

**3/31/1978**

**OREGON  
ENVIRONMENTAL QUALITY  
COMMISSION MEETING  
MATERIALS**



State of Oregon  
**Department of  
Environmental  
Quality**

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March 31, 1978  
 Main Floor Conference Room  
 Harris Hall  
 125 E. Eighth Street  
 Eugene, Oregon

- 9:00 am A. Minutes of February 24, 1978 EQC Meeting
- B. Monthly Activity Report for February 1978
- C. Tax Credit Applications
- PUBLIC FORUM - Opportunity for any citizen to give a brief oral or written presentation on any environmental topic of concern. If appropriate the Department will respond to issues in writing or at a subsequent meeting. The Commission reserves the right to discontinue this forum after a reasonable time if an unduly large number of speakers wish to appear.
- D. Teledyne Wah Chang, Albany - Proposed issuance of NPDES permit modifications for Teledyne Wah Chang Company GROSZKIEWIZ
- E. Sewage Disposal, Bend Area - Status report on discussions with Deschutes County Commission regarding sewage disposal problems within the Bend Urban Growth Boundary SHIMEK
- F. NPDES July 1, 1977 Compliance Date - Request for approval of Stipulated Consent Orders for NPDES permittees not meeting July 1, 1977 compliance date BOLTON
- 10:00 am G. River Road/Santa Clara Area, Lane County - Public hearing on proposed order prohibiting or limiting installation of subsurface sewage disposal systems within the River Road-Santa Clara Area, Lane County. JOHNSON
- H. Field Burning - Continuation of March 17, 1978 EQC meeting agenda item to consider adoption of permanent rule revisions to OAR 340-26-005 through 26-025; and consideration of adoption of proposed one-year control strategy for submittal to EPA, relative to 1978 field burning. FREEBURN  
&  
KOWALCZYK
- I. Medford Air Quality Maintenance Area - Proposed adoption of amendments to Oregon Clean Air Act Implementation Plan involving particulate control strategy rules for the Medford Air Quality Maintenance Area KOWALCZYK
- J. Crude Oil Tanker Rules - Proposed adoption of rules controlling emissions from crude oil tankers calling on Oregon ports BOSSERMAN
- Missing*  
 K. Legislation - Status report on legislative concepts under consideration for submittal to the 1979 Legislative Assembly SWENSON
- 11:00 am L. King City Sewage Treatment Plant - Consideration of petition from George and Margaret Benz regarding permit to operate the King City Sewage Treatment Plant GILBERT
- M. Clatsop Plains - Consideration of adoption of temporary amendment to OAR 340-71-020(7)(b)(c). GILBERT

Because of the uncertain time spans involved, the Commission reserves the right to deal with any item at any time in the meeting, except items G & L. Anyone wishing to be heard on an agenda item that doesn't have a designated time on the agenda should be at the meeting when it commences to be certain they don't miss the agenda item.

The Commission will breakfast (7:30 a.m.) at the Eugene Hotel, 222 E. Broadway, Eugene. Lunch will be in Conference Room A of the Harris Hall Cafeteria, see address above.

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MINUTES OF THE NINETY-FIFTH MEETING  
OF THE  
OREGON ENVIRONMENTAL QUALITY COMMISSION

March 31, 1978

On Friday, March 31, 1978, the ninety-fifth meeting of the Oregon Environmental Quality Commission convened in Harris Hall, 125 East Eighth Street, Eugene, Oregon.

Present were Commission members: Mr. Joe B. Richards, Chairman; Dr. Grace S. Phinney, Vice-Chairman; Mrs. Jacklyn Hallock and Mr. Albert Densmore. Mr. Ronald Somers was absent. Present on behalf of the Department were its Director and several members of the Department staff.

Staff reports presented at this meeting, which contain the Directors's recommendations mentioned in these minutes, are on file in the Director's Office of the Department of Environmental Quality, 522 S. W. Fifth Avenue, Portland, Oregon.

AGENDA ITEM A - MINUTES OF THE FEBRUARY 24, 1978 EQC MEETING.

It was MOVED by Commissioner Hallock, seconded by Commissioner Phinney and carried unanimously that the minutes of the February 24, 1978 meeting be approved as presented.

AGENDA ITEM B - MONTHLY ACTIVITY REPORT FOR FEBRUARY 1978

It was MOVED by Commissioner Phinney, seconded by Commissioner Hallock and carried unanimously that the monthly activity report for February 1978 be approved.

AGENDA ITEM C - TAX CREDIT APPLICATIONS

In regard to application T-949, Medford Corporation, Commissioner Hallock asked if it was Department practice to give tax credits for such things as landscaping and office furniture which do not seem to be part of providing a solid waste recovery facility. Mr. Michael J. Downs, Administrator of the Department's Management Services Division, replied that he did not know if a precedent had been set on that matter. Commissioner Hallock said she would not like to set a precedent by approving these items even though in this particular application they seemed like reasonable expenditures, they might not always be.

Commissioner Densmore said that there was a need to ask the Legislature to reassess tax credit policy. He said he did not know if the Commission had the authorization to go inside individual applications. Mr. Ray Underwood, Department of Justice, replied that he did not think the Commission had that authorization under the present statutes.

Commissioner Hallock asked if in the preliminary certification phase the Department could tell an applicant that they would not receive tax credit for these types of items, without Legislative action. Mr. Underwood replied it would take legislative action, especially in the area of solid waste.

It was MOVED by Commissioner Densmore, seconded by Commissioner Phinney and carried unanimously that the following tax credit applications be approved: T-953, T-954, T-955, T-956, T-957, T-958, T-959, T-960, T-961, T-963, T-973, T-976, T-977, T-978, T-979, T-980 and T-949.

PUBLIC FORUM

No one wished to speak on any subject.

AGENDA ITEM D - TELEDYNE WAH CHANG, ALBANY PROPOSED ISSUANCE OF NPDES PERMIT MODIFICATIONS FOR TELEDYNE WAH CHANG COMPANY

Mr. Ted Groszkiewiz of the Department's Willamette Valley Region, presented the following summation and Director's recommendation from the staff report.

Summation

1. Because Wah Chang was not confident they could meet the effluent limits to go into effect July 1, 1977, they requested a modification of ammonia, MIBK, Fluoride and toxicity limitations. That request was made April 25, 1977.
2. They later revised their application by withdrawing their request for a modification of MIBK limitations and relaxation of toxicity standards. They also reduced their request for an ammonia increase. They added a request for increased TOC limitations and requested fluoride limits be removed.
3. Until the final action could be taken on the modification they entered into a stipulated consent order with a minimal daily penalty.
4. The Department has determined to deny the modification which they requested. However, a modification will be issued which (a) increases ammonia limits to a level determined by EPA to be Best Practical Technology (BPT), (b) returns fluoride limits to pre-July 1977 levels, (c) increases TOC limits to account for unidentified constituents which show up in the TOC test, (d) redefines toxicity in terms of TLM, (e) adds a statement clarifying the permitted point of discharge, (f) redefines the bioassay results to report, and (g) adds monitoring of the creek in order to determine if pollutants are entering at other points other than the authorized discharge point.
5. The Wah Chang sludge ponds appear to be leaking. The Department will continue to evaluate this and take enforcement action if necessary.
6. TWCA has made substantive improvements to the steam stripper the past 30 days which should enable them to meet the limits of the amended permit.
7. No additional evidence has been submitted by TWCA which convinces us that the limits as proposed are not appropriate or achievable.
8. The EPA Regional Administrator approved the permit modification by a letter dated March 20, 1978.



9. EPA sent a Notice of Violation to TWCA which tells them that EPA is ready to initiate enforcement action in 30 days if the Department does not take appropriate action. We believe that by issuing this modification we will be taking that action required.

#### Director's Final Action

After due consideration of all the evidence presented, the Director intends to deny Teledyne Wah Chang Albany's request for permit modification and to issue the modification initiated by the Department.

Commissioner Phinney asked if it was possible to correlate the present TOC data with the historical COD data. Mr. Groszkiewiz replied that there was no correlation between TOC and COD, therefore, as far as the TOC, there was no historical data.

Mr. Tom Nelson, Acting Director of Environmental Control for Teledyne Wah Chang Albany, testified that Wah Chang had requested the permit modifications detailed in the staff report because they felt these modifications were needed to avoid violations which may occur. Mr. Nelson said they felt that EPA should not have compared Wah Chang with any other industry in determining best practicable control technology because Wah Chang was a unique industry. Even though Wah Chang had installed equipment recommended by EPA, he said, they had no assurance that they would be able to meet the discharge limit on ammonia nitrogen proposed by DEQ.

Mr. Nelson said they were concerned about unrealistic discharge limits causing them to cut back on production because of the effect it would have on their employees and the users of their product.

Chairman Richards said that from the information the Commission had, EPA had determined that the limit on ammonia nitrogen was within the best practicable control technology, and asked Mr. Nelson if he understood this EPA determination. Mr. Nelson said they understood that determination had been made based on a comparison between the zirconium and the columbium-tantalum industry. In response to Chairman Richards, Mr. Nelson said they had received a notice of violation from EPA, and regardless of the modifications the EQC might make on the permit, Wah Chang would still be subject to the EPA enforcement action.

Chairman Richards said in view of EPA, he did not think the Commission had a choice in allowing Wah Chang's request and changing the permit modifications. In response to Chairman Richards, Mr. Nelson said the company felt that modification they had requested had a realistic base.

Director Young said that no action was needed by the Commission on this action, and that the permit would be issued by him.

Mr. Vern D. Bergevin, President of the Steel Workers Local 613 at Teledyne Wah Chang Albany, testified that they were in support of the Company's efforts to get modifications on the ammonia discharge limit.

AGENDA ITEM E - SEWAGE DISPOSAL, BEND AREA - STATUS REPORT ON DISCUSSIONS WITH DESCHUTES COUNTY COMMISSION REGARDING SEWAGE DISPOSAL PROBLEMS WITHIN THE BEND URBAN GROWTH BOUNDARY

Mr. Robert Shimek of the Department's Central Region Office, presented Director's recommendations on this matter, as follows:

Director's Recommendation

1. The Director recommends that the Commission direct the staff to continue to work with Deschutes County and City of Bend Officials to obtain a written agreement outlining how DEQ, Deschutes County and City of Bend can work together to solve the problems discussed in previous meetings.
2. The Director recommends no Commission action at this time and that the Commission be advised on status of this item in the future as appropriate.

No Commission action was need on this item.

NPDES JULY 1, 1977 COMPLIANCE DATE - REQUEST FOR APPROVAL OF STIPULATED CONSENT ORDERS FOR PERMITTEES NOT MEETING JULY 1, 1977 COMPLIANCE DEADLINES

Mr. Fred Bolton, of the Department's Regional Operations Office, presented the staff report on this matter. He said that the City of Newport was unable to consistently treat sewage to the required level of secondary treatment, and the Department had reached agreement with the City on a consent order providing for an orderly construction/modification of the existing facilities and interim treatment limitations.

It was MOVED by Commissioner Hallock, seconded by Commissioner Phinney and carried unanimously that Stipulation and Final Order No. WQ-NWR-78-25, Department of Environmental Quality v. City of Newport, be approved.

AGENDA ITEM J - PROPOSED ADOPTION OF RULES CONTROLLING EMISSIONS FROM CRUDE OIL TANKERS CALLING ON OREGON PORTS

Chairman Richards asked Mr. Underwood, Department of Justice, if he had a recommendation on how the Commission should respond to these proposed rules. Mr. Underwood said he had some serious questions as to whether or not the proposed rules would be valid in light of recent court cases, particularly with regard to federal preemption and undue burden on commerce. He said he did not feel he could recommend at this time that the rules as proposed were sufficiently free from doubt on these issues. Mr. Underwood said that if the Commission acted on the rules it would be without his recommendation.

Chairman Richards asked if Mr. Underwood had consulted with the staff as to whether any harm would occur by delaying adoption of these rules. Mr. Underwood said it was his understanding that no harm would be done by postponing rule adoption.

Mr. Peter Bosserman, of the Department's Air Quality Division, responded to Chairman Richards that the staff deferred to Mr. Underwood's judgment on the legality of the proposed rule. Mr. Bosserman said that the only harm would be in the delay of the GATX Terminal Construction because their permit was conditioned upon adoption of these rules.

Mr. John Burns, Portland Attorney for Western Oil and Gas Association, agreed that there were problems with the proposed rule and asked that the Commission delay action on the rules so that he could have some input into the deliberations on the rule.

It was MOVED by Commissioner Hallock, seconded by Commissioner Phinney and carried unanimously that this matter be deferred until such time as the staff felt it should be reconsidered.

AGENDA ITEM K - LEGISLATION - STATUS REPORT ON LEGISLATIVE CONCEPTS UNDER CONSIDERATION FOR SUBMITTAL TO THE 1979 LEGISLATIVE ASSEMBLY

Mr. Jim Swenson, of the Department's Public Affairs Office, summarized the legislative proposals for the Commission. He pointed out that these proposals were not complete and were not the Director's judgment of what he was going to give to the Executive Department. Mr. Swenson reminded the Commission that the Executive Department was requiring agencies to submit by April 15, 1978, a summary of those legislative concepts they would like to see pursued in the upcoming legislative session. By the middle of May 1978, he said the Executive Department would indicate back to the agency their feelings about those proposals, and somewhere in the middle of this calendar year the Department would be required to submit actual completed draft legislation to the Executive Department for consideration by the Governor in his legislative package.

Commissioner Hallock asked if there would be an opportunity for the Commission, as a body, to talk about the proposed legislation.

In response to a question by Commissioner Densmore, Mr. Swenson said that a team from the Department had gone over the original proposals which the Commission received at an earlier date and developed the list in the staff report. He said that in many cases those original proposals could be taken care of by policy statements from the Director, administrative rule changes requiring no change in a statute; and, in some cases, were deemed to be unconstitutional. Mr. Swenson said that the proposals in the staff report appeared to be those that the Legislature should address.

Chairman Richards suggested that Legislation could be discussed at the lunch meeting, and invited any members of the public that might be interested to attend that lunch. He said that the budgeting process would also be discussed.

Commissioner Densmore stressed that he hoped the Commission would be able to assist the Department in mounting a strong legislative position with respect to changes in air quality laws which would enable the Commission and the Department to have more tools to work with as they try to comply with the Clean Air Act.

The Commission had no further comment on this item.

AGENDA ITEM G - PUBLIC HEARING ON PROPOSED ORDER PROHIBITING OR LIMITING INSTALLATION OF SUBSURFACE SEWAGE DISPOSAL SYSTEMS WITHIN THE RIVER ROAD-SANTA CLARA AREA, LANE COUNTY

Mr. Daryl Johnson of the Department's Willamette Valley Region, said that for several years the local public health officials had been concerned that extensive development of the River Road-Santa Clara might be causing contamination of the shallow groundwater in the area.

Mr. Johnson presented the following Director's Recommendation:

Director's Recommendation

1. Impose a moratorium on issuance of construction permits for new subsurface sewage disposal systems and favorable reports of site suitability in the River Road-Santa Clara area of Lane County by adopting the proposed amendment to OAR 340-71-020 as shown in the Attachment "A".
2. Impose a moratorium on any pending new or modified sewage disposal facility which would use subsurface injection: to read as follows in the proposed rule:
  - (9) Pursuant to Oregon Revised Statutes 454.685, neither the Director nor his authorized representative shall issue either permits or any pending new or modified sewage disposal facility which would use subsurface injection, or...
3. Direct Department staff to work with Lane County to resolve the issue of groundwater contamination in the River Road Santa-Clara area within the six months period proposed by the Lane County Board of Commissioners, if possible.
4. After successful resolution of the groundwater contamination problem in the River Road-Santa Clara area, the Commission repeal the proposed amendment to OAR 3470-71-020, thereby lifting the moratorium.

Chairman Richards asked if legal counsel had been consulted as to whether a six month limitation should be made a part of the administrative rules. Mr. Johnson replied that it was his understanding that the law did not allow for a six month or temporary moratorium. Mr. Underwood replied that that was correct; a time limit could not be put on a moratorium, but it could be revoked at a later date.

In response to Chairman Richards, Mr. Johnson said that they know there were some wells in the area that may be used for drinking water, however, they did not know the number.

Chairman Richards asked to what extent there was contamination to users of the aquifer for drinking water, north of the River Road-Santa Clara area. Mr. Johnson said the groundwater flowed northwesterly and there were wells down gradient from that area.

Mr. Ron Davis of Cottage Grove, member of the water quality "208" program Citizen's Advisory Committee, said that most of the concern about this area appeared to be about nitrate contamination. He questioned that this nitrate contamination was coming from the River Road area and that there was substantial evidence to warrant a moratorium in this area to preserve the Class I and II soils, but not from a public health standpoint. He said that by imposing a moratorium, the only alternative would be sewerage which would then discharge to the river, causing degradation. Chairman Richards asked if Mr. Davis meant an area on a sewer system rather than a septic tank drainfield system was less ecologically sound. Mr. Davis replied that he believed that to be correct.

Mr. Davis encouraged the Commission to direct the staff to pursue alternative systems to sewage disposal more quickly than they had been.

Ms. Vora Heintz, Eugene, presented testimony in opposition to the moratorium. Ms. Heintz's written testimony is made a part of the record on this matter. She said that she did not feel the information available warranted a moratorium at this time.

In response to Chairman Richards, Ms. Heintz said she understood that the moratorium had been requested by the county, however, that the newly appointed River Road-Santa Clara Task Force had just barely begun to work on this matter. In response to Commissioner Phinney, Ms. Heintz said that the Task Force had been appointed by the County Commissioners, however, she was not representing the Task Force.

Mr. James Hale, Eugene, appeared in opposition to the moratorium. He requested a delay on this matter until better information could be made available to the Commission. He said it might be 18 months to two years before adequate information could be developed. He said that if after that time it appeared that there was a serious problem, then moratorium should be imposed. Mr. Hale said there was no real public health problem because the vast majority of residents had a community drinking water supply.

Chairman Richards said that if the Commission acted favorably on the Director's recommendation and if there were a moratorium, he would assure that the matter would be on the Commission's agenda in September to take definite action to continue to discontinue a moratorium.

Mr. J. Harry Whitson, Santa Clara, supported Ms. Heintz's testimony and said that the residents in the Santa Clara area only requested adequate information.

Mr. Jeff Siegel, Eugene, said that nitrates could not be removed from any waste material going into a sewer or septic tank. He also said that the difference between coliforms and fecal coliforms was not made clear in the staff report. He said that fecal coliforms were totally the result of human waste and total coliforms were the result of any kind of animal waste. Also, he said, both types of coliforms only survived in the environment for about 30 to 48 hours.

Mr. Siegel said he was in favor of the River Road moratorium because he would not like to see more development in the area. However, he said, there was no data to support that there was a clear and present health hazard.

Mr. Siegel said that there were already failing septic tanks in the area, however, if the Commission failed to pass the moratorium, new septic tanks would probably work. He said that the problem was not to prevent further septic system construction, but to get the failing septic systems repaired. Mr. Siegel said that one of the ways to accomplish this repair was to give tax incentives to residents to repair their septic systems.

Mr. Siegel presented to the Commission some data on nitrate levels and coliform levels in selected wells in the area. This data is made a part of the record on this matter.

Mr. Siegel concluded that the data before the Commission did not support that the River Road area septic tank failures were causing the high nitrate levels, and he did not think there was any data whatsoever that supported a health hazard.

Mr. George Kramer, Aide to Lane County Commissioner A. Weinstein, said that only a few wells in the River Road-Santa Clara were tested. He said this did not give a comparison to the sewered areas of Eugene-Springfield. Mr. Kramer presented some data on wells in other areas. He said review of this data showed very little difference between the sewered areas and non-sewered areas. Mr. Kramer questioned that there was enough data of any kind to support a moratorium.

Mr. Stanley Wojtowicz, Santa Clara Area, said that most of the problem was created by elected officials. He said that the River Road area was primarily rural and zoned for agricultural purposes. Mr. Wojtowicz said the decision to sewer this area had been made several years earlier when a major subdivision was planned for the area. He said that a moratorium would not solve the present problem.

