. There is a large width:depth ratio for Site 3. Figure 13 shows the size of the dredge piles relative to the entire width of the river

for Site 3. The full width profile measured for Site 3 shows distinguishable channel forms where mining activity had occurred within 10 days of our sampling at 20 m, 60 m, and 80 m though the 80 m location may simply be due to natural bed forms. The lack of obvious dredge piles at the 0 m and 40 m locations are most likely because the dredge pile began slightly upstream of these locations. Dredge piles accounted for approximately 15% of the total channel width at Site 3.

The partial profiles show very distinct dredge piles 5 m downstream of mining activity which can be seen nearly 4 m from the right bank. 10 m downstream another relatively distinguishable streambed "rise" is discernable between 4 and 6 m from the right bank. There is no discernable effect on the streambed 15 m downstream of mining activity according to these profiles.

Periphyton Standing Crop

At Site 1, 1997 periphyton AFDM was greatest at the transect upstream of the suction dredge, with a mean value of 1.8 mg AFDM / cm2 (Fig. 17). Periphyton standing crop was reduced by approximately 2-4 fold at the transects downstream of the dredge. The lowest value, >0.5 mg AFDM / cm2, occurred in the first 10 m immediately below the dredge. Unlike other variables, periphyton standing crop did not appear to recover at subsequent transects downstream of the dredge. At the 320 m transect, for example, AFDM was only 50% of the value measured upstream of the dredge. Chlorophyll-a concentrations are reduced to unmeasurable values within the areas dredged and 20 m below the operating dredge. Measured chlorophyll-a concentrations follow the results of periphyton standing crop biomass downstream of the operating dredge. After one year, chlorophyll-a concentrations and periphyton standing crop biomass in the mined area had returned to values near those from the unmined reference location, indicating that periphyton is unaffected by dredging the previous year at this location (Fig 18).

Both periphyton standing crop and chlorophyll-a at Site 2a showed little response to dredging in comparison to the upstream reference location in 1997. In 1998, mean chlorophyll-a concentrations were nearly identical at the reference location to those values in 1997; however, mean chlorophyll-a concentrations were greater at each of the dredged locations in 1998 than in 1997 (Fig 19). Periphyton standing crop in 1998 also increased 2-4 fold in the reference and 25 m locations and increased slightly less in the 70 m and 100 m locations after one year (Fig 19).

At Site 2b, periphyton standing crop biomass averaged between 3 and 4 mg/cm2 for all locations regardless of the year in which they were dredged. However, mean chlorophyll-a was 2.5 times greater in the "Upper" location, which had been dredged late in the previous year, than either of the other two nearby locations that had been dredged in 1998. The Upper location was dredged late in the 1997 mining season but sampled only during 1998. The greater amount of chlorophyll-a in the upper location, compared to the other two (1998) dredge piles is most likely due to the additional time of recovery (Fig. 20).

Comparisons between the NF and SF Fortymile were conducted to document differences in background conditions and the potential for recovery of mined areas in two tributaries with different mining pressures within the same basin. Mean periphyton biomass was three times greater in the NF site (Site 4) than in the SF site (Site 6) in 1997. Mean chlorophyll-a concentrations were 4 times greater in

the NF than, in the SF for the same year (Fig 21).

Aquatic Macroinvertebrates

Site 1- The short-term influence of the suction dredge on macroinvertebrates appeared to be limited to the first 20-40 m downstream of the dredge. Two locations were examined upstream of the dredge at Site 1, the first was approximately 80 m upstream and the second approximately 200 m upstream. In terms of water velocity and substrate characteristics, the -200 m site was considerably more similar to the habitat downstream of the dredge than was the -80 m site. For this reason, only the -200 m transect was used as the reference for Site 1.

The abundance of macroinvertebrates at Site 1 was low, relative to large rivers in other parts of North America (e.g., Royer and Minshall 1996). A mean of 270 individuals per m2 was collected at the reference site; approximately 370 individuals per m2 were found at the site 160 m downstream of the dredge (Fig. 22). Diversity averaged 6-7 taxa per sample at the reference site and ranged from 1 to 7 taxa per sample at the sites downstream of the dredge. Taxa within the orders of Ephemeroptera (mayfly), Plecoptera (stonefly), and Trichoptera (caddisfly) are considered sensitive to habitat degradation and are used commonly in aquatic bioassessment. The mean number of EPT taxa was 5 per sample at the reference site and ranged from <1 to 5 per sample at the sites downstream of the dredge.

The abundance and diversity of macroinvertebrates at Site 1 was greatly reduced in the first 10 m below the dredge, relative to the reference site. Immediately below the dredge (0-10 m) macroinvertebrate abundance was reduced by 97%, number of taxa by 88%, and number of EPT taxa by 92%, relative to the site 200 m upstream of the dredge. The abundance and diversity of macroinvertebrates returned to values seen at the reference site by 80 to 160 m downstream of the dredge.

The relative abundance of all taxa collected from the Site 1 in 1997 are presented by transect in Table 3. The order Trichoptera was the most abundant, in terms of richness, with seven genera represented. Five genera of Ephemeroptera and two genera of Plecoptera were collected. Two families of Diptera were found, Simuliidae (blackflies) and Chironomidae (midges). Other groups included: one genus of Coleoptera (beetles), Acarina (water mites), Collembolla (springtails), Oligochatea (aquatic earthworms), and Ostracoda. For all transects, 50% or greater of all taxa were members of the Chironomidae and the Ephemeroptera.

The sampling conducted in 1998 indicated substantial recovery at Site 1 from the dredging that occurred in 1997, in terms of macroinvertebrate diversity. Diversity was notably reduced downstream of the dredge in 1997 (see above) but in 1998 the difference in diversity among the four transects was minimal (Fig. 23). For example, at the location 20 m downstream of the dredge macroinvertebrate diversity was approximately 6 taxa in 1997 but 17 taxa in 1998. A similar increase in the number of taxa was observed at all Site 1 transects that were sampled in both 1997 and 1998. Macroinvertebrate density and the number of EPT taxa also increased after one year (Fig. 24).

Site 2a- Sampling in 1997 revealed patterns at Site 2a similar to those observed at Site 1. Macroinvertebrate density at the reference transect was approximately 200 individuals per m2 (Fig. 25). At the transect 25 m downstream of the dredge, density decreased to approximately 20 individuals per m2 and then increased to about 100

individuals per m2 at the transect 70 m downstream of the dredge. The number of taxa at the reference transects was equal for Site 1 and Site 2a and showed a similar downstream pattern at both sites. The number of EPT taxa, however, was considerably less at Site 2a in 1997, although the downstream pattern was the same as that for Site 1. Recovery of macroinvertebrate diversity at Site 2a was nearly complete one year after dredging with approximately 20 taxa at each of the transects (Fig. 26). One year after dredging with a 10 inch dredge at Site 2a, macroinvertebrate density, richness, and number of EPT taxa also had recovered to pre-mining conditions (Fig. 27).

Site 2b- A second site was established on the South Fork of the Fortymile River in 1998 to evaluate the effects of dredging on a nearby site with different water flow and possibly substrate composition. This site was on the inside bank of a meander bend, about 800 m downstream of Site 2a. Site 2b was also used to evaluate the effects of dredging late in the fall on macroinvertebrate composition. In Figures 28 and 29, locations labeled "Upper" represent an area dredged with a 10-inch dredge in late September 1997. Locations labeled "Middle" and "Lower" represent adjacent areas mined within a week of our sampling in July 1998. Comparing Site 2a results with the Upper location of Site 2b revealed that there were in fact differences in macroinvertebrate density between the Upper site of Site 2b and the reference area of Site 2a. Mean macroinvertebrate density at the reference location of Site 2a was 26% of the "Upper" location of Site 2b, 40% of the "Middle" and nearly 30% of the "Lower" locations (Fig 28A). The number of EPT taxa per sample present in the Site 2a reference location were 74% that of the "Upper" location of Site 2b (Fig 29A). Likewise, the number of Diptera present in each sample from Site 2a were 72% those present at Site 2b (Fig. 29B) Diptera comprised between 40 and 80% of the macroinvertebrates per sample at all of our SF sites.

Site 3- We sampled a single dredge site on the North Fork in which a 10-inch dredge was operated by an experienced miner and was actively dredged within 10 days prior to our sampling. This site consisted of three dredged areas, one beginning at the head of our study reach (T0), the second stretching the length between 10 and 20 m from the T0 location (T10), and the third encompassing the distance between 40 and 60 m (T40) from the T0 location. The mined areas at 0 m, 10 m, and 40 m were compared to a reference location in an unmined area of similar substrate type and water velocity. We were not able to determine the distance downstream affected by dredging because of inconsistent dredge operations by the North Fork miners which were caused by relatively high flows over the duration of our sampling. The study reach chosen here allowed us to determine the short term recovery (>10 days) of these dredged areas in the North Fork. Our results suggest that all measures except macroinvertebrate density appeared to fully recover within 10 days since dredging. Macroinvertebrate density at the reference location averaged about 1600 organisms per m2 while densities within the mined areas averaged between 1200 and 1400 organisms/m2 (Fig. 30A). Macroinvertebrate taxa ranged from 10 to 12 per sample for all locations (Fig. 30B). Mean numbers of EPT taxa ranged from 5 to 6 per sample (Fig. 30C). Diptera, which comprised the majority of the macroinvertebrate community at all of the sites sampled, ranged from 60 to 80% in the NF sites (Fig. 30D).

North Fork/South Fork Comparison - Comparisons between the North Fork and South Fork were made to determine if the South Fork

macroinvertebrate populations were depauperate due to degraded water quality from increased mining activity on the South Fork itself and some of its major tributaries. In 1998 we sampled a different reference location on the South Fork (Site 6, see Fig. 1) that was nearly 500 m upstream of its confluence with the North Fork and compared this data with those from an unimpacted reference site several kilometers upstream on the North Fork (Site 5). We also compared this North Fork reference site to a location downstream of an upwelling of heavy metals noted by the USGS near the confluence of the North and South Forks (Site 4).

The upwelling of heavy metals between Sites 4 and 5 appears to have little effect on macroinvertebrate populations in the North Fork. The number of taxa, number of EPT taxa, and overall relative abundance of Diptera are nearly identical for both Sites 4 and 5. Macroinvertebrate density was nearly 2500/m2 downstream of the upwelling and nearly 1500/m2 upstream (Fig 31A). The number of taxa per sample at all locations ranged from 11 to 12 (Fig 31B). The number of EPT taxa ranged from 5 at the NF and SF reference areas, to 6 at the NF confluence area (Fig 31C). Diptera comprised 60 to 80 % of the macroinvertebrates at all locations (Fig 31D).

Although we did not sample the South Fork confluence site in 1997, there may be some degree of yearly variation in macroinvertebrate populations in the South Fork as seen from comparison of reference conditions from Site 2a (see Fig. 26). In the North Fork however, there appears to be less yearly variation in macroinvertebrate populations in the years that we sampled. Even though taxa richness was similar at the NF and 2a sites in both years, the relative dominance of taxa differed among the sites (Fig. 32). There was a greater difference in the taxa abundance of some taxa between years at the SF reference location whereas there is almost no change in the relative dominance of taxa in the NF site. The difference is seen in the shape of the curves. Table 4 shows that the Chironomidae (order Diptera) comprised over 75% of all the macroinvertebrates present in our samples at Site 4 in 1997 and 82% in 1998. Baetis comprised 0.5% in 1998, and 5.5% in 1997. In the SF Diptera comprised about 34% of the macroinvertebrates in 1997 and about 35% in 1998. However, Oligochaeta (Annelida) comprised 32% of the macroinvertebrates in 1998 and only 8% in a 1997. Baetis, a mayfly, comprised 1.3% of the macroinvertebrates in 1998 and 5% in 1997.

Benthic Organic Matter

Benthic organic matter (BOM) is a primary source of carbon and energy for organisms that live on and within the substrate of the river. In general, the amount of BOM found in the Fortymile was lower than values from many streams in the contiguous United States (see Minshall et al 1982), but are similar to other studies from the interior arctic and subarctic Alaska region (for example, see Miller and Stout 1989).

Site 1- In 1998, mean amounts of BOM within the mined area were slightly lower than those found at the reference and downstream (20, 40 m) areas. BOM at the 20 m location is also much more spatially variable than at the other locations (Fig. 33). This increased patchiness may be a result of the downstream redistribution of BOM from upstream dredged areas.

BOM concentrations at Site 2a in 1997 were similar between reference and mined locations, averaging 5 g per m2 at the reference location and 9 and 11 g per m2 at the 35 m and 70 m locations, respectively (Fig. 34). Mean amounts of BOM in 1997 at the reference area was 15%

that of 1998. In 1998, mean BOM at Site 2a ranged from an average of 33 g per m2 at the reference area to 25 and 37 g per m2 at the 35 m and 70 m areas, respectively. BOM at Site 2b ranged from 23 g per m2 at the locations mined in 1998 (Middle and Lower areas) and averaged 53 g per m2 at the location mined in the late fall of 1997 (Upper area). These values were similar to those from 1997 for Site 2a, indicating a yearly variation in BOM of between 15 and 30%. BOM from Site 3 averaged between 6 and 7 g per m2, and showed little difference in average amounts between locations (Fig. 35). However, the coefficients of variation in the mined locations showed considerable variability, particularly at the 35 m location.
Mean amounts of BOM in both the NF and the SF confluence locations show considerable differences. At the SF confluence site (Site 6), BOM was more spatially variable and averaged more than twice the amount found at the NF confluence site (Site 4, Fig. 36).

Discussion

The primary effect of suction dredging on water chemistry of the Fortymile River, as detected at Site 1, was increased turbidity, total filterable solids (TFS), and copper and zinc concentrations downstream of the dredge. Turbidity and TFS were substantially elevated downstream of the dredge and the plume of sediment-laden water created by the dredge was visually obvious. But, although the plume was visually dramatic it was spatially confined to within 160 m (= 525 ft.) of the dredge and was restricted to the portion of those days that the dredge was operating. Furthermore, the effect of the plume was limited to approximately 7% of the width of the river. The results from this sampling revealed a relatively intense, but very localized, decline in water clarity during the time the dredge was operating. Wanty et al. (1997) reported turbidity values of 19 NTU 30.5 m (100 ft) downstream of a 10 inch dredge located below Wilson Creek on the North Fork Fortymile River. Values returned to near background levels (3.7 NTU) within the next 30.5 m but remained slightly above background levels (2.2 - 2.3 NTU) as far as 150 m downstream (furthest sampling transect). Turbidity values downstream of an 8-inch dredge operating in the same vicinity were lower because less sediment was being disturbed and the sediments were coarser and hence settled more rapidly. The 19 NTU at 30.5 m is comparable to the value we found at 20 m at Site 1.
Wanty et al. (1997) examined dissolved metal concentrations 60.8 m (200 ft) downstream of a 10-inch and an 8-inch dredge and found no difference between the sides and center of the dredge plume. In our study, dissolved metals displayed no clear pattern in relation to the dredge suggesting the increased concentrations of total copper and total zinc at Site 1 were likely a result of metals associated with the sediments excavated by the dredge. As the metal-laden sediments were transported downstream and deposited on the riverbed, total copper and zinc concentrations declined. By 80 m downstream of the dredge, copper and zinc concentrations were similar to those measured upstream of the dredge (see Fig. 8). These results suggest the need for examining heavy metal accumulation on the riverbed, rather than instantaneous measures of heavy metal concentrations in the water column. The examination of heavy metal concentrations in aquatic macroinvertebrates indicated that at some locations, such as Polly Creek, the chronic effects of mining may be reflected in the physiological condition of the biota. However, the degree to which metals within the tissues of the macroinvertebrates may influence life-history or other biological traits is unknown.

Discussions with local miners indicated that the amount of material in the plume is, in part, a function of the type of sediment that is being excavated from the riverbed. Thus, the impact of suction dredging on water clarity and heavy metal concentrations may be greater or lesser than that reported here, depending on the type of material being excavated. In general, the observed decrease in water clarity was unlikely to have altered ecosystem function in that area of the Fortymile. However, the increased sediment load and rapid reduction in light could cause aquatic organisms to drift (Allan 1995:221-237, Wiley and Kohler 1984), resulting in reduced macroinvertebrate abundance and/or delayed re-colonization of dredge piles. The effect of suction dredging on the abundance of drifting macroinvertebrates was not addressed in the present study, but drifting is likely an important mechanism in the interaction between macroinvertebrate abundance and suction dredging. In particular, organisms capable of drifting may be displaced, but not killed, by the dredging activities. Those organisms that are entrained by the dredge will not necessarily be killed. For example, Griffith and Andrews (1981) examined >3,600 organisms and reported less than 1% mortality for macroinvertebrates entrained through a 3-inch suction dredge.

The cross-sectional profiles indicate the impact of the dredge piles relative to the width of the river was small (see Fig. 10). Assuming widths of 2 m for the dredge pile and 80 m for the river, the dredge pile would represent 2.5% of the river width. Our results show that in all four of the dredge sites studied, there were substantial changes to the bed morphology where dredging had occurred, but there was no discernable change toward the center of the river. There also did not appear to be any downstream influence on bed morphology by dredged sediments, indicating that dredging strongly influenced immediately adjacent substrates but had little effect beyond, either laterally or downstream of the dredged area. Though no measurements of substrate composition were made directly in the Fortymile, it seems likely that suction dredging has little effect on the size and distribution of bed sediments. Local miners claim that much of the Fortymile River system has been mined in recent history and though this is an unsubstantiated claim, it appears reasonable as we observed no striking differences between sediment compositions within mined areas and those in reference areas particularly in the amount of deposited fines. We did observe that at Site 1, downstream gravels were covered with a fine sediment within the plume caused by the dredge. Given the shallow depth of bedrock and the intense scouring action by ice-flows and spring runoff, it is likely that sediments of all sizes may be well mixed and that fine sediments do not accumulate at the bed surface.

After one year discernable dredge piles remained at one of the two sites studied in both years, though reduced in size and in the South Fork site, shifting toward the stream's center. Thomas (1985) studied suction dredging in a stream in Montana and reported that spring flows eliminated dredge piles created along the stream margin. Likewise, Somer and Hassler (1992) examined the effect of suction dredging in two northern California streams and observed that dredge piles existed only seasonally and did not persist beyond springtime high-flows. Based on our observations and results, it appears likely that the dredge piles at the locations we examined will remain in place no longer than 1 to 3 years. In many cases the stream channel will return to its pre-dredge condition in a year as

a result of river freezing and the succeeding ice-action and springtime flows that accompany snow-melt in the Fortymile drainage. The abundance and diversity of aquatic macroinvertebrates at a given site are closely related to the size, stability, and surface complexity of the substrata at that site (e.g., Minshall 1984, Hart 1978). In addition, the magnitude of impact a particular disturbance has on a macroinvertebrate community may be mediated by substrate size; small rocks are more easily tumbled (i.e., disturbed) than are larger rocks (Gurtz and Wallace 1984). Thus, the effect that suction dredging has on the macroinvertebrate community of the Fortymile depends on the characteristics of the substrata being disturbed. The rate at which dredge piles are re-colonized also will depend on stability of the individual substratum. A detailed study requiring a longer period of time than was available would be required to accurately determine the rate at which macroinvertebrates re-colonized dredged areas. Studies of smaller scale dredging impacts have shown complete recolonization within 30 days of the cessation of mining activity. Given the northern extent of the Fortymile region, the harsh climate and short time available for production and recolonization, the depauperate macroinvertebrate structure, and the likely low quality and quantity of available food resources typical of sub-arctic rivers, recolonization would likely be extended beyond 30 days. It also is possible that the initially low abundance and diversity of macroinvertebrate taxa in the Fortymile would cause rapid recolonization due to the low numbers of organisms required to call an area "substantially recovered". Without detailed recolonization studies for longer periods of time, it is difficult to "guess" at potential times of recovery.

As with water clarity, the effect of suction dredging on macroinvertebrate abundance and diversity at the locations we examined was confined spatially to a relatively small area downstream of the dredge. Other researchers also have documented the localized nature of suction-dredge effects (Somer and Hassler 1992, Harvey 1986, Thomas 1985), although each of these studies was conducted using smaller, recreational dredges. In the present study, both abundance and diversity were notably reduced for 10 m downstream of the dredge at Site 1. By 80 m below the dredge, however, abundance and diversity appeared unaffected by the dredge plume. Site 2a displayed a similar pattern, although the sampling was more spatially limited. The short-term, downstream impact of suction dredging on macroinvertebrates probably was limited to the same area in which the dredge plume was visible. Therefore, the percent of the riverbed being affected by the dredge was small: approximately 7% of the width for <80 m downstream. The cumulative effect of suction dredging on the biota of the Fortymile cannot yet be assessed fully, but likely will depend on the number of dredges operating concurrently and the distance between them, the size of the dredges, the strategy of the dredge operators, and the extent of re-colonization that occurs on the excavated dredge piles. Clearly, the effect of suction dredging will not be the same for all locations in the Fortymile and/or sizes of dredge.

The results from 1998 indicate that substantial recovery of the macroinvertebrate community occurs within one year after suction dredging. At both Site 1 and Site 2a, the transects dredged in 1997 showed, in 1998, taxa abundance curves very similar to the reference transects (see Figures 23 and 26). Although suction dredging is a very intense, local disturbance to benthic organisms. the biological

and chemical effects of suction dredging do not appear to extend for more than a year. However, conditions at these two sites after two years and at sites 2b and 3 after one year could not be determined prior to the termination of the project.

The comparison of conditions in the North Fork versus the South Fork suggests that macroinvertebrate density in this river system may be a function of annual variation in food resources and physical conditions, especially flow and suspended sediment (likely caused by additional mining activity in the SF tributaries). Results from 1997 suggested that greater food abundance (e.g., periphyton and BOM) in the NF corresponded to an approximately 5-fold greater density of macroinvertebrates. These comparisons were made under the assumption that the reference location at Site 2a was representative of the South Fork conditions. However, our 1998 comparison of the North and South Forks, using an undredged site in the SF nearest to the confluence of the two streams (Site 6) and that we believe is more representative of conditions in the tributary, showed no clear difference in biotic conditions between the two sites. The results suggest that conditions may vary markedly among locations and years and suggest that in addition to differences in food resources differences in physical conditions may be important. We suggest that other mining activities within the basin, primarily those in the South Fork tributaries may be important causes of decreased biotic integrity in some years and locations. However, suction dredge mining clearly reduces macroinvertebrate densities, diversity, BOM, and periphyton immediately below dredge activity regardless of the background conditions, though these effects are local and short lived.

Part II - Recreational Dredging in Resurrection Creek and the Chatanika River

Introduction

Recreational gold mining is a popular activity throughout much of Alaska and suction dredging is a common method used in recreational mining. Recreational dredges are smaller than those examined on the Fortymile and typically have intake lines of 2-6 inches in diameter. Despite the relatively small size of the dredges, streams that are popular with hobbyists may experience a more intensive mining disturbance than do larger rivers such as the Fortymile because of the concentrated and repetitive nature of the mining in these areas. Part II of this report describes the results of our research into the effects of recreational suction dredging in several Alaskan streams.

Methods

This research was conducted on Resurrection Creek located on the Kenai Peninsula in 1997 and on the Chatanika River, located along the Steese Highway north of Fairbanks, in 1998. Resurrection Creek is designated as a recreational mining site by the State of Alaska and the U.S. Forest Service and is open to recreational dredging from about May 15 through July 15 of each year. The Chatanika River is not officially designated for mining, but is a popular recreational site with few accessible areas that are open to mining during approximately the same time period.

Our sampling on Resurrection was conducted on 22 August 1997; approximately 5 weeks after recreational dredging in the Resurrection Creek had ended for the year. The general design was similar to that described above for sampling on the Fortymile. Four locations were sampled: (1) within the reach of stream that suction

dredging is permitted, (2) approximately 500 m upstream of the dredged area, (3) approximately 35 m downstream of the dredged area, and (4) an area >500 m downstream of the dredged area. In each of these locations, five macroinvertebrate samples and three periphyton samples were collected. Water samples were collected at the location within the dredged area, but as active dredging was not occurring, these samples are indicative of conditions in the stream as a whole. All samples were collected, preserved, and processed as described above for samples from the Fortymile River.

Sampling on the Chatanika River occurred during July 1 and 2, 1998 approximately two weeks prior to the end of the mining season for that region. Because there was no designated downstream mining boundary as there had been for Resurrection Creek, a slightly different sampling regime was used. Samples were taken at approximate distances downstream of last distinguishable active mining location within the river. Transects at "Mined", 50, 100, 150, 300 and 500 m were sampled on two different days. However, an intense rain within the Chatanika basin on the second day caused the river to rise and alter conditions from the first day and therefore the samples beyond 100 m were discarded. Samples from the Mined ( "0 m" transec location were taken from representative locations within the entire actively mined area. An area upstream of any active mining was used as our reference location. Substrate measurements were also made to document any changes in substrate size or sorting caused by mining. Approximately 25 stones were chosen at random from near the location of each macroinvertebrate sample. Each stone was measured to the nearest cm and embeddedness was determined. Embeddedness is the portion of stone covered by fine sediments and is an indication of the amount of interstitial filling.

One-way ANOVA was used to test for statistically significant differences among the four locations in Resurrection Creek. Prior to analysis, the data were transformed using either natural log (X) or arcsin (square root (X)) as appropriate (Zar 1984). Pairwise comparisons were conducted using the Tukey HSD test.

Results

At the time of sampling, total alkalinity, total hardness, and specific conductance in Resurrection Creek were 29 mg CaCO3/L, 69 mg CaCO3/L, and 110 µS / cm, respectively. Mean benthic organic matter (BOM) ranged from approximately 15 to 30 g / m2 among the four sampling locations (Fig. 37), but ANOVA indicated no significant differences ($p=0.252$). Mean chlorophyll-a was greatest in the mining area and the location immediately downstream, but the differences among the means were not significant ($p=0.182$) (Fig. 37). Periphyton AFDM showed a pattern similar to chlorophyll-a, with the greatest mean values in the mined area, but here too the differences were not significant ($p=0.064$) (Fig. 37). The reach of Resurrection Creek in which suction dredging occurs is bordered by a campground and numerous foot trails along the stream. The riparian canopy along that section of Resurrection Creek appeared reduced, relative, to areas downstream, by the activities associated with recreational mining (e.g., stream-side camping). The reduced riparian shading (= increased solar radiation) may be responsible for the trend towards greater periphyton AFDM and chlorophyll-a observed in the mined area and the location immediately downstream. Additionally, these results suggest that activities other than the actual dredging, such as long-term camping, firewood collection, trampling of vegetation, etc., also may have an impact on streams open to recreational

suction dredging.

The pattern seen with periphyton was not observed for macroinvertebrates in Resurrection Creek. Mean density was 3,700 individuals per m2 in the mined area, and ranged from 4,300 to 4,500 individuals per m2 in the other three locations, although the variability was large and the differences not significant ($p=0.581$) (Fig. 38). Total taxa richness from about 17 to 19 among the four locations ($p=0.811$). The number of EPT taxa was not significantly different among the sites ($p=0.415$), although the mean values increased from 9.5 at the upstream location to 11 taxa at the most downstream location (Fig. 38).

Results from the Chatanika River showed a trend toward decreasing macroinvertebrate density as well as less variable distribution of those macroinvertebrates with distance from active dredging (Fig 39). Average densities decreased from 6000 per m2 at the reference location, to 2000 per m2 150 m downstream of the mined area. The number of taxa per sample was more even among locations, ranging from 10 to 13 taxa per sample. EPT taxa per sample also showed a slight trend toward decreasing numbers downstream of the mined area, ranging from 6 EPT taxa at 150 m, to 8 EPT taxa at the reference area. Mean amounts of BOM were greater within the mined area (10 g/m2) than within the reference area (6 g/m2) or the 50 and 100 m areas (7 g/m2 each) (Fig. 40). Substrate measurements showed little change among locations, ranging from 11 to 15 cm. Substrate embeddedness also averaged 15 to 24 percent (Table 5). The mined areas showed no discernable trends toward any significant change from the reference area.

Based on density, taxa richness, and EPT richness, there was no difference in the macroinvertebrate community between the mined area and the locations downstream. The relative abundance of Plecoptera (stoneflies) was significantly greater at the two downstream locations than in the mined area ($p=0.037$) (Fig. 32). However, if the observed reduction was a result of recreational suction mining, downstream recovery was rapid (i.e., by 35 m).

In general, other studies on the effects of recreational suction dredging have reported only localized reductions in macroinvertebrate abundance (Somer and Hassler 1992, Harvey 1986, Thomas 1985). Studies that examined temporal recovery have found that macroinvertebrates return to pre-dredging densities within 30-45 days (Harvey 1986, Thomas 1985). Our sampling in Resurrection Creek occurred approximately 35 days after suction dredging had ended for the year. Thus, it is not surprising that the abundance and diversity of macroinvertebrates was not significantly different between the mining area and the locations downstream. Results from a concurrent but separate study not funded by the EPA in 1998 also suggest considerable redistribution of BOM downstream of mining areas and reduced numbers of macroinvertebrates (both richness and density) within those mined areas immediately following the end of the mining season (A.M. Prussian, pers. comm.).

The results presented here on the effects of recreational suction dredging on macroinvertebrates are derived from a one-time sampling of only two streams. All of the streams specified in the litigation, plus an additional 13 streams were examined for compatibility with the study design. The two sites presented here represent the best examples of concentrated mining activity we could find and should be considered "worst-case" scenarios because both streams receive considerable mining activity and have relatively well-defined

downstream boundaries. The remaining sites suggested in the litigation were either not as intensively mined or do not contain easily identified mining boundaries. Together with the results of other studies, we suggest that the impacts by small-scale dredging activity are primarily contained within mined areas and persist for about one month after the mining season. However, other studies suggest a high degree of variability among streams in terms of impact caused by small-scale dredges (A.M. Prussian, pers. comm.) confounding our ability to draw broad conclusions for small-scale mining impacts on stream ecosystems in the State of Alaska. Additional study is needed to fully quantify the impact of suction dredge mining on the environment of Alaska before final conclusions are reached regarding the effects of this activity on Alaskan streams and their associated plant and animal communities.