Mr. Wojtowicz said that approximately 40% of the residents in the north part of the River Road-Santa Clara area were using their wells for drinking water. He said that some people used this water all year, while others used it only in the summer. He said that one-third of the area under consideration for the moratorium did not have access to a public water supply.

Mr. Wojtowicz said that with properly designed and inspected septic tank systems, the area would not be forced to annex to the City. He said it should be determined if an immediate health hazard existed.

Mr. Jeff Siegel pointed out that if the data for sewered area presented by Mr. Kramer was averaged, the nitrate level average for the sewered area of the City of Eugene was approximately the same as the unsewered area of River Road.

Chairman Richards asked Mr. Johnson to respond to the points raised earlier by Mr. Siegel, i.e., that there was no increase over a period of time in the nitrate levels. In his findings, the nitrate level was below EPA standard by approximately half, and that there was no basic difference between the nitrate level in the Eugene-Springfield area and the River Road area.

Mr. Johnson responded that he did not expect there would be a great amount of difference in nitrates, however, there would be some influence of nitrate levels throughout the total level. This assumed, he said that they were talking about the same groundwater body. In response to Chairman Richards, Mr. Johnson said he would have to do research to determine if the same groundwater body flowed through the River Road area and also the City of Eugene.

Commissioner Phinney asked, because the data given was taken only during a one-year period, and that was a low rainfall year, was the Department getting valid data? Mr. Johnson replied that the total picture was needed of the sources up gradient of the testing point.

Commissioner Densmore said the issue was to whether impose the moratorium at this time while the data was being compiled, or not impose the moratorium and compile the data for a later decision.

In response to Chairman Richards, Mr. Johnson said he thought Mr. Siegel had raised some valid points and reminded the Commission that they were facing a valid concern about a potential health hazard. He said this concern related to a density of development relating to the shallow groundwater aquifer. Mr. Johnson said it was true that there were satisfactory soils in the area, however, the aquifer must be considered. Mr. Johnson suggested that the Commission look toward a six-month or longer moratorium to establish the hard facts that did not exist at the present time.

In response to a question by Commissioner Densmore, Mr. Johnson said he did not think that sewerage an area would affect the nitrate level.

Mr. Kent Mathiot of the Water Resources Department, said he had not had a chance to review the Randy Sweet Study which was before the Commission, however, he had been aware of the River Road-Santa Clara problem for some time. He considered the problem serious but not unique compared to other areas in the Valley. Mr. Mathiot said he would expect the nitrate levels in the Eugene area to be much higher if the area was not sewerage.

Chairman Richards asked if septic tank moratoriums should be considered in other areas of the Willamette Valley. Mr. Mathiot said that high density use of drainfields in shallow groundwater areas was not a recommended method of waste disposal because of the groundwater contamination problem. Mr. Mathiot said that Randy Sweet created a model in this report based on statistical evaluation of the amount of contaminant going into the ground and the amount of water available for dilution. Based on that, Mr. Mathiot said he tried to locate wells that would either prove or disprove the conclusions he drew from his model. Mr. Mathiot said that more work would need to be done to get the conclusive answers people were asking for.

Chairman Richards read the following findings of fact as required by ORS 454.685 (2) (a) through (k) that the Commission must include in their decision.

- Present and projected density of population
- Size of building lots
- Topography
- Porosity and absorbency of soil
- Any geological formations which may adversely affect the disposal of sewage effluent by subsurface means

- Ground and Surface water conditions and variations therein
- Climatic Conditions
- Present and project availability of water from unpolluted sources
- Type of and proximity to existing domestic water supply sources
- Type of and proximity to existing surface waters
- Capacity of existing subsurface sewage disposal systems

In response to Commissioner Densmore, Chairman Richards said he would review the matter in six months because he said he would, but all the evidence seemed to say that there would not be anything substantially different to report in six months. Commissioner Phinney asked in view of the findings of fact listed by Chairman Richards, if he was comfortable with imposing the moratorium. She expressed concern that the area might get into a more serious problem in the next six months without the moratorium.

Director Young said it would be possible for the staff to review the testimony received at this meeting and draft a response which also addressed the statutory findings by the next meeting.

Chairman Richards asked what the impact on building would be if the Commission delayed action for 30 days. Mr. Roy Burns, of Lane County Environmental Services replied that the impact should not be significant within a 30 day time frame.

It was MOVED by Commissioner Hallock, seconded by Commissioner Phinney and carried unanimously that this matter be deferred until the next regular meeting of the Commission.

AGENDA ITEM L - KING CITY SEWAGE TREATMENT PLANT - CONSIDERATION OF PETITION FROM GEORGE AND MARGARET BENZ REGARDING PERMIT TO OPERATE THE KING CITY SEWAGE TREATMENT PLANT

Chairman Richards said that Mr. Willis West, representing the petitioners, had informed him that he had a number of witnesses to appear and might take upward to an hour. Chairman Richards advised Mr. West that anything over 45 minutes would have decreasing value to the Commission. Mr. West replied that he had anticipated that his presentation would take three to four hours. Chairman Richards said this matter could be referred to a Hearing Officer because the Commission was not informed that this matter would take that length of time.

After consultation with his clients, Mr. West asked if the matter was heard before a Hearing Officer, would he be limited in the time for presentation. Chairman Richards said that the Administrative Procedures Act gave the Hearing Officer the discretion to limit testimony when information becomes cumulative.

Chairman Richards said that according to EQC counsel, this was not a contested case hearing but an informational one. Mr. West replied that he had



no notice it would not be a contested case hearing. Mr. West said he would like to present a contested case so that all the issues in the matter could be settled. Chairman Richards said he would take no action to change the hearing from an informational one to a contested case. Mr. Underwood said that this matter did not fall under the definition of a contested case in the Administrative Procedures Act. He said that under that same Act, the Commission could designate a case not specifically defined in that Act as a contested case if it wished. However, he said he would not recommend that. Mr. West asked if the Commission would consider making this matter a contested case. By unanimous consent, the Commission declined to designate this matter as a contested case.

Chairman Richards said that the matter would be referred to a Hearing Officer. Mr. West requested that the hearing be held in Portland as soon as practicable.

AGENDA ITEM M - CLATSOP PLAINS - CONSIDERATION OF ADOPTION OF TEMPORARY AMENDMENT TO OAR 340-71-020(7)(b)(C)

Mr. Robert Gilbert, Regional Manager of the Department's Northwest Region, presented the following Director's Recommendation from the staff report.

The Director recommends that the EQC take the following action:

1. Enter findings that:
  - A. Failure to act would result in serious prejudice to the public interest or the interest of the parties concerned in that Clatsop County has encouraged and caused investment by Joseph R. Camberg and Clatsop Quality Construction Company based on the County's interpretation that the proposed development did conform with OAR 340-71-020(7)(b)(C). In addition, the language in OAR 340-71-020(7)(b)(e) is confusing.
  - B. The attached proposed temporary rule amendment (Attachment 2) will continue to prevent unacceptable degradation of groundwater while allowing such development as, at present, appears to be compatible with preserving the quality of the the groundwater.
  - C. At the time a comprehensive plan and appropriate zoning are accomplished, it is expected further review will be appropriate.
2. Adopt the attached temporary rule amendment to OAR 340-71-020 (7)(b) and (7)(3) to take effect upon filing with the Secretary of State pursuant to ORS 183.355 for a period of not longer than 120 days.
3. Authorize the Hearing Officer to proceed with the appropriate hearings for permanent rule amendment to OAR 340-71-020(7)(b) and (7)(e). The Hearing Officer report to the EQC will be scheduled for the June 1978 EQC Meeting.

Chairman Richards asked if there was any opposition to the Director's recommendation. Mr. Gilbert replied that there was not, but representatives of the county were present to answer questions if the Commission wished. None of the Commission members had questions.

Commissioner Hallock MOVED, Commissioner Phinney seconded and it was carried unanimously that the Director's recommendation as stated above be approved.

AGENDA ITEM H - FIELD BURNING - CONTINUATION OF MARCH 17, 1978 EOC MEETING  
AGENDA ITEM TO CONSIDER ADOPTION OF PERMANENT RULE REVISIONS TO OAR 340-26-005  
THROUGH 26-025; AND CONSIDERATION OF ADOPTION OF PROPOSED ONE-YEAR CONTROL  
STRATEGY FOR SUBMITTAL TO EPA, RELATIVE TO 1978 FIELD BURNING

Mr. John Kowalczyk of the Air Quality Division, presented overhead illustrations regarding the interim control strategy. He said EPA returned Oregon's request to modify its State Implementation Plan to increase field burning acreage from 50,000 to 180,000 acres. In returning it, he said, EPA suggested that the Department develop a one-year interim control strategy.

The four elements of this control strategy, Mr. Kowalczyk said, were as follows:

1. All reasonable control measures be taken to alleviate the particular problem in the Willamette Valley.
2. That implementation dates for these measures be specified.
3. That a schedule for the final strategy development be provided.
4. That means be provided to prevent air quality standards from being violated.

Mr. Kowalczyk said that primary emphasis in this control strategy was on the area that exceeded health standards in Eugene-Springfield. The strategy also attempted to maintain the 180,000 acre limitation as suggested by the Attorney General's Office he said. Also, he said all possible control measures had been looked at.

Mr. Kowalczyk said that the final proposed control strategy contained five elements. The first two dealt with field burning emissions he said, about which the Commission adopted rules at their meeting on March 17. Also proposed, Mr. Kowalczyk said, were control strategies for road dust, in addition to the control measures which were already in place. Voluntary industrial control measures were also addressed he said. These elements, Mr. Kowalczyk said, would result in a reduction of 1041 tons per year in emissions during 1978.

Mr. Kowalczyk said they had concluded that the proposed control strategy would more than offset the 130,000 acre increase for which the state requested approval from EPA. Also, he said a 28% step toward attaining health standards compliance in 1978 would be made.

Mr. Kowalczyk said the Department believed it had developed an interim control strategy that would more than offset the air quality impact from the requested increase in field burning acreage. He said they believed the strategy would satisfy EPA's requirements and would generally satisfy the requirements of all affected parties.

Mr. Kowalczyk presented the following Director's recommendation regarding the interim control strategy.

It is the Director's recommendation that the EQC approve the proposed one-year interim control strategy and require the Director to immediately submit the strategy with all appropriate documentation to EPA for their review and approval.

Mr. Scott Freeburn presented the item on the proposed field burning rule, OAR Chapter 340, Section 26-015(4)(d)(C). He said that at the last meeting of the EQC there was some confusion regarding the rule regulating the burning of south priority acres and exactly what each option presented by the staff meant. Mr. Freeburn said that the staff report presented the following three options to the Commission.

1. That which the Commission had already adopted, requiring backfiring of all south priority acres.
2. Require that no south priority acres in conditions which would bring smoke into the Eugene-Springfield area.
3. A combination of the first two options which would have the effect of reducing impact and emissions from those acreages.

Mr. Freeburn said the staff believed options 2 and 3 would have significant reductions in field burning particulate in this area. However, he said, it would jeopardize the results of the field burning season. Therefore, he said, the staff was not supporting options 2 and 3.

Mr. Freeburn presented the following Director's recommendation.

It is the Director's recommendation that the Commission retain the present rule and not adopt option 2 or 3 which would further restrict south priority burning, in order that the Department's studies of the field burning impact this summer may provide representative and useful input into the formal State Implementation Plan revision applications which must be submitted to EPA by April 1979.

Chairman Richards asked if it were not for the need to obtain data this summer on field burning smoke impact, would the Department take a different view on the south priority burning acreages. Mr. Freeburn replied that it would probably alter the Department's view, and if the monitoring had not already been in place, they would probably be supportive of another option.

Mr. Gene Maudlin, Public Affairs Counsel of Salem representing the Oregon grass seed industry, said they thought the staff did a good job on the strategy. He said the grass seed industry supported the proposed monitoring study to be

conducted during the summer. He said it would be a grave error for the EQC to not allow this study because it would deprive the staff of the data it would need to determine future levels of field burning.

Mr. Maudlin said they agreed with the staff recommendation for the oiling of certain gravel roads in the City of Springfield, thus limiting fugitive dust emissions. He said the interim control strategy would fail unless this road oiling program was undertaken. Mr. Maudlin said the EQC had the duty to assure EPA that this problem would be solved.

Mr. Maudlin said they felt both an interim control strategy and the new State Implementation Plan that would be developed should address not only the problems of the City of Springfield but also the problems known to exist in Eugene.

Mr. Dave Nelson, Oregon Seed Council, said over the past three years the grass seed industry had contributed to almost a 50 percent reduction in actual particulate in the Willamette Valley.

Mr. Nelson said that decisions on acreages to be burned were basically being made without an accurate data base. He said that was one reason why the monitoring network was established and funded.

Mr. Nelson said that the proposed rules would put the burden on the farmers in the south priority areas. He said they thought that was an undue hardship that was not justified based upon the proposed reduction, and it was not needed to achieve the reductions in the AQMA.

Mr. Nelson said they were concerned about backfiring and into-the-wind strip lighting in south priority areas concerning fire safety and the controlling of those fires. Because of unexpected wind changes he said, the fire could become uncontrolled. He said more experimentation on the impact and implementation of these practices was needed. Mr. Nelson said therefore, the Seed Council opposed options 2 and 3. He said they would cautiously support option 1 if the staff was not given the discretion to mandate it flatly.

In regard to the interim control strategy, Mr. Nelson said, that certain assumptions were made in the calculation of the field burning rules that the priority smoke all winds up in Eugene. He said he felt that was erroneous. He said they were concerned about the number of tons of particulate emitted by head fire in those priority areas and the calculations that were done that would result in a significant reduction of impact in the AQMA. He said these were best guess estimates done without specific measurements of the emissions from those techniques in the Willamette Valley on grass seed fields.

It appeared from the support document, Mr. Nelson said, that fugitive dust was a real problem, primarily in the roll-back area. He said that the support document indicated that 57% of the particulate on the filters in that area was from dust. Mr. Nelson said there was also growing evidence that field burning was less a contributor to the problem in the Eugene-Springfield AQMA than had been

previously suspected. Particularly, in view of the 50% reduction in particulate emissions since 1974 he said.

Mr. Jay Waldron, attorney with the Oregon Seed Council, said that family farm industry was being put out of business by reductions in acreages to be burned. He said he supported the 180,000 acreage suggestion. Chairman Richards said the Commission had no choice at this time but to submit a plan for 180,000 acres. Mr. Waldron said there were a number of strategies the Commission could adopt if EPA accepted or rejected the plan. He said the one thing that the Legislature mandated was a plan for the burning of 180,000 acres.

Mr. Stanton Long, attorney for the City of Eugene, said they did not agree with the staff method of measurement of emissions. He said that the staff figures did not propose to eliminate violations, but only to reduce them.

Mr. Long said they were disappointed with the staff recommendations that the Commission not adopt options 2 or 3. He said these options were originated by the staff. He said that one of the past net effects of south priority burning was to aim smoke at Eugene. In regard to the justification of accumulating data this summer, Mr. Long said it was not appropriate to consider the citizens of Eugene as guinea pigs. Mr. Long said that the Department was not doing all it could if it proposed to allow smoke into the Eugene area in order to monitor its effect.

Mr. Long said the Commission had it within its power to stop the smoke impact on Eugene. He said if that would produce hardships for individual growers, then the Commission should address those hardships. He urged that the Commission do all it could within its authority to stop directing smoke at Eugene from the burning of south priority acres.

Mr. Long said that they did not feel that notice for the public hearings on this matter were adequate or sufficient, and in general the City did not feel that the one-year interim control strategy agreement represented any kind of improvement over the proposed or required 1978 standards, in fact it was a digression.

Commissioner Densmore asked Mr. Long for his assessment of what would happen if the smoke were aimed in a different direction. Mr. Long replied that meteorology was unpredictable, but there was a step that the Commission could take and the information would be obtained in any event.

Mr. Vern Adkison, Director of the Lane Regional Air Pollution Authority, spoke regarding the Springfield City Shop monitoring station. He said the station was originally installed as an enforcement station to monitor a specific source, National Metallurgical, before a court case. Mr. Adkison said he did not feel that this particular monitoring station represented an ambient air mass for which that type of station should be assigned. At one time, he said he had ordered the removal of the station because he felt it reflected only local dust and gravel dust from the immediate area.

Mr. Adkison said this monitoring station was located in an area that was unpaved and reflected heavy dust from the sand and gravel operations in the area. He said he would have grave doubts about any data derived for the area based on that monitoring station. He said he thought the station should be reevaluated.

Chairman Richards asked if Mr. Adkison would have more confidence in the results to be produced by the 10 new air monitoring stations. Mr. Adkison replied that he would.

Commissioner Densmore asked what the effect would be if the ban on south priority acreage burning was adopted. Mr. Freeburn replied that those fields that would be burned under allocation transfer would be burned under south wind conditions, thus impacting areas north of that field. In response to Commissioner Densmore, Mr. Freeburn said that would specifically be Albany and Lebanon.

Chairman Richards said that damage would be done to the field burning program if options 2 or 3 were adopted. He said he was not convinced that burning could be prohibited in a priority area. Chairman Richards said that if farmers in those areas had known a year ago that a ban on burning in those priority areas might be adopted, they would have planted other crops. He said that if EPA were to say that another 30 tons of particulate had to be eliminated, and one way to do that was to eliminate south priority burning, then he would have no trouble voting that way. However, he said, until that happens he would support the present strategy the staff recommended.

It was MOVED by Commissioner Densmore, seconded by Commissioner Hallock, and carried with Commissioner Phinney dissenting that the Director's recommendation in regard to the field burning rules be adopted.

It was MOVED by Commissioner Hallock, seconded by Commissioner Phinney, and carried with Commissioner Densmore dissenting that the Director's recommendation in regard to the one-year control strategy be adopted.

AGENDA ITEM 1 - MEDFORD AIR QUALITY MAINTENANCE AREA - PROPOSED ADOPTION OF AMENDMENTS TO OREGON CLEAN AIR ACT IMPLEMENTATION PLAN INVOLVING PARTICULATE CONTROL STRATEGY RULES FOR THE MEDFORD AIR QUALITY MAINTENANCE AREA.

Mr. John Kowalczyk of the Department's Air Quality Division, presented the staff report on this matter. He said that rules pertaining to this air quality maintenance area should be adopted as proposed to provide a margin of safety and room for growth and to keep the most viable options open for further control. Mr. Kowalczyk said that the Medford-Ashland Citizen's Advisory Committee had reviewed the staff report and recommended that alternative 1 be adopted; which is to adopt the rules as proposed. He said the staff recommended that the rules be adopted as proposed and that a permanent emission trade-off rule be formulated as soon as possible.

Mr. Kowalczyk presented the following Director's recommendation.

It is the Director's recommendation that the EQC adopt the rules as proposed at the February 24, 1978 meeting and direct the Department to develop a permanent emission trade-off rule for the AQMA as expeditiously as practicable.

Commissioner Densmore asked if the trade-off issue had always been a part of the proposed rules. Mr. Kowalczyk said that the strategy was designed to attempt to provide a growth margin to accommodate any new or expanded industries. He said it was just becoming apparent that the growth margin was small to nonexistent, so the trade-off policy was a possible way of accommodating changes in the airshed without facing a zero growth situation.

In response to Commissioner Densmore, Mr. Kowalczyk said that only over the last month had it become apparent that there was a critical growth problem.

Chairman Richards asked if in the past, air quality rules had been adopted which were technology forcing. Mr. Kowalczyk said he believed so, such as the case of pulp and paper mills. Chairman Richards asked what the statutory authority was to allow forcing a future technology. Both Mr. Underwood and Mr. Kowalczyk replied that they knew of no other statutory authority than that contained in ORS Chapter 468.

Mr. Lynn Newbry, Medford Corporation, expressed concern about mention in the staff report of the EPA study on wood particle dryers. He said that more than one pilot study was needed in the Medford area. He said what was stated in the staff report regarding the EPA study was an entirely different understanding than what they had agreed to participate in.

Mr. Newbry said a reasonable alternative to the staff recommendation would be to modify the existing rules relative to hardboard plants suggesting a 75% roll-back strategy. He said this roll-back strategy would cover the total plant emissions, not just that from fiber dryers, and would give the Company the opportunity to control the entire plant through a variety of sources. He suggested that the Commission consider adopting a strategy for wood-fired dryers which was immediately achievable and consider a reduction of other sources of particulate in the AQMA (such as road dust), which would bring the AQMA into attainment just as easily as forcing companies into an untried and unproven method of control on a particular source.

Mr. Gary Grimes, SWF Plywood Company and member of the Medford-Ashland Citizen's Advisory Committee, said there had been some misinterpretation in the intent of the rule. He said it was the intent of the Citizen's Advisory Committee that the most probable and best utilization of material in wigwam burners would be to keep it under a more efficient type of combustion.

Chairman Richards asked if the strategy for the area evaluated road dust. Mr. Kowalczyk replied that it did. He said that they were addressing unpaved road dust which EPA says can be controlled effectively. In the Medford area, he said there were no unpaved roads which were traveled extensively so there was really no unpaved road emission problem. There was, he said, 3000 tons of paved road dust which EPA had indicated was uncontrollable. In response to Commission Densmore, Mr. Kowalczyk said that unlike the City of Springfield, the traffic volume on the unpaved roads in the Medford area was not significant.

Commissioner Densmore asked what the impact would be of the Commission adopting the proposed rules and not establishing a permanent trade-off policy. Mr. Kowalczyk said they would then have to rely on the growth built into the plan to accommodate any new sources or any modifications to existing sources. Once that was used up he said, then the area would be in a no-growth situation.

Commissioner Phinney asked about the possibility of trade-offs being sold by existing industries to new sources. Mr. Kowalczyk said that this sort of thing was happening already back East and in the Los Angeles area. Commissioner Densmore said that assumed an industry wanted to locate in a particular area bad enough and did not have a reason to locate somewhere else.

Commissioner Densmore asked if he had a potential conflict of interest because he was the Mayor of Medford. Chairman Richards said he hoped Commissioner Densmore did not see it as a conflict of interest.

It was MOVED by Commissioner Densmore and seconded by Commissioner Phinney to adopt alternative number 2, adopt rules as originally proposed, without upgrade, without trade-offs.

It was MOVED by Commissioner Phinney, seconded by Commissioner Hallock and carried with Commissioner Densmore dissenting to amend the motion to delete the words "without trade-offs".

Director Young clarified that the motion now before the Commission was to adopt alternative 2 which deleted the requirement for an upgradable designation but admonished the staff to prepare a trade-off policy.

The motion was adopted with Commissioner Hallock dissenting.

Mr. Tom Donaca, Associated Oregon Industries, said the Commission had adopted what amounted to a State Implementation Plan revision for the Medford area. He wanted to point out that both the Portland and Eugene AQMA would have monitoring done in advance of proposed rules being presented to the Commission for adoption. Mr. Donaca said the Commission should keep in mind that after they have looked at the Portland and Eugene AQMA's they might want to review their action in regard to the Medford AQMA in light of whatever information might be applicable from the other AQMA's.

There being no further business, the meeting was adjourned.

Respectfully submitted,

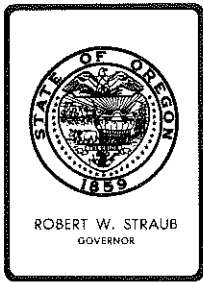
*Carol A. Spletstaszer*  
Carol A. Spletstaszer  
Recording Secretary

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED  
JUL 06 1978

AIR QUALITY CONTROL





## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item B, March 31, 1978, EQC Meeting  
February Program Activity Report

### Discussion

Attached is the February Program Activity Report.

ORS 468.325 provides for Commission approval or disapproval of plans and specifications for construction of air contaminant sources.

Water and solid waste facility plans and specifications approvals or disapprovals, and issuance, denials, modifications and revocations of permits are prescribed by statutes to be functions of the Department, subject to appeal to the Commission.

OAR 340-62-020 provides for Commission approval prior to disposal of environmentally hazardous wastes in Oregon, which are generated outside of the State.

The purposes of this report are:

- 1) To provide information to the Commission regarding the status of reported program activities and an historical record of project plan and permit actions;
- 2) To obtain confirming approval from the Commission on actions taken by the Department relative to air contaminant source plans and specifications;
- 3) To obtain Commission approval for disposal of specific environmentally hazardous wastes at Arlington, Oregon, which were generated outside of Oregon; and
- 4) To provide a log on the status of DEQ contested cases.

### Recommendation

It is the Director's recommendation that the Commission take notice of the reported program activities and contested cases, give confirming approval of the air contaminant source plans and specifications listed on page 7 of the report, and approve for disposal the environmentally hazardous wastes listed on page 17 of the report.

*Michael Downs*  
for  
WILLIAM H. YOUNG

M. J. Downs:ahe  
(229-6485)  
03-16-78



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Materials

DEPARTMENT OF ENVIRONMENTAL QUALITY

Monthly Activity Report

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DEPARTMENT OF ENVIRONMENTAL QUALITY

MONTHLY ACTIVITY REPORT

Air, Water & Solid Waste  
(Reporting Division)

February, 1978  
(Month and Year)

SUMMARY OF PLAN ACTIONS

	Plans Received		Plans Approved		Plans Disapproved		Plans Pending
	Month	Fis.Yr.	Month	Fis.Yr.	Month	Fis.Yr.	
<u>Air</u>							
Direct Sources	29	128	15	108		1	49
Total	29	128	15	108		1	49
<u>Water</u>							
Municipal	106	903	77	968			48
Industrial	12	79	8	69			16
Total	118	982	85	1,037			64
<u>Solid Waste</u>							
General Refuse	1	21	4	19			6
Demolition		5		2			3
Industrial		17	3	14			7
Sludge		5	3	5			
Total	1	48	10	40			16
<u>Hazardous Wastes</u>							
<u>GRAND TOTAL</u>	148	1,158	110	2,085		1	129

## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Water Quality Division

February, 1978

## PLAN ACTIONS COMPLETED - 85

County	Name of Source/Project/Site and Type of Same	Rec'd	Date of Action	Action	Time to Complete Action
<u>Municipal Sources - 77</u>					
30	UKIAH UKIAH CH 6 & 7	V012078	013178	APPROVED	55
12	JOHN DAY JOHN DAY SS PHASE 2	V120677	020178	PROV APP	56
15	MEDFORD MARGAUX ESTATES UNITS 1 & 2	J013178	020278	PROV APP	02
26	GRESHAM MARIPOSA SUBD	J013078	020278	PROV APP	03
26	GRESHAM HOOD NW LID	J012578	020278	PROV APP	08
15	MEDFORD PINON HILLS SURD	J012678	020278	PROV APP	07
17	CAVE JUNCTION CAVE JUNCTION STP FINALS	V011978	020778	CMWT LTR	19
36	NEWBERG HESS CREEK ESTATES	K013178	020878	PROV APP	08
34	USA ALOHA TERRYANNE PARK NO 3-680	K013078	020878	PROV APP	09
34	USA DURHAM KILLIAN PARK OFFICE BLDG	K012778	020878	PROV APP	12
15	BCVSA SEVEKSON PROPERTY	J020278	020878	PROV APP	06
15	ASHLAND THORNTON WAY	J020278	020878	PROV APP	06
15	ASHLAND WAF STREET OFF FAITH AVE	J020278	020878	PROV APP	06
21	LINCOLN CITY SW 14TH ST VAN KLFK	J020378	020878	PROV APP	05
21	LINCOLN CITY NFLSCOTT-SW ANCHOR AVE	J020378	020878	PROV APP	05
34	USA DURHAM LYNDA PARK 681	K013178	020878	PROV APP	08
24	SALEM CHARLIE BROWN ESTATES	J020278	021078	PROV APP	08
26	PORTLAND COL PP NORTH OF SE 127TH AVE	K020178	021378	PROV APP	12
21	TOLEDO WESTWOOD TERRACE EXT J0518-1J020778	J020778	021378	PROV APP	06
26	PORTLAND SW SOUTH RIDGE & TERWILLIGERK020778	K020778	021378	PROV APP	06
03	WEST LINN WOODWINDS SURD	J020778	021378	PROV APP	06
26	PORTLAND SE ELLIS ST	K020778	021378	PROV APP	06
08	BROOKINGS HEATHER LANE SUBD	J020878	021378	PROV APP	05
20	EUGENE SHASTA PARK 1ST & 2ND ADD	K013178	021378	PROV APP	15
26	PORTLAND SE 92ND AVE STONEWIDGE APTS	K020278	021578	PROV APP	13
34	USA ALOHA RANY RIDGE EXT 684	K020878	021578	PROV APP	07
34	USA ALOHA TIFFANY TERRACE 682	K020878	021578	PROV APP	07
34	USA DURHAM SHADO HILLS	K020878	021578	PROV APP	07
15	ASHLAND OLD HELMAN RANCH REVISED	K020978	021578	PROV APP	06
03	WEST LINN IMPERIAL OAKS	K020278	021678	PROV APP	14
26	GRESHAM CINNAMON RIDGE	K020278	021678	PROV APP	14
26	GRESHAM SANDPIPER EAST	K020278	021678	PROV APP	14
24	SALEM CROISAN HILL II-REVISED	J021378	021678	PROV APP	03
24	SALEM ZOSEL SUBD	J021378	021778	PROV APP	04
06	NORTH BEND PONY SLOUGH	J020978	022078	PROV APP	11
24	SALEM DRAPER SUBD	K020378	022178	PROV APP	18
30	ECHO ECHO WORK ORDER NO 1	V011978	022178	CMWT LTR	33
34	USA DURHAM 82ND AVF EXT 683	K020878	022278	PROV APP	14
15	BCVSA THOMAS RD-GRIFFIN CREEK RD	J021378	022278	PROV APP	09
34	USA DURHAM SW 66TH AVE EXT 682	K021378	022278	PROV APP	09
24	SALEM EASEMENT W OF 4TH	J021378	022278	PROV APP	09
24	SALEM CANDALARIA SHOPPING CTR REV	K021778	022278	PROV APP	05
03	WEMME RIPPLING RIVER SURD	J020978	022378	PROV APP	14
22	HARRISBURG HARRIS NORTH SUBD	K020978	022378	PROV APP	14
34	USA DURHAM MAX JS ADDITION REAVERTON	K021378	022378	PROV APP	10
34	USA DURHAM TALL FIRS BUSINESS PARK	K021378	022378	PROV APP	10
34	TUALATIN COLUMBIA SUBD	J021378	022378	PROV APP	10
34	LAKE OSEGO MT PARK PHASE 5D	J021578	022378	PROV APP	08
15	ROGUE RIVER ROBBINS AVE EXT	J021678	022378	PROV APP	07
34	USA DURHAM REAVERCREEK VILLAGE PH II	K021678	022378	PROV APP	07
20	FLORENCE ALDER ST 10TH TO 11TH STS	J021778	022378	PROV APP	06
15	BCVSA JOSEPH ST ERHMAN WAY	J021778	022378	PROV APP	06
34	LAKE OSWEGO MT PARK NO 9 BLOCKS 7 & 10	K021378	022478	PROV APP	11
10	ROSEBURG PITZER ST EXT	J021778	022478	PROV APP	07
26	PORTLAND COL SW VINCENT PLACE	K021778	022678	PROV APP	09
10	N ROSEBURG SD NEWTON CR TERRACE	J022478	022778	PROV APP	03
10	N ROSEBURG SD HUGHES ST EXT	K021578	022778	PROV APP	12
04	ASTORIA COLUMBIA & 18TH STS	K021578	022778	PROV APP	12
20	SPRINGFIELD TONYNS PLAT SP293 S & P	K021778	022778	PROV APP	10
24	SALEM CHAPMAN HILLS WEST NO 2	J022478	022778	PROV APP	03
22	SWEET HOME FOSTER MIDWAY CHANGE NO 1	V021878	022878	APPROVED	10
09	BEND WASTE RECEIVING CHANGE 356	V021878	022878	APPROVED	10
29	NTCSA PROJECT WORK ORDER K-1-7	V021878	022878	APPROVED	10

DEPARTMENT OF ENVIRONMENTAL QUALITY

MONTHLY ACTIVITY REPORT

Water Quality Division

February, 1978

County	Name of Source/Project/Site and Type of Same	PLAN ACTIONS COMPLETED - 85 con't		Action	Time to Complete Action
		Rec'd	Date of Action		
34 USA	ROCK AWT CHANGE 1- CONT 35	V02187A	02287A	APPROVED	10
02 CORVALLIS	CORVALLIS CH 85, 89, 90, 87	V02077A	02287A	APPROVED	21
24 SALEM WILLOW	WILLOW STP CH 9	V02077A	02287A	APPROVED	21
17 GRANTS PASS	RIVIERA MOBILE PARK PPEL	V02137A	02287A	CMMTS SWRO	15
15 MEDFORD	SHADY CT PROFESSIONAL PARK	K02137A	02287A	PROV APP	15
24 PORTLAND	PP N OF SE 122ND DR	K02147A	02287A	PROV APP	07
20 EUGENE	THORNE ESTATES	K02137A	02287A	PROV APP	12
34 HILLSBORO	SF 48TH AVE	K02177A	02287A	PROV APP	11
24 SALEM	RIDGECREST EAST	J02177A	02287A	PROV APP	11
34 USA ROCK CR	MARLIN DR EXT	K02217A	02287A	PROV APP	06
05 CLATSkanie	CLATSkanie CH 7	V02237A	02287A	APPROVED	05
34 USA ROCK CR	CH 5 TO 11R & CH 6 TO 42	V02247A	02287A	APPROVED	04
02 CORVALLIS	CORVALLIS CH 91	V02277A	02287A	APPROVED	01

INDUSTRIAL WASTE SOURCES - 8

Hood River	Allied Fisheries - Hood River Screens & Septic Tank	02-01-78	Approved
Benton	Evans Products - Corvallis Water Reuse Project	02-01-78	Approved
Marion	Stuckart Lumber - Lyons Eliminate Mill Pond Discharge	02-10-78	Approved
Lincoln	Yaquina Bay Fish Co. - Newport Hydro Sieve	02-14-78	Approved
Linn	Teledyne Wah Chang Albany Sludge Return Line	02-16-78	Approved
Linn	Teledyne Wah Chang Albany Ammonium Sulfate Tank 400,000 gal.	02-24-78	Approved
Morrow	Portland General Electric Boardman Coal Plant Waste Treatment Facilities	02-28-78	Approved
Wasco	Martin-Marietta - The Dalles Wastewater Recirculation	02-28-78	Withdrawn

DEPARTMENT OF ENVIRONMENTAL QUALITY

MONTHLY ACTIVITY REPORT

Water Quality  
(Reporting Unit)

February 1978  
(Month and Year)

SUMMARY OF WATER PERMIT ACTIONS

	Permit Actions Received				Permit Actions Completed				Permit Actions Pending	Sources <sup>3/</sup> Under Permits		Sources <sup>3/</sup> Reqr'g Permits		
	Month		Fis. Yr.		Month		Fis. Yr.			*   **		*   **		
	*	**	*	**	*	**	*	**	*	**	*	**	*	**
<u>Municipal</u>														
New	0	0	0	2	1	0	3	4	0	1				
Existing	0	0	0	2	0	0	0	3	0	1				
Renewals	0	1	24	5	10	0	68	3	40	7				
Modifications	0	0	10	0	0	0	12	1	5	0				
Total	0	1	34	9	11	0	83	11	45	9	243	78	243	80
<u>Industrial</u>														
New	1	0	8	8	1	2	6	10	5	4				
Existing	1	0	1	8	0	6 <sup>1/</sup>	1	10	1	2				
Renewals	3	0	31	8	<sup>2/</sup> 3	0	44	9	43	4				
Modifications	3	0	12	2	0	1	15	2	9	0				
Total	8	0	52	26	4	9	66	31	58	10	401	115	407	121
<u>Agricultural (Hatcheries, Dairies, etc.)</u>														
New	1	0	3	1	0	0	1	1	3	0				
Existing	0	0	0	0	0	0	0	0	0	0				
Renewals	0	0	0	1	0	0	0	0	0	1				
Modifications	0	0	0	0	0	0	0	0	1	0				
Total	1	0	3	2	0	0	1	1	4	1	59	11	62	11
<u>GRAND TOTALS</u>	9	1	89	37	15	9	150	43	107	20	703	204	712	212

\* NPDES Permits

\*\* State Permits

<sup>1/</sup> Includes one State application voided

<sup>2/</sup> Includes one renewal cancelled

<sup>3/</sup> Totals adjusted to match computer printout.

## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Water Quality  
(Reporting Unit)February 1978  
(Month and Year)PERMIT ACTIONS COMPLETED (24)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Douglas	City of Roseburg Sewage Disposal	2-7-78	NPDES Permit Renewed
Klamath	South Suburban Sanitary District Sewage Disposal	2-7-78	NPDES Permit Renewed
Lane	City of Eugene Sewage Disposal	2-7-78	NPDES Permit Renewed
Lane	The Murphy Company Florence Division	2-7-78	NPDES Permit Renewed
Lane	International Paper Vaughn Mill	2-10-78	NPDES Permit Renewed
Curry	Kincheloe Seafood Inc. Edw. Erb, Fish Processing	2-15-78	State Permit Issued
Marion	Mallories Dairy Dairy Products	2-17-78	State Permit Modified
Grant	Dixie Meadow Gold Mine Ore Processing - Prairie City	2-21-78	State Permit Issued
Lane	City of Cottage Grove Sewage Disposal	2-21-78	NPDES Permit Renewed
Multnomah	Sun Dial Boom Co. Log Handling - Fairview	2-21-78	State Permit Issued
Lane	Bohemia Coburg	2-23-78	State Permit Issued
Baker	City of North Powder Sewage Disposal	2-28-78	NPDES Permit Renewed
Union	City of La Grande Sewage Disposal	2-28-78	NPDES Permit Renewed
Douglas	City of Canyonville Sewage Disposal	2-28-78	NPDES Permit Renewed

DEPARTMENT OF ENVIRONMENTAL QUALITY

MONTHLY ACTIVITY REPORT

Water Quality  
(Reporting Unit)

February 1978  
(Month and Year)

PERMIT ACTIONS COMPLETED (24 con't)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Lane	City of Springfield Sewage Disposal	2-28-78	NPDES Permit Renewed
Coos	M. E. Main & Son Rock Crushing	2-28-78	NPDES Permit Issued
Douglas	Oregon Fish & Wildlife Rock Creek Hatchery	2-28-78	NPDES Permit Issued
Douglas	City of Riddle Sewage Disposal	2-28-78	NPDES Permit Renewed
Douglas	City of Glendale Sewage Disposal	2-28-78	NPDES Permit Renewed
Multnomah	Apollo Metal Finishing Electro Plating	2-28-78	State Permit Issued
Josephine	Al Peirce Lumber Co. Log Handling	2-28-78	State Permit Issued
Deschutes	Robert L. Coates Gravel Operation	2-28-78	State Permit Issued
Douglas	City of Sutherlin Cooper Creek WTP	2-28-78	NPDES Permit Renewal Canceled
Gilliam	Barbee Company Sewage Disposal	2-28-78	State Application Void



## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Air Quality Division  
(Reporting Unit)

February 1978  
(Month and Year)

PLAN ACTIONS COMPLETED (15)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Direct Stationary Sources</u> (15)			
Douglas (NC965)	Mt. Mazama Plywood New hog fuel boiler	2/7/78	Approved
Deschutes (NC1037)	Bend Willamette Corp. Modification to sanderdust vent system	12/22/77	Approved
Hood River (NC1043)	Champion Building Prods. System to make utilization of waste wood possible	1/6/78	Approved
Hood River (NC1056)	Edwards Orchard Three (3) orchard fans	1/31/78	Approved (Tax Credit Only)
Hood River (NC1057)	Roy Webster Orchard Orchard fan	1/31/78	Approved (Tax Credit Only)
Douglas (NC1058)	Champion Building Products Air curtains on veneer dryers	1/12/78	Approved
Washington (NC1061)	Young's Funeral Home Crematory	1/23/78	Approved
Hood River (NC1063)	Sheirbon Orchard Two (2) orchard fans	1/11/78	Approved (Tax Credit Only)
Coos (NC1064)	Weyerhaeuser Screen to stop blown wood chips	2/21/78	Approved
Columbia (NC1078)	Reichold Chemicals, Inc. Expansion of urea production	1/23/78	Approved
Marion (NC1081)	Boise Cascade Paper Back-up fan for SO <sub>2</sub> fugitives	2/22/78	Approved
Clackamas (NC1082)	Crown Zellerbach Hot air furnace to dry paper	2/14/78	Approved
Douglas (NC1089)	Woolley Enterprises Burly scrubber on veneer dryer	2/14/78	Approved

DEPARTMENT OF ENVIRONMENTAL QUALITY

MONTHLY ACTIVITY REPORT

Air Quality Division  
(Reporting Unit)

February 1978  
(Month and Year)

PLAN ACTIONS COMPLETED (15 con't)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
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Direct Stationary Sources (cont.)