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Defs.' Ex. T

Attachment D4



# Response of fish to cumulative effects of suction dredge and hydraulic mining in the Illinois subbasin, Siskiyou National Forest, Oregon*

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* Final report from a study, Cumulative effects of mining activities on the Siskiyou National Forest, based on a Cost-Reimbursable agreement between the USDA Forest Service, Siskiyou National Forest and Oregon State University under the provisions of the National Agricultural Research, Extension and Teaching Policy Act of 1977 (Pub.L. 95-113), as amended by the Food Security Act of 1985 (7 U.S.C., 3319a Pub. L. 99-198).



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Attachment D4



# Response of fish to cumulative effects of suction dredge and hydraulic mining in the Illinois subbasin, Siskiyou National Forest, Oregon*

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* Final report from a study, Cumulative effects of mining activities on the Siskiyou National Forest, based on a Cost-Reimbursable agreement between the USDA Forest Service, Siskiyou National Forest and Oregon State University under the provisions of the National Agricultural Research, Extension and Teaching Policy Act of 1977 (Pub.L. 95-113), as amended by the Food Security Act of 1985 (7 U.S.C., 3319a Pub. L. 99-198).



Jun 13 05 06:28p Kern & Jan Alexander 15414463580 p.1

## Contents

Abstract . . . . . 3

1. Introduction . . . . . 3
   1.1 Acknowledgements . . . . . 4
   1.2 Background . . . . . 4

2. Approach . . . . . 5

3. Methods: Response variables
   . . . . . 5
   3.1 ODFW Spawning anadromous salmonid surveys . . . . . 6
   3.2 Summer snorkeling counts by SMART program . . . . . 6
   3.3 Fish habitat . . . . . 8

4. Methods: Potential effects on fish populations . . . . . 8

5. Analysis and results . . . . . 9
   5.1 Rating potential influence of explanatory variables . . . . . 10
   5.2 Deriving a set of independent explanatory variables . . . . . 11
   5.3 Linear statistical analyses . . . . . 12
   5.4 Results . . . . . 13

6. Discussion and Conclusions . . . . . 14

7. References . . . . . 15

Appendix 1. Estimation of pool dimensions from SMART calibrations. . . . . 16

Appendix 2. Rationale for representing the effect of a land-use on a stream reach. . . . . 22

Figures 1 through 21 . . . . . 23-37



Jun 13 05 08:28p Ken & Jan Alexander 15414463580 p.2

"Truth, like gold, is to be obtained not by its growth, but by washing away from it all that is not gold."

- Leo Tolstoy

**Abstract:**

Potential cumulative effects of suction dredge mining (SDM) was assessed in combination with early hydraulic mining and other independent variables reflecting land-uses on fish in the Illinois subbasin. Fish response data were from 59 reaches sampled by summer snorkeling under the SMART program. Responses utilized were pool densities of salmonids over one year old, of young-of-the-year salmonids, and a stream habitat measure, width-to-depth ratio. Intensity of suction dredge mining was estimated from a directed survey that censused the quantity of sediment proposed to be moved per unit stream length in each 640-acre Section. The potential cumulative effect for each explanatory variable was estimated by summing the inverse distance of each corresponding pixel in each drainage defined by the location of each fish sample. Cumulative SDM was found to be non-significant (tested at P=0.05, with significance of coefficient always >0.5) for each of the three response variables tested in a general linear model. However, early hydraulic mining was found to have a significant negative effect (P=0.03) on observed density of salmonids over one year old.

## 1. Introduction

The activities of suction dredge mining (SDM) in streams of the Siskiyou National Forest have attracted the attention of environmental organizations, many of whom oppose such activity in the Forest, particularly in the Kalmiopsis Wilderness. This opposition has been met with similarly well-organized miners who wish to retain their claims. The U.S. Forest Service has responded with a set of guidelines for miners to minimize environment effects of their activities, and an EIS has been prepared.

The ingredient that is lacking in this process is scientific information and analysis that accounts for suction dredge mining and other potential confounding effects on stream biota, including early hydraulic mining (HM). This report describes a first analysis of existing, recent data which

accounts for cumulative effects of suction dredge mining, early hydraulic mining, and other activities as reflected by land-use on measures of fish populations and habitat in the Illinois subbasin (Fig. 1).

1.1 Acknowledgements

The following colleagues are thanked for their help during this project: John Bolte, Randall Frick, Steve Jacobs, Kevin Johnson, John Nolan, Tom Atzet, Bonnie Howell, Karen Honeycutt, Edmund Hall, Margaret McHugh, Dan Delany, Roger Mendenhall.

1.2 Background

Suction dredge mining (SDM) involves pumping streambed material via a pipe, passing it over a sluice box to sort out any gold, and discarding the tailings downstream (Fig. 1).

There have been several studies on local effects on stream biota of SDM that have been reviewed from scientific (Harvey and Lisle 1998) and policy (Bernell et al. 2003) points of view. Rather than repeat the details of these excellent reviews, I summarize here the key issues as they may pertain to the area of study.

There have been several localized effects of SDM documented depending on where and at what time of the year it is carried out. These have included entrainment and subsequent mortality of fish larvae, fish eggs, or invertebrates and the use of unstable tailings for spawning by some salmonids (Harvey and Lisle 1998). There are potential effects due to a plume of suspended fine sediment downstream that does not normally occur during summer flows, due to the physical disturbance of riparian habitat or stream banks, effects due to site access by vehicles, and to the inevitable spills of fuel or oil. Harvey and Lisle (1998) opine that "effects of dredging commonly appear to be minor and local", but stress that cumulative effects of several operations at larger scales have not been investigated. This is one reason this study has been undertaken.

In a comprehensive policy review of recreational placer mining in Oregon Scenic Waterways, Bernell et al. (2003) deduce from the literature, stakeholders, and government agencies that the most effective control to prevent potential effects of poor mining practice is self-control, which requires more investment in education and compliance.

Because most SDM activity (e.g., Fig. 1) in the Rogue basin and the Siskiyou National Forest was concentrated in the Illinois River drainage, the study described here was limited to the drainage of that subbasin (Fig. 2).



Jun 13 05 06:29p Ken & Jan Alexander 15414463580 p.4

## 2. Approach

Designing and executing a study specifically for this purpose would not only require fish sampling during several years, but also a parallel labor-intensive process of tracking and measuring current mining activities in an extensive and challenging landscape. Existing mining claims provide an unreliable measure of potential impact because most claims are not active during any one season, and those that are vary considerably in mining intensity. Therefore, a study based on a new sampling design was beyond the resources available and would not be timely for required management decisions.

Fortunately, two factors coincided to make this study possible. First, a survey of SDM was completed in 1999 (Kevin L. Johnson, Area Mining Geologist, USFS, Grants Pass, OR) that included a measure of the intensity of mining as quantity of sediment moved. Secondly, independent fish survey data were available from the SMART program of USFS (USFS 2001), and ODFW salmon spawning survey data (provided by Steven Jacobs, ODFW Hwy 34 lab., Corvallis, pers. comm.) described in www.streamnet.org.

However, merely combining fish and suction dredge mining data sets alone would not provide sufficient information for a valid analysis, because the study was observational rather than a fully controlled experiment (Diamond 1986). In order to account for any significant influence of other differences among riverscapes and avoid potential confounding with any SDM effects, other 'nuisance' variables were required to represent those potential effects.

Rationales for determining the response and potential effects for the derivation of explanatory variables are described below.

## 3. Methods: Response variables

For the purposes of this study, a response variable representing fish or fish habitat in a stream needs to (1) be sensitive to habitat change that includes potential effects of SDM, (2) have a sufficient range of values, (3) not be dominated by zero values to prove statistically intractable, (4) be measurable with consistent bias among sample sites, (5) be from a survey with independent and random - or at least representative - samples of consistent protocol, and (6) be from samples that are independent.

A fish habitat variable was used that satisfied the relevant conditions. Regarding fish responses

and (4), all fish sampling methods are biased, but the important issue here is that the protocol and sampling conditions beyond the protocol do not produce a variable bias that may be related to the potential causal effects being tested. Two existing surveys satisfied the foregoing conditions:

3.1 ODFW Spawning anadromous salmonid surveys:

In a given stream and year, replicate counts of visible spawning or spawned anadromous salmonids are made by trained personnel during the spawning season, producing "Adult Return-Peak" and "Adult Return-Estimates of Spawning Population" estimates by species, stream reach and year. The "Adult Return-Estimates of Spawning Population" estimates are made by an integration of all counts during the season ('area-under-the-curve' method, English et al. 1992)) over a defined length of stream. These spawning population totals, estimated by ODFW, were expressed as number of adults on a per-stream-kilometer basis for coho salmon, chinook salmon, and all anadromous species combined (that also includes some steelhead).

Data from 1995 through 2000 were obtained from 53 sites (stream reaches) that had been randomly selected in the Illinois subbasin (Fig. 3), in which a subset of those sites had been sampled each year.

3.2 Summer snorkeling counts by SMART program

USFS's SMART (Stream Management, Analysis, Reporting, and Tracking database) has included sampling of reaches in the system during two phases: 1989-1995 and 1996 to the present. Data from the second phase, in which training and recording were more rigorous, were utilized from 1996-1999. Ranger District biologists were required to sample all fish bearing streams within 10 years, and the design protocol required that each stream was to be randomly selected for sampling in a given year.

Summer, daytime snorkel counts by species, with breakdowns for salmonids into size or age groups, were made in a reach from successive pools and riffles progressing upstream. Considerably fewer fish were observed in riffles than in pools. Riffle counts were not included because in summer it is difficult to obtain representative snorkel counts in many riffles due to shallow, turbulent water and coarse substrates.

Sixty-one samples were taken from reaches during the second phase which began in 1996. Of these, two samples were taken from one reach in different years. One of these was eliminated by coin toss. A second reach was eliminated because only one riffle was sampled for fish. Therefore 59 independent reaches were retained for the analysis (Fig. 4). These reaches averaged 3.3 km



Jun 13 05 05:31p Ken & Jan Alexander 15414463580 p.6

(range 0.8 - 9.4) long. A mean of 10 pools per reach (range 1-23) was sampled for fish.

Physical measurements of pools and riffles were taken directly every 10th pool (minimum of 10 pool-riffles measured when available).

Mean pool width varied between 5.6 ft (1.7 m) and 37.4 ft (11.4 m), and averaged 17.7 ft (5.4 m). Measurements of remaining habitat units were estimated by identified crew members, estimates that were calibrated with measurements every 10th pool (Appendix 1). Basin drainage areas corresponding to each sample (downstream end of reach) varied from 584 to 51,500 acres (236 to 20,840 Ha).

Only fish data from pool observations were included because it is difficult to maintain consistency when attempting quantitative observations in riffle and other habitat types during low summer conditions. The species breakdown of fish taxa observed in pools in shown in Fig. 5, along with the frequency of presence in all pools and reaches sampled. A total of 610 pools were sampled among the 59 reaches. All reaches contained fish, and a zero fish count was only record for one pool. Sampled pool frequencies (every 10th pool) varied from 1 to 27 pools per reach. Total reach lengths varied from 0.6 to 6.3 miles. Young-of-the-Year (YOY or O+) salmonids were observed in 502 pools and 58 reaches, while older salmonids were observed in 434 pools and 58 reaches.

Only Rainbow trout (which may have included juvenile steelhead which are the same species), occurred consistently throughout the reaches. Statistical analysis would be difficult for other species because of large numbers of zero observations. Because all salmonids are sensitive to higher temperature and restricted habitats during summer and low flows, it was decided to represent all native salmonid species in response variables. However, because of different behaviors and habitat preferences among YOY and older salmonids, these were analyzed as two separate responses. It is easy for trained snorkelers to distinguish between YOY and older salmonids because of their size difference.

The response variable was expressed in density form as the number of a defined fish group (young-of-year or older salmonids) observed per 1000 $m^2$ of pool area. The number of fish are summed over all pools snorkeled:

Fish Response = S(# fish observed in pool, i)/S(surface area of pool, i)

Methods and results of corrected estimates of pool dimensions, based on SMART calibration data, used to estimate pool area are described in Appendix 1.

3.3 Fish habitat

One of the most useful measures of fish habitat is the dimensionless variable, width-to-depth ratio, based on wetted stream habitat dimensions. Streams that are deep for their width (i.e., low width-to-depth ratio) tend to provide more habitat for fish, especially salmonids during summer (Scarnecchia and Bergersen 1987; Kozel and Hubert 1989). Natural differences in the ratio do exist due to differences in sediment type, transport, and deposition, and also whether the reach channel is constrained geomorphically. However, degradation of streams through riparian forest removal, changes in hydrology, and transport of sediment generally tends to widen streams at the cost of mean depth, a process that is consistent with reduction of overhanging bank habitat and bankside vegetation. Maximum depth of pool or riffle was measured for all sampled habitats, therefore this depth measure was used instead of the strongly correlated mean depth that was estimated for less than half of sampled habitats. The mean ratio for a reach was estimated by calculating the mean of all pool and riffle width-to-depth ratios.

Width-to-depth ratio averaged 9.2, and ranged from 5.4 to 15.5 for the same 59 reaches sampled in the SMART program that contributed to the fish response data (Fig. 4).

All response variables were checked for quality and internal consistency, but were not compared to explanatory variables until an independent set had been derived from the latter as described in Sections 4, 5.1, and 5.2.

## 4. Methods: Potential effects on fish populations

The primary potential effect represents the object of this study, suction dredge mining (SDM). The 1999 survey of SDM included (1) a census of the proposed amount of sediment that miners were anticipating that they would transfer downstream during the summer season, and (2) an extensive field sample of the mining activity in which the actual amount of sediment moved was measured. Notwithstanding some individual differences in between expected and actual quantities moved, there was a good correlation from 48 samples ($r = 0.600$, $P<0.00001$, Fig. 6). Because it was essential to have a measure of cumulative effects from all SDM operations, the measure of the estimated (proposed) amount to be moved was adopted, because this resulted from a census during the 1999 season. This was also considered to be more appropriate because fish responses were measured over a 5-year period, and proposed SDM that did not occur during 1999 could have occurred during other years.



Jun 13 05 01:34p Ken & Jan Alexander 15414463580 p.8

The proposed measure adopted was expressed as the quantity of sediment moved per unit length of stream in segments that were contained in 640-acre (close to 1-mile square) Sections. Derivation of potential cumulative effect of several processes in a given drainage is described below under Cumulative Effects.

Any effect on the fish response from causes other than SDM could potentially confound interpretation. These 'nuisance' variables include early hydraulic mining (HM) and several land-use effects.

HM mostly occurred in 1860-1910 (Fig. 7), but was included because it had a long-lasting visible effect on the surface geology, soils, and vegetation of riparian zones (e.g., Fig. 8). HM peaked in the early 1900's but continued to occur sporadically until as recently as a single operation on Althouse Creek in the mid 1980's (John R. Nolan, USFS, Pers. comm.).

Also land use varied, with forest type, degree of deforestation, urban, and agriculture uses differing among drainage areas sampled for fish. For quantifying the relative effect of these land uses, the best available source covering the whole basin was the Western Oregon Digital Imagery Project (WODIP: Nighbert et al. 2000). That project classified the region into 25-by-25-m pixels representing 49 land-use types, largely on the basis of satellite imagery and ground truth information. Their very detailed forest classification included estimates of mixed or single stands of hardwoods and conifers, four tree size classes, and canopy cover down to 10% intervals. These distinctions were far too fine to indicate differences among basins statistically in this study, so a reduced set of forest and other land-use components was derived that did not involve the elimination of pixels (Fig. 9). In addition a road cover image was obtained through U.S. Forest Service, Grants Pass, which was merged with the simplified WODIP land-use cover .

Water-use effects on hydrology from dams is negligible in the basin, and water abstraction effects would be related to the potential agricultural and urban influence already being measured. The foregoing data sources were analyzed as follows.

## 5. Analysis and results:

Before performing a definitive statistical analysis (5.3), an appropriate method for encoding potential influence to derive explanatory variables is described (5.1), followed by the process to derive an independent set of those explanatory variables (5.2).

5.1 Rating potential influence of explanatory variables

The fish sampled at a given location are mostly influenced by habitats in their home range, which is roughly of the same order as the reach lengths sampled. However, these habitats are primarily influenced by natural and anthropomorphic activities upstream. What is the most rational way of measuring potential influence stream and land-use types?

The traditional approach is simply to sum the number of pixels corresponding to each classification, with each sum being the explanatory variable representing the potential influence of each classification (Fig. 10 A). This process provided equal weights to each pixel, so a land-use at the periphery of the drainage basin would be deemed equally influential as one of similar area adjacent to the sample point. This scoring procedure was unrealistic for assessing effects on a stream reach. Given the importance of riparian zones on streams, a stream buffer zone approach (Fig. 10B) became popular, but the distance from the stream (buffer width) beyond which land-use effects were rated at zero has become a controversial issue. Moreover, a land or stream use in the buffer zone was still considered to have the same effect whether it was close or distant from the sampled reach.

A solution to the foregoing problems is to weight each land-use (including mining use) according to some inverse function of its distance, as the water flows, to the sample location ('pour point'). A rationale for utilizing an inverse-distance weighting method is derived (Appendix 2) and illustrated (Fig. 11). This process produces an explanatory variable datum that represents a cumulative measure of the potential impact on each sampled reach from all sources of each candidate effect in the drainage associated with that sample.

Explanatory variables for all land-use types, including SDM and hydraulic mining (HM) activities along the stream corridor, were converted where necessary to raster (25-m pixel) images. A recent 10-m resolution DEM was used to develop a 25-m raster image indicating flow path directions over the entire landscape, a process that also defines the drainages basins corresponding to each fish sample. The process, developed by John Bolte (Department of Bioresources, Oregon State University), utilizes a program (ZOI) that interfaces with the flow direction cover map to derive sums of inverse-distance weighted values for each classification in each drainage basin ARC-INFO GIS software (Bayley et al. 2001; Kehmeier et al. in submission).

The two mining activities were coded as follows. The proposed cubic yards of sediment to be moved (see above) by Suction dredge mining (SDM) in 1999 was expressed on a per unit stream length (cu. yds/1000 ft of stream) in each Section where this mining was involved. This measure of intensity of mining was converted to classes and assigned to pixels in a rasterized GIS



Jun 13 05 06:38p Ken & Jan Alexander 15414463580 p.10

image (Figs. 2,3). The process outlined above weighted each pixel by the measure of mining intensity in addition to its inverse distance from the sampled reach.

The stream reaches where early hydraulic mining (HM) occurred was mapped by John Nolan and Roger Mendenhall (USFS, Grants Pass, OR). They assigned one of four ranks to each reach to describe the visual effects (e.g. see Fig. 8) that reflected the intensity of this mining activity independently of other activities. These rankings were assigned intensities of 1 through 4 that were applied to classes in a similar manner as SDM. Different units for different mining effects do not matter in a linear statistical analysis; what is important is to reflect the relative intensity and cumulative effect of each mining activity in each drainage.

Figure 12 provides an example of a combined image with drainage basins corresponding to three SMART fish samples, with corresponding calculations of inverse distance weights of aggregated land-uses (see next section). This process does not eliminate any land or water use in the drainage, but weights each pixel of each classification according to the inverse of its distance to the fish response measured.

5.2 Deriving a set of independent explanatory variables

Any statistical analysis that investigates the significance and magnitude of a potential influence requires that the explanatory variable representing that influence is independent of potentially confounding variables. A fair assessment of whether correlations are insufficiently correlated among a set of candidate variables must account for the multiple testing effect. Consequently Bonferroni adjustments were made to the overall alpha value of 0.05 used as a rejection criterion..

Because the response variables involved two surveys with separate sets of drainages that required separate statistical modeling, a multiple correlation test was performed on the explanatory variables of each data set. Fig. 13 shows the Pearson correlation matrix for all cumulative-effect, explanatory variables for the 53 drainages corresponding to the ODFW salmon spawning samples. Even though Bonferroni corrections (at P=0.05) were used, there is a serious problem because of the highly significant correlation between the SDM and HM cumulative effects (Fig. 14). Because subsets of the sites were sampled during different years, the explanatory variables of those subsets were separately analyzed. However, the significant correlation among the mining types persisted. Although there is some overlap between the types, this persistence was partly attributed to lack of proximity to upstream mining of a large proportion of the sites (Fig. 3).

Therefore, an analysis of the salmon spawning response could not proceed, because it

would not be possible to distinguish between the mining activities any effects that may be indicated statistically. Impasses such as this are not uncommon when trying to impose a sampling design on existing data, and do not reflect the quality of the information in the data set.

The Pearson correlation matrix for all explanatory, cumulative-effect variables for the 59 SMART drainages is shown in Fig. 15. Here, fortunately, there were no significant (again, Bonferroni at P=0.05) correlations between SDM and any other explanatory variables. While it is not incorrect to proceed with analyses relating this set to the fish response, there are redundancies among several of the remaining 'nuisance' variables that will unnecessarily consume degrees of freedom. Also, some cover types were sparse and did not vary much among drainages (Fig. 16). There were three clusters of strongly interrelated variables that generally represented decreasing degrees of vegetation cover and, to a large extent, human disturbance: (1) agriculture, urbanization, and roads, (2) forest with less than 50% canopy, non-forest vegetation, and barren, and (3) forest with greater than 50% canopy.

The cumulative-effect variables representing these three land-use cover types, and those for the two mining activities, produced a much cleaner correlation matrix (Fig. 17). Because no land-use types from WODIP have been eliminated, and all their areas add to 100% in each drainage, there will clearly not be independence in any set. In this case, a strong negative correlation exists between set (2) and (3) (Fig. 18), indicating that one cumulative variable should be dropped. In this case, a weak correlation was indicated between variable (2) and (1), so variable (2) was eliminated, leaving a set of four variables (Urban-Ag-Roads (1), Forest >50% (3), HM (4), and SDM (5)) that were uncorrelated at the Bonferroni-corrected 5% level. This set of explanatory variables was used in the statistical analyses described below.

5.3 Linear statistical analyses

The response variable is a count of fish in a given sampled area. The fish may or may not be randomly distributed in that area. Expressing the error distribution according to the negative binomial model (White and Bennetts 1996), accounts for any additional variance, $\mu^2/\theta$ , ($\mu$ = mean, $\theta$ = constant) to that corresponding to a random error as in a Poisson distribution.

The linear statistical model fit to the SMART data set was:

(1) $Y = exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_3 x_3 + \beta_{12} x_1 x_2 + \beta_{13} x_1 x_3 \ \ldots\ldots + \beta_{34} x_3 x_4)$

where $Y$ = number of fish per 1000 m$^2$ of total pool area sampled in the reach



Jun 13 05 08:38p Kem & Jan Alexander 15414463580 p.12

(juvenile + adult native salmonids greater than 1 year old or YOY salmonids),
$\beta_0$ = fitted constant,
$\beta$ = fitted coefficients with non-zero subscripts corresponding to the following variables:
$x_1$ = 'Urban-Ag-Roads' cumulative effect,
$x_2$ = 'Forest >50%' cumulative effect,
$x_3$ = Hydraulic mining (HM) cumulative effect,
$x_4$ = Suction dredge mining (SDM) cumulative effect,
$x_i x_j$ = all first order interaction terms between $i$th and $j$th variables ($i \neq j$),

with the error corresponding to the variance function of the negative binomial distribution:

(2) $var\ (Y) = \mu + \mu^2/\theta$

where $\mu$ = mean of count, Y

$\mu^2/\theta$ = variance additional to Poisson (random) variance

$\theta$ = fitted constant

An S-Plus routine that fits the $\theta$ constant in the negative binomial model jointly with the model coefficients with an iterative procedure (Venables and Ripley 1999) was used to compute the general linear models. In the case of the stream width-to-depth ratio response, a simple Normal linear statistical model (regression) was applied.

In this study the principal interest is in whether the coefficient, $\beta_4$, that estimates the magnitude and sign of any effect of Suction dredge mining (SDM), is significantly different from zero, providing that the SDM variable, $x_4$, is not part of a significant interaction with another explanatory variable. Other explanatory variables need to be included because interactions with them may confound our interpretation. If the model does not indicate significant interactions, those terms are removed and the reduced model is refitted. The modelling process was repeated after dropping non-significant ($P > 0.05$) interactions. Non-significant main effects ($\beta_i$) were not dropped if they were part of a significant interaction.

## 5.4 Results

With the models on native salmonids greater than one year old, no significant first order interactions remained after the elimination procedure. Fig 19A illustrates a later model run with an interaction term between the two mining activities, Fig. 19B show a run with only main effects, and Fig. 19C shows a model with the least significant ($P > 0.5$) effect, suction dredge mining, removed. Only the cumulative effect of hydraulic mining (HM) indicated a modest significance (at

P = 0.03) among the main effects. It's sign was negative, indicating that the greater the severity of this activity had been, the greater the reduction in salmonids over 1 year old.

Model diagnostics are critical to assess the appropriateness of the statistical procedure and assumptions. Theoretically, deviance residuals are expected to be approximately normal (Pierce and Schafer 1986), so models producing large departures should be viewed with suspicion. A normal probability plot of the deviance residuals suggested reasonable conformity (Fig. 20). A second issue is the independence of the data used. Although the inverse distance weighting effect gave more emphasis to land-uses occurring closer to the sample site, drainage areas of several sample points overlapped to varying degrees. Also the longitudinal movement of fish populations among adjacent sites sampled in the same year may be sufficient to render the samples non-independent statistically. Therefore, spatial autocorrelation among samples could occur to a degree that the key assumption of independence of samples would be questioned. To this end, the SMART samples were ordered according to proximity 'as the fish swims' and the corresponding deviance residuals from the model (Fig. 19C) tested for spatial autocorrelation. The mean correlation among the consecutively placed samples was 0.14 with a standard error of 0.13, so autocorrelation was not close to being significant.

As a matter of interest, Fig. 21 indicates through examples the predicted increase in salmonid density in summer pools that would be expected to occur if the prevailing negative effects on habitat of hydraulic mining did not exist.

Testing the Salmonid young-of-the year (YOY) response with similar models did not produce any significant coefficients of explanatory variables or their interactions. Similarly the stream width-to-depth ratio response using simple linear models produced no significant effects. In both cases SDM coefficients were in fact positive but not remotely significant at P>0.5.

## 6. Discussion and Conclusions

Analyses of observational field data sets can never be expected to produce strong results compared with laboratory or field experiments (Diamond 1986; Rose 2000). This is particularly true when the sampling study has not been designed to test the specific variable of interest. However, there are not realistic alternatives because this variable, suction dredge mining, cannot be controlled or easily measured over a sufficiently larger number of drainages to provide a design robust enough to account for confounding factors and provide enough statistical power.

The statistical analyses did not indicate that suction dredge mining has no effect on the three



Jun 13 05 08:41p Ken & Jan Alexander 15414463580 p.14

responses measured, but rather any effect that may exist could not be detected at the commonly used Type I error rate of 0.05. The fact that the analysis was able to detect a negative effect of another mining process, HM, on native salmonids, is an indication of the long-lasting effect that hydraulic mining has had on the environment, particularly on riparian zones and floodplain sections in geomorphically unconstrained reaches (Fig. 8).

The reader is reminded of the effect of scale. Localized, short-term effects of suction dredge mining have been documented in a qualitative sense. However, on the scales occupied by fish populations such local disturbances would need a strong cumulative intensity of many operations to have a measurable effect. Local information reveals that most suction dredge miners more or less adhere to guidelines that have recently been formalized by the Forest Service (Kevin L. Johnson and John Nolan, pers. comm.) and generally in the Oregon (Bernell et al. 2003), but there are individual cases where egregious mismanagement of the immediate environment has occurred, particularly with respect to damaging river banks in various ways. This analysis cannot account for individual transgressions, and a study to do so at an appropriate scale would be very expensive if feasible.

Given that this analysis could not detect an effect averaged over good and bad miners and that a more powerful study would be very expensive, it would seem that public money would be better spent on encouraging compliance with current guidelines than on further study.

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Attachment D5

# Programmatic Biological Assessment

**Section 7 Consultation Pursuant to**
**Federal Endangered Species Act (16 U.S.C. 1531 *et seq.*)**

# State of Oregon's Removal-Fill Program

## FINAL

**September 1, 2000**

| | |
|---|---|
| **Action Agency:** | **Regulatory Branch**<br>**U.S. Army Corps of Engineers**<br>**Portland, Oregon 97208-2946** |
| **Non-Federal Representative:** | **Oregon Division of State Lands**<br>**Salem, Oregon 97301-1279** |
| **Consultation conducted with:** | **Oregon State Office**<br>**U.S. Fish and Wildlife Service**<br>**Portland, Oregon 97266** |
| | **Oregon Branch**<br>**Habitat Conservation Division**<br>**U.S. National Marine Fisheries Srvc.**<br>**Portland, Oregon 97232** |

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construction or repair expected to totally eliminate or adversely alter the species composition of the area.

To minimize adverse effects to fisheries, all in-water work will occur within the time periods recommended by Oregon Department of Fish and Wildlife in the most current version of *Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*. Exceptions to those recommended time periods will require specific approval from DSL after consultation with ODFW.