Deschutes (NC1092)	Lapine Redi-Mix Cement silo and filter	2/14/78	Approved
Clackamas (NC1094)	Crown Zellerbach Burn tires in boiler	2/21/78	Approved

DEPARTMENT OF ENVIRONMENTAL QUALITY

MONTHLY ACTIVITY REPORT

Air Quality Division  
(Reporting Unit)

February 1978  
(Month and Year)

SUMMARY OF AIR PERMIT ACTIONS

	Permit Actions Received		Permit Actions Completed		Permit Actions Pending	Sources under Permits	Sources Reqr'g Permits
	Month	Fis.Yr.	Month	Fis.Yr.			
<u>Direct Sources</u>							
New	4	37	4	21	16		
Existing	5	71	9	47	24		
Renewals	2	68	21	46	22		
Modifications	16	843	17	827	16		
Total	27	1019	51	941	78	1794	1834
<u>Indirect Sources</u>							
New	2	17	0	18	12		
Existing							
Renewals							
Modifications	2	5	0	3	2		
Total	4	22	0	21	14	69	
<u>GRAND TOTALS</u>	<u>31</u>	<u>1,041</u>	<u>51</u>	<u>962</u>	<u>92</u>	<u>1,863</u>	

Number of Pending Permits

Comments

7	To be drafted by Northwest Region Office
13	To be drafted by Willamette Valley Region Office
3	To be drafted by Southwest Region Office
0	To be drafted by Central Region Office
3	To be drafted by Eastern Region Office
7	To be drafted by Program Operations
2	To be drafted by Program Planning & Development
<u>35</u>	
0	Permits being typed
27	Permits awaiting end of 30-day public notice period
16	Permits awaiting next public notice
<u>43</u>	Permits pending

## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Air Quality Division  
(Reporting Unit)February 1978  
(Month and Year)PERMIT ACTIONS COMPLETED (51)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Direct Stationary Sources (51)</u>			
Benton	Bles Stud Co. 02-2164, Existing	1/23/78	Permit issued
Benton	Harold K. Rugh 02-2357, Renewal	2/21/78	Permit issued
Benton	Hoskins Lumber 02-7074, Renewal	2/21/78	Permit issued
Benton	Hobin Lumber 02-7077, Renewal	2/21/78	Permit issued
Clackamas	Portable Equipment Salvage Co. 03-2079, Modification	1/17/78	Permit issued
Clackamas	Chamberlin's Pet Crematorium 03-2656, Modification	2/10/78	Permit issued
Clackamas	Golden Oak Farm Stores 03-2660, Existing	1/17/78	Permit issued
Clatsop	Port of Astoria 04-0028, Modification	1/13/78	Addendum issued
Columbia	Reichhold Chemicals 05-2042, Modification	1/30/78	Addendum issued
Columbia	Cascade Energy 05-2561, Renewal	1/23/78	Permit issued
Coos	Georgia Pacific 06-0012, Modification	2/1/78	Addendum issued
Coos	Coos Head Timber 06-0061, Modification	2/23/78	Addendum issued
Coos	Quiet Valley Industries 06-0093, New	2/10/78	Permit issued
Coos	Quiet Valley Veneer 06-0094, New	2/10/78	Permit issued

## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Air Quality  
(Reporting Unit)

February 1978  
(Month and Year)

PERMIT ACTIONS COMPLETED (51 con't)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Direct Stationary Sources</u> (cont.)			
Curry	Brookings Plywood 08-0003, Modification	2/16/78	Addendum issued
Douglas	Mt. Mazama Plywood 10-0022, Modification	2/10/78	Permit issued
Douglas	Glendale Plywood 10-0055, Modification	1/27/78	Addendum issued
Grant	W. A. Bowes & Associates 12-0026, Existing	1/17/78	Permit issued
Harney	Edward Hines Lumber Co. 13-0001, Modification	2/16/78	Addendum issued
Jackson	Rogue River Rock & Ready Mix 15-0082, Modification	2/8/78	Addendum issued
Josephine	Westbrook Wood Products 17-0006, Modification	2/10/78	Permit issued
Klamath	Stukel Rock & Paving 18-0042, Existing	2/10/78	Permit issued
Lincoln	Devils Lake Rock Crushing 21-0049, Existing	1/17/78	Permit issued
Linn	Three Pack Shingle 22-3008, Renewal	1/17/78	Permit issued
Marion	Roof & Floor Components 24-4978, New	1/17/78	Permit issued
Morrow	Kinzua Corp. 25-0020, New	2/10/78	Permit issued
Morrow	Umatilla Ready Mix 25-0021, Existing	2/10/78	Permit issued
Morrow	Umatilla Ready Mix 25-0022, Existing	2/10/78	Permit issued
Morrow	Portland General Electric 25-0023, Existing	2/10/78	Permit issued

## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Air Quality Division  
(Reporting Unit)

February 1978  
(Month and Year)

PERMIT ACTIONS COMPLETED (51 con't)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Direct Stationary Sources (cont.)</u>			
Multnomah	Royal Arms Apartments 26-0753, Modification	1/10/78	Permit issued
Multnomah	Flintkote Co. 26-1845, Modification	2/23/78	Addendum issued
Multnomah	Waverly Children's Home 26-2985, Existing	1/17/78	Permit issued
Polk	Willamette Industries 27-0177, Modification	2/16/78	Addendum issued
Polk	Boise Cascade Corp. 27-4078, Modification	1/17/78	Addendum issued
Umatilla	Umatilla Ready Mix 30-0088, Existing	2/10/78	Permit issued
<u>Portable Plants</u>			
Portable	Babler Bros. 37-0020, Renewal	2/10/78	Permit issued *
Portable	Roy Houck 37-0022, Renewal	2/10/78	Permit issued
Portable	Rogue West 37-0028, Renewal	1/17/78	Permit issued
-Portable	Roseburg Paving 37-0029, Renewal	2/10/78	Permit issued
Portable	S. D. Spencer 37-0052, Renewal	2/10/78	Permit issued
Portable	Acco Contractors 37-0053, Renewal	2/10/78	Permit issued
Portable	L. W. Vail 37-0068, Renewal	2/10/78	Permit issued
Portable	North Santiam Land & Gravel 37-0086, Renewal	2/10/78	Permit issued

## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Air Quality Division  
(Reporting Unit)

February 1978  
(Month and Year)

PERMIT ACTIONS COMPLETED (51 con't)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Direct Stationary Sources (cont.)</u>			
Portable	Angell Asphalt & Aggregate 37-0091, Renewal	2/10/78	Permit issued
Portable	Babler Bros. 37-0094, Renewal	2/10/78	Permit issued
Portable	Peter Kiewit Sons 37-0095, Renewal	1/17/78	Permit issued
Portable	S. D. Spencer 37-0109, Renewal	2/10/78	Permit issued
Portable	KLM Paving 37-0110, Renewal	2/10/78	Permit issued
Portable	Babler Bros. 37-0121, Renewal	2/10/78	Permit issued
Portable	E. H. Itschner 37-0163, Existing	2/10/78	Permit issued
Portable	J. C. Compton Co. 37-0173, Renewal	1/17/78	Permit issued
Portable	L. W. Vail 37-0175, Renewal	2/10/78	Permit issued
Portable	Reid Wolf 37-0183, Modification	1/17/78	Permit issued

## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Solid Waste Division  
(Reporting Unit)

February 1978  
(Month and Year)

PLAN ACTIONS COMPLETED (10)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Hood River	Hood River Landfill Existing site Leachate Control Plan	2/2/78	Conceptual approval
Josephine	Mountain Fir Lumber New Site Operational Plan	2/2/78	Conditional approval
Lane	Champion Building Products - Mapleton Existing Site Operational Plan	2/13/78	Approved
Douglas	Roseburg Lumber - Dillard Existing Site Operational Plan	2/17/78	Approved
Benton	Coffin Butte-Expansion Existing Site Operational Plan	2/22/78	Conditional approval
Lane	Franklin Landfill Existing Site Operational Plan	2/22/78	Approved
Lane	McKenzie Bridge Landfill Existing Site Operational Plan	2/22/78	Conditional approval
Umatilla	Howard Sludge Disposal Existing Site Operational Plan	2/27/78	Approved
Umatilla	March Sludge Disposal Existing Site Operational Plan	2/27/78	Approved
Umatilla	Key Sludge Disposal Existing Site Operational Plan	2/27/78	Approved



## DEPARTMENT OF ENVIRONMENTAL QUALITY

## MONTHLY ACTIVITY REPORT

Solid Waste Division  
(Reporting Unit)February 1978  
(Month and Year)SUMMARY OF SOLID AND HAZARDOUS WASTE PERMIT ACTIONS

	Permit Actions Received		Permit Actions Completed		Permit Actions Pending	Sites Under Permits	Sites Reqr'g Permits
	Month	Fis.Yr.	Month	Fis.Yr.			
<u>General Refuse</u>							
New		7	1	9	1		
Existing		4		7	19	(*18)	
Renewals		26	2	24	12		
Modifications	1	6		8	1		
Total	1	43	3	48	33	186	188
<u>Demolition</u>							
New	1	1	1	2			
Existing				1			
Renewals							
Modifications							
Total	1	1	1	3	0	19	19
<u>Industrial</u>							
New		4	1	9	1		
Existing			1	3	4	(*)	
Renewals		11		7	9		
Modifications		2	1	4	1		
Total	0	17	3	23	15	96	97
<u>Sludge Disposal</u>							
New							
Existing		3			3		
Renewals		1		2			
Modifications							
Total	0	4	0	2	3	5	8
<u>Hazardous Waste</u>							
New							
Authorizations	10	114	0	126	16		
Renewals							
Modifications							
Total	10	114	0	126	16	1	1
<u>GRAND TOTALS</u>	12	179	7	202	67	307	313

\*Site operating under temporary permits until regular permits are issued.  
Total 22

DEPARTMENT OF ENVIRONMENTAL QUALITY

MONTHLY ACTIVITY REPORT

Solid Waste Division  
(Reporting Unit)

February 1978  
(Month and Year)

PERMIT ACTIONS COMPLETED (7)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>General Refuse (Garbage) Facilities (3)</u>			
Coos	Bandon Disposal Site New Incinerator site	2/14/78	Permit issued.
Multnomah	Sunflower Recycling Existing Composting site	2/21/78	Letter authorization renewed.
Jefferson	Box Canyon Landfill Existing facility	2/28/78	Renewal application returned. Permit does not expire until 10/31/79.
<u>Demolition Waste Facilities (1)</u>			
Linn	Dean Walker New Facility	2/3/78	Letter authorization issued.
<u>Sludge Disposal Facilities - none</u>			
<u>Industrial Waste Facilities (3)</u>			
Umatilla	Jones - Normel Foods New Facility	2/14/78	Permit issued.
Coos	Roseburg Lumber, Coquille Existing Facility	2/14/78	Permit issued.
Yamhill	Willamina Lumber Co. Existing Facility	2/21/78	Permit amended.
<u>Hazardous Waste Facilities - none</u>			

NOTE

PAGE 17 - HAZARDOUS WASTE DISPOSAL AUTHORIZATION  
REQUESTS (OUT OF STATE) WILL BE DISTRIBUTED AT THE  
MEETING.

<u>TOTALS</u>	last	this
Settlement Action	9	11
Preliminary Issues	5	12
Discovery	3	8
To be Scheduled	13	6
To be Rescheduled	1	1
Set for Hearing	13	6
Briefing	3	2
Decision Due	9	8
Decision Out	1	1
Appeal to Comm.	8	3
Appeal to Ct.	0	0
Transcript	0	1
Finished	-4	-8
Totals	<u>65</u>	<u>68</u> -8 finished

DEQ/EQC CONTESTED CASE LOG  
3/9/78

Key:

ACD Air Contaminant Discharge Permit

AQ Air Quality

AQ-SNCR-76-178 A violation involving air quality occurring in the Salem/North Coast Region in the year 1976 - the 178th enforcement action in that region for the year

Cor Cordes

CR Central Region

Dec Date The date of either a proposed decision of a hearing officer or a decision by the Commission

\$ Civil penalty amount

ER Eastern Region

Fld Brn Field burning incident

Hrngs The hearings section

Hrng Rfrrl The date when the enforcement and compliance unit request the hearings unit to schedule a hearing

Hrng Rqst The date the agency receives a request for a hearing

Italics Different status or new case since last contested case log

LQ Land Quality

McS McSwain

NP Noise Pollution

NPDES National Pollution Discharge Elimination System wastewater discharge permit

PR Portland Region

Prtys All parties involved

Rem Order Remedial Action Order

Resp Code The source of the next expected activity on the case

SNCR Salem/Northcoast Region

S.S.D. Subsurface sewage disposal

SWR Southwest Region

Trancr Transcript being made

WQ Water Quality

Pet/Resp Name	Hrng Rqst	Hrng Rfrrl	DEQ or Atty	Hrng Offcr	Hrng Date	Resp Code	Dec Date	Case Type & #	Case Status
Davis et al	5/75	5/75	Atty	McS	5/76	Prtys	1/78	12 SSD Permits	Appeal to Comm
Faydrex, Inc.	5/75	5/75	Atty	McS	11/77	Transc		64 SSD Permits	Transcript Prepared
Johns et al	5/75	5/75	Atty	McS		All		3 SSD Permits	Preliminary Issues
Hengstetter	<del>6/75</del>	<del>6/75</del>	<del>Atty</del>	<del>Lmb</del>	<del>8/76</del>	<del>Resp</del>	<del>9/77</del>	<del>1-SSB-Permit</del>	<del>Decision-Out</del>
Faydrex (Lt 116)	8/75	5/75	Atty	McS	5/77	Resp	1/78	1 SSD Permit	Appeal to Comm
Laharty	1/76	1/76	Atty	McS	9/76	Prtys	1/77	Rem Order SSD	Decision Out
PGE (HARBORTON)	2/76	2/76	Atty	McS		Prtys		ACD Permit Denial	Preliminary Issues
Allen	3/76	4/76	DEQ	McS		Hrnga		SSD Permit	To be Scheduled
Meiquist	<del>8/76</del>	<del>8/76</del>	<del>DEQ</del>	<del>McS</del>	<del>3/77</del>	<del>Resp</del>	<del>9/77</del>	<del>\$500 SS-MWR-76-156</del>	<del>Decision-Out</del>
Taylor, R.	9/76	9/76	Atty	Lmb	12/76	Prtys	12/77	\$500 LQ-MWR-76-91	Appeal to Comm
Ellsworth	10/76	10/76	Atty	McS		Prtys		\$10,000 WQ-PR-76-48	Discovery
Silbernagel	10/76	10/77	DEQ	Cor		Resp		AQ-MWR-76-202 \$400	Discovery
Jensen	11/76	11/76	DEQ	Cor	12/77	Hrnga		\$1500 Fld Brn AQ-SNCR-76-232	Decision Due
Mignot	11/76	11/76	Atty	McS	2/77	Resp	2/77	\$400 SW-SWR-288-76	Settlement Action
Hudspeth	12/76	12/76	Atty	McS	3/77	Hrnga		\$500 WQ-CR-76-250	Decision Due
Perry	12/76	12/76	DEQ	Cor	1/78	Resp		Rem Order SS-SWR-253-76	Briefing
Meiquist	<del>1/77</del>	<del>1/77</del>	<del>Atty</del>	<del>McS</del>	<del>3/77</del>	<del>Resp</del>	<del>9/77</del>	<del>\$2000 SS-MWR-76-281</del>	<del>Decision-Out</del>
Alexander	2/77	6/77	DEQ			Dept		Rem Order SS-SWR-77-23	Settlement Action
Elyng	<del>2/77</del>	<del>3/77</del>	<del>Atty</del>	<del>McS</del>	<del>6/77</del>	<del>Resp</del>	<del>12/77</del>	<del>\$100 AQ-SWR-76-224</del>	<del>Decision-Out</del>
Witton	<del>2/77</del>	<del>3/77</del>	<del>Atty</del>	<del>Cor</del>	<del>9/77</del>	<del>Hrnga</del>	<del>2/78</del>	<del>Rem Order SS-ER-77-18</del>	<del>Decision-Due</del>
Grande	<del>3/77</del>	<del>3/77</del>	<del>DEQ</del>	<del>Lmb</del>	<del>10/77</del>	<del>Resp</del>	<del>12/77</del>	<del>\$100 AQ-PR-77-45</del>	<del>Appeal to Comm</del>
McCollum	3/77	3/77	Atty	McS	8/77	Hrnga		SSD Permit App	Decision Due
Rossier	<del>3/77</del>	<del>3/77</del>	<del>Atty</del>	<del>DEQ</del>	<del>Cor</del>	<del>Dept</del>	<del>SS-Variance-Request</del>	<del>To-be-Scheduled</del>	
Jones	4/77	7/77	DEQ	Cor	3/78	Hrnga		SSD Permit SS-SWR-77-57	Set for Hearing
Beaver State et al	5/77	5/77	Atty	Cor	10/77	Hrnga		\$150 AQ-SNCR-77-84	Decision Due
Middleton	5/77		DEQ			Dept		Rem Order SS-PR-77-66	Discovery
Sundown et al	5/77	6/77	Atty	McS		Prtys		\$20,000 Total SS Viol SNCR	Settlement Action
Wallace	5/77	6/77	DEQ	Cor	1/78	Hrnga		1 SSD Permit Denial	Decision Due
Wright	5/77	5/77	Atty	McS		Resp		\$250 SS-MWR-77-99	Preliminary Issues
Henderson	6/77	7/77	Atty	Cor	1/77	Hrnga		Rem Order SS-CR-77-136	Decision Due
Exton	6/77	8/77	DEQ	Cor	2/78	Resp		Rem Order SS-PR-76-268	To be Rescheduled
Lowe	7/77	7/77	DEQ	Cor		Prtys		\$1500 SW-PR-77-103	Settlement Action
Magness	7/77	7/77	DEQ	Cor	11/77	Resp		\$1150 Total SS-SWR-77-142	Decision Due
Southern Pacific Trans	7/77	7/77	Atty	Cor		Prtys		\$500 NP-SNCR-77-154	Preliminary Issues
Suniga	7/77	7/77	DEQ	Lmb	10/77	Resp		\$500 AQ-SNCR-77-143	Decision Due
Georgia-Pacific	<del>8/77</del>		<del>DEQ</del>			<del>Dept</del>	<del>10/77</del>	<del>\$1000 WQ-SNCR-77</del>	<del>Settlement Action</del>
Sun Studs	8/77	9/77	DEQ			Dept		\$300 WQ-SWR-77-152	Preliminary Issues
Taylor, D.	8/77	10/77	DEQ	McS	4/78	Dept		\$250 SS-PR-77-188	Settlement Action
Brookshire	9/77	9/77	Atty	McS	4/19/78	Hrnga	11/77	\$1000 AQ-SNCR-76-178 Fld Brn	Set for Hearing
Grants Pass Irrig	9/77	9/77	Atty	McS		Prtys		\$10,000 WQ-SWR-77-195	Discovery
Pohll	9/77	12/77	Atty	Cor	3/78	Dept		SSD Permit App	Set for Hearing
Trussel et al	9/77	9/77	DEQ	Cor	10/77	Hrnga		\$150 AQ-SNCR-77-185	Decision Due
Califf	10/77	10/77	DEQ			Hrnga		Rem Order SS-PR-77-225	To be Scheduled
Mc Clincy	10/77	12/77	Atty	McS	3/78	Hrnga		SSD Permit Denial	Set for Hearing
Zorich	10/77	10/77	DEQ	Cor		Prtys		\$100 AQ-SNCR-77-173	Discovery
Clay	11/77	12/77	DEQ			Hrnga		\$200 SS-MWR-77-254	To be Scheduled
Hayes	11/77		DEQ			Resp		\$1580 AQ-MWR-77-240	Settlement Action
Jenks	11/77	12/77	DEQ			Dept		\$1000 Fld Brn AQ-MWR-77-284	Preliminary Issues
Keen	11/77		DEQ			Resp		\$3000 Fld Brn	Settlement Action
Koos	11/77	12/77	DEQ			Dept		\$120 Assmt Fld Brn	Settlement Action
Oak Creek Farms	11/77	12/77	DEQ	McS	3/78	Hrnga		\$500 AQ-MWR-77 Fld Brn	Briefing Due
Powell	11/77	11/77	DEQ	Cor		Prtys		\$10,000 Fld Brn AQ-MWR-77-241	Discovery
Wah Chang	12/77	12/77	Atty	McS		Dept		ACD Permit Conditions	Preliminary Issues
Barrett & Sons, Inc.	12/77		DEQ			Dept		\$500 WQ-PR-77-307	Preliminary Issues
Heims et al	12/77	12/77	DEQ			Dept		Unsewered Houseboat Moorage	Settlement Action
Carl F. Jensen	12/77	1/78	Atty	McS		Prtys		\$18,600 AQ-MWR-77-321 Fld Brn	Discovery
Carl F. Jensen/ Elmer Klopfenstein	12/77	1/78	Atty	McS		Prtys		\$1200 AQ-SNCR-77-320 Fld Brn	Discovery
Schrock, D.	12/77	1/78	DEQ	Cor	4/11/78	Hrnga		\$200 AQ-MWR-77-324 Fld Brn	Set for Hearing
Schrock Farms, Inc.	12/77	1/78	DEQ	Cor	4/78	Hrnga		\$200 AQ-MWR-77-300 Fld Brn	Set for Hearing
Steckley	12/77	12/77	DEQ			Dept		\$200 AQ-MWR-77-298 Fld Brn	Settlement Action
Van Leeuwen	12/77		DEQ			Dept		\$320 AQ-MWR-77-295 Fld Brn	Settlement Action
Heaton	1/78	2/78	DEQ			Hrnga		\$500 AQ-PR-77-325 Fld Brn	To be Scheduled
Towery	1/78	2/78	DEQ			Hrnga		\$375 SNCR-77-326 Fld Brn	To be Scheduled
Wah Chang	1/78	2/78	Atty			Dept		\$5500 WQ-MWR-77-334	Preliminary Issues
Cook Farms	2/78	2/78	DEQ			Dept		\$200 AQ-MWR-77-330 Fld Brn	To be Scheduled
Hawkins	3/78	3/78	Atty			Dept		\$5000 AQ-PR-77-315	Preliminary Issues
Hawkins Timber	3/78	3/78	Atty			Dept		\$5000 AP-PR-77-314	Preliminary Issues
Gray	2/78	3/78	Dept			Dept		\$250 SS-PR-78-12	Preliminary Issues