In most areas, the riparian vegetation has already been cleared as the result of ongoing recreational activity at the site. Any additional adverse effects to riparian vegetation will be temporary, because affected areas will be seeded or planted to promote the growth of appropriate native plant species. Overall, the adverse effects of removing the riparian vegetation are expected to be minimal.

**Cumulative Effects**

Cumulative effects of these activities will depend on the number of times the permit is used. DSL permit statistics from the 97-99 Biennium, provided under *Determinations of Affects under the Federal Endangered Species Act, by Species*, will be used as a surrogate (i.e., a representative sample of the range and intensity of adverse effects) for all the types of removal-fill permits expected to be issued for the next five years.

## Recreational and Small Scale Placer Mining
**(see Map B-12)**

This category includes, but is not limited to, recreational prospecting and the use of a motorized surface dredge having an intake nozzle with an inside diameter not exceeding four (4) inches. The following is a brief description of general effects which may occur with these types of projects. DSL requires an application be submitted for the Placer Mining GA, but the applicant is not required to receive prior written authorization from DSL before proceeding with work. Due to the apparently benign nature of these activities, additional conditions are normally not applied and compensatory mitigation is not required.

**Physical, chemical and biological characteristics of the aquatic ecosystem**

Potential adverse effects on the aquatic environment due to turbidity and suspended sediment normally associated with suction dredging are anticipated to be insignificant. Typically the movement of the suction dredge and the operator produces almost no visible turbidity.

The removal and redeposit of substrate by mining will provide an opportunity for changes in erosion and accretion patterns. Steep, upper reaches of tributaries can transport large quantities of sediment. Material removed by placer mining in these areas where mining often occurs would not contribute to more than minimal changes in

these patterns. Minor, local effects will occur when instream rocks are moved and placed to create small, temporary impoundments.

Pool and riffle areas may be affected by operation of suction dredging. For pool areas this may involve dredging the pool area deeper and wider. Riffle areas may be converted into exposed gravel bars with pits or pool formations interspersed. A natural reestablishment of the channel cross section will occur during high flow events.

Any area where excavation or dredging occurs will result in modifications to habitat. Due to the sediment loads of these streams, changes such as those caused by small-scale mining activity would likely be negligible in comparison to the natural geomorphic process of accretion and erosion. The effect upon areas dredged will primarily be upon invertebrate species. Due to the localized effects of suction dredging on invertebrate communities, the adverse effects would likely be short term and limited in extent, with the area disturbed during dredging would be rapidly recolonized. The recreational nature of the operators and the physical efforts required to move more than a few cubic yards daily substantially limits the potential effects of these activities (when DSL-required BMPs are being followed).

These activities are also regulated by Oregon Department of Environmental Quality (DEQ) under Section 402 of the Clean Water Act. Under ORS 468.740, DEQ regulates recreational operators that use a 4-inch intake or less under General Permit 0700J. Adherence to restrictions to protect fisheries is required under the terms of this general permit. To minimize adverse effects to fisheries, all in-water work will occur within the time periods recommended by Oregon Department of Fish and Wildlife in the most current version of *Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*.

On the other hand, one recent study (Harvey and Lisle 1999) cautioned fisheries managers to consider the potential negative effects of dredge tailings on the spawning success of fall-spawning fish, such as Chinook salmon and coho salmon. These researchers recommend that streams with the following characteristics deserve special attention: 1) shortage of natural substrate appropriate for spawning; 2) a high potential for scour; and 3) a low number of spawners. DSL will take into account these factors as it periodically reviews the Placer Mining GA for possible renewal.

**Cumulative Effects**

Cumulative effects of these activities will depend on the number of times the permit is used. DSL permit statistics from the 97-99 Biennium, provided under *Determinations of Affects under the Federal Endangered Species Act, by Species*, will be used as a surrogate (i.e., a representative sample of the range and intensity of adverse effects) for all the types of removal-fill permits expected to be issued for the next five years.

The Division's Essential Indigenous Anadromous Salmonid Habitat identification and protection program, started in 1996, allows the Division to review projects smaller than

the normal 50 cubic yard fill-removal threshold. Permits or authorizations are required for any amount of fill or removal, unless otherwise exempted. The general authorization for placer mining contains Best Management Practices (BMPs) for avoiding or minimizing adverse effects on riparian and aquatic habitat areas. In addition, the Division has pursued an active educational outreach and monitoring program. This program assisted the recreational miner in understanding how to operate small dredges and conduct other mining practices in an ecologically sound manner. Table 6 shows that this program has contributed to dramatically improved compliance rates from the time the program began (1996), to present.

**Table 6. Comparison of Compliance Rates with the Placer Mining GA During the 95-97 and 97-99 Biennia**

| Field Season | % Compliance with Permit Requirement | % Compliance with BMPs |
|---|---|---|
| 1996 | 7.4% | 39% |
| 1997 | 20.9% | 89.5% |
| 1998 | 48.4% | 83.9% |
| 1999 | 83.3% | 83.3% |

## Removing and Disposing of Sediment Behind Tidegates for Channel Maintenance

Under DSL's General Authorization, the reshaping of the ditch cannot increase drainage beyond the original project boundaries or expand the area drained by the ditch as originally designed (i.e., the capacity of the ditch must be the same as originally designed and it cannot drain additional wetlands or other jurisdictional waters). The GA does not apply to reshaping drainage ditches constructed in uplands, since these areas are not jurisdictional waters. The GA does not authorize the relocation of drainage ditches constructed in jurisdictional waters; the location of the centerline of the reshaped drainage ditch must be approximately the same as the location of the centerline of the original drainage ditch. Additional conditions can be placed on proposed activities on a case-by-case basis to ensure that the proposed work has minimal adverse environmental effects.

### Physical, chemical, and biological characteristics of the aquatic ecosystem

Fills and removals of dredged or fill material into jurisdictional waters for reshaping existing drainage ditches results in the destruction of wetland vegetation as the ditch is graded and the excavated material is sidecast. Vegetation may be removed prior to or during excavation, crushed by construction equipment, or smothered by sidecasting. For most ditch reshaping activities, the losses of vegetation will be temporary, because vegetation is usually allowed to grow back after the work is completed. There should

Attachment D6

USDA

United States
Department of
Agriculture

# Granite Area Mining Projects

## Draft Environmental Impact Statement

Forest Service
Pacific Northwest
Region

**Umatilla National Forest**

**North Fork John Day Ranger District**

2002

F14-NF-07-02




**Abstract:**

The Forest Service proposes to approve Plans of Operation on 16 mining claims located within the Granite Creek Watershed on the North Fork John Day Ranger District, Umatilla National Forest. Recently the Columbia River bull trout and Mid Columbia steelhead trout were listed as threatened under the Endangered Species Act. Both these species are found in the watershed. In addition, a number of streams in the watershed are on the State of Oregon "303(d) list". Two action alternatives were developed to assess the issues raised through scoping. Key issues centered on water quality, aquatic habitat and the listed fish species. After reviewing the effect of the proposed action and alternatives, the Responsible Official has selected Alternative 3 as the Preferred Alternative.

**Clear Creek**

**Direct/Indirect Effects:**

**Riparian Health**
Planned activities will displace a limited amount of vegetation, less then one-quarter acre, occurring within the riparian zone but not enough to directly affect stream temperature since the proposed activity is over 100 feet from the wetted stream course and the surrounding vegetation is of a size and distribution that shade will not be changed. These activities may mobilize fine sediments near the job site and may reduce the availability of large woody debris on the claim. However, these disturbances are expected to be minor and should not further degrade the Clear Creek riparian habitat. Use of petroleum products within the RHCA has the potential of affecting the area if a spill should occur.

**Stream Health**
Proposed placer activities will not affect stream gradient, sinuosity, pool, riffle glide ratio or the number of pools per mile. Suction dredging may affect the riffle glide ratio and/or the number of pools per mile but this effect should be short term and not be noticeable after the following spring runoff. Older juvenile fish may be moved out of the general area where suction dredging is taking place or may be removed by sediment plume, but this would be short term because the time for suction dredging is only 30 days (July 15 – August 15).

**Water Temperature**
Proposed mining activities should not affect stream temperatures by reducing shade providing riparian vegetation.

**Sediment Load**
While planned activities may mobilize additional amounts of fine sediments that may be carried (water or airborne) into Clear Creek, the amount is expected to be minor and should not result in a measurable change in sediment load parameters because of the location of the work sites. Planned suction dredging may resuspend fine bottom sediments that will settle out further down stream and may affect that area of the stream. However, since these activities will be taking place while anadromous fish eggs are not incubating in stream gravels, no direct effects are expected. Rearing fry and fingerlings may not be able to avoid the dredge and may be directly affected because of limited mobility. Potential indirect effects may include reduced cobble embeddedness and improved bed flow by reducing the amount of fine sediments in stream gravels through resuspension of fine sediments during dredging operations. In addition, dredging may uncover small invertebrates residing in stream sediments for foraging juvenile anadromous fishes. However, these benefits are expected to be localized and of short duration.

Attachment E

State of Oregon
# Department of Environmental Quality Memorandum

**Date:** June 6, 2005

**To:** Environmental Quality Commission

**From:** Stephanie Hallock, Director S. Hallock

**Subject:** Agenda Item B, Rule Adoption: Suction Dredge General Permit Renewal
June 23, 2005 EQC Meeting

**Department Recommendation**

The Department of Environmental Quality (DEQ, Department) recommends that the Environmental Quality Commission (EQC, Commission) adopt rules to renew the Suction Dredge NPDES General Permit as presented in Attachment A.

**Background and Need for Rulemaking**

This rulemaking renews the expired National Pollution Discharge Elimination System (NPDES) General Permit 700-PM (formally 700-J) for suction dredge operations that are used to recover precious metals from streambed sediments. NPDES General Permits limit the discharge of regulated pollution from point sources into Oregon surface waters and are required to be reissued every 5 years. NPDES General Permits are also required to be adopted by the Commission as Oregon Administrative Rules.

The previous General Permit for suction dredging expired in March 2002. However, NPDES permits remain valid until renewed if the permit registrant submits an application to the Department prior to the permit expiration date. In lieu of a permit, DEQ issued Mutual Agreement and Order number WQ/I-ER-02-114 to allow individuals, not covered under the expired permit, to discharge after March 2002, until the General Permit was renewed. The MAO expires December 31, 2005.

**Effect of Rule**

This proposed renewal adopts a new suction dredge permit and terminates the MAO. The renewal includes several key modifications, as follows:

- Clarifies dredge operation and work practices
- Clarifies the designation of streams where dredging is restricted and prohibited
- Requires turbidity limits and monitoring only for dredges with suction hoses that have an inside diameter of 4 inches or greater
- Includes new annual fees
- Allows the Oregon Department of State Lands to potentially administer the permit in the future, as a streamlining measure

**Commission Authority**

The Commission has authority to take this action under ORS 468B.035, and ORS 468B.050.

**Stakeholder Involvement**

No formal advisory committee was convened; however, DEQ initiated the permit renewal process by conducting field visits to suction dredge operations in eastern Oregon near Baker City, on the Santiam River east of Salem, and in southwest Oregon near Grants Pass in August 2004. DEQ staff arranged to meet with representative suction dredge organizations in these locations in order to observe dredging operations and discuss the range of issues that dredgers may have with the expired suction dredge permit. Prior to formal public notice, DEQ provided four preliminary drafts of the permit to the miners for review and comment, and met with miner representatives on several occasions to discuss specific issues of concern. DEQ provided the first and fourth drafts of the permit to a larger group of interested stakeholders for comment including the Northwest Environmental Defense Center, U.S. Forest Service, U.S. Bureau of Land Management, Oregon Department of Fish and Wildlife, and the Oregon Department of State Lands.

Permit fee amendments will be included in the final permit, and have been widely discussed with the mining community as the permit has been developed. The final permit includes an annual fee of $25 per year with an option to prepay $100 for the full 5 year permit term. The Department's fee proposal will be included in a bill sponsored by Representatives Butler and Anderson in the 2005 legislative session to codify the fees in statute.

A chronology of the permit development process is attached as Attachment C.

**Public Comment**

The public comment period extended from December 23, 2004 through March 11, 2005 and included public hearings in Portland, Salem, Grants Pass, and Baker City. DEQ received comments from 109 individuals, some representing dredging organizations. A summary of the comments and the Department's response is provided in Attachment B2.

**Key Issues**

The most significant concerns raised by commentors during permit development and during public comment were with 1) the Department's legal authority to regulate small scale suction dredging under the NPDES permitting program, and 2) the turbidity discharge limits and monitoring conditions proposed in the draft permit. Further discussion of these two issues is provided below.

The dredge operators also commented that the permit would impact the mining industry and its contribution to the Oregon economy, and that their ability to fully understand and therefore, fully comply with the complex draft permit is a significant concern.

1) Legal Authority *Questions regarding DEQ's authority to regulate suction dredging through the NPDES permitting program were frequently raised throughout permit development and the public comment period.* DEQ believes that suction dredges, discharging pollutants to waters of the state, satisfy the definition as a point source subject to the NPDES permitting program. In addition, EPA provided DEQ and representative Oregon mining associations with written confirmation that suction dredges require an NPDES permit including a General Permit issued by EPA for the activity in Alaska. The Department of Justice has also provided formal advice in response to these comments to support DEQ's authority to issue an NPDES permit for this activity. That advice is provided as Attachment B3.

2) Turbidity Discharge Limits and Monitoring *The vast majority of the public comments from the mining community opposed the proposed turbidity discharge and monitoring conditions.* The turbidity requirements in the permit must apply the existing state turbidity standard which prohibits turbidity in surface water at levels greater than 10 percent above background. The turbidity standard also allows for limited duration turbidity exceedances.

The proposed turbidity requirements in the public notice version of the draft permit were developed by referencing water quality protection levels that DEQ is currently considering to revise the state turbidity standard. This approach allowed turbidity discharges that would exceed the 10 percent above background requirement for a limited time, as long as water quality protection levels for turbidity over a 30 day period were met. While this approach provided greater flexibility for dredgers to comply with the state turbidity standard on streams that have relatively high concentrations of suspended sediments, the proposed permit revisions also required additional and, in some cases, more costly monitoring. For example, visible turbidity exceeding 10 percent above background was allowed beyond the compliance distances set forth in the draft permit for up to 60 hours/month. However, the draft permit also required the dredge operators to keep a log of the exceedances, and monitor with a turbidimeter when multiple dredges operated at the same time. The permit proposed for public comment also based the visible turbidity compliance distance on the size of the stream; the larger the stream, the further the compliance distance from the working dredge.

Comments from the Pacific Environmental Advocacy Center (PEAC) largely expressed concerns that the proposed permit could allow for more turbidity discharge from dredges assigned to the permit. Specifically, the permit allowed a single dredge to discharge more turbidity than the previous permit, and allowed for a greater number of dredge operations without sufficient compliance to assure that DEQ's antidegradation requirements were met. PEAC also commented that DEQ

should apply antidegradation requirements on water quality streams limited for temperature, and that the proposed compliance distance for streams wider than 50 feet amounted to environmental backsliding.

PEAC submitted additional comments including issues related to stream bank and resource protection, other Clean Water Act requirements, and the technical basis for the proposed turbidity discharge and monitoring conditions. Those comments and the Department's response are provided in Attachment B2.

Permit Revisions

The large majority of public comments indicated that the permit proposed for public comment was difficult to understand, implement, and comply with. In the final permit, DEQ has simplified the turbidity limitation and monitoring requirements. The final permit eliminates the turbidity exceedance allowances and associated monitoring. This action addresses a large number of comments relating to the scientific basis of the proposed turbidity discharge and monitoring conditions, and issues related to potential turbidity increases in water quality limited streams. As previously provided, DEQ is currently working on revisions to the water quality criteria for turbidity, and may consider including turbidity exceedances for the next permit renewal, once the new turbidity standard is in place.

DEQ is now proposing to limit the discharge of visible turbidity at one set distance, 300 feet downstream from the back of the working dredge. This is the same compliance distance used in the previous permit and addresses the PEAC comment regarding environmental backsliding. The vast majority of sediment discharge and turbidity created from dredges assigned to this permit will fall out of the water column within distances much less than 300 feet. However, there are streambeds that contain higher silt and clay levels that, when disturbed, create persistent visible turbidity at distances beyond 300 feet. For suction dredges larger than the size restrictions of this permit, or for smaller dredges that cannot comply with the turbidity requirements, the Department intends to create a low-cost, individual suction dredge permit that will include the limited duration turbidity allowance and additional monitoring requirements.

The proposed permit included antidegradation provisions to restrict dredging in streams if they are water quality limited and have not been previously dredged. DEQ has further clarified this condition in the final permit to restrict dredging in water quality streams if those streams were not dredged under the previous 700-J and MAO. The final permit has not been revised to prohibit dredging on streams that are water quality limited for temperature. DEQ conducted this evaluation for the expired suction dredge general permit, which concluded that suction dredging

would not increase temperature if conducted in accordance with the terms and conditions of the permit.

DEQ is further simplifying the proposed final permit by requiring turbidity discharge limits and monitoring only for suction dredges with suction hoses that have an inside diameter of 4 inches or more. Dredge operations smaller than this and that comply with the other conditions of the proposed permit have no reasonable potential to violate the state turbidity criteria. DEQ is basing this determination on results obtained from field visits conducted in the summer of 2004, and in response to public comment suggesting that discharges from smaller diameter dredges have an insignificant effect on water quality. This evaluation considers that commercially available dredges with suction hoses smaller than 4 inches are equipped with a suction hose with an inside diameter of 3 inches or less. DEQ estimates the exemption will eliminate turbidity requirements for half of the dredge operations subject to this General Permit.

The final permit also retains a number of key permit applicability and best management practice conditions included in the permit proposed for public comment to further control discharges from suction dredge operations, as follows:

- The permit is only available to dredges that have up to a 6 inch inside diameter suction hose and up to 30 horsepower motors. The previous permit allowed up to a 40 horsepower motor with no size requirement on the suction hose.
- Dredging is only permitted during daylight hours. This revision ensures compliance with the visible monitoring requirement of the permit.
- Petroleum product storage and handling conditions have been modified to ensure discharges are prevented and spills are mitigated immediately.
- The permit prohibits the removal of logs, boulders and other stream infrastructure from the stream bed to protect long term habitat for fish and other aquatic life. The permit does allow moving these structures within the stream channel.
- Essential Salmon Habitat and Scenic Water Way requirements have been clarified to ensure permittees are informed of the dredging restrictions and prohibitions that exist in regulations administered by the Oregon Department of State Lands.

**Next Steps**

Following adoption of the General Permit by the EQC, the Department will file the new rule with the Secretary of State with an effective date of July 1, 2005. DEQ will then send applications to all those that were previously permitted under the expired permit and the MAO. Once complete applications are received by the Department, applicants will be assigned to the new permit. The Department will then send a copy of the permit and an assignment letter to the permittee.

The Department expects to process as many as 1500 applications within 30 days after the permit is adopted. A temporary position will be utilized to review applications, and send assignment letters to permittees. Fees will be collected by the DEQ business office as part of the permit assignment process.

The Rule Implementation Plan is available upon request.

**Attachments**

A. Proposed Rule Revisions
   1. Proposed Permit
   2. Proposed Rule Revisions {redlined version}
B. Summary of Public Comments and Agency Responses
   1. List of Commentors
   2. Department Response
   3. DOJ Memorandum
C. Permit Development Chronology
D. Presiding Officer's Reports on Public Hearings
E. Relationship to Federal Requirements Questions
F. Statement of Need and Fiscal and Economic Impact
G. Land Use Evaluation Statement

**Available Upon Request**

1. Legal Notice of Hearing
2. Cover Memorandum from Public Notice
3. Written Comment Received
4. Rule Implementation Plan

Approved:

Section:

Scott Manzano, Acting Manager
Surface Water Management

Division:

Holly R. Schroeder, Administrator
Water Quality Division

Report Prepared By: Scott Manzano

Phone: 503 229-5185

Attachment A1



# GENERAL DISCHARGE PERMIT

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204
Telephone: (503) 229-5279

**Issued pursuant to ORS 468B.050 and section 402 of The Federal Clean Water Act**

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**ISSUED TO:**

**SOURCES COVERED BY THIS PERMIT:**

This permit covers suction dredges not to exceed 30 horsepower with an inside diameter suction hose no greater than 6 inches that are used for recovering precious metals or minerals from stream bottom sediments.

Holly Schroeder, Administrator
Water Quality Division

Date

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## SCOPE OF PERMITTED ACTIVITIES

This 700-PM General Discharge Permit replaces 700-J issued in 1999, and the Mutual Agreement and Order Number WQ/I-NWR-02-109. Until this permit expires or is modified or revoked, the registrant of this permit is authorized to operate a suction dredge in waters of the state in accordance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

Page
Schedule A - Discharge Limitations. . . . . 4
Schedule B – Monitoring Requirements. . . . . 4
Schedule C - Special Conditions . . . . . 5-8
Schedule D - General Conditions . . . . . 8-10

## DEFINITIONS

1. *Background Turbidity* means turbidity that represents the ambient, undisturbed turbidity as measured or observed at least 10 feet upstream from the suction dredge operation at the time dredging occurs.
2. *Visible Turbidity* means turbidity that is distinctly visible when compared to background turbidity.
3. *DEQ* or *Department* means Oregon Department of Environmental Quality.
4. *Gravel Bar* means a transitional gravel deposit that lacks any rooted vegetation, located either between the stream banks and the wet perimeter of the stream or entirely within the wet perimeter of the stream..
5. *OAR* means Oregon Administrative Rule.
6. *ODFW* means Oregon Department of Fish and Wildlife.
7. *Stream bank* means a slope of land adjoining and confining a stream channel.
8. *Wet perimeter* means the area of the stream that is underwater, or is exposed as a non-vegetated dry gravel bar island surrounded on all sides by actively moving water at the time suction dredging occurs.

## HOW TO APPLY FOR COVERAGE UNDER THIS GENERAL PERMIT

Persons Seeking Coverage Under This 700-PM General Permit (2005-2010)

1. Suction dredge operators can obtain coverage under this General Permit by the following steps:

   a. Obtain a DEQ application form by:
      i. Mail or in person from the DEQ regional offices provided in Schedule C, or
      ii. Downloading the application from the DEQ website.

   b. Submit a completed application to DEQ or other DEQ agent, requesting coverage under this permit at least thirty days prior to the planned activity. The Department may accept applications filed less than thirty days from the planned activity on a case by case basis.

   c. Submit all applicable fees with the application. DEQ or another DEQ agent will review the application information and will take one of the following actions:

      i. Issue written notice of approval.

      ii. Request additional information.

      iii. Deny coverage under this permit. The applicant will be notified if the applicant's operation cannot be approved for coverage under the General Permit, and that the applicant may need to obtain an individual permit.

Persons Seeking Coverage to Renew This 700-PM General Permit After 2010

1. Assignment under this General Permit is valid until the expiration date provided on the cover page (unless terminated or extended under Other Applicable Conditions below). Suction dredge operators requiring renewal of this General Permit must renew coverage by the following steps:

   a. Submit a complete renewal application form to DEQ or a DEQ agent no later than February 1, 2010, 180 days prior to the expiration date of this permit indicated on the cover page. The DEQ Director may grant permission to submit the application less than 180 days in advance but no later than the permit expiration date.

   b. Submit all applicable fees with the permit renewal application.

2. DEQ or another DEQ agent will review the application and will take one of the following actions:

   a. Issue written notice of approval.

   b. Request additional information.

   c. Deny coverage under this permit. The applicant will be notified if the applicant's operation cannot be approved for coverage under the General Permit, and that the applicant may need to obtain an individual permit.

Other Application Conditions

1. Coverage under this permit will continue for a permittee after the expiration date if the permittee submits a complete renewal application and fee as described above.

2. Any person not wishing to be covered or limited by this general permit may apply for an individual permit in accordance with the procedures in OAR 340-045-0030. The Department will review the application information and will either request additional information in writing or will notify the applicant by mail to operate under the conditions of the new individual permit.

3. During the term of this permit, the Department may make arrangements with the Oregon Department of State Lands or other state agency to assign coverage, conduct inspections, or compile information regarding this General Permit on behalf of DEQ.

## SCHEDULE A

### DISCHARGE LIMITATIONS

1. Suction dredge operation in Oregon is allowed for the person assigned to this General Permit. Persons assigned to this permit may only operate one dredge at a time. Other persons not assigned to this permit may operate that dredge under the supervision of the person assigned to this permit if all conditions of this permit are met.

2. Suction dredge activities covered by this permit may not discharge except in compliance with this General Permit. This permit does not authorize mining of stream banks (highbanking) or upland areas. Such out-of-stream mining requires a General Permit WPCF 600 or an individual WPCF permit from the Department of Environmental Quality.

3. Except as restricted in Oregon Scenic Waterways or Essential Salmon Habitat, dredging is allowed into gravel bars up to 10 feet outside the wet perimeter of the stream . In no case is dredging of stream banks allowed.

4. Suction dredges with suction hoses that have an inside diameter of 4 inches or greater must not create visible turbidity beyond 300 feet downstream from a working dredge.

5. A single operating suction dredge equipped with a suction hose with an inside diameter less than 4 inches has no turbidity discharge limitation.

6. Two or more dredges, each equipped with a suction hose with an inside diameter less than 4 inches that operate at the same time, must not create visible turbidity beyond 300 feet downstream from the combined dredge operations.

7. Suction dredge operation is prohibited during non-daylight hours.

8. No wastes may be discharged and no conductivities may be conducted that will violate Water Quality Standards as adopted in OAR Chapter 340, Division 41.

## SCHEDULE B

### MONITORING REQUIREMENTS

1. Suction dredges with suction hoses that have an inside diameter of 4 inches or greater must visually monitor each day of operation to assure turbidity is not visible beyond 300 feet downstream at any time.

2. Suction dredges with suction hoses that have an inside diameter less than 4 inches do not have to monitor for turbidity.

3. Visual monitoring is required during daylight hours to determine compliance with the turbidity limits in Schedule A.

## SCHEDULE C

### SPECIAL CONDITIONS

BEST MANAGEMENT PRACTICES

1. Harassment of fish in the stream is prohibited as required in ORS 498.006.

2. Except where the Oregon Department of Fish and Wildlife (ODFW) has given expressed written authorization, suction dredging is not allowed outside the periods set out in the attached in-water work schedule (*Timing of In-Water Work To Protect Fish and Wildlife Resources*). A copy of that written ODFW approval must be in the possession of the operator or readily available during dredging activities.

3. The permittee must provide a safe passage for fish around and through the active mining area if the stream was historically or is currently inhabited by native migratory fish .

4. Moving boulders, logs, or other natural stream infrastructure within the stream channel as described in Schedule A3 is allowed. However, in no case may this infrastructure be removed entirely from the stream channel. Removal of infrastructure that extends into the stream channel from the stream bank is also prohibited.

5. Dredging stream banks is not allowed under this permit. Undercutting or eroding stream banks and removal or disturbance of boulders, rooted vegetation, or embedded woody plants from stream banks is prohibited. Boulders include cobbles and larger rocks that protect and prevent erosion of the banks from spring run runoff and storm event stream flow. Woody plants include living or dead trees and shrubs. Vegetation includes grasses, wildflowers, weeds, and other vegetation that stabilizes the stream banks or provides cover for fish or provides shade.

6. Creating areas of pooled water is allowed within the stream boundaries provided in A3. However, construction of dams that prevent fish passage is prohibited.

7. Suction dredge activity must not result in the formation of organic or inorganic deposits that are harmful to fish or other aquatic life as required in OAR 340-041-0007(13).

8. The suction dredge equipment must be properly maintained and petroleum products managed as follows:

   a. Discharging oil, grease and fuel from suction dredge activity is prohibited.

b. Equipment used for suction dredging must not release petroleum products. Equipment surfaces must be free of oils and grease, and must be checked for fuel and oil leaks prior to start of operation on a daily basis.

c. A polypropylene pad or other appropriate spill protection and a funnel or spill-proof spout must be used when refueling to prevent possible contamination of surface waters or groundwater.

d. All fuel and oil must be stored in an impermeable container and must be located at least 25 feet from the wet perimeter of the stream. For dredge locations where a 25 foot buffer is not possible, addition precaution must be taken to ensure that petroleum products cannot spill or otherwise enter the stream.

e. In the event a spill occurs, suction dredge operators must contain, remove and mitigate such spills immediately. All waste oil or other clean up materials contaminated with petroleum products must be disposed off-site.

CONDITIONS TO PROTECT OREGON SCENIC WATERWAYS AND ESSENTIAL SALMON HABITAT

1. Suction dredging is prohibited in the portions of the Clackamas River, McKenzie River, and North Santiam River subbasins that have been designated as Oregon Scenic Waterways, as provided in OAR 340-041-0350.

2. Suction dredging in other Oregon Scenic Waterways must follow the applicable requirements provided in ORS 390.835

3. Suction dredging in Oregon Scenic Waterways is restricted to recreational placer mining, and is not allowed outside the wet perimeter of the stream. Recreational placer mining as defined in Oregon Revised Statutes (ORS) 390.835(17)(b) includes the use of a motorized surface dredge having an intake of four inches or less and a motor no larger than sixteen horsepower.

4. Except when allowed by the applicable federal land management agency, suction dredging on Oregon Scenic Waterways that are located on federal lands is prohibited as provided in ORS 390.835.

5. Recreational placer mining in essential salmon habitat is restricted to the wet perimeter of the stream.

6. Until an agreement is made between DEQ and DSL to administer this permit through one agency, suction dredging in Oregon Scenic Waterways and Essential Salmon Habitat streams requires an additional, separate authorization from the DSL.

a. Maps and lists of scenic waterways and essential salmon habitat streams are available at the following web sites:

http://www.oregonstatelands.us/esshabitat.htm

http://www.oregonstatelands.us/scenicwaterways.htm

b. This information can also be obtained from the following Division of State Lands (DSL) offices:

Division of State Lands
Salem Office
775 Summer St. NE
Salem, OR 97310
Telephone: (503) 378-3805

Division of State Lands
Bend Office
20300 Empire Avenue
Bend, OR 97701
Telephone: (541) 388-6112

CONDITIONS FOR DREDGING ON WATER QUALITY LIMITED STREAMS

1. Until a total maximum daily load (TMDL) has been completed, suction dredging is prohibited in streams that are both listed as water quality limited for sediments, turbidity or toxics on the State 303(d) list under OAR 340-041-0046, and were not placer mined under the 700-J permit after May 3, 1999.

a. Once a TMDL has been completed, mining in these streams may be authorized as indicated in the water quality management plan in the TMDL.

b. The 303(d) list of water quality limited streams is available on the DEQ website or at the following Department offices:

i. Northwest Region
2020 SW 4th Avenue, Suite 400
Portland, OR 97201
Tel. No. (503) 229-5263

ii. Western Region
750 Front Street NE, #120
Salem, OR 97301-1039
Tel. No. (503) 378-8240

iii. Eastern Region
700 SE Emigrant, #330
Pendleton, OR 97801
Tel. No. (541) 276-4063

iv. DEQ Headquarters
811 SW 6th Avenue 7th floor
Portland, OR 97204-1390
Tel No. (503) 229-5185
Tel No. (800) 452-4011 (x5029)

OTHER APPLICABLE DSL FILL AND REMOVAL REQUIREMENTS

A Removal-Fill Permit is required by DSL for any placer mining operation that alters, removes or fills more than fifty (50) cubic yards of material per year in any waterway. Furthermore, a Removal-Fill permit may be required by the DSL for operations involving less than fifty cubic yards per year. Suction dredging that meets the requirements for DSL fill and removal permit may also require

coverage under an individual or other general permit from the DEQ. The permittee must contact the DSL and/or DEQ for additional information.

DETERMINING COMPLIANCE WITH THIS PERMIT

1. As allowed by state law, other Oregon state agencies may enter into agreement with DEQ to act as an agent to determine compliance with the limits, terms, and conditions of this General Permit.

2. DEQ may require information be submitted from permittees regarding the locations of the previous three years of suction dredge activities in Oregon.

3. This permit does not authorize the permit holder to prevent or restrict the legitimate use of the waterway by other persons.

4. During dredge activities, persons covered by this general permit must have a copy of the permit in their possession or readily available for inspection at the dredge location.

FEES

1. To obtain and maintain coverage under this permit, the applicable fees provided in OAR 340-045-0075 must be received by the Department.

2. Permittees may, but are not required to prepay multiple years of coverage in advance.

3. Failure to pay applicable fees may result in termination of coverage under this permit. Coverage may be restored upon payment of the fee.

## SCHEDULE D

### GENERAL CONDITIONS

The following General Conditions are federal requirements to inform the person assigned to this General Discharge Permit of their legally binding compliance responsibilities. In the event of an enforcement action by DEQ, the procedures outlined in Oregon Administrative Rule 340 Division 12 will be followed.

**SECTION A. STANDARD CONDITIONS**

1. Duty to Comply

   The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and is grounds for enforcement action; for permit termination, suspension, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations

ORS 468.140 allows the Director to impose civil penalties up to $10,000 per day for violation of a term, condition, or requirement of a permit.

Under ORS 468.943, unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to $25,000 imprisonment for not more than one year, or both. Each day on which a violation occurs or continues is a separately punishable offense.

Under ORS 468.946, a person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a Class B felony punishable by a fine not to exceed $200,000 and up to 10 years in prison.

3. Duty to Mitigate

The permittee must take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions

Coverage under this permit may be suspended, revoked and reissued, or terminated for cause including, but not limited to, in response to any of the following:

a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;
b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts; or
c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
d. The permittee is identified as a Designated Management Agency or allocated a wasteload in a water quality management plan in a Total Maximum Daily Load.

6. Property Rights

Coverage under this permit does not convey any property rights of any sort, or any exclusive privilege.

## SECTION B. MONITORING AND RECORDS

1. Representative Sampling

Sampling and measurements must be taken as required in Schedule B.

2. Monitoring Procedures

Turbiditmeters must be calibrated prior to their use.

3. Penalties for Tampering and Falsification

Persons who falsify, tamper with, or knowingly render inaccurate a turbidimeter used to determine compliance with this permit may, upon conviction, be punished by a fine of not more than $10,000 per violation, imprisonment for not more than two years, or both.

4. Retention of Records

The permittee must retain records of all monitoring information, including all calibration and maintenance records for this permit for a period of at least 3 years from the date of the sampling or measurement

5. Inspection and Entry

The permittee must allow the Director or an authorized representative upon the presentation of credentials to:

a. Enter upon the permittee's premises where suction dredging occurs, or where records are kept under the conditions of this permit;
b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

## SECTION C. REPORTING REQUIREMENTS

1. Twenty-Four Hour Reporting

The permittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office must be called. Outside of normal business hours, the Department must be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission must also be provided within 5 days of the time the permittee becomes aware of the circumstances. Pursuant to ORS 468.959 (3) (a), if the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days of the time the permittee becomes aware of the circumstances. The written submission must contain:

a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected;
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and

The following must be included as information that must be reported within 24 hours under this paragraph:

a. Any upset that exceeds any effluent limitation in this permit.
b. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

2. Duty to Provide Information

The permittee must furnish to the Department within a reasonable time any information that the Department may request to determine compliance with this permit. The permittee must also furnish to the Department, upon request, copies of records required to be kept by this permit.

3. Spill Reports

The permittee must notify the Department of any spills of petroleum products into waters of the State.

Attachment A2

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

# Rulemaking Proposal
for
# NPDES General Permit 700-PM Renewal

## Proposed Rule Changes

**340-045-0033**

**General Permits**

(1) The Director may issue general permits for certain categories of minor discharge sources or minor activities where individual NPDES or WPCF permits are not necessary to adequately protect the environment. Before the Director can issue a general permit, the following conditions must be met:

(a) There must be several minor sources or activities that involve the same or substantially similar types of operations.

(b) The sources or activities must have the potential to discharge or dispose of the same or similar types of wastes.

(c) The general permit must require the same or similar monitoring requirements, effluent limitations and operating conditions for the categories.

(d) The category of sources or activities would be more appropriately controlled under a general permit than an individual permit.

(e) The Commission has adopted the general permit into rule by reference.

(2) General permits issued after the effective date of this rule will specify the following:

(a) The requirements to obtain coverage under a general permit, including application requirements and application submittal deadlines. The Department may determine that submittal of an application is not necessary after evaluating the type of discharge, potential for toxic and conventional pollutants in the discharge, expected discharge volume, availability of other means to identify dischargers, and estimated number of dischargers to be covered by the permit. The Department's evaluation must be provided in the public notice for the general permit.

(b) The process used by the Department to notify a person that coverage under a general permit has been obtained and the discharge or activity is authorized.

(3) Although general permits may include activities throughout the state, they may also be restricted to more limited geographical areas.

(4) Prior to issuing a general permit, the Department will follow the public notice and participation procedures outlined in OAR 340-045-0027, 340-045-0035(3), and ORS 183.325 to 183.410. In addition the Department will make a reasonable effort to mail notices of pending actions to those persons known by the Department who are likely to be covered by the general permit.

(5) Any person operating a discharge source or conducting an activity described in a general permit must apply for coverage under the general permit, unless the general permit does not require submission of an application pursuant to (2)(a) of this rule or the source or activity is specifically covered by an individual NPDES or WPCF permit. Any person seeking coverage under a general permit must submit an application as required under the terms of the applicable NPDES or WPCF general permit. If application requirements are not specified in the general permit, procedures in OAR 340-045-0030 or 340-071-0162, whichever is applicable, must be followed. A person who fails to submit application in accordance with the terms of the general permit, OAR 340-045-0030 or 340-071-0162, whichever is applicable, is not authorized to conduct the activity described in the permit.

(6) Any person required to have coverage under a general permit must pay permit fees as required in OAR 340-045-0070 to 340-045-0075 or 340-071-0140 to obtain and maintain coverage under that permit.

(7) Any permittee covered by an individual NPDES or WPCF permit may request that the individual permit be canceled or allowed to expire, and that it be covered by a general permit if its discharge or activity may be covered by an existing general permit. As long as the permittee is covered by an individual NPDES or WPCF permit, the conditions and limitations of the individual permit govern, until such time as it is canceled or expires.

(8) Any person not wishing to be covered by a general permit may make application for an individual permit in accordance with OAR 340-045-0030 or 340-071-0162, whichever is applicable.

(9) The Director may revoke coverage and authorization under a general permit pursuant to OAR 340-045-0060 as it applies to any person and require such person to apply for and obtain an individual NPDES or WPCF permit. Any interested person may petition the Director to take action under this section. Cases where an individual permit may be required include the following:

(a) The discharge or activity is a significant contributor of pollution or creates other environmental problems;

(b) The permittee is not in compliance with the terms and conditions of the general permit, submitted false information, or is in violation of any applicable law;

(c) A change occurs in the availability of demonstrated technology or practices for the control or abatement of pollutants being discharged;

(d) For NPDES general permits, effluent limitation guidelines are promulgated for point sources covered by a general permit and the guidelines are not already in the general permit; or

(e) Circumstances have changed so that the discharge or activity is no longer appropriately controlled under a general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary.

(10) The following general permits are adopted by reference in this rule and available for review at the Department:

(a) NPDES 200-J, Filter backwash (issued August 29, 1997)

(b) NPDES 500-J, Boiler blowdown (issued August 29, 1997)

(c) WPCF 600, Offstream placer mining (issued April 9, 1997)

(d) NPDES 700-~~J~~PM, Suction dredges (issued ~~May 3, 1999~~[date rule filed with Secretary of State])

(e) WPCF 800, Confined animal feeding operations (issued August 8, 1990)

(f) NPDES 900-J, Seafood processing (issued June 7, 1999)

(g) WPCF 1000, Gravel mining (issued July 26, 2002)

(h) NPDES 1200-A, Storm water runoff from sand, gravel & non-metallic quarrying & mining in Standard Industrial Classification (SIC) 14, asphalt mix batch plants, and concrete batch plants. Facilities may qualify for a conditional exclusion from the requirement to obtain a permit if there is no exposure of industrial activities and materials to storm water pursuant to 40 CFR §122.26(g); see permit for details. (issued July 26, 2002)

(i) NPDES 1200-C, Storm water runoff from construction activities, including clearing, grading, and excavation, and stockpiling that disturbs five or more acres, including activities that will disturb five or more acres over time as part of a larger common plan of development; effective December 1, 2002, construction activities that disturb one or more acre are covered (issued February 20, 2001)

(j) NPDES 1200-CA, Government agencies responsible for storm water runoff from construction activities that disturbs five or more acres; effective December 1, 2002, construction activities that disturb one or more acres are covered (issued February 20, 2001)

(k) NPDES 1200-COLS, Storm water runoff in the Columbia Slough watershed from industrial activities listed in 8(l) of this rule (issued December 22, 1999)

(l) NPDES 1200-Z, Storm water runoff from: Warehousing in SIC 4221-4225; Food processing in SIC 20; Landfills, land app. sites; Heavy industrial in SIC 28, 29, 30, 31, 32, 33 & steam electric power generating (includes coal/hogged fuel handling); Light mfg. in SIC 34, 35, 36, 37, 38 & 39 includes ship & boat building/repair; Printing in SIC 27; Textile & apparel mfg. in SIC 22 & 23; Transportation in SIC 40, 41, 42, 43, 44, 45 & 5171; Wood products mfg. in SIC 24 &

25; Metal scrap yards, battery reclaimers & auto salvage yards in SIC 5015 & 5093; Hazardous waste treatment, storage, & disposal facilities. Facilities may qualify for a conditional exclusion from the requirement to obtain a permit if there is no exposure of industrial activities and materials to storm water pursuant to 40 CFR §122.26(g); see permit for details. (issued July 26, 2002)

(m) NPDES 1300-J, Oily storm water runoff and oil/water separators (issued January 11, 2000)

(n) WPCF 1400-A, Seasonal food processing & wineries, less than 25,000 gallons/day (issued August 22, 2000)

(o) WPCF 1400-B, Other food processing, less than 25,000 gallons/day (issued August 22, 2000)

(p) NPDES 1500-A, Petroleum hydrocarbon cleanups discharged to surface waters (issued August 22, 2000)

(q) WPCF 1500-B, Petroleum hydrocarbon cleanups (issued August 22, 2000)

(r) NPDES 1700-A, Vehicle and equipment wash water discharged to surface waters (issued March 5, 1998)

(s) WPCF 1700-B, Vehicle and equipment wash water (issued March 5, 1998)

(t) NPDES 1900-J, Non-contact geothermal heat exchange (issued September 11, 1997)

(u) NPDES 01, Confined animal feeding operations (issued October 1, 2003)

Stat. Auth.: ORS 468.020, ORS 468B.020 & ORS 468B.035
Stats. Implemented: ORS 468.065, ORS 468B.015, 468B.035 & ORS 468B.050
Hist.: DEQ 28-1980, f. & ef. 10-27-80; DEQ 15-2000, f. & cert. ef. 10-11-00; DEQ 13-2001, f. & cert. ef. 10-16-01; DEQ 8-2002, f. & cert. ef. 8-9-02; DEQ 14-2002, f. & cert. ef. 10-16-02; DEQ 12-2003, f. & cert. ef. 9-2-03

**340-045-0070**

**Permit Fees**

(1) Except for a person assigned to the 700-PM general permit, a~~A~~ person required to have a WPCF or NPDES permit is subject to a three-part fee consisting of the applicable uniform non-refundable filing fee, application processing fee, and annual compliance determination fee in OAR 340-045-0075.

(a) The amount equal to the filing fee, application processing fee, and the first year's annual compliance determination fee must be submitted with any application for a new NPDES or WPCF permit.

(b) The amount equal to the filing fee and application processing fee, if applicable, must be submitted with any application for renewal or modification of a NPDES or WPCF permit.

(c) When a governmental entity has an agreement with the department to assist with implementation of a general permit, the department may in that agreement lower the general permit fees established in OAR 340-045-0075 and allow the governmental entity to collect the fee for the department and retain a portion of the fee for its services.

(2) The applicable annual compliance determination fee in OAR 340-045-0075(7) must be paid for each year a disposal system is in operation or during which a discharge to public waters occurs.

(a) The fee period corresponds with the state's fiscal year (July 1 through June 30) and must be paid annually by the date specified by the Department.

(b) Any annual compliance determination fee submitted as part of an application for a new NPDES or WPCF permit applies to the fiscal year the permitted facility is put into operation.

(c) For the first fee period a facility is placed into operation, the full annual compliance determination fee applies if the facility is placed into operation on or before May 1. No annual compliance determination fee applies for that initial year if the facility is placed into operation after May 1.

(d) The Director may alter the due date for the annual compliance determination fee upon receipt of a justifiable request from a permittee. The Commission may reduce or suspend the annual compliance determination fee if a hardship is demonstrated.

(3) A filing fee and application processing fee are not required for modification of an existing, unexpired permit if the Department initiates the modification and determines the modification does not require refiling or Department review of an application, plans, or specifications.

(4) After the Department accepts an application for filing, the filing fee is non-refundable.

(5) The application processing fee submitted with an application may be refunded in whole or in part if the Department determines that:

(a) A permit is not required; or

(b) The wrong application was filed.

(6) All fees must be made payable to the Department of Environmental Quality or the Department's agent.

(7) A person assigned to the 700-PM general permit must pay either an annual fee or an optional 5-year permit registration fee according to the schedule provided in OAR 340-045-0075. The applicable fee must be submitted with the permit application and is non-refundable unless the Department or the Department's agent determines that the permittee cannot be assigned to the general permit. Fees must be made payable to the Department of Environmental Quality.

(a) An annual fee must be paid at the time of application, and on or before June 1 for each following year that the permit is valid.

Stat. Auth.: ORS 454.625, 454.745, 468.020, 468B.020 & 468B.035
Stats. Implemented: ORS 454.745, 468.065, 468B.015, 468B.035 & 468B.050
Hist.: DEQ 113, f. & ef. 5-10-76; DEQ 129, f. & ef. 3-16-77; DEQ 31-1979, f. & ef. 10-1-79; DEQ 18-1981, f. & ef. 7-13-81; DEQ 12-1983, f. & ef. 6-2-83; DEQ 27-1994, f. & cert. ef. 11-15-94; DEQ 2-2002, f. & cert. ef. 2-12-02; DEQ 7-2004, f. & cert. ef. 8-3-04

**340-045-0075**

**Permit Fee Schedule**

(1) The fee schedule for onsite sewage disposal system permits, including WPCF permits, is found in OAR chapter 340, division 071.

(2) For permits administered by the Oregon Department of Agriculture, the following fees are applicable until superseded by a fee schedule established by the Oregon Department of Agriculture.

(a) WPCF General Permits #800 for Confined Animal Feeding Operations Filing Fee -- $50

(b) Other General Permits:

(A) Filing Fee -- $50

(B) New Applications -- $235

(C) Permit Renewals -- $35

(D) Annual Compliance Determination Fee -- $275

(c) Individual Permits:

(A) Filing Fee -- $50

(B) New Applications -- $6,280

(C) Permit Renewals (including request for effluent limit modifications) -- $3,140

(D) Permit Renewals (without request for effluent limit modifications) -- $1,416

(E) Permit Modifications (involving increase in effluent limit modifications) -- $3,140

(F) Permit Modifications (not involving an increase in effluent limitations) -- $500

(G) Annual Compliance Determination Fee for dairies and other confined feeding operations -- $705

(H) Annual Compliance Determination Fee for facilities not elsewhere classified with disposal of process wastewater -- $1,885

(I) Annual Compliance Determination Fee for facilities not elsewhere classified that dispose of non-process wastewater (e.g., small cooling water discharges, boiler blowdown, filter backwash, log ponds) -- $1,180

(d) Annual Compliance Determination Fee for facilities that dispose of wastewater only by evaporation from watertight ponds or basins -- $705

(3) The Department must consider the following criteria when classifying a facility for determining applicable fees.

(Note: Different classifications for NPDES-permitted facilities are used for reporting to the Environmental Protection Agency.)

(a) *Major industries:*

(A) Discharges large biochemical oxygen demand loads; or

(B) Is a large metals facility; or

(C) Has significant toxic discharges; or

(D) Has a treatment system that will have a significant adverse impact on the receiving stream if not operated properly; or

(E) Any other industry that the Department determines needs special regulatory control.

(b) *Major domestic:*

(A) Serves more than 10,000 people; or

(B) Serves industries that can have a significant impact on the treatment system.

(c) *Minor domestic (see OAR 340-045-0075(7)(a) for descriptions of domestic categories):*

(A) Does not meet major domestic qualifying factors; or

(B) Is a facility in categories Da or Db and discharges to surface waters; or

(C) Is a facility in categories E or F that does not discharge to surface waters and is under a Water Pollution Control Facilities permit.

(4) Filing Fee. Unless waived by this rule, a filing fee of $60 must accompany any application for issuance, renewal, modification, or transfer of a NPDES permit or WPCF permit, including registration for a General Permit pursuant to OAR 340-045-0033 and request for a Special Permit pursuant to OAR 340-014-0050. This fee is non-refundable and is in addition to any other applicable application processing fee or annual compliance determination fee. Filing fees are waived for the following facilities:

(a) ~~Small g~~Gold mining suction dredges that qualify for General Permit 700-PM ~~and have an intake hose diameter of four inches or less~~;

(b) Small gold mining operations that qualify for General Permit 600 and can process no more than five cubic yards of material per day.

(5) Application Processing Fee. Unless waived by this rule, the applicable application processing fee in this section must be submitted with each application. The amount of the fee is based on the type of facility and the required action.

(a) *New Applications:*

(A) Major industries -- $37,680

(B) Minor industries -- $7,535

(C) Major domestic -- $24,000

(D) Minor domestic:

(i) Categories Da, Db -- $4,800

(ii) Category E -- $2,400

(iii) Category F -- $600

(iv) Agricultural -- $7,535

(E) NPDES Phase II Small MS4 Permit -- $280

(b) *Permit Renewals (including request for effluent limit modification):*

(A) Major industries -- $18,840

(B) Minor industries -- $3,765

(C) Major domestic -- $12,000

(D) Minor domestic:

(i) Categories Da, Db -- $2,400

(ii) Category E -- $1,200

(E) Agricultural -- $3,765

(c) *Permit Renewals (without request for effluent limit modification):*

(A) Major industries -- $9,420

(B) Minor industries -- $1,415

(C) Major domestic -- $6,000

(D) Minor domestic:

(i) Categories Da, Db -- $900

(ii) Category E -- $600

(iii) Category F -- $240

(E) Agricultural -- $1,415

(F) NPDES Phase II Small MS4 Permit -- $40

(d) *Permit Modifications (involving increase in effluent limitations):*

(A) Major industries -- $18,840

(B) Minor industries -- $3,765

(C) Major domestic -- $12,000

(D) Minor domestic:

(i) Categories Da, Db -- $2,400

(ii) Category E -- $1,200

(E) Agricultural -- $3,765

(e) *Permit Modifications (not involving an increase in effluent limits):* All categories -- $600.

(f) *Special WPCF Permits issued pursuant to OAR 340-045-0061* -- $300.

(g) *Modifications of septage alkaline stabilization facilities permits* -- $240.

(h) *New General Permits by permit number:*

(A) 100, 200, 400, 500, 600 (over 1,500 cubic yards per year), 900, 1000, 1400-A -- $95

(B) 300, 1300, 1400-B, 1500, 1600 -- $185

(C) All other 1200, 1700 -- $280;

(D) Others not elsewhere specified -- $280

(E) The following fees are required in addition to the fees in paragraphs (5)(h)(A) through (D) of this subsection when the activities are required for the application review:

(i) Disposal system plan review -- $375

(ii) Site inspection and evaluation -- $940

(i) *Renewal of General Permits as listed in subsection (2)(h) of this rule* -- $40.

(j) *Application processing fees described in subsections (2)(h) and (i) of this rule are waived for the following facilities:*

(A) Small gold mining operations that qualify for General Permit 600 and process no more than five cubic yards of material per day or less than 1,500 cubic yards of material per year.

(B) ~~Small g~~Gold mining suction dredges that qualify for General Permit 700-PM.

(6) Technical Activities Fee. A permittee must pay a fee for NPDES and WPCF permit-related technical activities. A fee will be charged for initial submittal of engineering plans and specifications. Fees will not be charged for revisions and resubmittals of engineering plans and specifications or for facilities plans, design studies, reports, change orders, or inspections. The fee is as follows:

(a) New or substantially modified sewage treatment facility -- $5,520

(b) Minor sewage treatment facility modifications and pump stations -- $600

(c) Pressure sewer system or major sewer collection system expansion -- $420

(d) Minor sewer collection system expansion or modification -- $120

(e) New or substantially modified water pollution control facilities using alkaline agents to stabilize septage -- $600.

(7) Annual Compliance Determination Fee Schedule. Unless waived by this rule, annual compliance determination fees are as follows:

(a) *Domestic Waste Sources -- Annual compliance determination fee is based on dry weather design flow, population served by facility, type of facility, and applicable special fees as follows:*

(A) Category A1: Sewage Disposal -- 50 MGD or more -- $50,890

(B) Category A2: Sewage Disposal -- At least 25 MGD but less than 50 MGD -- $29,410

(C) Category A3: Sewage Disposal -- At least 10 MGD but less than 25 MGD -- $13,220

(D) Category Ba: Sewage Disposal -- At least 5 MGD but less than 10 MGD -- $8,040

(E) Category Bb: Sewage Disposal -- At least 5 MGD but less than 10 MGD -- Systems where treatment occurs in lagoons that discharge to surface waters -- $3,680

(F) Category C1a: Sewage Disposal -- At least 2 MGD but less than 5 MGD -- $5,010

(G) Category C1b: Sewage Disposal -- At least 2 MGD but less than 5 MGD -- Systems where treatment occurs in lagoons that discharge to surface waters -- $2,190

(H) Category C2a: Sewage Disposal -- At least 1 MGD but less than 2 MGD -- $3,010

(I) Category C2b: Sewage Disposal -- At least 1 MGD but less than 2 MGD -- Systems where treatment occurs in lagoons that discharge to surface waters -- $1,270

(J) Category Da: Sewage Disposal -- Less than 1 MGD and not otherwise categorized under category E -- $1,145

(K) Category Db: Sewage Disposal -- Less than 1 MGD -- Systems where treatment occurs in lagoons that discharge to surface waters that are not otherwise categorized under Category E -- $750

(L) Category E: Sewage Disposal systems where treatment is limited to lagoons that do not discharge to surface waters -- $720

(M) Category F: Septage alkaline stabilization facilities -- $240

(N) Category G: Sources determined by the Department to administer a pretreatment program pursuant to federal pretreatment program regulations (40 CFR, Part 403; January 28, 1981) must pay an additional $1,200 per year plus $400 for each significant industrial user specified in their annual report for the previous year.

(O) Category H: Population Based Fee -- All permittees must pay an annual fee computed as follows: population served by the facility multiplied by a rate of 0.09645.

(b) *Industrial, Commercial and Agricultural Sources (For multiple sources on one application select only the source with highest fee.):*

(A) Major pulp, paper, paperboard, hardboard, and other fiber pulping industry -- $11,300

(B) Major sugar beet processing, potato and other vegetable processing, and fruit processing industry -- $11,300

(C) Seafood Processing Industry:

(i) Bottom fish, crab, or oyster processing -- $1,270

(ii) Shrimp processing -- $1,270

(iii) Salmon or tuna processing -- $2,260

(iv) Surimi processing -- $2,260

(D) Electroplating industry (excludes facilities that do anodizing only):

(i) Rectifier output capacity of 15,000 amps or more -- $11,300

(ii) Rectifier output capacity of less than 15,000 amps but more than 5000 amps -- $5,650

(E) Primary Aluminum Smelting -- $11,300

(F) Primary smelting or refining of non-ferrous metals using sand chlorination separation facilities -- $11,300

(G) Primary smelting or refining of ferrous and non-ferrous metals not elsewhere classified above -- $5,650

(H) Alkalies, chlorine, pesticide, or fertilizer manufacturing with discharge of process waste waters -- $11,300

(I) Petroleum refineries with a capacity in excess of 15,000 barrels per day discharging process wastewater -- $11,300

(J) Cooling water discharges in excess of 20,000 BTU/sec -- $5,650

(K) Milk products processing industry that processes in excess of 250,000 pounds of milk per day -- $11,300

(L) Major mining operations (over 500,000 cubic yards per year) -- $11,300

(M) Minor mining or processing operations:

(i) Medium (100,000 to 500,000 cubic yards per year) mechanical processing -- $3,765

(ii) Medium using froth flotation -- $5,650

(iii) Medium using chemical leaching -- $7,535

(iv) Small (less than 100,000 cubic yards per year) mechanical processing -- $940

(v) Small using froth flotation -- $1,880

(vi) Small using chemical leaching -- $3,765

(N) All facilities not elsewhere classified with disposal of process wastewater -- $2,260

(O) All facilities not elsewhere classified that dispose of non-process wastewater (e.g., small cooling water discharges, boiler blowdown, filter backwash, log ponds) -- $1,415

(P) Dairies and other confined feeding operations on individual permits -- $845

(Q) All facilities that dispose of wastewater only by evaporation from watertight ponds or basins -- $845

(R) General permits, as listed under paragraphs (5)(h)(A) through (D) of this rule -- $330, except as follows:

(i) 1400-A -- $185

(ii) Annual compliance determination fees are waived for gold mining activities assigned to General Permits 600 and 700.

(c) *Storm Water: NPDES Phase II Small MS4 permit* -- $330

(8) NPDES General Permit 700-PM -- $25 for each year of registration or operator may prepay $100 for 5 years of registration under this permit.