PROGRESS REPORT  
COMPOSTING TOILETS

February 28, 1978

The Department of Environmental Quality has issued 33 permits for composting toilets and gray waste water treatment and disposal systems under the Experimental On-Site Wastewater Program.

Staff contacted 22 permittees between 2/3/78 and 3/3/78. Those individuals unavailable for comment have been contacted by letter.

4 individuals elected not to install their permitted experimental systems.

12 have not completed construction on their homes. 11 compost toilets are now in use. 1 family had their compost toilet (Biu-Let) removed after running into odor and liquid build up problems.

Of the 11 units now in use (10 of which we have data on, 1 is only recently installed [3/1/78]) 4 have had fly problems (3 Clivus Multrums and 1 Toa-Throne) during the summer months; 5 have had odor problems (4 Ecolets and 1 Bui-Let); 7 have had liquid problems (2 Biu-Lets, 4 Ecolets and 1 Clivus Multrum; twice rising winter water tables leaked through the Clivus Multrum's compost retrieving hatch, filling the unit's lower composting chamber). 1 Biu-Let became dehydrated. The owner has had to add tap water to the system from time to time.

The Department has issued permits for:

- 4 Toa-Thrones
- 19 Clivus Multrums (2 Toilets Authorized Under 1 Permit)
- 4 Biu-Lets
- 10 Ecolets (3 Toilets Authorized Under 1 Permit and 2 on Another)
- 1 Drum Privy

The following toilets are now in use:

- 1 Toa-Throne
- 5 Ecolets
- 1 Biu-Let
- 4 Clivus Multrums

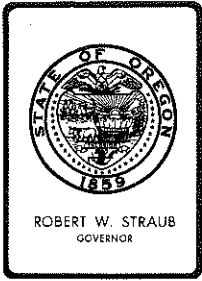
MPR:aes

NAME	LAST CONTACT	FLY PROBLEM	ODOR PROBLEM	LIQUID PROBLEM	TYPE OF TOILET	DATE OF 1st USE	REMARK
Cruden	2/21/78	None	Outside-Minor	Initially Only	Biu-Let	6/1/77	Uses 1 lb. peat/wk., stirs 1/2-3 wk. adds some H2O due to dehydration.
Dukehart	2/21/78	---	---	---	Clivus	Not in use yet.	Construction plans revised so construction (house) delayed.
Studco, Inc.	3/1/78	---	---	---	Clivus	Not in use yet.	Construction delays.
Olson	3/1/78	---	---	---	Clivus	Not in use yet.	All construction complete except chute.
Bender	2/21/78	---	---	---	Drum Privy	Not in use yet.	House destroyed by fire approximately 2/14/78.
Robison	2/21/78	---	---	---	Clivus	Not in use yet.	Wants to withdraw from program and build per Dept. of Commerce regs.
Largent	2/21/78	---	---	---	Clivus	Not in use yet.	Weather, restrictions on installation, i.e., smearing.
Parlier	3/1/78	Some during 1st summer w/garbage.	None	None	Toathrone	7/1/77 approx.	Very pleased with system. 3/1/78 - No change.
Cherry Grove	2/28/78	Fruit flies in 11/77. None since.	None (have double vent)	None	2-Clivus One in use.	7/1/77	Very pleased with system. 2/28/78 - No Change.
Ramsdell	2/21/78	---	---	---	Ecolet	To be used 3/78.	Completely ready to go.
Ross	3/6/78	---	---	---	Clivus	Approx. 3/1/78.	Installed, building finished soon to be used. System observed in use 3/6/78. No info. on flies, etc. available yet.
Hayford	3/3/78	None	Some initially	Insufficient liquid caused failure	3-Ecolets	12/21/76	Used improperly, cleaned out and tried again// <u>No Trouble Since 11/23/77.</u> 3/3/78-Toilets show build-up. Systems are dirty.
McWhirter	2/21/78	---	---	---	Toathrone	Not in use yet.	System not selected yet.
Shewbert	2/21/78	None	None except at vent.	None	Ecolet	7/1/77	Used monthly since 7/1/77 "No bad comments".
Alpine Homes	3/1/78	2 Mo. problem but corrected.	None	None - had water table flood but corrected.	Clivus	8/77	Very pleased with performance after initial slight fruit fly problem. Well fed by owner with carbon. 3/1/78 -No change.
Myhra	2/28/78	---	---	---	Ecolet	Not in use.	Medical and/or financial problems. No progress since illness.
Gunn	2/3/78	---	---	---	Clivus	Not in use.	Still seeking revisions in permit.
Betzer/Kellogg	6/23/77	---	---	---	Clivus	---	Withdrew from program.
Robinson	2/23/78	---	---	---	2-Clivus	Not in use.	Under construction -to be used 4/1/78.
Brauer	8/3/77	---	---	---	Clivus	Not in use.	No response available, no phone.
Benge	2/23/78	None	Some slight problems.	Excess liquid (Due to child use)	Ecolet	10/15/77	Really good so far except for recent liquid build-up.
Rogers	5/10/77 attempt 2/23/78	---	---	---	Toathrone	Recently put <u>in</u> .	Moved/no phone.
Juedes	Refunded	---	---	---	---	---	Out of program.
Booth	See Buchner.	---	---	---	---	---	See Buchner.
Ordway	2/23/78	Some initial problems.	None	None	Clivus	12/25/77	Works well.
Chevrette	2/28/78	---	---	---	Ecolet	Not in use yet.	Winter construction delays, to be finished in Spring 1978.
Buchner	2/21/78	---	Yes	Yes (Too much liquid in proportion to solid matter)	Biu-Let	1/1/77	The Biu-Let was withdrawn and returned to distributor at permittee's request

6 Unavailable for recent useable information.

MPR:aes  
3/17/78





## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696


### MEMORANDUM

TO: Environmental Quality Commission  
FROM: Director  
SUBJECT: Agenda Item No. C, March 31, 1978, EQC Meeting  
Tax Credit Applications

Attached are 17 requests for tax credit action. Review reports and recommendations of the Director are summarized on the attached table.

### Director's Recommendation

It is recommended that the Commission issue Pollution Control Facility Certificates for 17 applications: T-953, T-954, T-955, T-956, T-957, T-958, T-959, T-960, T-961, T-963, T-973, T-976, T-977, T-978, T-979, T-980 and T-949.

  
WILLIAM H. YOUNG

MJDowns:cs  
229-6485  
3/20/78

### Attachments

1. Tax Credit Summary
2. Tax Credit Application Table
3. 17 Review Reports



Contains  
Recycled  
Materials

Attachment 1

Proposed March 1978 Totals

Air Quality	\$ 1,188,758
Water Quality	247,927
Solid Waste	<u>12,870,494</u>
	\$14,307,179

Calendar Year Totals to Date  
(Excluding March 1978 Totals)

Air Quality	\$ -0-
Water Quality	1,168,775
Solid Waste	<u>-0-</u>
	\$1,168,775

Total Certificates Awarded (Monetary Values)  
Since Beginning of Program  
(Excluding March 1978 Totals)

Air Quality	\$112,187,115
Water Quality	80,463,914
Solid Waste	<u>14,628,629</u>
	\$207,279,658

TAX CREDIT APPLICATIONS SUMMARY

Applicant/ Plant Location	Appl. No.	Facility	Claimed Cost	% Allocable to Pollution Control	Director's Recommendation
Kawecki Berylco Industries, Inc. Springfield	T-953	Dust collection system	50,374.05	80% or more	Issue Certificate
ESCO Corporation Portland	T-954	Dust collection system	138,576.13	80% or more	Issue Certificate
ESCO Corporation Portland	T-955	Dust collection system	170,955.03	80% or more	Issue Certificate
ESCO Corporation Portland	T-956	Booth for scrap containment	20,556.27	80% or more	Issue Certificate
Oregon Portland Cement Co. Huntington	T-957	Electrostatic precipitator	702,440.98	80% or more	Issue Certificate
Crown Zellerbach Corp. Wauna	T-958	Modification of smelt dissolving tank demister	26,842.00	80% or more	Issue Certificate
Crown Zellerbach Corp. Wauna	T-959	Lime kiln venturi scrubber	52,229.00	80% or more	Issue Certificate
Barbey Packing Corp. Astoria	T-960	Waste water collection system	33,940.11	80% or more	Issue Certificate
Beachman Orchards Hood River	T-961	Tropic Breeze wind machine	11,997.00	80% or more	Issue Certificate
Gale Orchards Hood River	T-963	Tropic Breeze wind machine	10,469.00	80% or more	Issue Certificate
Tru-Mix Leasing Co. Medford	T-973	Wayne Sweeper	4,319.00	80% or more	Issue Certificate

Tax Credit Applications Summary (continued)

Applicant/ Plant Location	Appl. No.	Facility	Claimed Cost	% Allocable to Pollution Control	Director's Recommendation
Menasha Corporation North Bend	T-976	Pump and piping for transporting \$ scrubber backwash to liquor tank	1,764.00	80% or more	Issue Certificate
Menasha Corporation North Bend	T-977	Molten sulfur metering pump and insulated pipeline	21,365.00	80% or more	Issue Certificate
Menasha Corporation North Bend	T-978	Concrete tank and liner to store spent pulping liquor	181,606.00	80% or more	Issue Certificate
Chembond Corporation Springfield	T-979	Concrete apron draining to a sump and pump	3,476.74	80% or more	Issue Certificate
Chembond Corporation Springfield	T-980	Concrete apron draining to a sump and pump	5,775.52	80% or more	Issue Certificate
Medford Corporation	T-949	Medium density fiberboard plant	12,870,494.00	100%	Issue Certificate

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Kawecki Berylco Industries, Inc.  
National Metallurgical Division  
P.O. Box 56  
Springfield, Oregon 97477

The applicant owns and operates a ferro-alloy smelter at 1801 South "A" Street, Springfield, Oregon 97477.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application consists of hooding, ducting, and an ICA size 500-3 modular "Pulse Clean" baghouse collector to control dust emissions from the charge preparation system.

Request for Preliminary Certification for Tax Credit was made on March 16, 1977, and approved on March 21, 1977.

Construction was initiated on the claimed facility on October 10, 1977, completed on November 1, 1977, and the facility was placed into operation on November 2, 1977.

Facility Cost: \$50,374.05 (Accountant's Certification was provided).

3. Evaluation of Application

The claimed facility controls local dusting in batch preparation and weighing system. Prior to installation of the claimed facility, emissions from this system escaped the building as fugitive emissions. The claimed facility has eliminated these fugitive emissions.

4. Summation

- A. Facility was constructed after receiving approval to construct and preliminary certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.
- D. The facility is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.

E. A substantial purpose of the claimed facility is to eliminate fugitive emissions to the outside atmosphere. No income is derived from the claimed facility.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$50,374.05 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-953.

F. A. Skirvin:mef  
229-6414  
March 7, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

ESCO Corporation  
Manufacturing Division  
2141 N.W. 25th Avenue  
Portland, Oregon 97210

The applicant owns and operates a high alloy steel casting production facility at 2141 N.W. 25th Avenue in Portland, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a Wheelabrator Frye, Inc., Model 1220-171-55, 40,000 ACFM continuous automatic fabric dust collector with a 2.4 to 1 air to cloth ratio.

Request for Preliminary Certification for Tax Credit was made on March 3, 1976, and approved on March 17, 1976.

Construction was initiated on the claimed facility on August 3, 1976, completed on November 15, 1976, and the facility was placed into operation on November 15, 1976.

Facility Cost: \$138,576.13 (Accountant's Certification was provided).

3. Evaluation of Application

The original facility used one dust collector for two burning booths used on an alternating basis. The claimed facility allows continuous use of both powder burn booths simultaneously. The claimed facility has allowed increased powder burning without added environmental impact.

4. Summation

- A. Facility was constructed after receiving approval to construct and preliminary certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.

- D. The facility was required by the Department and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. No income is derived from the claimed facility. Its sole purpose is to control air pollution.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$138,576.13 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-954.

F. A. Skirvin:mef  
229-6414  
March 7, 1978



State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

ESCO Corporation  
Manufacturing Division  
2141 N.W. 25th Avenue  
Portland, Oregon 97210

The applicant owns and operates a high alloy steel casting production facility at 2141 N.W. 25th Avenue in Portland, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a Wheelabrator Frye, Inc., Model 1220-171-55, 65,000 CFM intermittent fabric dust collector with a 2.43 to 1 air to cloth ratio. This dust collector controls fumes from the Argon-Oxygen Decarburization (AOD) vessel which is used for refining molten steel.

Request for Preliminary Certification for Tax Credit was made on October 29, 1975, and approved on December 30, 1975.

Construction was initiated on the claimed facility in June 1976, completed in October 1976, and the facility was placed into operation in October 1976.

Facility Cost: \$170,955.03 (Accountant's Certification was provided).

3. Evaluation of Application

The AOD vessel and dust collector were installed concurrently as a complete new installation. The dust collector reduces AOD emissions from approximately 0.54 grains per cubic foot to less than 0.02 grains per cubic foot.

4. Summation

- A. Facility was constructed after receiving approval to construct and preliminary certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.

- D. The facility was required by the Department and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. No income is derived from the claimed facility. Its sole purpose is to control air pollution.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$170,955.03 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-955.

F. A. Skirvin:mef  
229-6414  
March 7, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

ESCO Corporation  
Manufacturing Division  
2141 N.W. 25th Avenue  
Portland, Oregon 97210

The applicant owns and operates a high alloy steel casting production facility at 2141 N.W. 25th Avenue in Portland, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a large booth with pneumatic air operated lids which open allowing scrap entry and close to contain process; ductwork and dampers leading to an existing collector (which is not included for certification).

Notice of Intent to Construct was made on September 12, 1974, and approved on September 26, 1974. Preliminary Certification for Tax Credit is not required.

Construction was initiated on the claimed facility on October 1, 1974, completed on February 21, 1975, and the facility was placed into operation on February 25, 1975.

Facility Cost: \$20,556.37 (Accountant's Certification was provided).

3. Evaluation of Application

Occasional burning of stainless scrap required a powder process which resulted in uncontrolled fugitive emissions. The claimed facility has eliminated these fugitive emissions.

4. Summation

- A. Facility was constructed after receiving approval to construct issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.

- D. The facility was required by the Department and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. No income is derived from the claimed facility. Its sole purpose is to control air pollution.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$20,556.37 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-956.

F. A. Skirvin:mef  
229-6414  
March 7, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Oregon Portland Cement Co.  
111 S. E. Madison Street  
Portland, Oregon 97214

The applicant owns and operates a cement manufacturing facility 5 miles northwest of Huntington, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is an Environmental Elements Corporation single chamber, 2 field, 26 gas passage, 90,000 ACFM electrostatic precipitator with auxiliary equipment. Its function is to clean exhaust gases from the No. 2 kiln at the Huntington plant.

Notice of Intent to Construct was made on December 27, 1974, and approved on February 10, 1975. Preliminary Certification for Tax Credit is not required. Start of construction was delayed pending a decision by Oregon Portland Cement on whether or not to build a new cement plant and phase out the Huntington plant. On August 28, 1975, Oregon Portland Cement decided not to build a new plant at that time and proceeded with plans to install the claimed facility.

Construction was initiated on the claimed facility in October 1975, completed in June 1977, and the facility was placed into operation in June 1977.

Facility Cost: \$702,440.98 (Accountant's Certification was provided).

3. Evaluation of Application

The previous dust control system for the No. 2 kiln consisted of multiclones and was unable to comply with Department regulations. A source test has demonstrated that the claimed facility brought No. 2 kiln into compliance.

4. Summation

- A. Facility was constructed after receiving approval to construct issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.

T-957  
Page 2  
2/21/78

- D. The facility was required by the Department and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. The sole purpose of the claimed facility is to control air pollution. Total annual operating expenses amount to \$229,370.86 and annual income to \$11,957.14. Therefore, the claimed facility has a negative return on investment. The Department believes this facility to be 100 percent allocated to pollution control.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$702,440.98 with 80 percent or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-957.

FASkirvin/kz  
229-6414  
2/22/78

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

Crown Zellerbach Corporation  
Wauna Divison  
Clatskanie, Oregon 97016

The applicant owns and operates a bleached kraft pulp and paper mill at Wauna near Clatskanie, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a modification to the smelt dissolving tank demister which consists of the following items and costs:

a. Equipment	\$ 6,870
1. Duct modification	
2. Sump pump	
3. Platform	
4. Pump	
5. Motor	
b. Installation	16,594
c. Piping	344
d. Instrumentation	3,029

Notice of Intent to Construct and Preliminary Certification for Tax Credit was not required.