Stat. Auth.: ORS 468.020, 468B.020 & 468B.035
Stats. Implemented: ORS 468.065, 468B.015, 468B.035 & 468B.050
Hist.: DEQ 113, f. & ef. 5-10-76; DEQ 129, f. & ef. 3-16-77; DEQ 31-1979, f. & ef. 10-1-79; DEQ 18-1981, f. & ef. 7-13-81; DEQ 12-1983, f. & ef. 6-2-83; DEQ 9-1987, f. & ef. 6-3-87; DEQ 18-1990, f. & cert. ef. 6-7-90; DEQ 10-1991, f. & cert. ef. 7-1-91; DEQ 9-1992, f. & cert. ef. 6-5-92; DEQ 10-1992, f. & cert. ef. 6-9-92; DEQ 30-1992, f. & cert. ef. 12-18-92; DEQ 20-1994, f. & cert. ef. 10-7-94; DEQ 4-1998, f. & cert. ef. 3-30-98; Administrative correction 10-22-98; DEQ 15-2000, f. & cert. ef. 10-11-00; DEQ 2-2002, f. & cert. ef. 2-12-02; DEQ 7-2004, f. & cert. ef. 8-3-04

Attachment B1

## Suction Dredge General Permit – Public Comments Received

| Commentor Number | Date(s) Received | Commentor |
|---|---|---|
| 1 | 3/3/05 | Al Hansen |
| 2 | 2/21/05 | Andrew Harrild |
| 3 | 2/14/2005 (h) | Anonymous |
| 4 | 2/6/2005 (h) | B. Park |
| 5 | 1/24/2005 (h) | Bert Aylward |
| 6 | 1/24/2005 (h) | Bob Hughes |
| 7 | 1/26 (o), 1/27/05 | Bob Mote |
| 8 | 1/12/2005 (h) | Bruce Parke |
| 9 | 1/24/2005 (h) | Chuck Olson |
| 10 | 3/2/2005 (h) | Dale and Marsha Demaris |
| 11 | 1/27 (o), 2/1 (o) 2/3 (o), 2/9/05 | Dave Kelsea |
| 12 | 2/10/2005 (h) | David Bargelt |
| 13 | 12/24, 12/29/04 | David Beals |
| 14 | 2/1(h, o),2/2,3/4/05 | David McCallister |
| 15 | 1/26/2005 (h) | Delbert McGlachlin |
| 16 | 2/15/05 | Dennis Price |
| 17 | 2/3/05 | Dennis R. Ades |
| 18 | 1/24/2005 (h) | Diane Lewallan Partee |
| 19 | 2/2/2005 (h) | Don Peterson |
| 20 | 3/3/2005 (h) | Don Young |
| 21 | 2/11/05 | Doug Heiken |
| 22 | 1/8, 1/25/2005 (h), 2/6 | Ed Hardt |
| 23 | 1/24/2005 (h) | Edward A. and Jackie M. Bechtel |
| 24 | 2/28/2005 (h) | Emory Cameron |
| 25 | 3/1/05, 3/1/2005 (h) | Equal Access to Justice |
| 26 | 1/24/2005 (h) | Esa Murrell (dup. comments rec. 1/27) |
| 27 | 1/24/2005 (h) | Frank Hannigan |
| 28 | 1/17/05 | Fred Bartow |
| 29 | 2/10/2005 (h) | Fred Strebe |
| 30 | 2/2/2005 (h) | Gene and Marcy Terry |
| 31 | 3/4/05 | Gene Gattenby |
| 32 | 2/3/05 | George Brown |
| 33 | 1/25/2005 (h) | George Cameron |
| 34 | 2/14/05 (h) | Gerald Klope |
| 35 | 12/28/04, 1/27, 2/3 (h), 2/5, 2/25/05 | Guy Michael (hardcopy received At Baker City public hearing) |
| 36 | 12/25/04 | Harrison Colby |
| 37 | 3/3/05 | Howard Charleboix |
| 38 | 2/6, 2/9/2005 (h) | Howard Conner |
| 39 | 2/17/05 | James O'Connor |
| 40 | 2/11/05 | James Sheldon, Connie Jones, Ed Bolduc (tracerjones@bellsouth.net) |
| 41 | 2/19, 2/3 (o), 3/4, 3/3/2005 (h) | Jan Alexander |
| 42 | 2/28/05 | JB Brock |
| 43 | 2/1 (o), 2/16 (fax), 3/4, | Jeff Boatwright |

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| | 3/4/2005 (h) | |
| 45 | 2/1 (o, h), 2/3/05 (o, h) | Jim and Creagh Williams ( hardcopy submitted at Baker and Grants Pass public hearings) |
| 46 | 1/26 (h, o), 1/27 (o), 2/1 (o), 2/3, 2/7, 3/1/05 | Jim Foley |
| 47 | 1/24/2005 (h) | Joe Cox |
| 48 | 1/12/05 | Joe Johnston |
| 49 | 1/9, 3/4/05 | Joe Mann |
| 50 | 2/14/2005 (h) | John Foster |
| 51 | 1/21/2005 (h) | John Golden |
| 52 | 1/24/2005 (h) | John Hays |
| 53 | 3/3/2005 (h) | John Lesisz |
| 54 | 1/26 (o), 1/27 (o), 2/8/05 | John Tschannen |
| 55 | 1/19/05 | Johnandcene |
| 56 | 1/27 (o), 2/1 (o), 2/6/2005 (h) | Joseph C. Greene |
| 57 | 1/27 (o), 2/2, 3/3/05 | Larry M. Chase |
| 58 | 1/26/2005 (h) | Leroy Hackbart |
| 59 | 1/26/2005 (h) | LeRoy Knott and Association |
| 60 | 2/1 (o), 3/2/05 | Lesa Barton |
| 61 | 1/27 (o), 3/4/05 | Louie Frick |
| 62 | 2/16/2005 (h) | LRC Global |
| 63 | 1/27/05,(h) | Mark Wagnell (hardcopy submitted at Salem public hearing) |
| 64 | 3/3/05 | Melissa Powers |
| 65 | 1/20/2005 (h) | Michael Dunican |
| 66 | 2/21/05 | Mike Auxier |
| 67 | 2/23/2005 (h) | Mike Tildon |
| 68 | 1/24/2005 (h) | Miners Permit Committee (at Rep. Anderson Meeting) |
| 69 | 2/25, 3/4/05 | Nancy Hinke |
| 70 | 2/8/2005 (h) | Nancy Steele |
| 71 | 1/26/2005 (h) | Nils Christensen |
| 72 | 3/3/2005 (h) | Pacific Environmental Advocacy Center |
| 73 | 2/11/05 (h) | Pacific Northwest Treasure Hunters Assoc. |
| 74 | 2/24/05 | Pamela Wright |
| 75 | 2/20/05 | Paul & Susan Messersmith |
| 76 | 2/1/2005 (h) | Pete Clapshaw |
| 77 | 1/20/2005 (h) | Ray Andrews (dup. comments rec. 1/24) |
| 78 | 2/14/05 | Ray Moore |
| 79 | 12/27/04 | Ray Stanis |
| 80 | 2/9/2005 (h) | Richard F. and Donald L. Kelly |
| 81 | 2/4/2005 (h) | Richard Gorrell |
| 82 | 1/31/05 (h) | Rodney Dewey |
| 83 | 2/10/05 | Ronald Wilson |
| 84 | 12/26/04 (2), 1/23/05 | Russ Pearce |
| 85 | 12/26/04 | Sandy Brown |
| 86 | 1/25/05 | Scott Harn |
| 87 | 2/1/05 (o, h) | Shirley Tinney |
| 88 | 2/7/2005 (h) | Stan Baker |
| 89 | 2/16/05 (h) | Steve and Freeda Graham |
| 90 | 2/24/05 | Steve Williamson |
| 91 | 2/1 (o), 2/2, 3/1, 3/2, 3/3, 3/4/05 (2) | Tom Kitchar |
| 92 | 1/11, 1/27 (o, h), 3/4/05 (h) | Tom Quintal |
| 93 | 12/25/04, 1/26/05 (o) | Tony Massimilla |
| 94 | 2/15/05 | Trudy Schrader |

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| 95 | 2/14/05 | William Jones (Jenniferlev@aol.com) |
| 96 | 1/24/2005 (h) | Zen Cutting |
| 97 | 1/26/05 (o) | Ted Stayley |
| 99 | 1/26/05 (o) | Butch Wilson |
| 100 | 1/26/05 (o) | Sue Beard Buckholtz |
| 101 | 2/6/05 | Kenneth Anderson |
| 102 | 2/16/05 | Melvin Terry |
| 103 | 2/1 (o), 2/3/05 (o) | Justin Peterson |
| 104 | 2/1/05 (o) | Loren Kirkland |
| 105 | 2/1/05 (o) | John Goldman |
| 106 | 2/1/05 (o) | Frank Serrone |
| 107 | 2/1/05 (o) | John Leshis |
| 108 | 2/1/05 (o) | Allen Knight |
| 109 | 2/1/05 (o) | Matt Vegor |
| 110 | 2/1/05 (o) | William Pitner |

(o) ⇔ Oral public testimony
(h) ⇔ hardcopy

# Attachment B2

## Response to Public Comment

The largest proportion public comment for the proposed 700-J General Permit was in regard to the proposed permit turbidity requirements and the effects of turbidity on water quality. In addition, the Department received a large volume of comments questioning the Department's authority to issue the 700-J permit. The Department is providing a legal opinion from the Oregon Department of Justice to address commentors various concerns regarding DEQ's authority to issue an NPDES permit for suction dredge operations. The DOJ opinion is provided as Attachment B3.

| Commentors | Comment | Response |
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| **Legal Basis** | | |
| 14, 61, 92 | DEQ has no authority to regulate beyond Congressional intent to exempt the mining community, as expressed in the Clean Water Act. | See DOJ Opinion |
| 100, 46, 14, 57, 83, 61, 75, 41, 92, 35 | Dredging is not regulated by the federal Clean Water Act. Many of these commentors referred to "small-scale" suction dredging. | See DOJ Opinion |
| 38, 41, 91 | Recreational and small scale suction dredging is not a point source discharge of pollution and therefore does not require a NPDES permit. | See DOJ Opinion |
| 11, 54, 105 | DEQ lacks the authority to regulate suction dredging under the Clean Water Act. | See DOJ Opinion |
| 43 | What statutory section of the Clean Water Act applies to suction dredging? | Title IV Section 402 |
| 11 | DEQ cannot apply this permit to a recreational miner or a mining claim owner. | There is no exemption for recreational mining or for mining claim owners under the NPDES permit program. Also see DOJ Opinion |
| 92 | Any NPDES permit issued by DEQ that affects the mining community is unlawful. | See DOJ Opinion |
| 14 ,11 | Oregon Legislative Representatives have written that NPDES permits are mainly for municipal water treatment plants, and the mining community should be removed from the 700-J NPDES Permit. | See DOJ Opinion |
| 91 | The state regulation of turbidity is unlawful because federal law says turbidity is not a form of pollution. | The federal Clean Water Act includes the broad category of dredge spoil in the definition for the term "pollutant". EPA also has federal water quality criteria that specifically sets recommended values for suspended solids and turbidity. Also see DOJ Opinion |
| 46, 14, 61, 75, 11, 92, 68 | The Clean Water Act and its compliance penalties apply to industry, not suction dredging. DEQ has manipulated and misinterpreted NPDES requirements to include suction dredging as a facility that requires a permit. | See DOJ Opinion |
| 46 | Writing a regulation that says an NPDES permit | See DOJ Opinion |

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| | is required is in conflict with federal law. | |
| 4 | DEQ has no legal authority to issue an NPDES permit on federal lands. | See DOJ Opinion |
| 25, 31 | U.S. EPA does not have jurisdiction over suction dredge mining operations. Dredge spoil from a suction dredge is administered by the Secretary of the Army, not EPA. The 700-J permit is invalid, and therefore, the proposed renewal is invalid. | See DOJ Opinion |
| 45, 70, 46, 83, 11, 56, 35 | Incidental fallback is a not a pollutant subject to regulation. | See DOJ Opinion |
| 38, 91 | Moving streambed material from one location to another is not a discharge requiring a NPDES permit. | See DOJ Opinion |
| 45, 70, 46 | The federal Clean Water Act specifically defines dredge material as non-pollutants. | See DOJ Opinion |
| 46 | Turbidity is not a pollutant. | See DOJ Opinion and OAR 340-041-0002(39) |
| 35 | NPDES permits do not regulate turbidity from small scale mining. Oregon's turbidity standard could be incorporated into a state permit | See DOJ Opinion |
| 35 | The state may need to amend ORS 468B to include statutory provisions that will allow a State permit outside of the NPDES system. | Comment is not relevant to the proposed permit. Also see DOJ Opinion |
| 1, 49, 11, 91, 8 | The permit should be issued under Section 404 of the federal Clean Water Act, not Section 402. | See DOJ Opinion |
| 35 | Both Sections 404 and 402 do no apply to small scale placer mining; therefore, DEQ cannot issue an NPDES permit. | See DOJ Opinion |
| 25, 31 | Suction dredge operators will also have to comply with Section 404 of the CWA. | See DOJ Opinion |
| 25, 31 | Because DEQ failed to inform the public that an additional 404 permit is required, the public has not been fully informed. | See DOJ Opinion |
| 25, 31 | Should the state of Oregon apply for a 404 general permit for suction dredge mining operations, the state must declare conflict of interest information. | Comment is not related to the proposed permit. |
| 63, 65, 83, 11, 56, 41, 20 | The Army Corp of Engineers has decided that operating dredges of 4 inches or less are a deminimus activity. | See DOJ Opinion |
| 92, 87, 14, 61, 1, 68 | DEQ has no authority outside of federal Title 40 and no other delegated authority other than for leachate collection or dredge and fill activities under Title 33 USC. | See DOJ Opinion |
| 1, 91, 8 | The permit must include studies of environmental impart and Consultation with proper agencies. | Renewal of a state-issued General Permit is not a federal action that requires Endangered Species Act Consultation with NOAA fisheries and U.S Fish and Wildlife. This General Permit renewal was developed and noticed according to all applicable state and federal requirements. |
| 25, 31, 8 | If EPA issues the suction dredge general permit, | EPA is not issuing the permit so the renewal is |

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| | they would have to recognize the federal Regulatory Flexibility Act. | not a federal action requiring recognition of the Regulatory Flexibility Act. |
| 92, 87, 14, 61, 75, 68 | DEQ has failed to provide adequate or meaningful notice of public hearing because DEQ has not provided the miners with sufficient knowledge of the underlying basis of the hearings. | DEQ provided adequate notice according to state law. In addition, and prior to the formal public notice, DEQ met with suction dredge representatives on numerous occasions to discuss the underlying legal basis, and rationale for preliminary permit conditions provided to them in 4 preliminary draft permits. |
| 14 | Since DEQ cannot issue an NPDES permit for suction dredging, it must create a special permit, a new administrative process, and conduct additional hearings. | See DOJ opinion |
| 92, 35, 19, 87, 14, 94, 68 | DEQ needs to provide legal references to their chain of authority to administer a NPDES for suction dredging. | See DOJ Opinion |
| 4 | Federal land use planning law preempt state land use planning requirements from applying to federal lands. | See DOJ Opinion |
| 4, 70, 46, 41, 91, 8, 35 | Federal Code of Regulations 40 CFR Part 440 Subpart M exempts placer mining in quantities less than 1500 cubic yards/year or dredges that process less than 50,000 cubic yards per year from NPDES permit requirements. | See DOJ Opinion |
| 35, 41, 91 | DEQ and EPA statements that suction dredging is a point source requiring a NPDES permit is in conflict with DEQ's Draft Turbidity Criteria that states suction dredging is non-point source of turbidity. | The referenced ***Draft Technical Basis for Revising Turbidity Criteria*** incorrectly lists "Dredging (commercial and recreational)" as one of the not-limited-to lists of anthropogenic non-point sources of turbidity. That document is still being modified based on comments received. It will be modified to correct that error. Suction dredge operations are point sources which require a NPDES permit in Oregon unless permitted under Section 404. |
| 4 | The Department of State Lands (DSL) cannot pre-empt 1872 mining law. | Comment is not related to the proposed permit. |
| 105 | The 1872 Mining Act can only be amended by Congress. DEQ is illegally circumventing federal law. | The suction dredge permit does not pre-empt the 1872 Mining Act. See DOJ Opinion |
| 94, 92 | DEQ should grant exclusions for miners that have mining rights under the 1872 Mining Act. | See DOJ Opinion |
| 8 | State requirements can't override federal statutes like the 1872 Mining Act, or land use authorities. | See DOJ Opinion |
| 88 | Part of the proposed suction dredge permit is illegal. | The suction dredge permit was developed according to federal and state NPDES permitting and public notice requirements. |
| 88, 22, 5, 52, 77, 27, 11, 103, 92, 68 | Miners will request compensation under measure 37 if the proposed permit is issued. | Measure 37 does not apply to federally mandated law. The federally delegated, state administered NPDES permit program is not subject compensation under Measure 37. |
| 76, 9, 18, 9, 52, | DEQ needs to develop a suction dredge permit | See DOJ Opinion. |

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| 98, 27, 77, 61, 11, 54, 92 | that is clear and does not prohibit miners from mining their mineral or else pay for the takings of the miner's property rights to these minerals. | |
| 46 | DEQ is incorrect in saying that their procedural, reporting, and monitoring requirements are the same as applicable federal law. | The comment is not correct. DEQ has delegated federal authority to implant the provisions of the Clean Water Act. Pursuant to Oregon Revised Statute 468B.035, " The Environmental Quality Commission may perform or cause to be performed any acts necessary to be performed by the state to implement within the jurisdiction of the state the provisions of the Federal Water Pollution Control Act, P.L. 92-500, as amended, and federal regulations or guidelines issued pursuant to the Act." |
| 14, 61, 92 | When is DEQ going to declare it intends to abandon or that it never intended the imposition of NPDES regulation upon mineral rights and mining community pursuits? | See DOJ Opinion |
| **Application Requirements** | | |
| 83 | An application is not needed if the permit is not required under the federal Clean Water Act. | See DOJ Opinion |
| 70 | The permit application should be one page and simple. | DEQ plans to keep the application as short and simple as possible; not longer than one or two pages. |
| 45 | The application requirements will make Oregon one of the hardest states to get a suction dredge permit. | The Department is not proposing any new application requirements. The application requirements are included as a part of the permit as required by OAR 340-045-0033. |
| 45, 46 | The proposed permit includes a provision for other entities to issue suction dredge permits. DEQ must include language to control how the permit is allowed or denied. | Other entities will not be issuing a new permit, but rather, will be assigning coverage under the new permit. DEQ will stipulate the criteria for denying or assigning permit coverage in any agreement developed with an outside entity. |
| 83 | The permit condition that allows for a commercial business to issue the permit will lead to corruption, and should be deleted. | DEQ includes the provision as a future option to streamline the application processing so that the permit could be provided over-the-counter. DEQ will retain this provision, and stipulate the criteria for denying or assigning permit coverage in any agreement developed with the commercial business. |
| 60 | The application turn-around time is too long to review the application and assign the permit. | DEQ expects approximately 1500 applicants to be assigned the permit within the first 30 days after the permit is effective. After that initial assignment phase, DEQ expects to be able to assign someone to the permit within a day or two, depending on whether the application is mailed or faxed. |
| 100, 85 | The proposed submission of an application 180 days before the permit expires needs to be changed. | That requirement is not new - it is required under OAR 340-045-0030, and federal 40 CFR 122. The condition is included in the permit as reference. |
| 60 | DEQ needs to notify permittees 240 day prior to | DEQ typically sends a letter to permit holders |

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| | permit expiration that they need to re-apply for the permit. | with applications for permit renewal nine months prior to the date the permit expires. |
| **Definitions** | | |
| 92 | Provide a definition for "Wet Perimeter" as the area of the stream that is underwater, or is exposed as a non-vegetative dry gravel gar island surrounded on all sides by actively moving water at time the activity occurs. | The definition for wet perimeter exists in state statute as it applies to scenic waterways. The Department of State Lands also refers to this definition in their essential salmon habitat requirements. DEQ will replace the term "active stream channel" with "wet perimeter" throughout the permit. |
| 45, 46, 83, 8 | The definition for "active stream channel" is confusing and unenforceable. Replace it with "high water mark". | The term "high watermark" has a number of meanings to include the seasonal high water mark which DEQ does not intend to imply. DEQ will replace the term "active stream channel" with "wet perimeter" throughout the permit to be consistent with state statute. |
| 45 | Background turbidity can change depending upon upstream activity, and could "shut down" the dredger until the upstream activity stops. | The suction dredge permit is applicable only to the suction dredge activity. DEQ will amend the permit to state that the applicable turbidity limits apply to the turbidity created by the dredge. |
| 83 | "Visible turbidity" has a different meaning for someone that has vision impairment. | One of the preliminary drafts included language relating visible turbidity to a person with 20/20 eyesight. DEQ did not include that language in the proposed permit based on comments received. DEQ believes that the definition has practical meaning and is appropriate as proposed. |
| 17 | Amend the definition for "gravel bar" to ensure it protects developing riparian areas capable of supporting perennial vegetation for future TMDLs. | The permit contains a provision that addresses what the permittee may be required to do if a TMDL is developed that requires further wate quality protections and waste load reductions. |
| **Discharge Limitations and Monitoring** | | |
| 53 | Allowing dredging only in the active stream channel (wet perimeter) is prohibitive. | DEQ is allowing for dredging of dry gravel bars up to 10 feet outside the wet perimeter of the stream for this permit renewal. |
| 41, 108 | Dredging should be allowed in gravel bars up to 10 feet outside the active stream channel provided the gravel bars are below the high water mark. | The final permit will allow dredging gravel bars up to 10 feet outside the wet perimeter of the stream. Adding the language "provided the gravel bars are below the high water mark" is confusing and does not add any clarity to the condition. |
| 103 | The permit needs to vary the distance of allowed dredging in dry gravel bars because each stream bank varies. | DEQ agrees that all rivers are not alike; some gravel bars could be dredged to a greater extent than others. The Department will retain the 10-foot distance for the final permit. DEQ plans to create a low-cost individual permit to provide this option if the permittee wants a permit to more closely fit a specific stream condition. |
| 1 | The permit should have language to say that dredging gravel bars is allowed within the stream channel width as long as the gravel bar is | The permit includes a definition for *wet perimeter* that references what currently exists in state statute that allows for dredging in gravel |

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| | apart from the active stream channel. | bars within the wet perimeter of the stream. |
| 21 | DEQ must consider all aquatic life and species present in the stream throughout the year to determine the protection level for the permit. | The state turbidity standard establishes the protection level that applies to discharges in all Oregon streams. DEQ must use the existing state standard that requires that the discharge create no more than 10 percent increase in turbidity above background levels. |
| 43 | DEQ has the power to lower a standard if the standard does not cause serious degradation to an aquatic ecosystem. DEQ must show specific degradation when applying a 3 NTU or 5 NTU protection level. | DEQ must use the existing state standard that requires that no more than a 10 percent increase is allowed for turbidity causing activities. This standard applies to all point source discharges that require an NPDES permit. |
| 65 | The only reason to limit turbidity is if turbid water enters a domestic water supply. | DEQ must use the existing state standard that requires that no more than a 10 percent increase is allowed for turbidity causing activities. This standard applies to all point source discharges that require an NPDES permit. |
| 65 | Federal discharge limits are only applicable to sources outside of a waterway that enter a waterway. | DEQ must use the existing state standard that requires that no more than a 10 percent increase is allowed for turbidity causing activities. This standard applies to all point source discharges that require an NPDES permit. |
| 56 | Any use of EPA criteria by DEQ requiring adherence to turbidity standards derived from data analyzing large river and high season flow events would be a gross misuse of published research if applied to turbidity caused by suction dredge operations. | DEQ must use the existing state standard that requires that no more than a 10 percent increase is allowed for turbidity causing activities. This standard applies to all point source discharges that require an NPDES permit. |
| 56 | A number of studies (cited) show that the effects of dredging on the benthic organisms are localized and temporary. | DEQ must use the existing state standard that requires that no more than a 10 percent increase is allowed for turbidity causing activities. This standard applies to all point source discharges that require an NPDES permit. |
| 56 | US EPA has ignored the US Army Corps of Engineer's official recognition that 4-inch and small dredges have inconsequential effects on aquatic resources | DEQ must use the existing state standard that requires that no more than a 10 percent increase is allowed for turbidity causing activities. This standard applies to all point source discharges that require an NPDES permit. |
| 38 | The entire section regarding the permit's discharge limitations need to be deleted because it poses the same arguments that illegal hazardous waste dumpers use for dumping in our worlds oceans. | Discharge limitations are required to be addressed in all NPDES permits. This section will be amended to require a 300 foot visible turbidity compliance distance for dredges with suction hoses greater than a 3-inch inside diameter. |
| 12, 45, 24, 62, 29, 38, 76, 26, 22, 9, 52, 98, 27, 77, 65, 46, 13, 55, 60, 49, 94, 56, 41, 11, 43 | Disagree with the technical basis for the turbidity limits. DEQ needs to provide adequate science and analysis to substantiate the turbidity limits. | DEQ will use the existing state turbidity standard of 10% above background in the final suction dredge permit without the provisions for allowing limited duration turbidity allowances and varying visible compliance distances. |
| 43 | It seems unnecessary and arbitrary that the proposed permit is more stringent than the | The suction dredge permit developed by EPA Region 10 for Alaska considered conditions |

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| | suction dredge permit developed by EPA Region 10. | appropriate for the beneficial uses of Alaskan waters, which are different than waters in Oregon. Also, an Oregon NPDES permit must apply the state turbidity standard. |
| 83 | The only justified measurable effect of turbidity is that it reduces sunlight. | DEQ must apply the existing state turbidity standard of 10 percent over background when establishing turbidity limits for the suction dredge permit. |
| 11 | DEQ should exempt turbidity requirements from dredges 4 inches and less. | For the final permit, DEQ will propose that dredges that have a suction hose with an inside diameter of 3 inches or less be exempt from turbidity discharge and monitoring requirements. DEQ is not going to require NTU limits in this permit. For dredges larger than 3 inches, DEQ will require that same compliance distance as in the previous permit – 300 feet downstream from the working dredge. |
| 80, 14, 33, 26, 22, 23, 9, 52, 77, 46, 16, 101, 57, 53, 56, 41, 103, 35, 43 | The proposed turbidity conditions are too low, not adequate, and too confusing. The majority of these commentors stated that DEQ should go back to the 300 foot turbidity visible compliance distance. | DEQ will use the existing state turbidity standard of 10% above background in the final suction dredge permit. DEQ will reissue the suction dredge permit using a 300 foot distance for dredges with suction hoses with an inside diameter greater than 3 inches. |
| 41 | Compliance distance should be 300-400 feet. If turbidity is visible at 400 feet, operations should be limited to 6 hours/day. | The final permit will retain the 300 foot compliance distance that was used in the expired 700-J and MAO. Allowing 6 hours per day of dredging regardless of the amount of turbidity discharged violates the state water quality standard that allows no more than a 10 percent increase above natural stream turbidity except for limited duration exceedances, which DEQ is not proposing to include in the final permit. |
| 68, 35 | The permit should allow 10 NTUs of turbidity to be discharged 180 hours each month (6 hours/day for 30 days). | For the final permit, DEQ will propose that dredges that have a suction hose with an inside diameter of 3 inches or less be exempt from turbidity discharge and monitoring requirements. DEQ is not going to require NTU limits in this permit. For dredges larger than 3 inches, DEQ will require that same compliance distance as in the previous permit – 300 feet downstream from the working dredge. |
| 41, 35 | Limited duration exceedances are allowed under state rules. DEQ should authorize 6 hours per day of limited turbidity exceedances which will result in less than 3 NTUs per 24 hour period. | Provisions for limited duration turbidity allowances will not be included in the final permit. DEQ will revisit the use of limited duration turbidity allowances for the next suction dredge permit renewal, after a new turbidity standard is established that will address turbidity exceedances. |
| 35, 70, 23 | Question why the draft permit requires different turbidity compliance distances (limits) for different stream widths. The volume of water or the flow should determine the compliance | For the final permit, DEQ will use the existing state turbidity standard of 10% above background in the final suction dredge permit without the provisions for allowing limited |

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| | distance. | duration turbidity allowances and varying visible compliance distances. The final permit will include a 300 foot visible turbidity distance for dredges with suction hoses with an inside diameter greater than 3 inches. |
| 94 | The exceedance conditions are good but fearful that the legislature will take them away. | DEQ will eliminate the exceedance provisions for the final permit and use the existing state turbidity standard of 10% above background for the revised suction dredge permit. The final permit will include a 300 foot visible turbidity distance for dredges with suction hoses with an inside diameter greater than 3 inches. |
| 35 | DEQ's limited duration allowance should be increased because the assumed 30 NTU protection limit allowed at the proposed compliance distances will not be met. | DEQ will eliminate the exceedance provisions for the final permit and use the existing state turbidity standard of 10% above background for the revised suction dredge permit. The final permit will include a 300 foot visible turbidity distance for dredges with suction hoses with an inside diameter greater than 3 inches. |
| 45, 83 | Complying with the limited duration turbidity allowance is confusing. | Provisions for limited duration turbidity allowances will not be included in the final permit. |
| 68 | It is not reasonable to subtract time from the limited duration turbidity allowance if the dredge is idling. | DEQ will eliminate the exceedance provisions and the requirement to log durations of visible turbidity in the final permit. |
| 99, 46 | The permit does not consider if upstream turbidity, created by another source should be considered when measuring the dredge turbidity. | Monitoring to comply with the permit is intended for turbidity *above background conditions*. Measuring turbidity with a turbidimeter will not be included in the final permit. The final permit will require that turbidity must not be present further than 300 feet downstream of the working dredge. |
| 88, 58 | 300 feet has always been the standard mixing zone; DEQ has provided no reason for shorter distances in the proposed permit. | DEQ provided reason for the shorter distances in the Evaluation Report that accompanied the draft permit. Regardless, the final permit will allow 300 feet as the compliance distance for dredges that have a suction hose with an inside diameter greater than 3 inches. |
| 11 | Dredge operations don't need a mixing zone since dredging is a deminimus activity. | Suction dredging, subject this General Permit is not a deminimus activity. |
| 88, 76, 58, 71, 33, 26, 5, 9, 18, 52, 98, 77 | DEQ should implement EPA's turbidity standard of 5 NTUs, 24 hours/day in place of the Oregon standard of 10 percent over background. | DEQ must apply the existing state turbidity standard because that is the current state requirement, approved by EPA. |
| 15, 6, 65, 16, 101, 55, 102 | Turbidity created by winter rains and flash floods are greater than the turbidity limits in the permit, or turbidity caused by dredging. | DEQ must apply the existing state turbidity standard of 10 percent over background when establishing turbidity limits for the suction dredge permit. |
| 63, 45, 62, 33, 26, 22, 23, 18, 6, 52, 98, 27, 101, 75, 41, 91, 61, 20, 68, 35 | Studies, including those from Forest Service fish biologists, show that suction dredge activity have little or no impact on fish, water quality or aquatic life. | DEQ must use the existing state standard as the protection level for activities that discharge turbidity. Studies that provide information regarding effects of turbidity will be considered by DEQ as part of revising the state turbidity |

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| | | standard that is currently underway. |
| 45, 70, 26, 6, 98, 46, 56, 41, 91, 35 | DEQ should not require that dredge operators move to another location after they have exceeded their limited duration turbidity allowance, in part, because it is worse for the stream environment. | Since provisions for limited duration turbidity allowances will not be included in the final permit, relocation will not be necessary. |
| 99 | The proposed permit does not say where on the river to monitor. | The proposed permit required monitoring to be conducted at the most visible part of the plume. The final permit will simply require that turbidity is not allowed to be visible more than 300 feet downstream from the working dredge. |
| 41 | Since it appears that DEQ will be writing a state permit instead of an NPDES, and include 6 hours of dredging per day, no monitoring will be necessary. | Because no limited duration turbidity allowance will be included in the final suction dredge permit, monitoring will be required once each day of operation for dredges that have suction hoses greater than 3 inches (inside diameter). |
| 45, 10, 29, 38, 80, 88, 19, 15, 97, 83, 54, 46, 17, 13, 55, 60, 49, 79, 83, 84, 85, 93, 40, 56, 91, 11, 20, 43 | The turbidimeter requirements are unreasonable, impractical, and create an economic hardship. | The final permit will not require that suction dredge operators use a turbidimeter. |
| 70 | Dredge operators should not have to use a turbidimeter if they keep a log and don't use their full turbidity allowance. | DED plans to eliminate the requirement for logs, limited turbidity allowances, and turbidimeter monitoring. |
| 54 | Monitoring for turbidity from multiple dredges needs to consider the size of the dredge. | DEQ will not propose specific monitoring requirements for multiple dredge operations in the final permit. |
| 60 | Multiple dredge operations should be given the same rules or even more lenient ones as single dredge operations. | Multiple dredges create more turbidity than a single dredge. However, the discharge and monitoring requirements of the suction dredge permit will be the same regardless of whether one or more dredges are operating. |
| 60 | Dredges under 4" should be not be monitored. Dredges over 5" should be allowed 1800 NTUs for every thirty days. | For the final permit, DEQ will propose that dredges that have a suction hose with an inside diameter of 3 inches or less be exempt from turbidity discharge and monitoring requirements. DEQ is not going to require NTU limits in this permit. For dredges larger than 3 inches, the department will require that same compliance distance as in the previous permit – 300 feet downstream from the working dredge. |
| 45, 83, 35 | Keeping a log of the limited duration turbidity allowance is confusing and unreasonable. | Provisions for limited duration turbidity allowances will not be included in the final permit, and therefore, a log will no longer be required. |
| 45, 10, 67, 38, 80, 98, 46, 13, 57, 103, 43 | Taking a turbidity reading every 2 hours is unreasonable and impractical. | Because no limited duration turbidity allowance will be included in the final suction dredge permit, monitoring will be required once each day of operation for dredges that have suction hoses greater than 3 inches (inside diameter). |

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| 43 | The permit should allow for monitoring with the "black disc method" developed by Newcomb. | The final permit will not require any mechanical monitoring for turbidity. |
| 80 | DEQ needs to provide a standard log book format. | Provisions for limited duration turbidity allowances will not be included in the final permit, and therefore, a log will no longer be required. |
| 38 | Dredge sizes should be separated in the permit because different dredge sizes impact the streambed to a different degree. | DEQ plans to revise the suction dredge permit to exempt dredges with suction hoses that are 3 inches or less (inside diameter) from turbidity requirements. Dredges larger than 3 inches will have to meet the existing turbidity standard of 10 percent over background at 300 feet downstream from the working dredge. |
| 88 | The permit does not apply to an 8 inch dredge, and my 8 inch dredge does not create visible turbidity beyond 300 feet on the North Burnt River. Applying for an individual permit will cost $10,000 compared to $50 for assignment to the 700-J. | The general permit is developed so that the vast majority of dredges can comply with the conditions of the permit on all Oregon streams. The Department will issue an inexpensive, individual permit for dredging scenarios outside the scope of the general suction dredge permit. |
| 80 | DEQ should allow one permit per family if they dredge on the same creek. | The suction dredge permit allows the dredge to discharge following the discharge limitations in the permit, one dredge operating at a time per permit. More than one person, including any family member can operate the dredge as long as the person that the permit is assigned to is present. |
| 99, 39 | Does the permit apply only to the person or others that want to operate the dredge? | More than one person can operate the dredge as long as the person assigned to the permit is present. |
| 80 | DEQ should provide permits for clubs or mining groups. | Although the final suction dredge permit will apply to one dredge operating for the person assigned to the permit, DEQ plans to offer a low cost individual permit that could apply to a mining club or a large group. |
| **Special Conditions** | | |
| 45, 46, 17 | Why must the permittee provide for safe fish passage if, during the in water work period, there are no migratory fish? | The condition to provide safe fish passage is required by OAR 635-412-0020 which says: "No person shall construct or maintain any artificial obstruction across any waters of this state that are inhabited, or were historically inhabited, by native migratory fish without providing passage for native migratory fish." This requirement applies regardless of the in water work period. DEQ will more clearly reflect this existing rule in the final permit. |
| 83 | A copy of the letter form ODFW that extends the in-water work periods does not need to be on-site because they would already know of the extension if they did an inspection. | The requirement for the letter to be on-site is existing language in the permit. Any documentation that permits the dredge activity must be on-site. |
| 41 | Permit should include language that allows the dredger to create area of pooled water, as long as fish passage is maintained. | DEQ understands that dredge operations create pools of water. The proposed and final permits did not prohibit this. This proposed condition |

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| | | does not add any clarity to the permit. |
| 65 | The proposed permit says" safe passage *of* fish…", and does not make sense. | DEQ will correct the sentence to say"…safe passage *for* fish…". |
| 65 | Permit lacks streambed restoration requirements, and best practices for stabilizing banks that protect fish. | The permit includes best management practices that prohibit dredging of stream banks and protections for stream infrastructure. The wet perimeter of the stream where dredging is allowed will re-establish itself each year because of high spring flows, and is expected to recover relatively quickly following the in-water work period. |
| 89 | Dredging should be allowed during high seasonal flow. | Dredging is only allowed during the in-water work schedule established by the Oregon Department of Fish and Wildlife. DEQ simply references that requirement in the suction dredge permit. |
| 65 | The permit includes a statement that boulders include cobbles, which is incorrect. Cobbles and boulders are defined in federal regulations; Cobbles are small than 12 inches in diameter, boulders are greater than 12 inches in diameter. | The Department does not believe the condition that refers to boulders and cobbles needs further clarification. DEQ will review the condition to assure that it emphasizes the intention to protect stream banks. |
| 74 | The permit should include a "no-touch" buffer around boulders and logs (say greater than 3 ft. diameter) to maintain bank and channel stability. Once large boulders and logs are moved, they no longer hold the sediment in place or function to create and maintain gravel bars. Streams are never going to meet load allocations if the channel morphology continues to be unstable and sediment out of equilibrium. | The streambed protection conditions in the draft permit clarify the requirements to protect stream banks and streambed stability. Boulders and logs that exist in the stream can be moved but must stay in the stream. These clarifications, in addition to the turbidity limits and other conditions of the permit such as limiting the size of the dredge to a 6 inch suction hose and seasonal restrictions, help assure long term adverse impacts will not occur. |
| 83 | Defining what is included as vegetation is unnecessary. | DEQ added language to clarity what vegetation meant based on comments from preliminary drafts. The permit will retain the language as written. |
| 43 | Dredging should be allowed in dry gravel bars that exist below the seasonal high water mark. | The permit includes an allowance to dredge in gravel bars up to 10 feet outside the wet perimeter. The Department can offer a separate WPCF permit for placer mining distances greater than 10 feet outside the wet perimeter. |
| 43 | Dredging of vegetation should be allowed. | The Department will retain the prohibition of dredging vegetation in the final permit to ensure stream temperature is not affected from the activity. |
| 65 | The condition that refers to the formation of organic and inorganic deposits needs additional wording to be understood. | The Department believes this provision, referencing the existing requirement in Oregon Administrative Rule 340-041-0007, needs no further clarification. |
| 41 | The permit should include language that states as long as the provisions of the permit are met suction dredging will not result in the formation of organic or inorganic deposits that are harmful to fish. | It is the permittee's responsibility to assure compliance with the permit. If the Department believed that, by following all the conditions of the permit, this condition would not be needed, the condition would not have been including in |

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| | | the permit originally. |
| 41, 35 | The permit should include language that for streams with bull trout, loose gravel shall be raked down to prevent bull trout spawning in unstable gravels. | Although DEQ does not disagree with the comment that this condition may be valuable, DEQ does not believe that it may be difficult for the dredge operator to know if bull trout live in the stream, and it would be difficult to assure compliance with the condition. |
| 45, 46 | DEQ is requiring the dredgers to maintain their equipment, prevent and respond to spills more than for motorboats and jet skis. | If jet skis and motorboats were regulated through the through the NPDES permitting program, DEQ would apply similar spill prevention and response requirements. |
| 29, 19, 103, 11, 65, 43 | Locating petroleum products 25 feet from the shore or another specified distance is not reasonable. One commenter suggested that wording be changed to say that petroleum be located so those products do no enter the waterway under foreseeable circumstances. | DEQ considers a spill of petroleum products to be a much greater threat to water quality than the turbidity created by the dredge operation, and does not consider storing petroleum products 25 feet from the stream bank, where possible, to be unreasonable. The final permit will retain the condition as worded, which also provides additional precautions when the 25 foot buffer is not possible. |
| 41 | Include language that specifies where and how fuel should be stored if it is stored closer than 25 feet from the stream. | The final permit will retain the language that requires "additional precaution" to prevent spills. This provides flexibility for the operator to develop a storage plan that is suitable for the dredge location. |
| 83 | Locating petroleum products 25 feet from the shore discriminates against miners because this same requirement is not applied to other recreational users such as snowmobiles, cycles, hiker's cars, and camp fuel in canoes, etc. | DEQ includes appropriate management practices in every NPDES permit. NPDES permits are not required for activities for snowmobiles, cycles, hiker's cars, and camp fuel in canoes, etc. |
| 19, 46 | Fuel spill kits and the related spill protections are not necessary. | DEQ considers a spill of petroleum products to be a much greater threat to water quality than the turbidity created by the dredge operation. DEQ will retain the condition as worded for the operator to use a spill proof spout, have "appropriate" spill protection, and clean up spills immediately. DEQ is not requiring "spill kits" in the final permit. |
| 45 | Include the word "qualified" in the condition "The Department may consider information from any [*qualified*] person to determine whether the permittee has complied with the limits, terms, and condition of this General Permit and state law." | DEQ will delete this condition in the final permit. DEQ will simply follow the agency's enforcement procedures if information is provided from a third party. |
| 43 | Any determination of compliance with the permit should come from an "official", not a citizen. | DEQ will delete this condition regarding considering information from third party sources in the final permit. DEQ will simply follow the agency's enforcement procedures if information is provided from a third party. |
| 46 | The condition to consider information for any person leaves miner open to lawsuits from environmentalists. | DEQ will delete this condition in the final permit. DEQ will simply follow the agency's enforcement procedures if information is provided from a third party. |

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| 46 | Requesting information about dredging locations from the previous 3 years is against individual's rights under the 5th amendment. | Requesting this information from persons that have NPDES permits does not violate their 5th amendment rights. |
| 68 | The permit should not allow DEQ to request information regarding the last 3 years of dredging. | DEQ already has the authority to request information in order to determine compliances with the permit. |
| 68 | The permit should be amended to require specific procedures when DEQ receives a complaint. | DEQ has deleted the conditions regarding complaints in the final permit. DEQ will deal with complaints as provided in Department enforcement protocol. |
| 80, 19, 2, 16 | Streamline the permit process with DSL ASAP. | DEQ plans to enter into agreement with the Department of State Lands as soon as possible so that they can administer the DEQ suction dredge permit. However, DEQ dos no expect that process to be complete for at least a year after the final permit is issued. |
| 83 | This permit should not be administered by DSL because they provided no stakeholder outreach. | The Department of State Lands also regulates suction dredging in Oregon. Their requirements did not change as a result of DEQ's proposed permit. Administration of the DEQ permit through one agency is a streamlining and consolidation measure which will result in a more efficient permitting process. |
| 57 | The permit should not include separate requirements for Scenic Water Ways and Essential Salmon Habitat. | The Scenic Water Way and Essential Salmon Habitat regulations are implemented by the Oregon Department of State Lands. DEQ can not amend these rules, and simply refers to them in the suction dredge permit to inform the permittee that there are other state requirements besides those of DEQ. |
| 60 | Suction dredging in Essential Habitat is not restricted to recreational mining. The DEQ has misread ORS 390.835. Please re-read and correct this major error. | The permit does not restrict dredging in Essential Salmon Habitat to recreational mining. The permit does restrict dredging *in Oregon Scenic Waterways* to recreational placer mining, as required in ORS 390.835. |
| 41, 92 | The Scenic Waterway and Essential Salmon Habitat provisions should include language to provide exemptions to the provisions if dredging is conducted on federal land or federal mining claims. | See DOJ Opinion |
| 92, 68 | A prohibition of dredging, pursuant to DEQ's 3-Basin Rule is a taking. The permit should provide an exemption for holders of 1872 mining claims. | See DOJ Opinion |
| 46 | The permit is too long to keep at the dredge location. | The permit does not have to be on your person. It can be kept in a nearby vehicle or other area at the dredge location. DEQ will clarify this condition. |
| **Water Quality Limited (303d) Streams** | | |
| 35, 27, 41, 68 | Not allowing suction dredging on 303d listed streams where no mining has occurred is a taking. | DEQ cannot allow any new or increased discharge of pollution to surface waters in Oregon if those surface waters are listed on the |

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| | | 303d list for the pollutant that would be discharged from the point source. |
| 35 | DEQ has shown no evidence that 303(d) listed streams are degraded. | DEQ does not have to provide the basis of a 303(d) listing in a permit renewal. The permit must simply recognize that applicable antidegradation requirements be included in the permit. |
| 45, 10, 38, 52, 35 | It is very difficult to determine if a stream has been mined before. | DEQ agrees that in some cases no one may know that dredging has occurred in a particular stream. Regardless, the requirement is important to include in the permit so that the permittee does not inadvertently violate a water quality requirement. |
| 46 | The language in the draft permit states that suction dredging is prohibited in streams that have not been previously *dredged* is different than what is in the evaluation report. The evaluation report states that suction dredging is prohibited in streams that have not been previously been *mined*. | DEQ will use the words *placer mined* in the final permit for consistency. |
| 43 | The prohibition of mining in streams should be re-written to clarity intent. | The wording was reviewed and rewritten to clarify that the waterway must be *both* on the 303(d) list and must not have mined during the previous permit term. |
| 64 | If the price of gold soars, the proposed permit would allow a large number of new, additional dredge operations on streams that are water quality limited and have been dredged in the past, which is prohibited by the DEQ antidegradation requirements. Are dredge operations that were not assigned to the previous permit and operated illegally grandfathered in? | DEQ currently has approximately 1950 dredge operators assigned to the expired 700-J and MAO. Applications submitted for the suction dredge permit renewal will account for first-time dredge operations. Any dredge operation not previously permitted may be in violation of DEQ's antidegradation requirements if they dredge on a water quality limited stream. |
| 64 | The new permit will significantly change the compliance standards that will apply to permittees, and also regulate a much broader class of potential permittees. As a result, the proposed permit should trigger the antidegradation review mandated in OAR 340-041-0004. | DEQ reviewed and included antidegradation provisions for suction dredge activity as part of this permit renewal. DEQ disagrees that the proposed permit will regulate a much broader class of potential permittees. It is more likely that the proposed permit applies restrictions that will likely reduce the number of permittees assigned to this permit as compared to the number that were regulated under the expired permit and the MAO. |
| 64 | In 1998, Judge Snouffer of the Circuit Court of Oregon required DEQ to complete an antidegradation review of the previous 700-J permit which failed to consider the impacts of suction dredge mining on water bodies limited for temperature. *National Wildlife Federation v. Oregon DEQ*, CV 9706-04970 (Or. Circ. Ct., 4th Dist., Sept. 18, 1998). This ruling reinforces the necessity that DEQ apply the substantive antidegradation rule to the issuance of a general | DEQ responded to the court order and found that suction dredge operations, under the terms and condition of the permit issued then, do not have a measurable affect on stream temperature. Therefore, a prohibition for dredging in streams limited for temperature is not included because the conditions in the final permit are expected to prevent an increase in stream temperature. |

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| | permit for suction dredge mining. The Proposed 700-J Permit does not comply with water quality standards for temperature. | |
| 41 | The permit should include language that allows for dredging in streams that are water quality limited for temperature. | The proposed and final permit do not prohibit dredging in streams that are listed as water quality limited for temperature. No additional language is necessary. |
| 41 | The permit should include language stating that the activities covered under this permit are not expected to cause a measurable change in temperature. | This language is not needed. DEQ is not including a prohibition for dredging in streams that are water quality limited for temperature and that were dredged during the previous permit term. |
| 41 | The permit should include language that allows dredging in streams that are water quality limited for sediments if dredge operations are limited to 6 hours. | The final permit will include language allowing dredging in streams that are water quality limited for turbidity, toxics, and sediment provided the streams were dredged during the previous permit term. No limits in dredge duration are needed because the permit does not allow dredging if turbidity is observed beyond 300 feet downstream of the working dredge. |
| 41 | The permit should prohibit dredging in streams that are water quality limited for toxics. | The final permit will allow dredging in streams that are water quality limited for toxics provided they were dredged during the previous permit term. |
| 46 | If more stream are put off limits, it will increase the demand on water quality limited streams where dredging has occurred. | Under DEQ's antidegradation rules, new or increased discharges of a particular pollutant are not allowed on water quality streams listed for that pollutant. This provision in the permit conveys that requirement. |
| **Fees** | | |
| 4, 8 | The proposed permit fees are in conflict with Measure 5 of the November 1994 elections that require voter approval of all taxes. | The permit fee is not a tax which requires voter approval. However, all new fees require ratification from the Oregon Legislature. |
| 46 | DEQ does not have the authority to charge fees. | DEQ has the authority to charge fees as provided in OAR 340-045-0075. |
| 47, 18, 7, 60, 53, 106 | The fees are too high. | DEQ believes that an annual fee of $25 for this permit is reasonable. Other General Permit holders pay at least $185 per year in addition to a Filing Fee of $60 and an Application Processing Fee of at least $185 every 5 years. |
| 41 | The fees should be left as they currently exist. | Suction dredge permittees are subsidized by other fee payers and other funding sources that pay for administering NPDES permitting program in Oregon. DEQ is proposing significantly lower fees to permit this activity than any other General Permit holder, who pays at least $185 per year to help fund Oregon's water quality protection program. |
| 78, 84, 41 | Recreational dredging should be free. | DEQ believes that an annual fee of $25 for this permit is reasonable. Other General Permit holders pay at least $185 per year in addition to a Filing Fee of $60 and an Application |

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| | | Processing Fee of at least $185 every 5 years. |
| 41 | Suction dredge permits should be pamphlets, distributed to anyone who wants to dredge, and save DEQ the cost of administering the permit. | DEQ must issue an NPDES permit for suction dredge operations in Oregon. |
| 59 | A fee of $25 *per person* is too much. | The fee is for the dredge permit, and applies to the dredge itself. Friends and other family members can use the dredge that is permitted and assigned to the permittee without cost if supervised by the person assigned to the permit and the conditions of the permit are complied with. |
| 35, 41 | Fees should cover the costs of paperwork and mailing. One commenter stated that any additional costs should be paid for from state General Fund. | The projected permit fees will not cover the full costs of developing and implementing the suction dredge general permit. |
| 83 | Why are the fees needed? | Suction dredge permittees are subsidized by other fee payers and other funding sources that pay for administering NPDES permitting program in Oregon. DEQ is proposing significantly lower fees to permit this activity than any other General Permit holder, who pays at least $185 per year to help fund Oregon's water quality protection program. |
| 10, 83 | The fees are not needed. DEQ gets tax money to run their office, and is adding another fee to fund other projects. | DEQ receives approximately 30 percent of its funding from the General Fund (taxes), and approximately 60 percent of its funding from permitting fees. The remaining funding comes from federal funds. The expected revenue from the suction dredge fees will not fully cover the cost to permit the activity, and will be used to administer the suction dredge permit. |
| 65 | There is no explanation about what the fees will be used for. | The Statement of Need and Economic Impact provides an explanation of the intended use of the fees. |
| 70, 13, 108 | Allow a fee for the duration of the permit. | DEQ will create an option for dredge operators that would like to pay a one time fee for the term of this permit. |
| 109 | There should be no short-term fee. All permittees should pay the same. | DEQ will not include the short term activity fee in the final permit. An annual fee of $25 will be assessed to all permittees registered under the permit. |
| 35, 5, 52 | Charging larger fees for out of state residents is illegal. DEQ does not have the right to discriminate against out of state miners with property rights on federal lands in Oregon. | The fees for this permit will be promulgated according to Oregon state law. Regardless, for the final permit DEQ will not require higher fees from non-Oregon residents. |
| 70, 80, 33, 23, 5, 77, 41, 45, 106, 20 | Out-of-state dredgers should not pay higher fees than in-state residents. | DEQ will not require higher fees from non-Oregon residents in the final permit. An annual fee of $25 will be assessed to all permittees registered under the permit. |
| 48, 95 | Seem only fair that out-of-state residents should pay higher fees than proposed considering the out-of-state fee for dredging in California is | DEQ will not require higher fees from non-Oregon residents in the final permit. An annual fee of $25 will be assessed to all permittees |

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| | $150 per year. | registered under the permit. |
| 54, 100 | Non-Oregon residents that own claims in Oregon own real property and must be charged the same fees as Oregon residents. | DEQ will not require higher fees from non-Oregon residents in the final permit. An annual fee of $25 will be assessed to all permittees registered under the permit. |
| 92 | The over-regulation and high fees will discourage the sale of dredging equipment, and discourage miners from dredging. | DEQ does not believe that the proposed fees will have a significant impact on business and effect Oregon's economy. |
| 45, 10, 92 | Suction dredge activity contributes to Oregon's economy. One commenter estimates $3,510,000 is contributed every two weeks to Oregon's economy, and that Oregon would loss close to 49 percent of this figure DEQ issues the permit as proposed. Another commenter estimates dredging contributes $750,000/day assuming 1500 people are dredging. | DEQ does not believe that the proposed fees or other amendments to the suction dredge permit will have a significant impact on business and affect Oregon's economy. |
| 80, 97 | What happens to a $60 fee that was paid last year for this permit; can if be applied to offset part of the new fee? | The $60 fee paid a year ago would have been for the MAO which expires is December 2005. DEQ plans to assess the new fee for assignment under the new permit without any credit for fees paid on expired, previous permits. |
| 38 | Fees should be applied to conduct scientific studies about suction dredging. | The expected revenue from the suction dredge fees will not fully cover the cost to permit the activity. DEQ is considering requesting grant money from EPA to do additional study on suction dredge activity in Oregon. |
| 56, 90, 11 | If DEQ is equating the $25 dollar annual fee to a fishing license, as it mentioned in the public hearings, than it should less than the cost of the fishing license because fishing is allowed year-round and dredging is only allowed about 3 months out of the year. | The annual cost of a fishing license is equivalent to the annual cost of a dredge permit. |
| 56 | Oregon should charge that same fee as other states charge Oregon residents. Out of state residents should be charged 2-3 time more than a resident pays, similar to the fee structure other state have for fishing licenses. | DEQ will not require higher fees from non-Oregon residents in the final permit. An annual fee of $25 will be assessed to all permittees registered under the permit. |
| 56 | Kids under 18 should be able to dredge for fee. | Friends and other family members can use the dredge that is permitted and assigned to the permittee without cost if supervised by the person assigned to the permit and the conditions of the permit are complied with. |
| 15, 60 | Dredging should be free for small operators. | DEQ considers that suction dredge fee structure simple, reasonable, and equitable. DEQ's costs to develop and implement this suction dredge permit are the same for everyone. |
| 7 | If 25 percent of the current dredgers don't get this permit because the fee is too high, it will hurt dredging clubs and memberships which promote stream stewardship and proper dredge operation. | DEQ applauds that fact that there are dredging clubs and associations that encourage appropriate dredge operations. In establishing the permit fee for this activity, DEQ took into consideration that dredge operators are individuals – not large industries, and set the fees as low as possible to retain as many fee |

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| | | paying permittees as possible. |
| 7 | DEQ and DSL should consider charging a set fee for a dredging club in lieu of requiring that each individual pay a fee for an individual permit. | The permit will require that the person assigned to the permit be on site during dredge operation. If a club wanted to introduce someone new to the activity, the new person would not have to pay an individual fee to use a dredge as long as a fee paying permittee was present and supervising the dredge operation. |
| 65 | Mining is a federally granted and protected right and should not be assessed fees. | DEQ believes that the fees for this permit are reasonable. Other General Permit holders pay at least $185 per year in addition to a Filing Fee of $60 and an Application Processing Fee of at least $185 every 5 years. |
| 100 | Will there be additional fees for the suction dredge permit if DEQ enters into an agreement with DSL or others? | DEQ does not plan to increase fees for other entities to administer the suction dredge permit. |
| **General Conditions** | | |
| 63, 41, 61, 20, 68 | Penalties and fines are unreasonable and exorbitant. One comment stated that the fees are in conflict with the 4th amendment of the U.S Constitution. | The penalties provided in the General Conditions of the suction dredge permit are references to penalties that currently exist in state and federal law. DEQ is not proposing new penalties. |
| 80 | DEQ needs to designate who is authorized to enforce the conditions of the permit. | DEQ is the primary authority to take enforcement actions on behalf of the State of Oregon. However, any party can complain to DEQ and even sue a permit holder claiming non-compliance of an NPDES permit. |
| 19, 83, 60 | The permit should not require 3 year record retention. | The General Conditions of the suction dredge permit are references to conditions that currently exist in state and federal law. DEQ is simply providing the permit holder with the current requirements. However, DEQ will not require any recordkeeping or reporting for the final suction dredge permit. |
| 76, 58, 98, 83 | Miners cannot incriminate themselves by keeping records of turbidity exceedances and giving them to DEQ; it violates their rights under the constitution. | Requesting this information from persons that have NPDES permits does not violate their constitutional rights. Regardless, DEQ is not requiring a provision for limited duration turbidity allowance logs in the final suction dredge permit. |
| 60 | The penalties for suction dredgers should not be that same as large industrial wastewater plants. We suggest a $50.00 per day fine with a maximum of $500.00. | The penalties provided in the General Conditions of the suction dredge permit are references to penalties that currently exist in state and federal law. DEQ is simply providing the permit holder with the current requirements. |
| **Misc.** | | |
| 42 | ORS 215.298 requires a land use permit for mining more than 1,000 cubic yards of material or excavation preparatory to mining of a surface area of more than one acre. Therefore, the 700-J permit should require a land use compatibility statement signed by the local government to | ORS 215.298 applies only to mining in an exclusive farm use zone and does not clearly apply to suction dredge operations. As provided in the Land Use Evaluation Statement, the State Agency Coordination process has determined that operations under the 700-J do not |

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| | verify local land use approval has been granted. | significantly effect land use and therefore, do not require a Land Use Compatibility Statement. |
| 43 | The suction dredge permit needs to be developed considering ORS 517.760 Policy, which recognizes the value of mining in Oregon. | The suction dredge permit has been developed following all state and federal requirements, in addition to significant stakeholder input. |
| 64 | The proposed permit does not adequately protect Oregon waters from the impacts of suction dredging. | The proposed permit must consider the pollutants that potentially affect the beneficial used of Oregon surface waters. The pollutant of concern that is created from suction dredge operations is turbidity. For this proposed permit, DEQ proposed protection levels that meet the existing state standard that requires that the discharge create no more than 10 percent increase in turbidity above background levels. The proposed permit evaluated the effects of this pollutant in respect to the frequency, duration and magnitude of dredge operation in Oregon. |
| 64 | Heavily mined waterways have yet to recover from the effects of historical suction dredge mining. | Comment not related to the proposed permit. |
| 64 | Dislodging stream bed sediments through suction dredging negatively impacts water quality and the surrounding riparian habitat. | The final permit requires that turbidity be controlled and includes streambed protection criteria to protect the long term quality of the surface and the riparian habitat. |
| 64 | Fish populations can be negatively affected by suction dredge mining. Dredging destroys fish habitat, entrains fish, fry, and eggs, and is done in summer months when it has an increased chance of disturbing fish populations. | The final permit includes a reference to Department of Fish and Wildlife requirement that limits dredging to summer months that is the period when eggs and fry are not present and fish populations are the least affected. |
| 64 | Silt deposition suffocates fish eggs and decreases the population of benthic organisms that provide food for fish. | The in-water work period established by the Oregon Department of Fish and Wildlife, in addition to the applicability and turbidity discharge requirements of the proposed permit, minimize the effects of sedimentation and turbidity on benthic organisms and fish eggs. |
| 64 | Riparian activities that increase sedimentation and destroy stream banks magnify temperature increases. | The final permit includes applicable streambed protection and turbidity discharge requirements that will prevent an increase in temperature from suction dredge operations that could be assigned to the permit. |
| 64 | Heavy loading of fine sediments intensifies the detrimental impacts of temperature and dissolved oxygen. | The final permit includes applicability, streambed protection, and turbidity discharge requirements that will prevent an increase in temperature or a decrease in dissolved oxygen from suction dredge operations that could be assigned to the permit. |
| 64 | The proposed permit does not include any technology based effluent limitations, operational requirements, or reporting requirements that provide for uniform allocation and implementation of the permit terms. These | A technology based limitation requirement does exist for this activity which exempts dredge operations, of the size in the proposed permit, from any discharge requirements. In the event that technology based limits are not adequate to |