Construction was initiated on the claimed facility on December 1, 1971, completed on January 1, 1972, and the facility was placed into operation on January 1, 1972.

Facility Cost: \$26,842 (Accountant's Certification was provided).

3. Evaluation of Application

The claimed facility is a modification to an existing facility which was unable to adequately control emissions. The modification consists of the installation of continuous showers on the demister and a system to collect and recirculate the water used in the continuous showers.

The facility has been inspected by the Department and is operating satisfactorily.

The material collected by the claimed facility is not reused. Therefore, it is concluded that the facility was installed solely for air pollution control.

4. Summation

- A. Facility was not required to have prior approval to construct or preliminary certification.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.
- D. The facility was required by the Department and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. The Department has concluded that 100 percent of the cost of this facility is allocable to air pollution control since the facility was installed solely for air pollution control.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$26,842 with 80 percent or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-958.

FASkirvin/kz  
229-6414  
2/13/78



State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

Crown Zellerbach Corporation  
Wauna Division  
Clatskanie, Oregon 97016

The applicant owns and operates a bleached kraft pulp and paper mill at Wauna near Clatskanie.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a lime kiln venturi scrubber. The facility cost consists of the following:

a. Venturi scrubber	\$30,379
b. Piping, wiring and instrumentation	20,920
c. Installation	930

Notice of Intent to Construct was made on July 12, 1974, and approved on September 20, 1974. Preliminary Certification for Tax Credit is not required.

Construction was initiated on the claimed facility in June 1975, completed on July 4, 1975, and the facility was placed into operation on July 5, 1975.

Facility Cost: \$52,229 (Accountant's Certification was provided).

3. Evaluation of Application

The claimed facility replaced a scrubber which was unable to adequately control particulate emissions.

The facility has been inspected by the Department and is operating satisfactorily. It has reduced particulate emissions by 260 pounds per day.

The value of the additional material recovered by the facility is less than the additional operating expenses of the facility. Therefore, it is concluded that the facility was installed solely for air pollution control.

4. Summation

- A. Facility was constructed after receiving approval to construct issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.
- D. The facility was required by the Department and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. The Department has concluded that 100 percent of the cost of this facility is allocable to air pollution control since the facility was installed solely for air pollution control.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$52,229 with 80 percent or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-959.

App# T-960

Date March 14, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Barbey Packing Corporation  
P. O. Box 358  
Astoria, OR 97103

The applicant owns and operates a fish processing plant at Astoria, in Clatsop County.

Application was made for tax credit for a water pollution control facility.

2. Description of Claimed Facility

The claimed facility consists of a concrete waste water collection system, 2 - 7½ h.p. pumps and steel pump sump, a 48" tangential screen, and related piping and controls.

Notice of intent to construct was made February 2, 1975, and approved February 12, 1975. Preliminary Certification for Tax Credit not required.

Construction was started on the claimed facility August 15, 1975, completed and placed into full operation September 7, 1977.

Facility Cost: \$33,940.11 (Accountant's Certification was provided.)

3. Evaluation of Application

Prior to installation of the claimed facility, seafood processing wastes were discharged untreated to the Columbia River. The claimed facility screens the waste and removes most of the solids. The facility complies with Federal treatment standards.

4. Summation

- A. Facility was constructed after receiving approval to construct issued pursuant to ORS 468.175.
- B. Facility was constructed after January 1, 1967 as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated substantially for the purpose of preventing, controlling, or reducing water pollution.

Appl. T-960  
March 14, 1978  
Page 2

- D. The facility was required by NPDES Waste Discharge Permit issued by the Department and was necessary to satisfy the intents and purposes of ORS Chapter 468 and PL 92-500.
- E. The claimed facility was determined to be 100% allocable for pollution control because it generates no income and is the most practicable type of system which could have been employed.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$33,940.11 with 80% or more allocable to pollution control be issued for the facility claimed in Tax Credit Application No. T-960.

C. K. Ashbaker:em  
229-5325  
March 14, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

William C. Beachman  
dba Beachman Orchards  
3644 Dethman Ridge Drive  
Hood River, Oregon 97031

The applicant owns and operates a pear and apple orchard at Hood River, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a Tropic Breeze Wind Machine used to provide frost protection for pear trees.

Request for Preliminary Certification for Tax Credit was made on November 16, 1977, and approved on November 17, 1977.

Construction was initiated on the claimed facility on November 18, 1977, completed on December 18, 1977, and the facility was placed into operation on December 18, 1977.

Facility Cost: \$11,997 (Accountant's Certification was provided).

3. Evaluation of Application

There is no law limiting the use of fuel oil fired heaters to control frost damage to fruit trees even though the heaters produce a significant smoke and soot air pollution problem in the City of Hood River. The orchard farmers desire a secure, long-range solution to frost control that includes the reduction or elimination of the smoke and soot nuisance caused by heaters. An orchard fan, which serves 10 acres, reduces the number of heaters required for frost protection from 340 heaters to 100 perimeter heaters, a 70 percent reduction.

An orchard fan blows the warmer air from above the inversion level down into the trees. The fans have proven effective for frost control in the Hood River area where frost control is needed on an average of 30 hours per year.

4. Summation

A. Facility was constructed after receiving approval to construct and preliminary certification issued pursuant to ORS 468.175.

T-961  
Page 2  
2/9/78

- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.
- D. The facility is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. The operating cost of the claimed facility is slightly greater than the savings in the cost of fuel oil. The operating cost consists of the fuel cost using the fan, depreciation over 10 years and no salvage value plus the average interest at 9 percent on the undepreciated balance.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$11,997 with 80 percent or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-961.

FASKirvin/kz  
229-6414  
2/13/78

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

William R. Gale  
dba Gale Orchards  
2420 Gilkerson Road  
Hood River, Oregon 97031

The applicant owns and operates a pear and apple orchard at Hood River, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a Tropic Breeze Wind Machine used to provide frost protection for pear trees.

Request for Preliminary Certification for Tax Credit was made on September 20, 1977, and approved on September 22, 1977.

Construction was initiated on the claimed facility on November 18, 1977, completed on December 18, 1977, and the facility was placed into operation on December 18, 1977.

Facility Cost: \$10,469 (Accountant's Certification was provided).

3. Evaluation of Application

There is no law limiting the use of fuel oil fired heaters to control frost damage to fruit trees even though the heaters produce a significant smoke and soot air pollution problem in the City of Hood River. The orchard farmers desire a secure, long-range solution to frost control that includes the reduction or elimination of the smoke and soot nuisance caused by heaters. An orchard fan, which serves 10 acres, reduces the number of heaters required for frost protection from 340 heaters to 100 perimeter heaters, a 70 percent reduction.

An orchard fan blows the warmer air from above the inversion level down into the trees. The fans have proven effective for frost control in the Hood River area where frost control is needed on an average of 30 hours per year.

4. Summation

- A. Facility was constructed after receiving approval to construct and preliminary certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).

- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.
- D. The facility is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. The operating cost of the claimed facility is slightly greater than the savings in the cost of fuel oil. The operating cost consists of the fuel cost using the fan, depreciation over 10 years and no salvage value plus the average interest at 9 percent on the undepreciated balance.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$10,469 with 80 percent or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-963.

FASkirvin/kz  
229-6414  
2/13/78



State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Tru-Mix Leasing Co.  
P.O. Box 1708  
Medford, Oregon 97501

The applicant owns and operates a concrete batch plant at 1111 E. Vilas Road in Medford, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a 1964 Wayne Sweeper, s/n 40138, model 2770.

Request for Preliminary Certification for Tax Credit was made on November 16, 1977, and approved on January 18, 1978.

Construction was initiated on the claimed facility in December 1977, completed in December 1977, and the facility was placed into operation in December 1977.

Facility Cost: \$4,319.00 (Accountant's Certification not required. Cancelled check provided.)

3. Evaluation of Application

Installation and use of the claimed facility has eliminated the largest part of a fugitive yard dust problem. The claimed facility has proved to be more effective in controlling dust than the previous method, periodic watering.

4. Summation

- A. Facility was constructed after receiving approval to construct. Preliminary certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing air pollution.
- D. The facility is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.

E. Ninety percent of the time the claimed facility will be used for the sole purpose of controlling air pollution at Tru-Mix's plant site in Medford. Less than ten percent of the time the claimed facility will be used to sweep road shoulders prior to paving. No income is derived from the claimed facility.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$4,319.00 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-973.

F. A. Skirvin:mef  
229-6414  
March 7, 1978

Appl T-976

Date 3/14/78

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Menasha Corporation  
Paperboard Division  
P. O. Box 329  
North Bend, OR 97459

The applicant owns and operates a neutral sulfite semi chemical pulp and paper mill near North Bend, Oregon in Coos County.

Application was made for tax credit for a water pollution control facility.

2. Description of Claimed Facility

The claimed facility consists of a pump and piping for transferring Venturi scrubber backwash back to the weak liquor tank where it is sent to recovery.

Request for Preliminary Certification for Tax Credit was approved February 23, 1977.

Construction was initiated on the claimed facility in May 1977, completed in December 1977, and placed into operation in January 1978.

Facility Cost: \$1,764 (Certified Public Accountant's statement was provided.)

3. Evaluation

Prior to installation of the claimed facility, the Venturi scrubber backwash was sewered to the secondary waste treatment system. With the facility, the backwash is recycled to recovery. This reduces the wastes discharged to the secondary waste treatment system and ultimately to public waters.

4. Summation

A. Facility was constructed after receiving approval to construct and Preliminary Certification issued pursuant to ORS 468.175.

B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).

Appl. T-976  
3/14/78  
Page 2

- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing water pollution.
- D. The facility was not specifically required by the Department of Environmental Quality, but does satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. Applicant claims 100% of costs allocable to pollution control. There is no income derived from the facility. Based on this, the facility should be considered 100% allocable to pollution control.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued for the facility claimed in Application T-976, such Certificate to bear the actual cost of \$1,764 with 80% or more allocable to pollution control.

C. K. Ashbaker:em  
229-5325  
March 14, 1978

App1 T-977

Date March 14, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Menasha Corporation  
Paperboard Division  
P.O. Box 329  
North Bend, OR 97459

The applicant owns and operates a neutral sulfite semi chemical pulp and paper mill near North Bend, Oregon in Coos County.

Applicant was made for tax credit for a water pollution control facility.

2. Description of Claimed Facility

The claimed facility is a molten sulfur metering pump and insulated pipe line. The facility is used to pump molten sulfur to the spent liquor incinerator (SLI).

Request for Preliminary Certification for Tax Credit was approved February 2, 1977.

Construction was initiated on the claimed facility in February 15, 1977, completed in February 25, 1977, and placed into operation in February 26, 1977.

Facility Cost: \$21,365 (Certified Public Accountant's statement was provided.)

3. Evaluation

The claimed facility is a component of the spent liquor incinerator (SLI) which burns the spent sulfite cooking liquors and recovers the cooking chemicals. Before the claimed facility was installed, the recovered cooking chemical (salt cake) contained a substantial percentage of sodium carbonate which caused the salt cake to resist dissolving when introduced into Kraft green liquor systems for reuse. With the claimed facility, the percentage of sodium carbonate has been low enough that dissolving problems have not been a problem.

4. Summation

- A. Facility was constructed after receiving approval to construct and Preliminary Certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing water pollution.
- D. The facility is a component of a system that was required by the Department of Environmental Quality and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. Applicant claims 100% of costs allocable to pollution control.

The claimed facility in itself is probably very profitable in that the salt cake is now much more marketable to Kraft mills. However, the facility is a component of a larger pollution control facility (the SLI). The SLI, even with the addition of the claimed facility, still has no income due to its high operating costs. Based on this, we believe the claimed facility should be considered 100% allocable to pollution control.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued for the facility claimed in Application T-977, such Certificate to bear the actual cost of \$21,365 with 80% or more allocable to pollution control.

C. K. Ashbaker:em  
229-5325  
March 14, 1978

App1 T-978  
Date March 13, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Menasha Corporation  
Paperboard Division  
P.O. Box 329  
North Bend, OR 97459

The applicant owns and operates a neutral sulfite semi chemical pulp and paper mill near North Bend, Oregon in Coos County.

Application was made for the tax credit for a water pollution control facility.

2. Description of Claimed Facility

The facility described in this application is 0.5 MG concrete tank with a plastic T-lock liner. The tank is used to store spent pulping liquor.

Request for Preliminary Certification for the Tax Credit was approved August 6, 1976.

Construction was started in August 1976, completed March 14, 1977, and placed in operation March 15, 1977.

Facility Cost: \$181,606 (Accountant's certification was provided).

3. Evaluation

The claimed facility is a storage tank which replaces a rubber lined basin which was inadequate. The tank is a necessary component of the spent liquor incinerator (SLI) which recovers spent pulping liquor preventing its discharge to public waters. The pulp mill does not generate enough spent liquor to keep the SLI running continually. The tank stores the liquor while the SLI is not running.

4. Summation

- A. Facility was constructed after receiving approval to construct and Preliminary Certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).

- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing water pollution.
- D. The facility is part of a system that was required by the Department of Environmental Quality and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. Applicant claims 100% of costs allocable to pollution control.

The claimed facility is a component of the spent liquor incinerator which recovers salt cake. Though the salt cake has some value, the operating costs of the system exceeds the income. Other alternatives did not have any advantages or cost savings.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued for the facility claimed in Application T-978, such Certificate to bear the actual cost of \$181,606 with 80% or more allocable to pollution control.

C. K. Ashbaker:em  
229-5325  
March 13, 1978



App# T-979

Date March 14, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Chembond Corporation  
P. O. Box 270  
Springfield, Oregon 97477

The applicant owns and operated a plant to manufacture synthetic resin for plywood and particleboard adhesives at 475 N. 28th in Springfield.

Application was made for tax credit for water pollution control facility.

2. Description of Claimed Facility

The claimed facility consists of a concrete apron draining to a sump and pump; and includes related electrical and piping work.

Request for Preliminary Certification for Tax Credit was made March 25, 1976, and approved March 31, 1976.

Construction was initiated on the claimed facility in June 1976, completed and placed into operation in December 1977.

Facility Cost: \$3,476.74 (Cost statements were provided.)

3. Evaluation

The facility provides containment for phenol contaminated runoff and dumps it back to the plant for reuse. It has reduced phenol concentration in runoff from as much as 1 mg/l to less than 0.02 mg/l. Prior to installation of the facility any spilled phenol at the unloading rail spur dropped to gravel and was carried away by storm runoff.

4. Summation

- A. Facility was constructed after receiving approval to construct and Preliminary Certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing water pollution.

Appl. T-979  
March 14, 1978  
Page 2

- D. The facility was required by the Department of Environmental Quality and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. Applicant claims 100% of costs allocable to pollution control.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued for the facility claimed in Application T-979, such Certificate to bear the actual cost of \$3,476.74 with 80% or more allocable to pollution control.

C. K. Ashbaker:em  
229-5325  
March 14, 1978

App# T-980

Date March 14, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

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1. Applicant

Chembond Corporation  
P. O. Box 270  
Springfield, OR 97477

The applicant owns and operates a plant to manufacture synthetic resin for plywood and particleboard adhesives at 475 N. 28th Street in Springfield.

2. Description of Claimed Facility

The claimed facility consists of a concrete apron draining to a sump and pump at the tank truck unloading area; and also includes piping and electrical work.

Request for Preliminary Certification for Tax Credit was made April 29, 1976, and approved May 20, 1976.

Construction was initiated on the claimed facility in June 1976, completed and placed into operation in December 1976.

Facility Cost: \$5,775.52 (Cost statements were provided.)

3. Evaluation

The claimed facility provides containment for formaldehyde and caustic soda contaminated runoff resulting from spills while unloading caustic soda and formaldehyde in the tank storage area. Before this construction, high pH and formaldehyde were detected in storm runoff. The applicant claims this condition no longer exists.

4. Summation

- A. Facility was constructed after receiving approval to construct and Preliminary Certification issued pursuant to ORS 468.175.
- B. Facility was constructed on or after January 1, 1967, as required by ORS 468.165(1)(a).
- C. Facility is designed for and is being operated to a substantial extent for the purpose of preventing, controlling or reducing water pollution.

Appl. T-980  
March 14, 1978  
Page 2

- D. The facility was required by the Department of Environmental Quality and is necessary to satisfy the intents and purposes of ORS Chapter 468 and the rules adopted under that chapter.
- E. Applicant claims 100% of costs allocable to pollution control.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued for the facility claimed in Application T-980, such Certificate to bear the actual cost of \$5,775.52 with 80% or more allocable to pollution control.

C. K. Ashbaker:em  
229-5325  
March 14, 1978

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

Medford Corporation  
P.O. Box 550  
Medford, Oregon 97501

The applicant owns and operates a medium density fiberboard plant at Medford, Oregon.

Application was made for tax credit for solid waste pollution control facility.

2. Description of Claimed Facility

The facility described in this application is a new medium density fiberboard plant. The facility is utilizing over 150,000 units of mixed waste materials (based on volume 7.7% plywood trims, 31% green shavings, 18% dry shavings, 18% green sawdust, 20% low grade douglas fir chips, and 5.3% cedar chips) per year and consists of:

Raw Material Building	\$ 648,081.50
Refining, Drying, & Blending Area	307,274.77
Production Building	531,565.34
Finishing & Warehouse Building	1,369,539.34
Jeffrey Hammer Mills	174,383.62
Raw Material Handling Equipment	494,475.88
Cat. 950 Loader	34,019.56
Truck Dump	83,615.90
Raw Material Storage Slab	27,556.35
Dryers	665,325.43
Refiners	882,229.81
Blenders	145,650.26
Propane System	107,149.76
Fiber Bins	131,111.26
Forming and Press Line	4,206,196.31
Automate 33 Controller	89,153.01
Inline Saws	313,360.18
Sander	532,676.61
Cutup Saw	394,333.06
Mobile Shipping Equipment	71,194.99
Lab. Equipment	24,180.80
High Voltage Electrical System	495,240.17
Steam System	636,995.42
Shop Tools	38,118.30
Office Furniture	6,706.58
Rail Spur	53,648.35

Paving and Roads	120,188.13
Parking Lot	28,839.57
Landscaping	4,919.75
Roofing	12,775.25
Filtering Modification	74,375.00
Bench Oven	1,225.26
Bag House	16,522.69
#2 Dryer Preheater	15,494.29
Scissor Lift	1,560.00
Scissor Hoist	1,546.19
Wet Scrubbers	92,362.38
Rogers 806 Panel Saw	12,655.95
Dryer Reheater	7,998.00
Miscellaneous	16,249.52
	<u>\$12,870,494.29</u>

Notice of Intent to Construct was made December 27, 1972, and approved April 17, 1973. Preliminary Certification for Tax Credit not required. Construction was initiated on the claimed facility June 4, 1973, completed April 16, 1975, and the facility was placed into operation May 19, 1975.

Facility Cost: \$12,870,494 (Accountant's certification was provided.)

### 3. Evaluation of Application

The primary reason for installation of this facility was to increase utilization of solid waste. The claimed facility is utilizing wood wastes from 25 mills in Jackson and Josephine counties. As a result, virtually no solid waste from these sources is being open burned or placed in sanitary landfills.

The claimed facility has caused fiber fallout nuisance conditions to residents of the local area. This problem was discussed at the December 16, 1977, EQC meeting in Medford. The Department is negotiating a program with Medford Corporation for control of upset discharge and fugitive emissions.

The annual income derived from claimed facility is \$10,000,000.

### 4. Summation

Facility was constructed after receiving approval to construct issued pursuant to ORS 468.175. Facility was under construction on or after January 1, 1973, as required by ORS 468.165 (1)(c).

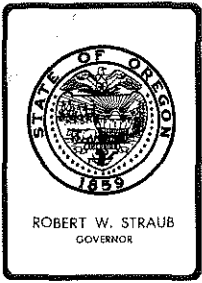
Facility is designed for and is being operated to a substantial extent for the utilization of material that would otherwise be solid waste.

The facility is necessary to satisfy the intents and purposes of ORS Chapter 459, and the rules adopted under that chapter.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$12,870,494.00 with 100% allocated to pollution control be issued for the facility claimed in Tax Credit Application No. T-949.

EASchmidt:ps  
229-5356  
3/22/78



## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. D, March 31, 1978, EQC Meeting.

#### Teledyne Wah Chang Albanys Request for Permit Modification

#### Addendum to Report Prepared for February 24, 1978 Commission Meeting

At the last Commission meeting Teledyne Wah Chang Albany requested that action on the proposed modification be delayed until the March Commission meeting. They requested the delay to allow them to make some improvements to their steam stripper which were recommended by a new consultant. They also requested some information from EPA relative to the difference between the zirconium industry and the columbium-tantalum industry.

On Monday, March 27, 1978, Teledyne Wah Chang met with the Department and requested that additional ammonia allowances be granted for river background levels and those extraneous sources of ammonia which do not go through the steam stripper.

#### Evaluation

The improvements made to the steam stripper have had a positive effect on the efficiency of treatment. Since it became fully operational on March 18, 1978, the measured discharges of ammonia to Truax Creek have averaged 384 lbs/day with a maximum of 491 lbs. These are well within the proposed limits.

EPA has not formally responded to TWCA regarding their request relative to assessment of the differences between the zirconium industry and the columbium-tantalum industry. It is our opinion that any response EPA could make would have no effect on altering the 400 lbs/day limit they have already established.

After our meeting with TWCA on the 27 of March we determined that we would be willing to allow them to subtract background ammonia if a method can be agreed upon to accurately do this. According to our data this would only amount to 3 or 4 pounds per day and would hardly be worth the additional monitoring which would be required.



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Without having more definitive data to indicate otherwise, it is our opinion that the extraneous sources of ammonia should all be found within the 400 pound per day limit.

On March 21, 1978, EPA, Region X sent TWCA a Notice of Violation pursuant to section 309 of the Clean Water Act. Essentially, it puts TWCA on notice that EPA may take independent enforcement action against them if the Department of Environmental Quality does not take appropriate action within 30 days.

It is our belief that, if the Department issues the modification as written and TWCA accepts it, no additional enforcement action will be taken by EPA.

Amended Summation

1. Because Wah Chang was not confident they could meet the effluent limits to go into effect July 1, 1977, they requested a modification of ammonia, MIBK, Fluoride and toxicity limitations. That request was made April 25, 1977.
2. They later revised their application by withdrawing their request for a modification of MIBK limitations and relaxation of toxicity standards. They also reduced their request for an ammonia increase. They added a request for increased TOC limitations and requested fluoride limits be removed.
3. Until the final action could be taken on the modification they entered into a stipulated consent order with a minimal daily penalty.
4. The Department has determined to deny the modification which they requested. However, a modification will be issued which (a) increases ammonia limits to a level determined by EPA to be Best Practicable Technology (BPT), (b) returns fluoride limits to pre-July 1977 levels, (c) increases TOC limits to account for unidentified constituents which show up in the TOC test, (d) redefines toxicity in terms of TLM, (e) adds a statement clarifying the permitted point of discharge, (f) redefines the bioassay results to report, and (g) adds monitoring of the creek in order to determine if pollutants are entering at points other than the authorized discharge point.
5. The Wah Chang sludge ponds appear to be leaking. The Department will continue to evaluate this and take enforcement action if necessary.
6. TWCA has made substantive improvements to the steam stripper the past 30 days which should enable them to meet the limits of the amended permit.

Agenda Item No. D, March 31, 1978, EQC Meeting

7. No additional evidence has been submitted by TWCA which convinces us that the limits as proposed are not appropriate or achievable.
8. The EPA Regional Administrator approved the permit modification by letter dated March 20, 1978.
9. EPA sent a Notice of Violation to TWCA which tells them that EPA is ready to initiate enforcement action in 30 days if the Department does not take appropriate action. We believe that by issuing this modification we will be taking that action required.

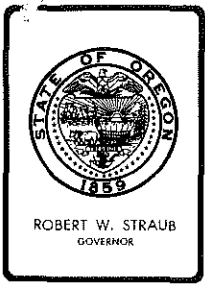
Director's Final Action

After due consideration of all the evidence presented, the Director intends to deny Teledyne Wah Chang Albany's request for permit modification and to issue the modification initiated by the Department.

*Bill*

WILLIAM H. YOUNG

Charles K. Ashbaker/aes  
229-5325  
March 29, 1978



## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. E, March 31, 1978, EQC Meeting

Sewage Disposal, Bend Area - Status Report on Discussions  
with Deschutes County Commission Regarding Sewage Disposal  
Problems within the Bend Urban Growth Boundary.

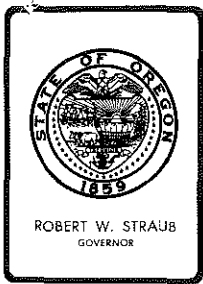
The status of the sewage disposal problems within the Bend Urban Growth Boundary is essentially unchanged from the time when the last status report was presented to the Commission at their January, 1978 meeting. However, the City of Bend sewerage system project is back on track and on its way to implementation. A meeting between the Department's Central Region staff, Deschutes County, and the City of Bend has been scheduled for March 23, 1978. We believe measurable progress toward resolving the sewage disposal problems will be achieved at this meeting. Any new information derived from the meeting will be presented to the Commission on March 31, 1978.

WILLIAM H. YOUNG

Harold L. Sawyer:ak  
229-5324  
March 21, 1978



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Materials



## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item E, March 31, 1978, EQC Meeting  
Public Sewerage Considerations Within the Bend Urban Growth Boundary  
Progress Report No. 3

### Background

See Attachment "A", Past Progress Reports

### Discussion

Since the January Status Report to the Commission, the "deadlock" in the Bend project has been resolved by an EPA letter (Attachment B), permitting interim use of disposal wells, if necessary. The City is now preparing bid documents and construction could begin within the next 60 to 90 days.

Part of Deschutes County's reluctance to provide sewerage planning in the urban growth area hinged on the uncertainty and timing of the City of Bend collection and treatment system. With the apparent resolution of that issue, discussions have again commenced on service feasibility inside the UGB and outside the existing City limits (Phase 2 Area).

Due to confusion from activities affecting Bend and Deschutes County, definition of relevant boundary lines is needed (Attachment C).

Bend City limits: Drill hole permits are only issued within Bend City limits as defined July 9, 1973 (1); areas annexed to the City since July 9, 1973 cannot use drill hole disposal for new construction (2); the next boundary (3) is "unmarked," and encompasses those areas outside the City, but adjacent to the City limits and which can be served by Phase 1 of the sewer project. These areas are identified on a case-by-case basis. Beyond this boundary is the Phase 2 or Facilities Plan Study Area Boundary (4). Outside the Phase 2 Boundary is the Urban Growth Boundary (5).

Section 4 of Agenda Item F from the November 18, 1977 meeting listed three possible DEQ action alternatives (Attachment D). Alternative 4 b is to obtain a written program from the Deschutes County Commission showing how DEQ and Deschutes County



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Agenda Item E  
March 31, 1978  
Page 2

can work together to insure that Phase 2 sewerage construction occurs in accordance with the approved facilities plan and its amendments. Subsequent to that meeting, discussions with Deschutes County have indicated a desire from the County to delineate specific areas for sewerage construction within the "Phase 2" area (Attachment E).

Recent discussions between City, County and DEQ staff have been heading toward development of a cooperative agreement between all three entities delineating what circumstances are appropriate for sewage disposal alternatives (either interim or permanent) inside any given portion of the Phase 2 Study Area.

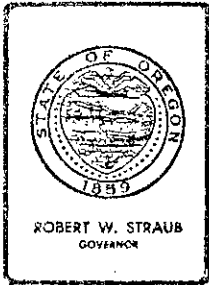
Director's Recommendation

1. The Director recommends that the Commission direct the staff to continue to work with Deschutes County and City of Bend officials to obtain a written agreement outlining how DEQ, Deschutes County and City of Bend can work together to solve the problems discussed in previous meetings.
2. The Director recommends no Commission action at this time and that the Commission be advised on status of this item in the future as appropriate.

*Michael Down*  
for  
WILLIAM H. YOUNG

Robert E. Shimek  
382-6446  
3-27-78

- Attachment A: November and December 1977, and January 1978 Agenda Items.  
Attachment B: March 16, 1978 Letter from Donald P. Dubois to William H. Young.  
Attachment C: Map of Bend UGB Area.  
Attachment D: Page 6 of Agenda Item No. F, dated November 18, 1977.  
Attachment E: February 7, 1978 Letter from William H. Young to Deschutes County Commissioners.



## Department of Environmental Quality

1234 S.W. MORRISON STREET, PORTLAND, OREGON 97205 Telephone (503) 229-

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: January 27, 1977 EQC Meeting  
Public Sewerage Considerations Within Bend Urban Growth Boundary  
Progress Report No. 2

### Background

See Attachment "A", Progress Report Number 1

### Discussion

No meetings between Deschutes County Commissioners and staff occurred in December due to holiday interruptions.

Renewed meetings are proposed in January 1978 and should have occurred prior to the January 27, 1978 Commission Meeting. A supplement to this report will be presented on that date.

### Director's Recommendation

1. The Director recommends that the Commission direct the staff to continue to work with Deschutes County officials and the City of Bend to obtain a written agreement outlining how DEQ, Deschutes County and City of Bend can work together to solve the problems discussed in the November 18, 1977 report.
2. The Director recommends no Commission action at this time and that the Commission consider a staff progress report at the March meeting.

WILLIAM H. YOUNG

Robert E. Shimek  
382-6446  
1-5-78

Attachment A: Agenda Item No. , December 16, 1977 EQC Meeting  
Attachment B: Agenda Item No. F , November 18, 1977 EQC Meeting



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MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. , December 16, 1977, EQC Meeting

Public Sewerage Considerations Within Bend Urban Growth Boundary

Progress Report No. 1

Background

Staff concerns about sewage collection and disposal consideration were discussed at the Commission's November 18, 1977 meeting (Agenda Item No. F, attached). The Commission concurred with the Director's recommendation for staff to participate in a work session on November 29, 1977. Representatives from City of Bend and Deschutes County discussed possible DEQ alternatives as presented on page 6, Item 4 of the November 18, 1977 staff report with Department staff.

Evaluation

A working agreement between entities did not materialize at the November 29, 1977 work session. Progress was made in airing concerns of the involved entities. Department staff is waiting on a recommendation for future action from the Deschutes County Commissioners.

Deschutes County Commissioners seem reluctant to make a time and staff resource commitment to this issue while the apparent uncertainty of success of the Bend project exists.

Director's Recommendation

1. The Director recommends that the Commission direct the staff to continue to work with Deschutes County officials and the City of Bend to obtain a written agreement outlining how DEQ, Deschutes County and City of Bend can work together to solve the problems discussed in the November 18, 1977 report.

Agenda Item No.  
December 16, 1977  
Page 2

2. The Director recommends no Commission action at this time and that the Commission consider a staff progress report at the January meeting.

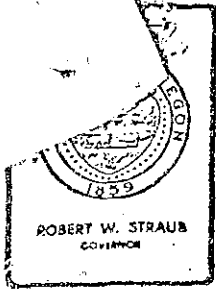
~~For~~  
March

WILLIAM H. YOUNG

Robert E. Shinnick  
382-6446  
12-6-77

Attachment: Agenda Item No. F





Master Copy

Borden  
Borden

## Environmental Quality Commission

S-Bend

1234 S.W. MORRISON STREET, PORTLAND, OREGON 97205 PHONE (503) 229-5693

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED  
NOV 7 1977

BEND DISTRICT OFFICE

### MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. F, November 18, 1977, EQC Meeting

### Public Sewerage Considerations Within Bend Urban Growth Boundary

#### Background

1. Since the early 1900s, central Oregonians have been disposing septic tank effluent down lava fissures and dry wells (sewage disposal wells) rather than using conventional drainfields. This practice prompted a study of disposal well practices in 1968 by FWPCA. FWPCA (predecessor to the EPA) concluded that continued discharges of septic tank wastes to disposal wells pose a potential threat to groundwater quality. Accordingly, the EQC adopted regulations on May 13, 1969 to phase out disposal wells for inadequately treated wastes. Exhibit A illustrates the general concepts.
2. The concept of the regulations was to phase out existing sewage disposal wells in rural areas by January 1, 1975, but to allow new wells in populated areas where an acceptable sewerage construction program had been approved by DEQ. The latter areas would be classed by DEQ as "permit authorized areas" within which DEQ (or a county Health Department) could issue temporary disposal well permits. After January 1, 1980, no new disposal wells would be permitted in the "authorized" areas, and existing wells at that time would be sealed and abandoned.
3. To qualify as a permit authorized area, applicants had to agree to sewerage construction thus:
  - a. Hire consulting engineer by July 1, 1969
  - b. Submit preliminary engineering report by January 1, 1971
  - c. Start construction by August 1, 1971
  - d. Complete construction by January 1, 1980
  - e. Submit annual reports to DEQ which show reasonable progress
4. Madras, Culver, Metolius, Redmond, and Bend were designated permit authorized areas. The status today of each is as follows:



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- a. Madras--city sewerage system complete in 1976--urban area sewerage planning (Step I) in progress
  - b. Metolius--system complete 1975
  - c. Culver--sewerage system complete 1976
  - d. Redmond--system under construction--about 40% complete
  - e. Bend--Sewerage Planning (Step I) complete within Urban Growth Boundary (UGB). Final design (Step II) underway within current city limits (Phase I), but not within the UGB outside the city limits (Phase 2). There is no design or sewerage construction proposal pending for the Phase 2 area at this time.
5. Overall, Bend's sewerage project has been beset with delays since 1969. To date, the following sewerage planning has occurred:
- a. Report on a Preliminary Study of a Sewage Collection and Treatment Facilities--CH2M 1967 (sewage treatment plant serving about 10% of Bend constructed in 1970)
  - b. Report on Cost Updating of a Proposed Sewerage System for Bend, Oregon--Clark & Groff 1972
  - c. Preliminary Design and Final Plans for East Pilot Butte Interceptor Sewer--Clark & Groff and city staff 1972-1974 (not built)
  - d. Study of the Feasibility of Accepting Privy Vault Wastes at the Bend Treatment Plant--Clark & Groff 1973 (built)
  - e. Preliminary Report Sewerage Study (for the City of Bend)--Century West, paid for by Brooks Resources 1974
  - f. Sewerage Facilities Plan, City of Bend, Oregon--Stevens, Thompson & Runyan, Inc. and Tenneson Engineering Corp. 1976--approved by DEQ and EPA
  - g. Supplemental Environmental Impact Assessment Draft, 23 September 1977--BECON
  - h. Step II underway for Phase I of ST&R plan
6. All the central Oregon sewerage projects have been complicated by rock excavation and local financing difficulties, but each community has overcome these obstacles. Bend overwhelmingly passed a \$9,000,000 bond issue. Bend experienced some additional time delays due to:
- a. Analysis of experimental vacuum and pressure sewer systems
  - b. Excessive cost discussions before accurate cost estimates were actually pinned down.
- Indeed, cost estimate inaccuracy is largely responsible for Bend's decision to return to the E-Board for more hardship funding, but that is covered under a separate Commission agenda item.
7. Because Bend's annual reports showed progress towards sewerage construction (although behind schedule) DEQ has renewed their permit authorized status for sewage disposal wells each year through present.

8. Believing sewerage construction to be in the offing, DEQ authorized several dry sewer projects with "interim" drainfield and disposal well facilities. The facilities plan addresses the entire urban area, but due to cost projections it soon became clear that an immediate project was likely only inside the city limits. Unfortunately, most current subdivision activity (and homesite construction) is actually occurring within the Urban Growth Boundary (UGB), but outside Bend city limits. The Phase 1 sewerage project will not serve construction outside the city limits.

9. DEQ recognized this dilemma as early as 1973, and began tentative negotiations with city and county officials (staffs and commissions) to jointly participate in sewerage planning and construction within the UGB. Although the city and county both endorsed the facilities plan on October 6, 1976, Deschutes County has not implemented any of its recommendations.

The facilities plan includes an adopted Urban Growth Boundary (UGB) which influenced the plan. A quotation from the facilities plan describes the relation of the City of Bend General Plan to sewerage service:

"Since 1970 rapid population growth in the Bend area has occurred mostly in Deschutes County rather than the City. Population growth within the City has occurred mainly because of annexation policies.

"Flexibility has been a major objective in establishing the plan and it has provided for alternate population densities in outlying areas to accommodate future growth trends which are difficult to anticipate at this time. The major determining factor for higher densities will be the provision for sewerage. It is important to recognize that proper land use planning should precede sewerage planning. The plan would provide a north-south center strip of industrial and commercial activities with varying types of residential activities extending from this central core. The greatest population densities would be located in the central area with lower densities toward the outer edges of the urban area."

10. Much of the growth outside the city, but inside the UGB (i.e. the Phase 2 area) actually has occurred with little or no regard for how sewerage connections would be made except as inadvertently regulated by DEQ by "indirect" planning strategies. Examples are shown in Exhibit B. The City of Bend is powerless to implement planning decisions outside their city limits.

11. By 1976, the interface conflict and Phase 2 growth without sewers was obviously serious. DEQ continued meetings with city and county officials. The city was becoming conspicuously concerned about their possible "inheritance." Thus on June 1, 1977 and July 5, 1977, DEQ was successful in conducting joint sewerage policy planning sessions among City-County-DEQ.

At the July 5, 1977 meeting, it seemed appropriate to turn initiative for further meetings over to local officials since planning is a local function. Deschutes County requested a follow-up meeting on September 12, 1977. At that meeting with the County Commission DEQ volunteered that it was unable to justify continued sewerage "concessions" in the Phase 2 area, since no sewerage implementing authority, such as a County Service District, was operational there. ~~The concept of a septic tank moratorium to halt conflicts with the sewerage plan was discussed.~~

A joint City-County urban planning commission concept was proposed (Exhibit C), but Deschutes County felt that to be a premature move. Instead, a joint committee to study differing building standards between city and county was established (Exhibit D). Intensive development continued in the Phase 2 area without sewerage services, except for Choctaw Village Sanitary District *and Juniper Utilities.*

Bend changed its annexation policy after forming a citizens' group to study subdivision standards (Exhibit E).

12. Unlike many urban growth areas, Deschutes County planning ordinances permit development at low (up to 5 acre lot sizes) as well as high densities within the UGB. This aggravates sewerage construction by permitting "leap-frogging" densities. For example, on a given radius from Bend you might encounter 1000 feet of 1/3 acre lots, then 1000 feet of 2-1/2 acre lots, then 2000 feet of 1/2 acre lots, etc. The net result is expensive ultimate sewerage service to urban densities not immediately adjacent to Bend's existing urban densities.

13. The key item lacking is local coordination such as a City Utility Board, a County Service District, or some form of equivalent control.

#### Evaluation

1. Sewerage construction in Bend proper (Phase 1) will not likely be complete and available at the city limits until at least 1981.
2. At least 230 sewage disposal wells exist in the Phase 2 area which are not now scheduled for phase out by a sewerage system although the facilities plan shows how that could be done.
3. There are not many alternatives for sewage disposal in the Phase 2 area other than dry or wet community sewers due to:
  - a. Unavailability of a municipal sewerage system
  - b. Disposal wells not permitted per Oregon Administrative Rules (OAR) 340-44-005 through 44-045
  - c. Shallow soils often prevent drainfield construction
  - d. Package sewage treatment plants are not viable unless they have a large number of service connections

- e. Experimental septic systems are costly, and encourage low density
- f. Alternate systems usually turn out to be big and costly drainfields

Thus, through Geographic Region Rule A which allows drainfield construction in shallower soils in central Oregon, DEQ has actually aggravated the planning and sewerage construction costs by allowing these systems which, in turn, encourage low density development.