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| | omissions violate the Clean Water Act. | protect water quality, DEQ is required to develop water quality based effluent limits (WQBELs) for the discharge activity. WQBELS are included in the proposed permit to control turbidity discharges. These limits, in addition to the operational and reporting requirements in the permit proposed for public comment and the final proposed permit do not violate Clean Water Act requirements. The permit also includes best management practice conditions that represent technology based requirements. |
| 64 | If any violation of water quality standards will occur as a result of suction dredge mining authorized through the proposed permit, the permit must be invalidated and individual NPDES permits should be issued that are capable of ensuring compliance with the CWA. | There is no such requirement in the Clean Water Act or federal and state NPDES regulation. The permit must be drafted to comply with the NPDES permitting program, and the permittee must then comply with the permit. |
| 64 | The proposed permit clearly creates permitting situations where effluent limitations are less stringent than those authorized by the expired 700-J permit. In the previous permit, the permittee was required to stop if there was visible turbidity 300 feet downstream of a working dredge. In the current proposed permit, in some situations visible turbidity is allowed up to 400 feet downstream from a working dredge. Moreover, under the proposed permit, operations are allowed to continue through the new application of "limited duration turbidity allowances," even when the visible turbidity standard is exceeded. These changes have the potential to greatly change the nature of the discharge and the water quality of the receiving water body. | DEQ applied the existing turbidity standard of 10% above background, which also allows for limited duration exceedances, in the proposed permit. However, for the revised suction dredge permit, DEQ will eliminate the limited duration exceedance provisions, and issue the suction dredge permit using a 300 foot distance for dredges with suction hoses with an inside diameter greater than 3 inches. |
| 64 | The proposed permit must be applied to discharges, not persons. The permit allows for multiple dredges to be operated by one person as long as the one person is on site to supervise the operators of the other dredges. | DEQ will amend the final permit to reflect that the permit conditions apply to the discharge of the dredge that is operated by the person assigned to the permit. Further, the permit will reflect that only one dredge can be operated per permit assignment. |
| 64 | The Proposed 700-J Permit does not comply with water quality standards for turbidity. The proposed permit allows for limited duration exceedances which exceed DEQ water quality standard for turbidity that allows no more than a 10 percent increase in turbidity above background. | DEQ applied the existing turbidity standard of 10% above background, which also allows for limited duration exceedances, in the proposed permit. However, for the revised suction dredge permit, DEQ will eliminate the limited duration exceedance provisions, and issue the suction dredge permit using a 300 foot distance for dredges with suction hoses with an inside diameter greater than 3 inches. |
| 64 | The exceedance levels of 30 NTUs above background are significantly higher than the turbidity limit of "visible". There is no way for | The revised suction dredge permit, DEQ will eliminate the limited duration exceedance provisions, and issue the suction dredge permit |

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| | permittees to know if they exceed 30 NTUs, because turbidimeters are not required to measure compliance. | using a 300 foot distance for dredges with suction hoses with an inside diameter greater than 3 inches. |
| 64 | There is no evidence that the graduated turbidity compliance distances are based on scientific analysis. It is increasing the previous 300 foot boundary to 400 feet for wider streams. | The turbidity compliance distances in the proposed permit were based on the scientific basis that is currently being considered to revise DEQ's' turbidity standard. Regardless, for the final permit, DEQ will apply the 300 foot compliance distance that existed in the previous permit. Once a more rigorous procedure is in place, as part of the revised turbidity rule, DEQ will incorporate that rational during the next permit renewal cycle. |
| 64 | DEQ must include an objective monitoring and reporting system that will enable both DEQ and the public to assess whether miners are properly interpreting and complying with the visible turbidity standard. | DEQ will eliminated the complex monitoring condition in the draft permit and will simply prohibit visible turbidity at distances greater than 300 feet downstream from the working dredge. |
| 64 | The Proposed 700-J Permit does not comply with antidegradation policy for water quality limited waters. Water quality limited waters must be managed in accordance with DEQ's antidegradation policy which does not allow *any* new or increased discharge. Why would DEQ treat a water body that has one single dredge operating 20 years ago differently that if that same water body were never dredged? | The permit condition that prohibits suction dredging on streams that have not been mined in the past and are water quality limited will prohibit the activity from adding any new or increased discharge to that water body. The language "dredged in the past" is meant to apply to steams that are being dredged under the recently expired 700-J and the MAO. DEQ will clarity the condition in the final permit. |
| 64 | The proposed 700-J has less stringent water quality limitations and violates the antibacksliding prohibition of the Clean Water Act. DEQ is allowing dredging outside of the active stream channel, has increased the visible turbidity downstream compliance distance to 400 feet, and allows for limited duration turbidity exceedances. | The final permit will eliminate the limited duration turbidity allowance and will retain the 300 foot compliance distance that used in the expired 700-J and MAO. Dredging a limited distance outside the streams wet perimeter is not backsliding because the permit only allows this option in non-vegetated gravel bars that will not increase turbidity or impact stream ecology. |
| 64 | The use of compliance zones is not authorized by the Clean Water Act. DEQ's mixing zone regulations clearly require that the location, surface area, and volume of the mixing zone be based on the receiving water and effluent characteristics. | DEQ plans to retain the 300 foot visible compliance distance, used in the expired 700-J and the MAO. Until a new turbidity standard is developed that establishes additional criteria, DEQ is not considering to change the 300 foot compliance distance that has been effective for limiting the discharge of turbidity for this activity. Considering that suction dredging is allowed only during the ODFW in-water work window, and is typically conducted 3-6 hours per day, allowing 300 feet of visible turbidity in conjunction with the other conditions of the permit protect the beneficial uses of the surface water in Oregon. |
| 64 | General Permits are meant to regulate activities resulting in insignificant discharges. The impacts of suction dredging vary significantly depending on numerous environmental factors | General permits apply to both major and minor sources of pollutants. DEQ has considered that the size and number of operating dredges, in conjunction with that variation in stream |

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| | such as stream size, dredge size, dredge density water flow, streambed materials, etc. It is more appropriate for DEQ to issue individual permits of issue a series of sub-category General Permits | characteristics will require different requirements for the various dredge operation scenarios. DEQ believes that, until a new turbidity standard is developed, the 300 foot compliance distance is appropriate and in some cases will prohibit the operation of dredges that can apply for the permit in some Oregon streams. The permit also includes references to the Department of State Lands requirements that are in place to protect the most sensitive Oregon Scenic Waterways and Essential Salmon Habitat streams.<br><br>DEQ may choose to issue individual permits or sub-categories of General Permits for suction dredge activity. DEQ is proposing that a conservative, statewide General Permit is the most appropriate approach considering the potential water quality impacts associated with the backlog of expired, high priority General Permits. |
| 64 | The proposed permit fails to adequately regulate the operation of multiple dredges along the same water body. | For the final permit, DEQ will utilize the 300 foot compliance distance used in the expired 700-J and the MAO. Regardless of the number of dredges that have suction hoses with an inside diameter greater than 3 inches, visible turbidity is prohibited beyond 300 feet downstream at any time. |
| 64 | Because suction dredge activity is regulated by both DSL and DEQ, DEQ must include a condition that requires the permittee to obtain a valid DSL permit or 404 permit before the 700-J becomes effective. | A 404 permit is not currently required from the Army Corp of Engineers. Also, because the DSL permit is more restrictive than the DEQ permit, perhaps DSL should require confirmation that DEQ has issued the permit before DSL issues theirs –DEQ cannot. The DEQ permit contains a condition that allows DSL to administer the revised permit. DEQ plans to enter into agreement with DSL in the near future to streamline the administration of this permit. |
| 64 | The proposed permit does not comply with the public participation requirements of the CWA. | The permit was proposed for formal public comment following all applicable state requirements. |
| 64 | How much money has DEQ expended to develop the proposed permit and conduct the public hearings? | Comment not relevant to the proposed permit |
| 91, 14, 57, 86 | Request that DEQ extend the public comment period. | DEQ extended the public comment period from February 11, 2005 to March 4, 2005 |
| 37 | DEQ needs to hold another round of hearings. | DEQ has provided substantial opportunity for formal and informal comments and will issue the permit based on comments received. |
| 11 | DEQ Administrative Rules do not properly address this suction dredge activity. | Comment is not related to the proposed permit. |
| 11 | DEQ Administrative Rules for the permit | Comment is not related to the proposed permit. |

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| | applications interfere with mining rights. | |
| 11 | DEQ Administrative Rules for issuing General Permits to not apply to suction dredging. | Comment is not related to the proposed permit. |
| 14, 30, 33, 23, 98, 84, 93 | No reason for the new permit – DEQ should reissue the old 700-J. | NPDES permits are required to be reissued every 5 years in order to update the permit with appropriated changes that protect the beneficial uses of surface waters in Oregon. |
| 75 | The 700-J and MAO needs to be extended until the appropriate state agency drafts a new permit and provides adequate public comment. | DEQ disagrees with the comment. DEQ is the state agency that is required to issue an NPDES Permit for small suction dredge operations. DEQ plans to propose that a modified version of the suction dredge permit be adopted by the Environmental Quality Commission in June, 2005. |
| 83 | The permit implies that turbidity at certain levels is damaging in order to prevent recovery of minerals and deny a citizen their rights under the federal laws. | An NPDES permit is required to regulate the discharge of turbidity that has the reasonable potential to exceed the current state turbidity standard that prohibits the discharge of turbidity in excess of 10 percent above background stream turbidity. |
| 45, 30, 76, 58, 71, 26, 22, 23, 5, 9, 18, 6, 52, 96, 27, 77, 2, 84, 106, 61 | The permit needs to be simpler, shorter, and easy to understand. Some commentors stated that if they cannot understand it, they cannot comply with it and would not pay for it. | The Department plans to revise the permit to eliminate the short term limited duration turbidity allowance provision and exempt dredges with suction hoses that have an insider diameter up to 3 inches from the turbidity requirements. |
| 23, 33, 63, 41, 11 | DEQ has ignored miner's needs and should draft a permit that most dredgers can comply with. | DEQ cannot issue a permit that does not protect the beneficial uses of Oregon waters. That includes horsepower and suction hose size restrictions on order to assure permittees can comply with the turbidity limits on most Oregon streams. |
| 92 | No other recreational activity is regulated to the degree by state and federal agencies like Recreational and Small Scale Gold Mining. DEQ needs to stop over-regulating this activity. | Comment is not related to the proposed permit. |
| 38, 65, 57, 103, 20 | All recreation watershed users should be held to the same standards proposed in the suction dredge permit. | The suction dredge permit is required because the activity requires an NPDES permit. Boaters, swimmers, and people who fish are not required to have an NPDES permit to "operate". |
| 2 | The proposed permit is not applicable to all water user groups. | Not all water users are defined as point sources that discharge a regulated pollutant. DEQ is required to issue an NPDES permit for all point sources that discharge to surface water in Oregon. |
| 57 | DEQ cannot ignore other industrial sources of pollution while focusing on mining. | Comment is not related to the proposed permit. DEQ is not ignoring other point sources of pollution. |
| 38 | Protecting beneficial uses implies that dredging reduces the beneficial use of the stream by others. | Compliance with the state turbidity standard is intended to protect the beneficial use of stream in Oregon. If the dredge activity complies with the standard, the beneficial use is considered to |

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| | | be protected. |
| 26, 102, 41 | DEQ has ignored the input from the miners to develop the proposed suction dredge permit. | DEQ conducted field visits during the summer of 2004, met with suction dredge representatives on numerous occasions, and requested comments on 4 preliminary drafts of the suction dredge permit before formal proposal in December 2004. |
| 41 | Because the permit is so unreasonable, many suction dredgers will not get the permit which will not be good for water quality. | DEQ will revise the final permit to have less complex compliance requirements than the expired 700-J or the MAO. DEQ will eliminate the provisions for limited duration turbidity allowances and associated monitoring requirements. DEQ will use the existing turbidity standard of 10% above background for the final suction dredge permit for suction dredges that have a suction hose with an inside diameter greater than 3 inches. |
| 14, 11, 92 | DEQ has not provided adequate response to miners during the permit development. One commenter stated that DEQ only provided one draft to comment on before the formal public draft. | DEQ conducted field visits during the summer of 2004, met with suction dredge representatives on numerous occasions, and requested comment on 4 preliminary drafts of the suction dredge permit before formal proposal in December 2004. DEQ also provided written response to all questions posed by the Mining Committee regarding the third preliminary draft of the suction dredge permit. |
| 35 | Can DEQ re-issue the extended 700-J until issues with the proposed permit are resolved? | DEQ will renew the suction dredge permit with modifications that exempt smaller dredges from turbidity requirements and require that larger dredges meet the current state turbidity standard of 10 percent over background. Until the renewed permit is filed with the Oregon Secretary of State, the expired 700-J General Permit remains in effect. |
| 92 | DEQ is proposing excessive restrictions that will create a hardship on small scale miners that make a claim on a federal mining claim. | The proposed permit provided additional opportunity to dredge when turbidity occurred; the expired permit did not. In the final permit, DEQ plans to eliminate turbidity requirements for approximately 50 percent of suction dredge operators because they have no reasonable potential to exceed the state turbidity standard. |
| 53 | Proposal is a deterrent to the mining industry. | For most suction dredge operators, the proposed and final permit contains less stringent turbidity limits, and operational requirements than the expired suction dredge permit. The proposed $25 fee is not expected to deter mining in Oregon. |
| 70 | Recreational dredge operators do not compare to commercial dredging operations and should not be regulated the same way. | All point sources that discharge pollutants into Oregon's surface water are required to get an NPDES permit before they can operate. The suction dredge general permit applies to small scale dredges, and is relatively simple and inexpensive compared to individual permits that |

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| | | are required for commercial dredge operations. However, all point sources that discharge turbidity must comply with the same state standard. |
| 35, 68 | The permit should apply dredges with up to a 50 horsepower motor. | Dredges that have motors greater than 30 horsepower are not typically used in conjunction with a 6-inch inside diameter hose, which is the other applicability criteria for the suction dredge permit. DEQ plans to issue a low-cost individual permit for suction dredges that have larger suction hoses or greater horsepower engines. |
| 19 | The permit should apply to 8 inch dredges, and up to 50 horsepower motors. | DEQ is concerned that 8-inch suction dredges cannot comply with the conditions of this permit on most Oregon streams. DEQ plans to issue a low-cost individual permit for suction dredges that have larger suction hoses or greater horsepower engines. |
| 20 | The size and horsepower of the dredge is self-limiting by the size of the stream. | DEQ plans to issue a low-cost individual permit for suction dredges that are larger than allowed under this General Permit. |
| 33, 22, 23, 88, 76, 5, 98, 77, 57, 41, 35 | The suction dredge permit should apply to 8 inch dredges. | DEQ is concerned that 8-inch suction dredges cannot comply with the conditions of this permit on most Oregon streams. DEQ plans to issue a low-cost individual permit for suction dredges that have larger suction hoses or greater horsepower engines. |
| 11 | DEQ does not have the authority to regulate the size of the dredge. | NPDES permits must include conditions that do not allow a pollutant standard to be violated. The Department will provide a lower cost, individual permit for larger dredge operations. |
| 24, 67, 71, 18, 83, 2, 28, 16 | Dredging does not cause any harm, and is beneficial for streams. | Dredging may create turbidity that exceeds the current state standard that prohibits the discharge of turbidity in excess of 10 percent above background stream turbidity. |
| 45, 71, 65, 98, 95, 57, 93, 103 | Dredging provides food and is beneficial for fish. | Comment is not related to the proposed permit. |
| 45, 10, 70, 3, 38, 71, 33, 2, 28, 55, 40, 103, 11 | Dredging is beneficial because dredge operations recover lead and mercury. | Comment is not related to the proposed permit. |
| 24 | Limiting dredging will destroy the industry and supporting markets. | DEQ has simplified the final permit so it will have no economic impact when compared to the previously issued 700-J or MAO. DEQ plans to eliminate provisions in the proposed permit that allow limited durations of visible turbidity. This action also eliminates the monitoring requirements that included the use of a turbidimeter. DEQ will use the existing turbidity standard of 10 percent above background for the revised suction dredge permit, and will reissue the suction dredge permit with a turbidity limit exemption for |

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| | | dredges with suction hoses with an inside diameter greater than 3 inches. |
| 67, 62, 50, 33, 22, 23, 52, 77, 2, 28, 101, 55, 60, 79, 83, 85, 93, 40, 11, 56, 41, 91, 61, 92, 35 | The permit, if is issued as proposed, will result in a large impact on Oregon's businesses and economy. | DEQ does not believe that the proposed permit would have had a significant effect on Oregon's economy. Regardless, DEQ plans to propose a permit that applies the existing turbidity standard in a similar fashion as is the expired 700-J, and exempt any turbidity requirements from dredges with suction hoses up to 3 inches in diameter. DEQ expects that the final permit will have no economic impact when compared to the previously issued 700-J or MAO. |
| 11 | The state should not have the right to write overly restrictive requirements to a specific user group. | DEQ issues NPDES permits as required by state and federal law. |
| 29 | Why did DEQ not use an advisory committee? | DEQ conducted field visits during the summer of 2004, met with suction dredge representatives on numerous occasions and send out 4 preliminary drafts of the suction dredge permit before formal proposal in December 2004. |
| 38 | Agencies must remain neutral regarding regulatory decisions and enforcement. Elements of the permit are bias and discriminatory to limit/exclude citizens from enjoying recreational activities. | The suction dredge permit was developed according to federal and state NPDES permitting and public notice requirements. |
| 38 | The 700-J permit has not expired and needs to be extended to anyone who want to dredge in 2005. | The 700-J NPDES permit expired on March 31, 2002. People that were both assigned to the 700-J and submitted an application prior to the March 31, 2002 were provided with an administrative extension of the expired permit until a new suction dredge permit is available. |
| 13 | How long is the permit valid? | The permit expires 5 years after it is issued by DEQ. |
| 38 | Any action to limit turbidity for recreational dredging is bias, discriminatory, and unconstitutional. | The suction dredge permit was developed according to federal and state NPDES permitting and public notice requirements. |
| 38 | DEQ is treating recreational dredging like an industry. DEQ should be permitting people, not the dredge operation. | The suction dredge permit allows the dredge to discharge under the condition of the permit. The source of the discharge is required to be permitted, and the person assigned to the permit is responsible to assure that the source of the discharge meets the discharge limitations of the permit. |
| 92, 45, 67, 62, 3, 38, 46, 2, 36, 101, 102, 84, 93, 11, 92, 56 | DEQ is or may be requiring an NPDES permit, and writing the conditions in the suction dredge permit in response to pressure from environmentalists and other third party groups. | The suction dredge permit was developed according to federal and state NPDES permitting and public notice requirements. |
| 46 | Interested third parties have been allowed access to take part in drafting the permit, while those that will be affected are excluded. | DEQ conducted field visits during the summer of 2004, met with suction dredge representatives on numerous occasions, and requested comment on 4 preliminary drafts of the suction dredge permit before formal proposal in December 2004. DEQ also provided written response to |

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| | | all questions posed by the Mining Committee regarding the third preliminary draft of the suction dredge permit. |
| 38 | Dredgers often belong to clubs that promote recreations benefits and stewardship. | Comment is not related to the proposed permit. |
| 22, 26, 77 | DEQ has wasted tax dollars to develop this permit. | Comment is not related to the proposed permit. |
| 58, 95 | The suction dredge permit does not reflect and needs to consider the benefits of suction dredging for a stream or river. | The suction dredge permit only includes conditions that the permittee must comply with for the permitted activity. |
| 51 | The Copper River in Alaska has much more turbidity than Oregon rivers and has more salmon – could one conclude that salmon like muddy water over clear water? | DEQ must use the existing state standard as the protection level for activities that discharge turbidity. Studies that provide information regarding effects of turbidity will be considered as part of the state turbidity standard revision that is now underway. |
| 51 | The 5th Amendment of the U.S Constitution gives American Citizens the right to refuse to sign any document that may be used against them in a court of law. | Comment is not related to the proposed permit. |
| 98 | Dredging provides physical therapy and exercise for disabled dredgers | Comment is not related to the proposed permit. |
| 46, 8 | Though you are a government official, you can be sued personally under a number of provisions in federal law. | Comment is not related to the proposed permit. |
| 13 | Does the permittee need to tell DEQ where they plan to dredge? | Because the general permit applies statewide there is no requirement up-front to inform DEQ about the dredging location. However, the permit contains a condition that allows DEQ to request information from permittees regarding the location of the last 3 years of dredging. |
| 13 | Attachment A includes assumptions for percentages that if added, do not equal 100 percent. | The percentages are percentages for independent topics and are no intended to be added together or equal 100 percent. |
| 13 | Does DEQ have the resources to enforce the conditions in the permit? | DEQ does not regularly inspect dredging operations, and typically addresses suction dredge issues based on complaints we receive. |
| 48 | DEQ received a comment regarding language that existed in the expired permit, not the proposed permit. | Comment is not related to the proposed permit. |
| 39 | Instead of issuing a NPDES permit, DEQ should use a decal on the dredge similar to what is used on boats and ATVs to show that the dredge is permitted. | DEQ must issue an NPDES permit for the dredge activity. A decal on the dredge does not verify that the person using the dredge is the person assigned to the permit; also, the person assigned to this permit may have more than one dredge. |
| 53 | The mining season coincides with the fire season which shuts down all dredging. | Comment is not related to the proposed permit. |
| 54 | By issuing the MAO and the state of Oregon are culpable, and potentially liable for damages suffered by dredge operators working their claims. | Comment is not related to the proposed permit. |

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| 41 | DEQ should use the word "authorize" instead of "approved" because dredging is not a federal action. | Comment is not related to the proposed permit. |
| 41 | DEQ has not coordinated the drafting of this permit with any state or federal agency. | DEQ circulated preliminary drafts and the formal draft permit to the U.S. Forest Service, U.S. Bureau of Land Management, Oregon Department of State Lands, Oregon Department of Fish and Wildlife, Oregon Department of Parks and Recreation, and the Oregon Water Resources Department. |
| 11 | The expired 700-J and MAO were Class II permits. DEQ is proposing to reissue the suction dredge permit as a more restrictive Class IV permit. | Both the expired and the proposed suction dredge permit are NPDES General Permits. The proposed permit is no different in "class" than the expired permit. |
| 11 | I demand that the suction dredge permit include the words "incidental take" because fishing licenses are based on incidental take. | Comment is not related to the proposed permit. |
| 60 | The permit needs to be defendable from the miner's point of view. If permit isn't workable, the miners can pull together and do that same thing that the environmentalists do. | Comment is not related to the proposed permit. |
| 91 | The final draft permit is probably workable for the vast majority of suction dredgers in Oregon. | DEQ agrees. However, DEQ is simplifying the final version of the permit and will revisit the limited turbidity allowance provisions in a future suction dredge permit renewal once a new turbidity standard is in place. |

HARDY MYERS
Attorney General

PETER D. SHEPHERD
Deputy Attorney General

## Attachment B3

**DEPARTMENT OF JUSTICE**
GENERAL COUNSEL DIVISION

**MEMORANDUM**

DATE: April 19, 2005

TO: Mark Charles, Manager of Surface Water Management Section
Scott Manzano

FROM: Larry Knudsen, Assistant Attorney General
Natural Resources Section

SUBJECT: Applicability of NPDES Permit Requirements to Recreation Suction Dredge Mining

EQ is preparing to renew the expired 700-J permit. This is an National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to CWA Section 402 [33 USC § 1342], and it covers the operation of suction dredges of 40 horsepower or less used for recovering precious metals from stream bottom sediments. As the name implies, these dredges pull sand and other materials from the stream bed. The material is then mechanically processed to remove a significant percentage of the heavy metals and the remainder of the material is discharged back into the water column as waste.

DEQ accepted formal comments on the proposed renewal of the 700-J permit from December 23, 2004 through March 4, 2005. A number of the individuals and groups commenting on the proposed permit have asserted that discharges from these dredges are not properly regulated under CWA section 402. Instead, they claim that the discharges are not subject to regulation at all, should be regulated only under CWA Section 404 (33 USC § 1344) or should be regulated only under a state water pollution control facility (WPCF) permit. Each of these arguments is discussed below.

### The CWA Regulation under Section 402

Under CWA Section 402, an NPDES permit is required for the discharge of a pollutant from any point source to waters of the United States. These suction dredges at issue are required to have such a permit before discharging. This conclusion clearly follows from the applicable statutory and regulatory definitions, as well as the federal court decisions interpreting these definitions.

**Point Source.** The CWA defines a point source as "any discernible, confined, and discrete conveyance," including pipes and conduits. CWA Section 502(14) [33 USC § 1362(14)]. There does not appear to be any reasonable argument that discharges from the suction dredge apparatus do not fall under the definition of point source. *See League of Wilderness Defenders v. Forsgren*, 309 F3d 1181, 1184-1185 (9th Cir 2002); *Rybachek v. United States Environmental Protection Agency*, 904 F2d 1276, 1285 note 8 (9th Cir 1990).

**Pollutant.** The term "pollutant" is broadly defined and includes dredge spoils, rock, sand, and almost all other forms of waste. CWA Section 502(6). The federal Environmental Protection Agency (EPA) has determined that the re-introduction of waste materials from the stream bed into the water column through the process of suction dredging and sluicing constitutes the addition of a pollutant. The federal Ninth Circuit Court of Appeals has reviewed and upheld EPA's decision. *See Rybachek, supra,* at 1285-1286; *see also Borden Ranch Partnership v. United States Army Corps of Engineers*, 261 F3d 810, 814 (9th Cir 2001). *See also, Washington Wilderness Coalition v. Hecla Mining Co.*, 870 F Supp 983, 988 (ED Wash) (and authorities cited therein).

Some of the comments assert that a permit is not appropriate because the discharges from small suction dredges are relatively insignificant. There is, however, no exception to CWA Section 402 permitting requirements based on the relative significance of the discharge. *Sierra Club v. Union Oil Co.*, 813 F2d 1480, 1490-1491 (9th Cir 1986), *rev'd on other grounds, Union Oil Co. v. Sierra Club*, 108 S Ct. 1102 (1988); *Save our Bays & Beaches v. City and County of Honolulu*, 904 F Supp 1098, 1105 (D. Hawaii, 1994). Similarly, under the CWA, the determination of the need for permit effluent limits or other regulatory conditions must be made in the context of the water quality of the specific receiving water and the standards applicable to the receiving water. CWA Sections 301, 303, and 402. The existing record for this general permit does not, and probably could not, include substantial evidence upon which to base a determination that **all** of the covered discharges are in fact insignificant. *See also, Natural Resources Defense Council, Inc. v. United States EPA*, 966 F2d 1292, 1306 (9th Cir 1992).

**Waters of the U.S.** A number of comments assert that suction dredge mining is not subject to the federal Clean Water Act because the discharges take place on waters that are not navigable in fact. These assertions are misplaced because the requirements under CWA Sections 402 and 404 apply to any discharge to "waters of the United States including the territorial seas." 33 USC § 502(7) (defining "navigable waters" as used in the CWA). The waters of the U.S. include streams that are tributaries of navigable waters even if those streams are not themselves navigable. *Headwaters, Inc. v. Talent Irrigation District*, 243 F 3d 526, 533 (9th Cir 2001). It also includes wetlands and ponds adjacent to navigable waters and their tributaries. *See, e.g., San Francisco Baykeeper v. Cargill Salt Division*, __ F Supp 3d ___ (2003 US Dist LEXIS 8247) (N Dist CA, 2003) (and authorities cited therein).

**Unitary Waters Theory.** At least one comment argues that a permit is not needed because of the so-called "unitary water theory." This is a relatively new concept that the United States Department of Justice used to argue that permit is not required when water is transferred

from one relatively polluted water body to another relatively less polluted water body. *See South Florida Water Management District v. Miccosukee Tribe of Indians*, 124 US 1537 (2004). Essentially, the theory holds that all waters of the U.S. are the same and thus no permit is required to move water from one water body to another water body.

At this time, the unitary water theory has not been adopted by the Supreme Court or any other court. Assuming for the sake of argument that the theory becomes law at some future date, it is not relevant to the issue of permitting suction dredge mining. Such mining does not move polluted waters between water bodies. Rather, pollutants are introduced to the water body by the dredging and sluicing and not by the transfer of water. *See Rybachek, supra; see* also Brief for the United States, at 22 note 7, in *South Florida Water Management District v. Miccosukee Tribe of Indians*, 124 US 1537 (2004). In this fundamental regard, discharges from dredging are not distinguishable from most other industrial and municipal discharges.

**Effluent Limit Guidelines.** A number of comments assert that NPDES permits are not required because EPA has promulgated specific effluent limit guidelines (ELGs) as technology-based requirements for certain placer mining activities, and these ELGs do not apply to dredges processing less than 5,000 cubic yards per year. 40 CFR § 440.140 to 440.148. With one exception discussed below,[1] the existence of ELGs is irrelevant to the issue of whether an NPDES permit is required.

NPDES permits are required to have, at a minimum, all effluent limits needed to meet the technology-based requirements of the CWA. CWA Sections 301, 304, 306, and 402. Permits are also required to have any additional effluent limits needed to ensure that the permitted activities do not cause or contribute to a violation of a water quality standard. CWA Sections 301, 303 and 402.

The CWA directs EPA to adopt ELGs to implement technology-based requirements for various industrial categories. CWA Section 304(b). The CWA recognizes, however, that ELGs will not be prepared for all sources. For the remainder of point sources not covered by an ELG, permit writers are directed to impose technology-based effluent requirements using best professional judgment. 40 CFR § 125.3(c)(2). Thus the absence of an ELG only means that technology-based effluent limits must be established by the permit writer using best professional judgment. It does not mean that the discharge is exempt from permitting requirements.

**Section 404 Exemption.** CWA Section 404 [33 USC § 1344] is a companion provision in the Clean Water Act that authorizes the Army Corps of Engineers to issue permits for the discharge of dredged or fill materials into navigable waters. Several of the comments argue that the suction dredge mining at issue should be regulated by a Section 404 permit rather than a Section 402 permit. Others argue that a Section 402 permit is not required simply because the discharge includes dredged materials regardless of whether the Corps regulates the activity or exempts it from regulation.

The provisions of Section 404 of the Clean Water Act do not apply to the discharges from suction dredges used for mining. The courts have treated the wastes from sluicing or other

[1] See discussion of the CWA Section 404 exemption at page 4.

beneficiation processes as distinct from dredged materials as that term is used in Section 404. *National Mining Ass'n v. United States Army Corps of Engineers,* 145 F3d 1399, 1406 (DC Cir 1998). This position is consistent with EPA's treatment of the issue and the position taken by the United States Department of Justice in recent litigation. United States of America's Memorandum in Support of Motion for Judgment on the Pleadings, *Templeton v. United States of America,* C1V02-320-C-EJL (D Idaho, 9/28/2004).

Historically, the Corps has not regulated the other (i.e. unprocessed) discharges from suction dredges because they were viewed as insignificant or "incidental fall back." Under the regulations adopted by the Corps, incidental fall back is defined as: "the redeposit of small volumes of dredged material that is incidental to excavation activities ... when such materials falls back to substantially the same place as the initial removal." 33 CFR 323.2(d)(1). Separate provisions clarify that no permit is required for redeposit of dredged materials that does not destroy or degrade waters of the US. *Id. at* (4). And it expressly recognizes a "de minimis" (i.e. inconsequential) effect when considered individually or cumulatively. *Id.* at (6).

Section 404 also covers the discharge of certain fill materials. The definition of fill has been the subject of much litigation and recent rulemaking.[2] Historically, the Corps defined fill to include only materials placed in the water for a purpose other than disposal, such as creating dry land or raising the elevation of the land under the water. 33 CFR § 209.120(1975). Eventually, this became known as the "primary purpose" test. 30 CFR § 323.2 (2001). EPA for its part, however, adopted an "effects based test." 40 CFR 232.2 (1976). In 2000, the Corps and EPA proposed a single definition that essentially adopted an effects-based test and that excluded most wastes. 65 FR 21,292 (4/20/200). In 2002, the agencies adopted a slightly different effects-based test that excludes trash and garbage. 33 CFR pt 323, 40 CFR pt 232.

As a part of the 2002 regulations, the Corps and EPA deleted provisions that specifically addressed discharges covered by ELGs, water quality standards or permits issued under CWA section 402 from the definition of fill. In doing so, however, the agency noted that they did not view this as a significant change in regulatory approach and the agencies clearly noted that while some discharges covered by such provisions, including those addressing suspended or settleable solids can raise bottom levels over time, the agencies do not consider such pollutants to be fill materials for purposes of Section 404. 67 FR 31129, 31135 (5/9/2002).

Based on the nature of the suction dredge mining at issue, there is no reason to believe that the change in regulations leads to a conclusion that the suction dredge discharges in question are properly regulated as fill material. There is nothing to suggest that the actual effect of the activities on bottom levels would be significant or that the existence or lack of an ELG would change the analysis.

It is also worth noting that even if one were to assume for the sake of argument that discharges from these suction dredges are dredge spoils and not waste, the requirement for a Section 402 permit likely would not change. EPA's regulations expressly exempt dredge and fill

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[2] *See, e.g.,* Note, Shifting the Boundary Between the Sections 402 and 404 Permitting Program by Expanding the Definition of Fill Material, 31 BC Envtl Aff L Rev 617 (2004).

activities from Section 402 permitting requirements **only** when the activities are actually subject to regulation by the Corps. 40 CFR §123.2. As noted previously, to date the Corps has determined that dredge mining is not subject to regulation under Section 404.

## State Permitting Authority

Several of the persons commenting on the permit took the position that regulation of suction dredging is appropriate only under state law. Others argued that state law does not authorize such regulation. Oregon law clearly authorizes DEQ regulation of suction dredges, both through the Clean Water Act's NPDES permit program and under independent provisions of state law.

Oregon Statutes dating back to the 1950's, and, in some cases earlier, have declared water pollution to be contrary to public policy and have authorized DEQ to take all those actions necessary to protect, maintain and improve water quality. ORS 468B.010, 468B.015 and 468B.020. For more than three decades, Oregon Law has expressly required DEQ permits for any discharge of wastes into waters of the state from any industrial or commercial activity or any disposal system. ORS 468B.050.

In 1973, the states water quality statutes were amended to authorize the Environmental Quality Commission to adopt all rules and take any other actions necessary to implement the Clean Water Act. ORS 468B.035. This includes all actions required for EPA approval to operate the NPDES permit program established by CWA Section 402.

With a few exceptions not relevant here, federal agencies and federal lands are subject to both the requirements of the federal Clean Water Act and state water quality requirements arising under state law. CWA Section 313 [33 USC § 1323]; CWA Section 401 [33 USC § 1341]. EPA determines whether a state will administer the NPDES permit program established by CWA Section 402. If EPA delegates the NPDES permit program to a state, it suspends its own permitting program. EPA also decides which lands within the state are subject to the state program, but typically,[3] a state program must include all discharges, even those arising on federal lands. 40 CFR § 123.2(g)(1). And in Oregon, EPA did not reserve permitting authority except with respect to Tribal lands.

Further, and as discussed in more detail below, the U.S. Supreme Court has held that federal mining laws and the federal regulations implementing those statutes and federal land management statutes and the federal regulations implementing those statutes do not pre-empt state environmental regulation of mining activities. *California Coastal Comm'n v. Granite Rock Co.*, 480 US 572, 581-586 (1987). This includes both the laws applicable to U.S. Forest Service lands and lands under the jurisdiction of the Bureau of Land Management.

## Mining Law of 1872

[3] A different regulatory regime often exists for tribal lands. 40 CFR § 123(g)(2); §123.31. EPA often reserves regulatory authority over reservations unless the tribe has been approved for "treatment as a state" status. CWA Section 518 [33 USC § 1377].

A number of comments assert that the Mining Law of 1872, 30 USC § 21 *et seq.* pre-empts CWA and state permitting requirements. Neither assertion is supported by the law.

The U.S. Supreme Court has previously held that the Mining Act of 1872 "expressed no legislative intent on the....subject of environmental regulation." *California Coastal Comm'n, supra*, at 581 (1987). The Court also held that the subsequent amendments to federal mining law known as the Multiple Use Mining Act (30 USC § 601 *et. seq.*) and federal agency implementing regulations did not pre-empt state or federal environmental regulation. *Id.* at 582.

Further, the Oregon Court of Appeals has expressly rejected the notion that the federal mining laws create **any** right to use waters of the state for the purpose of waste disposal. *Kinross reconsideration*, 163 Or App 357 (1999), *cert den*, 531 US 960 (2000).[4]

Finally, there is nothing in text, context or legislative history of the more recent CWA that suggests a general exemption from permitting requirements for mining on federal lands.[5] CWA Sections 313 and 402. Subsequent amendments to federal mining, environmental and land management statutes all provide strong evidence against any inference of pre-emption. *See, e.g.*, 30 USC § 21(a); 30 USC §§ 601 *et seq.*; 42 USC §§ 4321 to 4370d.

**Land Use Issues**

Questions also have been raised regarding DEQ's authority and responsibility to require certification that dredging operations are consistent with statewide land use planning goals and acknowledged local comprehensive plans and regulations implementing those plans. DEQ is required to obtain such certification for water quality permits under ORS 197.180 and the rules of the Environmental Quality Commission (EQC) and Land Conservation and Development Commission (LCDC) that implement this statute. OAR chap 340, div 18; chap 660, div 30 and chap 660, div 31.

The state's land use statutes require LCDC to determine which activities on federal lands are subject to regulation under the state land use program and which are pre-empted. ORS 197.390 to 197.395. LCDC has not fulfilled this statutory directive. Rather, state agencies and local governments have been left to determine which federal activities are subject to regulation.

The U.S. Supreme Court has assumed, without actually deciding, that states and localities are pre-empted from extending actual land use designations to federal lands. *Granite Rock, supra*, at 586-587. In other words, a state cannot dictate to a federal agency what specific land uses are or are not allowed on federal lands. The Court concluded, however, that states could impose state environmental regulations as conditions on state or local land use permits. *Id.* Moreover, Oregon's courts have recognized that some components of the statewide planning

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[4] At least for all claims made after 1877. *Kinross, supra* at 523.

[5] There is an express limited exemption from stormwater requirements for some mining activities. CWA Section 402(1).

system are in fact environmental regulations. *Arnold Irrigation Dist. v. DEQ*, 79 Or App 136, 143, *rev den*, 301 Or 765 (1986).

Given the unsettled state of affairs, DEQ has reasonably interpreted the land use statutes and implementing rules to require submission of a Land Use Compatibility Statement. The Department has further concluded, however, that in any given case the local government may properly determine that its acknowledged comprehensive plan and land use regulations do not impose relevant conditions on the land use activities conducted on the federal lands in question.

ljk:lal/GENM2439

Attachment C

# Chronology of DEQ Development of the General NPDES Permit for Suction Dredge Miners

| Date | Activity |
|---|---|
| April 1997 | The previous NPDES General Permit (700-J) for suction dredge mining is issued. |
| May 1999 | The 700-J General Permit is modified per court order following a permit challenge by Northwest Environmental Defense Center (NEDC). |
| April 2002 | The 700-J General Permit expires – registrants are administratively continued. DEQ issues MAO number WQ/I-ER-02-114 to new suction dredge operators until the 700-J is reissued. |
| April 2004 | NEDC transmits Notices of Intent (NOIs) to sue under the Clean Water Act to un-permitted miners. |
| May 2004 | DEQ meets with NEDC and agrees to reissue the 700-J General Permit if NEDC does not follow through on its lawsuits. |
| June 2004 | DEQ sends a letter to every miner covered under the expired 700-J General Permit as well as mining clubs and organizations across the State informing them of the decision to reissue the 700-J General Permit by summer 2005. |
| June/July 2004 | DEQ reviews the expired 700-J General Permit and the approach other States have taken on suction dredge mining. DEQ meets with the Oregon Department of State Lands (which has co-jurisdiction on in-stream mining in State Scenic Waters and Essential Salmon Habitat). |
| August 6, 2004 | DEQ and DSL meet with miners on the North Santiam River to observe demonstrations of several 2 and 4 inch dredges (as well as a small high bank dredge). |
| August 9-10, 2004 | DEQ meets with miners in the Powder and Burnt River Subbasins to observe demonstrations of several dredges sized from 2 to 6 inches. |
| August 23-24, 2004 | DEQ meets with miners in the Applegate, Rogue and Illinois subbasins to observe demonstrations of the several dredges sized between 4 and 6 inches. Representative Anderson attends, along with a representative of the U.S. Forest Service. |

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| September 17, 2004 | DEQ transmits the 1st preliminary draft of the suction dredge permit to the mining and the environmental communities and takes informal comments for nearly a month. |
| October 25, 2004 | DEQ transmits the 2nd preliminary draft of the suction dredge permit for additional comments and discussion. DEQ meets with miners in Eugene to discuss 2nd draft. |
| November 4, 2004 | DEQ transmits the 3rd preliminary draft for additional comments and discussion. |
| November 5, 2004 | DEQ meets with miners in Baker City to discuss the 3rd draft and take informal comments. |
| November 29, 2004 | DEQ transmits the 4th (and final) preliminary draft for final informal comments and discussion. |
| November 29, 2004 | DEQ provides written responses to questions regarding the 3rd preliminary draft to the Mining Committee (39 pages of questions and DEQ responses) |
| December 23, 2004 | DEQ sends draft permit for formal public comment scheduled to end February 11, 2005. |
| January 25, 2005 | DEQ meets with miners and Legislative Representatives to explain the need for the permit and answer questions. |
| Jan 26 - Feb 3, 2005 | DEQ holds public hearings and information sessions in Grants Pass, Salem, Portland, and Baker City. |
| February 3, 2005 | DEQ extends public comment period until March 4, 2005 upon request from Mining Committee. |
| March 5, 2005 | DEQ meets with miners and Legislative Representatives to discuss potential approaches to a final permit. |
| June 3, 2005 | DEQ meets with NEDC to discuss potential issues with the proposed permit. |
| June 23, 2005 | DEQ will propose new suction dredge permit (700-PM) for adoption by the Environmental Quality Commission. |

Attachment D

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

# Rulemaking Proposal
for
# NPDES General Permit 700-PM Renewal

## Presiding Officer's Reports on Public Hearings

State of Oregon

# Department of Environmental Quality — Memorandum

**To:** File **Date:** February 1, 2005

**From:** Ranei Nomura
Surface Water Management, Water Quality Division

**Subject:** January 26, 2005 Public hearing for renewal of NPDES general permit #700-J

A public hearing was held to receive comments on the proposed National Pollutant Discharge Elimination System (NPDES) General Permit 700-J renewal. The hearing was held on January 26, 2005 at DEQ Headquarters, 811 SW 6th Ave., Portland, OR.

An informal discussion session began at 5:00 p.m. with Scott Manzano, Water Quality Division, presenting an overview of the permit revisions and answering questions. 46 people signed the attendance forms (attached).

The formal hearing began at 7:20 p.m. The following people provided oral testimony:

1) Ted Staley, Millennium Diggers Club, Keizer,Oregon
2) Tony Massimilla, Rhododendron, Oregon
3) Ronald Wilson, Graham, Washington
4) John Tschanner, Puyallup, Washington
5) Butch Wilson, Renton, Washington
6) Bob Mote, Vancouver, Washington
7) Sue Beard-Bucholz, Yamhill, Oregon
8) James Foley, La Pine, Oregon

State of Oregon
Department of Environmental Quality Memorandum

**To:** File **Date:** February 1, 2005

**From:** Mark D. Charles
Surface Water Management, Water Quality Division

**Subject:** January 27, 2005 Public hearing for renewal of NPDES general permit #700-J

A public hearing was held to receive comments on the proposed National Pollutant Discharge Elimination System (NPDES) General Permit 700-J renewal. The hearing was held on January 27, 2005 at the Oregon Department of State Lands, 773 Summer Street, Salem, Oregon.

An informal discussion session began at 5:00 p.m. with Scott Manzano, Water Quality Division, presenting an overview of the permit revisions and answering questions. 37 people signed the attendance forms (attached).

The formal hearing began at 7:30 p.m. The following people provided oral testimony:

1) Dave Kelsea, Salem, Oregon
2) James Foley, LaPine, Oregon
3) John Tschannen, Puyallup, Washington
4) Larry M. Chase, Springfield, Oregon
5) Louie Frick, Jefferson, Oregon
6) Joseph Greene, Philomath, Oregon
7) Tom Quintal, Salem, Oregon

State of Oregon

# Department of Environmental Quality — Memorandum

**To:** File **Date: February 23, 2005**

**From:** Jon Gasik, MS, PE
WR/WQ-Medford Office

**Subject: Public hearing for the 700J NPDES permit renewal**

A public hearing was held to receive comments on the proposed National Pollutant Discharge Elimination System (NPDES) General Permit 700-J renewal. The hearing was held on February 2, 2005 at the Anne Basker Auditorium, 604 NW 6th Street, Grants Pass, Oregon.

An informal discussion session began at 5:00 p.m. Scott Manzano, ODEQ WQ Portland, presented an overview of the revisions to the permit. There was a question and answer section. Sixty two people were in attendance. The list of attendees is attached to this memo.

The formal hearing began at 8:10 p.m. The following people provided oral testimony:

1) Loren Kirkland, PO Box 395, Rogue River, Oregon
2) John Golden, 2555 Merlin Road, Grants Pass, Oregon
3) Jim Williams, PO Box 2056, La Pine, Oregon
4) Frank Serroni, 2735 Merlin Road, Grants Pass, Oregon
5) Justin Peterson, 6061 Gath Road SE, Salem, Oregon
6) Jeff Miner, no address given, Albany, Oregon
7) John J. Lesisz, 2496 Allen Creek Road, Grants Pass, Oregon
8) Jim Foley, 15961 Woodchip Lane, La Pine, Oregon
9) Joe Greene, 33180 Dorset Lane, Philomath, Oregon
10) Allen Knight, PO Box 290, Prospect, Oregon
11) Lesa Barton, 2041 NW Vine Street, Grants Pass, Oregon
12) Shirley Tinney, 220 Elst Lane, Glendale, Oregon
13) David McAllister, 1320 Applegate Ave., Grants Pass, Oregon
14) Matt Vegar, PO Box 519, Lakeside, Oregon
15) William L. Pith, 300 Pine Street, Sutherlin, Oregon
16) Tom Kitchar, PO Box 1371, Cave Junction, Oregon
17) Dave Kelsea, 4159 D Market Street, Salem, Oregon

The hearing was closed at 10:10 p.m.

State of Oregon
Department of Environmental Quality — Memorandum

**To:** File **Date:** February 8, 2005

**From:** Mitch Wolgamott
Easter Oregon Region, Water Quality Program Manager

**Subject:** February 3, 2005 Public hearing for renewal of NPDES general permit #700-J

A public hearing was held to receive comments on the proposed National Pollutant Discharge Elimination System (NPDES) General Permit 700-J renewal. The hearing was held on February 3, 2005 at Baker City Hall, 1655 First Street, Baker City, Oregon.

An informal discussion session began at 5:00 p.m. with Scott Manzano, Water Quality Division, presenting an overview of the permit revisions and answering questions. 16 people signed the attendance forms (attached).

The formal hearing began at 7:30 p.m. The following people provided oral testimony:
1) Jan Alexander, Unity, Oregon
2) Jim Williams, LaPine, Oregon.
3) Justin Peterson, Salem, Oregon
4) Guy Michael, Durkee, Oregon
5) Dave Kelsea, Salem, Oregon

The hearing was adjorned at 8:35 p.m.

Attachment E

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

# Rulemaking Proposal
for
700-J NPDES General Permit Renewal

## Relationship to Federal Requirements

**Answers to the following questions identify how the proposed rulemaking relates to federal requirements and potential justification for differing from federal requirements. The questions are required by OAR 340-011-0029.**

1. **Are there federal requirements that are applicable to this situation? If so, exactly what are they?**

   Yes. Title 40 of the Code of Federal Regulation, Parts 122-125, 130, 131, and 133 for the administration and implementation of the National Pollutant Discharge Elimination System (NPDES) permit program are applicable to this situation.

2. **Are the applicable federal requirements performance based, technology based, or both with the most stringent controlling?**

   The requirements are both performance-base and technology-based with the most stringent controlling.

3. **Do the applicable federal requirements specifically address the issues that are of concern in Oregon? Was data or information that would reasonably reflect Oregon's concern and situation considered in the federal process that established the federal requirements?**

   Yes, the applicable federal requirements address issues of concern in Oregon. Data and information used to establish the federal requirement can be reasonably assumed to reflect the situation in Oregon. Controlling pollution discharges to surface water in Oregon have the same importance and consequence as water pollution control requirements in all other states.

4. **Will the proposed requirement improve the ability of the regulated community to comply in a more cost effective way by clarifying confusing or potentially conflicting requirements (within or cross-media), increasing certainty, or preventing or reducing the need for costly retrofit to meet more stringent requirements later?**

The existing general permit required sources to monitor turbidity to assure compliance with water quality standards. The proposed permit renewal provides certainty by determining that a permit limit for turbidity is required, and establishing that limit.

5. **Is there a timing issue which might justify changing the time frame for implementation of federal requirements?**

   Not applicable

6. **Will the proposed requirement assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth?**

   No. The proposed rulemaking renews an NPDES General Permit, which is required to be reissued every 5 years. The NPDES program requires permits renewals on this frequency in order to consistently review and maintain necessary water pollution control requirements to protect surface water in Oregon.

7. **Does the proposed requirement establish or maintain reasonable equity in the requirements for various sources? (level the playing field)**

   Yes. All of the facilities that are assigned to this permit have to meet the same pollution control requirements.

8. **Would others face increased costs if a more stringent rule is not enacted?**

   No.

9. **Does the proposed requirement include procedural requirements, reporting or monitoring requirements that are different from applicable federal requirements? If so, Why? What is the "compelling reason" for different procedural, reporting or monitoring requirements?**

   No.

10. **Is demonstrated technology available to comply with the proposed requirement?**

    Yes. However, there may be situations in certain streams where dredging must be curtailed in order to meet the proposed discharge requirement.

11. **Will the proposed requirement contribute to the prevention of pollution or address a potential problem and represent a more cost effective environmental gain?**

    The proposed requirement may reduce discharges from suction dredge activity that create turbidity if suction dredge operators opt to use smaller dredges that are not charged fees.

Attachment F

# 700-J SUCTION DREDGE NPDES GENERAL PERMIT

## DEPARTMENT OF ENVIRONMENTAL QUALITY
## Chapter 340
## Proposed Rulemaking
## STATEMENT OF NEED AND FISCAL AND ECONOMIC IMPACT

| | |
|---|---|
| **Title of Proposed Rulemaking:** | NPDES Suction Dredge General Permit Renewal |
| **Need for the Rule** | National Pollutant Discharge Elimination System (NPDES) General Permit 700-J expired on March 31, 2002, and must be renewed through rulemaking as required by Oregon Administrative Rule (OAR) 340-045-0033. |
| **Documents Relied Upon for Rulemaking** | Documents relied upon to provide the basis for this proposal include:<br>1) Title 40 of the Code of Federal Regulation, Parts 122-125, 130, 131, and 133<br>2) Oregon Revised Statutes (ORS) 183.310, 468B.035, and 468B.050<br>3) OAR Chapter 340, Divisions 41 and 45<br>4) Draft Evaluation Report for NPDES 700-J General Permit Renewal, DEQ, November 2004<br><br>Copies of these documents can be reviewed at the Department of Environmental Quality's (DEQ's) office at 811 S.W. 6th Avenue, Portland, Oregon. |
| **Fiscal and Economic Impact** | |
| Overview | **Facilities affected:** This proposed rule renews the NPDES General Permit for suction dredge operations, which covers discharges from suction dredges that do not exceed 30 horsepower, or have suctions hoses with an insider diameter no greater than 6 inches. Suction dredges are used to recover precious metals or minerals from stream bed sediments.<br><br>Most suction dredges operate on a small scale, meaning that they operate periodically during a 3-4 month work window from mid-June to mid-September.<br><br>**New requirements:** For this permit renewal, DEQ is amending the discharge limits and monitoring requirements for turbidity created by suction dredge activity. The discharge limits and permit conditions are proposed to meet the existing water quality standard for turbidity that protects the beneficial use of waters of the state.<br><br>Visual monitoring is allowed to determine if turbidity is visible 300 feet downstream from operating dredges that are equipped with a suction hose having an inside diameter greater than 3 inches. Dredges with smaller diameter suction hoses do no have to monitor for turbidity.<br><br>DEQ is also proposing to charge a new annual fee of $25 to permittees registered under the new suction dredge permit. The fee will be used to help fund DEQ's Water Quality Division program costs to protect waters of the state in Oregon. |

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| | **Cost of compliance:** There are no proposed monitoring requirements that will increase the cost of complying with the new suction dredge permit.<br><br>**Impacts on business:** DEQ does not expect that this proposed renewal will have an impact on business in Oregon. |
| General public | Most operators register under this permit are individuals that operate for limited periods. The proposed revisions to this permit are not expected to affect the general public. |
| Small Business | The proposed revisions to this permit are not expected to affect small business. DEQ does not expect the proposed permit to significantly change the amount of seasonal suction dredge activity in Oregon |
| Large Business | The proposed revisions to this permit are not expected to affect large business. DEQ does not expect the proposed permit to significantly affect the amount of seasonal suction dredge activity in Oregon |
| Local Government | The proposed revisions to this permit are not expected to affect local government. Local government has no role to implement or administer the regulation of this activity |
| State Agencies | Suction dredge operations registered under this permit may also be regulated by the Department of State Lands (DSL). The proposed permit renewal allows DSL to administer the permit on behalf of DEQ. DEQ may allocate a portion of the permit fees to fund DSL activities. |
| DEQ | The proposed fees help fund DEQ's overall program costs to protect surface water statewide. |
| Other agencies | Suction dredge operations registered under this permit may also be regulated by the U.S. Forest Service and the Bureau of Land Management. The proposed revisions to this permit are not expected to affect those agencies |
| Assumptions | Approximately 1950 individuals are currently permitted by DEQ to suction dredge in Oregon. DEQ estimates that approximately 25 percent of the 1950 individuals currently permitted by DEQ will not pay fees or obtain a permit because they decide not to continue dredging activities or because of the cost of a permit or because they assume they assume they will not be caught. |
| Housing Costs | DEQ has determined that this proposed rulemaking will have no effect on the cost of development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single family dwelling on that parcel. |
| Administrative Rule Advisory Committee | DEQ staff developed this proposed general permit based on input from staff and sources covered under the existing permit. Staff conducted site visits, met with representative suction dredge operators, and provided preliminary drafts of proposed permit changes to key stakeholders for comment. An advisory committee was not established for this rulemaking. |

Attachment G

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

# Rulemaking Proposal
for
NPDES General Permit 700-J Renewal

# Land Use Evaluation Statement

1. **Explain the purpose of the proposed rules.**

   National Pollutant Discharge Elimination System (NPDES) General Permit 700-J expired on March 31, 2002, and must be renewed through a rulemaking action as required by Oregon Administrative Rule (OAR) 340-045-0033.

2. **Do the proposed rules affect existing rules, programs or activities that are considered land use programs in the DEQ State Agency Coordination (SAC) Program?**

   Yes ___ No X

   a. **If yes, identify existing program/rule/activity:**

   b. **If yes, do the existing statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules?**

      Yes ___ **No X (if no, explain):**
      Through its State Agency Coordination process, the Department has determined that some NPDES General do not require a land use compatibility statement determination by local government. The 700-J General Permit falls under this determination.

   c. **If no, apply the following criteria to the proposed rules.**
      NPDES permits generally require an approved local government land use compliance determination before issuance. As provided above, a determination has been made that the 700-J General Permit will not significantly affect land use.

3. **If the proposed rules have been determined a land use program under 2. above, but are not subject to existing land use compliance and compatibility procedures, explain the new procedures the Department will use to ensure compliance and compatibility.**

Not Applicable

| Division | Intergovernmental Coord. | Date |
| --- | --- | --- |
| | | 12-14-04 |

Master Agenda - internal use

# Environmental Quality Commission Meeting
# June 23 - 24, 2005 in Portland

## Thursday, June 23

| | | | | |
|---|---|---|---|---|
| | | 10:00 | | Board tour bus at DEQ HQ (WA Mutual turnout on Yamhill) |
| 10:00 | - | 10:15 | | Travel to VIP Tech Center: intro to VIP; preview of tour activities |
| 10:15 | - | 10:45 | | Tour VIP Tech Center: presentation by Ted Kotsakis and Jake Jacobsen |
| 10:45 | - | 11:15 | | Travel to Sunset VIP Clean Air Station: Overview of VIP Operations |
| 11:15 | - | 12:00 | | Tour Sunset Station |
| 12:00 | - | 12:30 | | Ride tour bus back to DEQ HQ: Working lunch |
| 12:45 | - | 1:30 | | Executive Session in Room 3B |

**1:45 - 4:20 PM Regular EQC Meeting in Room 3A - DEQ Headquarters**

| | | | | |
|---|---|---|---|---|
| 1:45 | - | 1:50 | Item A | Approval of Minutes from April 21-22, 2005, EQC Meeting in Boardman |
| 1:50 | - | 2:10 | Item B | Rule Adoption: General Permit Renewal 700PM/NPDES, Lauri Aunan and Scott Manzano, DEQ |
| 2:10 | - | 2:40 | Item C | Rule Adoption: Annual Inflation Adjustment to Air Quality Title V Permit Fees, Dave Kauth, DEQ |
| 2:40 | - | 3:10 | Item D | Rule Adoption: Phase out of VIP Enhanced Test, Ted Kotsakis, Jerry Coffer, DEQ |
| 3:10 | - | 3:25 | Break | |
| 3:25 | - | 3:50 | Item E | Action Item: Pollution Control Facility Tax Credit, Sally Puent and Maggie Vandehey, DEQ |
| 3:50 | - | 4:05 | Item X | Orphan Bond Refunding Opportunity and 0507 SRF Bond Issuance, Jim Roys, DEQ |
| 4:05 | - | 4:20 | Item F | Director's Dialogue, Stephanie Hallock |

## Friday, June 24

**8:30 AM - 12:30 PM Regular EQC Meeting in Room 3A - DEQ Headquarters**

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|---|---|---|---|---|
| 8:30 | - | 9:00 | Item G | Contested Case: Jack D. Price Contested Case, Lynne Perry, DOJ; Jane Hickman, DEQ |
| 9:00 | - | 9:50 | Item H | Informational Item: Update on the Status of the Umatilla Chemical Agent Disposal Facility, Dennis Murphey, DEQ |
| 9:50 | - | 10:20 | Item I | Rule Adoption: Align Land Quality Rules, Al Kiphut and Jeff Christensen, DEQ |
| 10:20 | - | 10:35 | Break | |
| 10:35 | - | 11:05 | Item J | Action Item: Three Basin Rules - Big Valley Woods Water Pollution Control Facilities (WPCF) Permit Modification, Dick Pedersen and Anne Cox, DEQ |
| 11:05 | - | 11:50 | Item K | Public Forum |
| 11:50 | - | 12:00 | Item L | Commissioner Reports<br>Working Lunch |

As of: 6/9/2005