4. DEQ has documented 28 surfacing sewage failures in the Craven Road-Cessna Drive area adjacent to Bend; which generally have no alternative for repair other than a regional sewerage system. The city is unwilling to annex because the water system does not meet city specifications, and the county has discussed an LID. But nothing has happened. DEQ attended several local meetings to develop interest in annexation, LID's or a County Service District with no success. The sewage continues to surface.

5. DEQ is pressured daily for sewage disposal well repair permits within the UGB. Short of vacation of the premises, drillhole repairs are the only immediate option (although illegal), since a regional sewerage system is not available and drainfields are usually not possible due to small lot sizes and/or shallow soils. Authorization of such repairs actually undermines support for regional sewerage construction since the problem is moved out of sight but not solved by such repairs.

6. DEQ is pressured daily to approve compromise subsurface systems within the UGB for many subdivisions. In so far as has been possible, DEQ has agreed to complex terms to facilitate sewerage planning, allow interim facilities, not aggravate densities, and to prevent high denial rates. Unfortunately, lacking regional sewerage systems, the "interim" facilities become "permanent"--they are not designed to function permanently, and usually do not.

7. Since federal construction grants were projected based on regional sewerage facilities, there is risk of losing such funding if the Phase 2 area is developed without a sewerage system.

#### Summation

1. The UGB was adopted by the City of Bend and the Deschutes County Commission on June 2, 1976. The facilities plan was adopted by City of Bend and Deschutes County Commission on October 6, 1976, and is the approved sewerage services component within the UGB. The Oregon Department of Land Conservation and Development has not yet adopted the UGB.

2. Since there is no implementing mechanism or authority for sewerage services within the UGB and outside the Bend city limits, DEQ has been unable to develop guidelines consistent with the facilities plan which do not aggravate sewerage construction in that area.

3. Thus a question exists as to whether DEQ and its contract agent, Deschutes County Health Department, can continue septic tank approvals in the Phase 2 area when such approvals are or may be in conflict with local plan elements. To what extent are DEQ actions controlled by planning laws is a key question.

4. Possible DEQ alternatives range as follows:

- a. No action--continue septic tank and drainfield approvals/denials without regard to local planning.
- b. Obtain a written <sup>City</sup> program from the Deschutes County Commission which shows how DEQ and the <sup>County</sup> Commission can work together to insure that Phase 2 sewerage construction occurs in accordance with the approved facilities plan and its amendments, which show proposed trunk sewer locations. The program shall diagram an implementation strategy which addresses:
  - 1) Who will plan collector sewers;
  - 2) When sewerage facilities will be constructed;
  - 3) How sewerage facilities will be financed;
  - 4) Who will implement planning, design and construction;
  - 5) How development will be handled in the interim to insure that it does not impair implementation.
- c. Restrict subsurface sewage disposal systems in the Phase 2 area until at least one of the following occurs:
  - 1) Deschutes County forms a County Service District to design and construct sewerage facilities in the Phase 2 area to accommodate any county approvals in the UGB; or
  - 2) An equivalent public body is formed to regulate these activities in accordance with regional sewerage planning.

Director's Recommendation

1. The Director recommends that the Commission direct the staff to work with the Deschutes County Commission to obtain a written agreement outlining how DEQ and the County Commission can work together to solve the problems discussed in this report, and further direct the staff to schedule <sup>City</sup> ~~public work~~ <sup>session</sup> hearing on November 29, 1977 in Bend to <sup>take</sup> ~~take~~ <sup>testimony</sup> on the proposed working agreement <sup>between</sup> ~~between~~ DEQ and the County and on other alternative <sup>causes</sup> ~~causes~~ of action the EQC could pursue. Courses

3. The Director recommends no further action at this time, but suggests that the Commission consider ~~findings from the November 29 hearing at~~ *eval session* its next meeting. *progress from Re*

*Will*

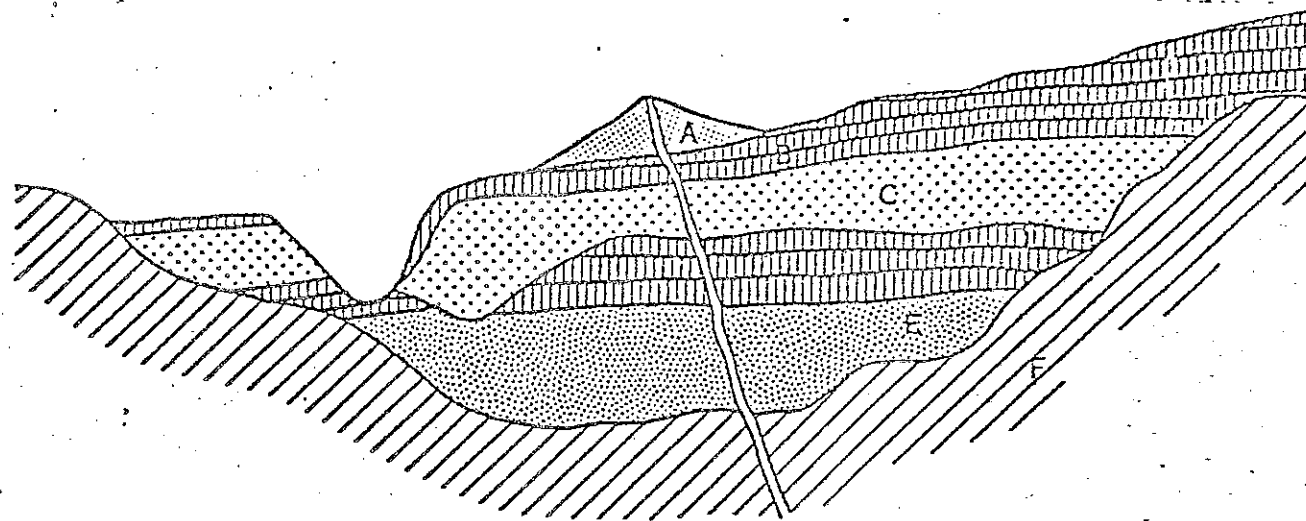
WILLIAM H. YOUNG

John E. Borden

382-6446

11/2/77

Attachments: A through F



Designation in Figure	Unit Name	Character	Water-bearing Characteristics
A	Quaternary pyroclastic deposits	Chiefly cinders associated with cinder cones.	Rocks of this unit are generally well drained and not sources of ground water. Where saturated they are capable of yielding large supplies of ground water.
B	Quaternary lavas	Chiefly basaltic lava flows associated with Newberry Crater, and volcanic eruptions in the Cascade Range.	Contains numerous porous lava flows. At places are well drained and are unproductive. Where they are saturated, they are capable of yielding moderate to large supplies of ground water.
C	Madras formation	Chiefly stratified layers of sand, silt, ash, pumice with some gravel lenses. Contains some interbedded lava flows.	This formation is in large part fine grained and not a productive aquifer. At places it contains permeable lenses of gravel that are capable of yielding moderate supplies of ground water. Some of the interbedded volcanic rocks are permeable and are capable of yielding large supplies of ground water.
D	Columbia River basalt	Series of basaltic lava flows.	Contact zones between individual lava flows serve as aquifers. This formation is generally capable of yielding moderate to large supplies of ground water.
E	John Day formation	A sedimentary formation composed of silt, sand, and volcanic ash.	The fine grained character of this formation precludes it from being a productive source of ground water.
F	Clarno formation and older rocks undifferentiated.	Chiefly consolidated sedimentary rocks, volcanic rocks and associated pyroclastics.	All of these rocks are believed to be of low permeability and not capable of furnishing more than meager supplies of ground water.

FROM UNPUBLISHED REPORT -- OREGON STATE ENGINEER

FIGURE 3. -- MAJOR ROCK UNITS IN THE DESCHUTES RIVER BASIN



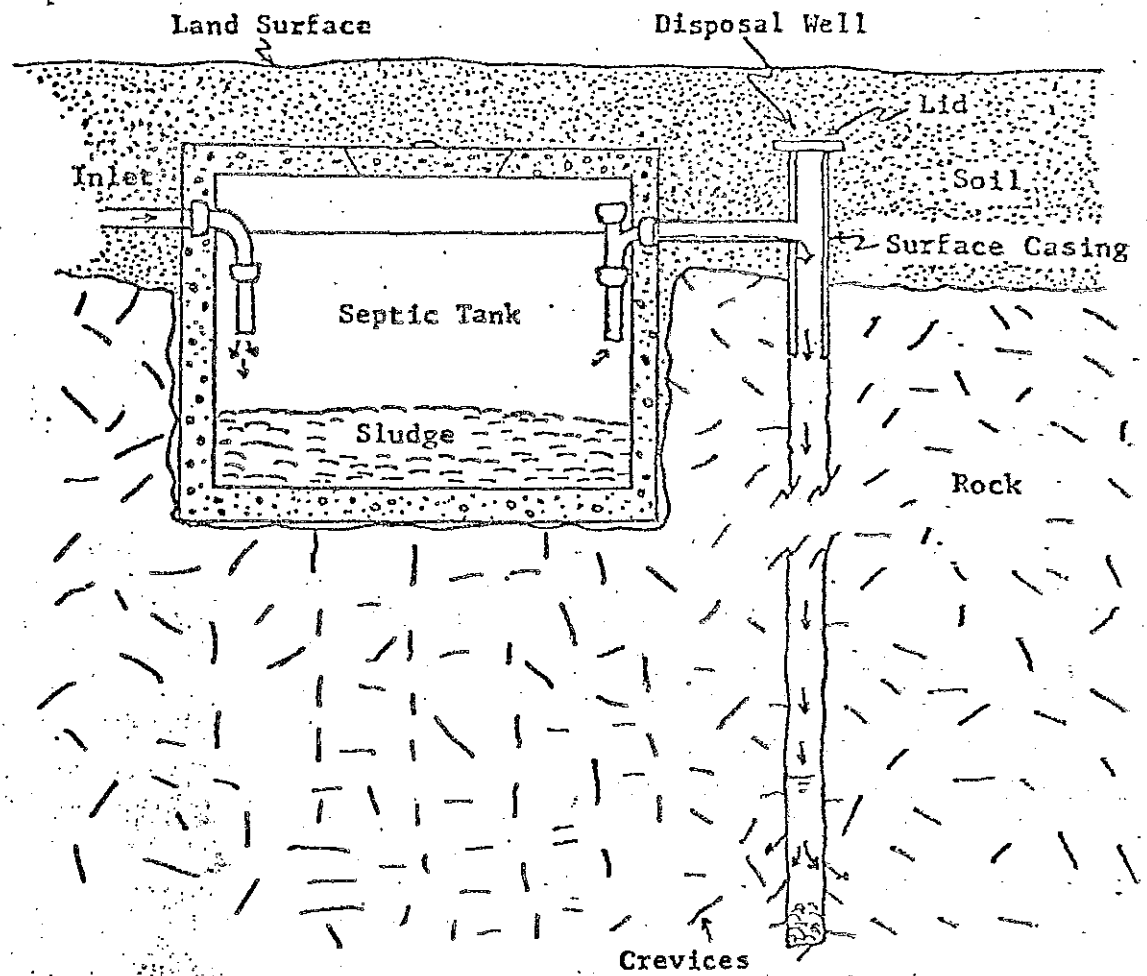


FIGURE 6. --DIAGRAM OF A TYPICAL DOMESTIC SEWAGE DISPOSAL SYSTEM IN THE MIDDLE DESCHUTES BASIN

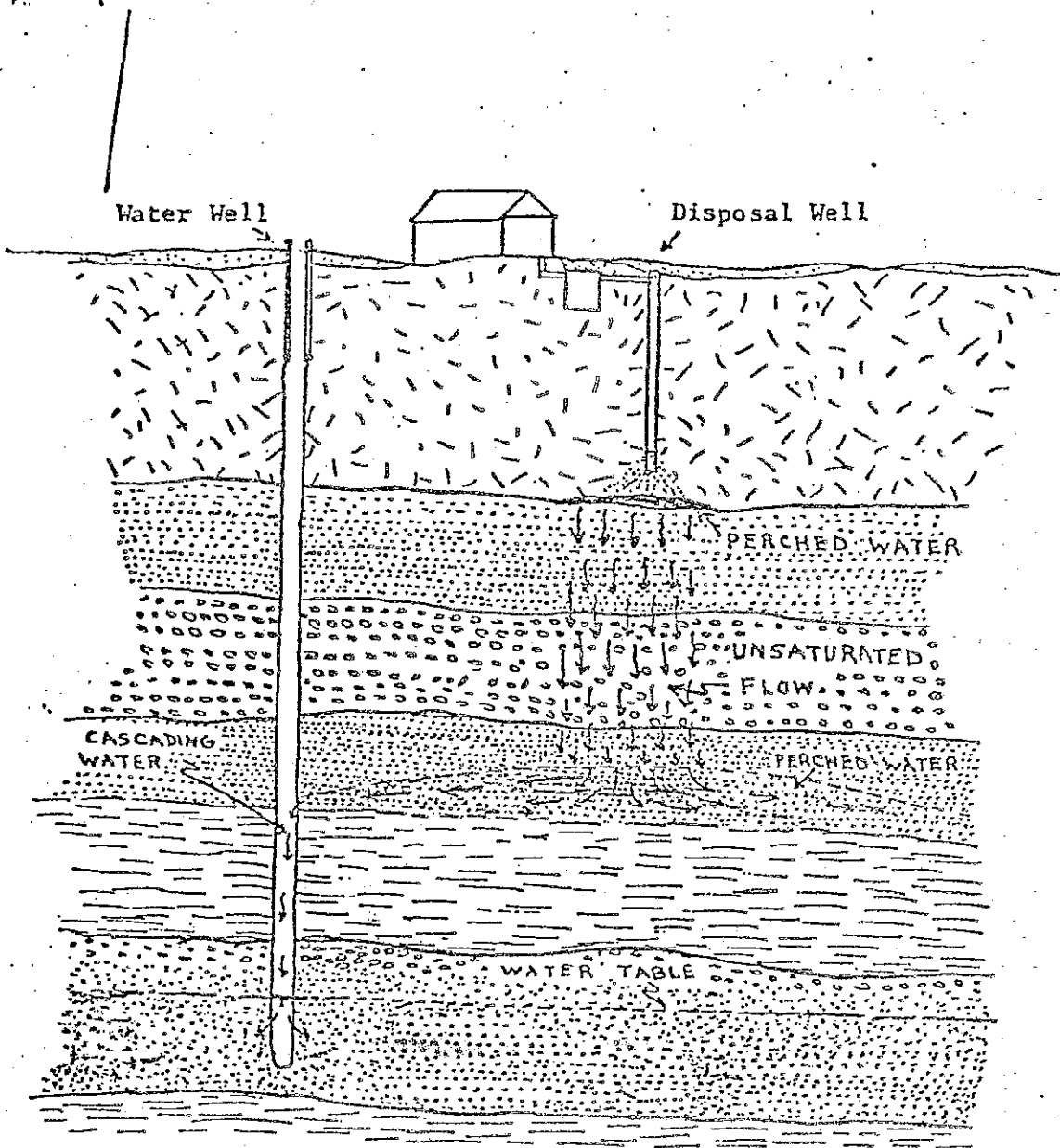


FIGURE 15. --DIAGRAM SHOWING HOW AN UNCASD WATER WELL CAN SERVE AS A CONDUIT FOR THE MOVEMENT OF PERCHED WATER TO THE REGIONAL WATER TABLE

SUBDIVISION ACTIVITY SINCE JULY 1, 1969

Subdivision Name	Plat Date	Number of Lots	Subdivision Acreage	Proposed or Existing Sewage Disposal Status
Awbrey Meadows	7-28-71	45		Septic tank/drainfield
Mitchell		6	2.4	Septic tank/drainfield
Sherman Park	1976			Septic tank/drainfield
BID 1	1975			Septic tank/drainfield
BID 2	1976			Septic tank/drainfield
BID 3	1977			Septic tank/drainfield
Swalley View	6-76	18	49	Septic tank/drainfield
Hunters Circle	6-77	96	43	Septic tank/drainfield
Country View Estates	5-74	13	33	Septic tank/drainfield
Sunny Acres	5-75	14	40	Septic tank/drainfield
Bee Tree	5-72	15	40	Septic tank/drainfield
Kerr Heights	9-77 Appealed	24	48	Septic tank/drainfield
Ronald Acres	9-8-72	6	29	Septic tank/drainfield
Valhalla Heights	Not final	193	100	Septic tank/drainfield -- dry sewers
Bel Air	7-77	40	20	Septic tank/drainfield -- dry sewers
Boyd Estates	Not final			Septic tank/drainfield
Chocktaw Village	6-77	85	85	City sewer under construction
Add. A	Not final	16	5	
Valley View Estates	Not final	13	3	City sewer

Subdivision Name	Plat Date	Number of Lots	Subdivision Acreage	Proposed or Existing Sewage Disposal Status
Vintage Fare	10-77	40	28	Septic tank/drainfield
Desert Woods	4-77	81	50	Septic tank/drainfield
Paulina View Estates	4-73	61	38	Septic tank/drainfield
Nottingham Square	11-73	170	97	Private sewer system (Juniper Utiliti
Kings Forest	6-76, 3-77	90	79	Septic tank/drainfield
Trapper Club Road Estates	8-76	22	8	Septic tank/drainfield -- some dispo:
Ridgeview Park	City - not final	12	4	Septic tank/drainfield
Woodriver Village	11-72	159	25	Septic tank/drainfield
Basque Tranquiles	Not final	--	--	Septic tank/drainfield
High Country	8-73	30	16	Septic tank/drainfield
Chuckanut Estates	6-77	45	17	Septic tank/drainfield
American West	Not final	56	20	Septic tank/drainfield
Timber Ridge	6-76	184	94	Private sewer system (Juniper Utiliti
Mountain High	Not final	121	71	Private sewer system (Juniper Utiliti
Mountain High - 1st Add.	Not final	24	18	Private sewer system (Juniper Utiliti
Tillicum Village	1-13-73	--	--	Juniper Utilities and disposal wells, drainfields
Ambrosia Acres	Not final	30	20	Septic tank/drainfield
Pinebrook	8-74, 9-76, 5-77	89	57	Septic tank/drainfield
Larkwood Estates	7-77	--	--	Septic tank/drainfield

Subdivision Name	Plat Date	Number of Lots	Subdivision Acreage	Proposed or Existing Sewage Disposal Status
Holliday Park	5-74, 10-76	83	31	City sewer
Edgecliff Estates	6-76	8	16	City sewer
Williamson Park	Not final	93	100	Proposed city sewer
The Winchester:				Proposed city sewer
"    "    W. Arms	Not final	42	10	Proposed city sewer
"    "    W. Square	Not final	81	40	Proposed city sewer
Quail Ridge Park	Not final	21	70	Septic tank/drainfield
Overturf Butte	Not final	56	18	Septic tank/disposal wells -- dry sew
Knoll Heights	3-74, 3-76	34	14	Septic tank/disposal wells -- dry sew
Broadway Terrace	City - not final	13	5	Septic tank/disposal wells
Prophets Den	Not final	60	29	Septic tank/drainfield
Ramsey 5th	City - not final	23	15	Septic tank/disposal wells -- dry sew
Aero Acres	4-72, 4-73	35	16	Septic tank/drainfield
Air Park Estates	9-77	36	20	Unknown
Thomas Acres	7-76	23	14	Septic tank drainfield
Davis Additions	4-73, 4-74	82	50	Septic tank/drainfield
Reed Market Estates	9-73, 4-76, 7-70	48	19	Septic tank/drainfield
Daily Estates	7-70	29	19.5	Septic tank/drainfield

Subdivision Name	Plat Date	Number of Lots	Subdivision Acreage	Proposed or Existing Sewage Disposal Status
Romaine Village	5-74, 2-70, 11-72 6-73, 7-75, 4-76	309	130	Septic tank/drainfield (some large sy
Homestead	9-73, 5-74, 3-76	79	49	Septic tank/drainfield
Golden Mantle	5-71, 8-72, 6-74	54	27	Septic tank/drainfield
Golden Rain	6-72, 6-73, 7-74	24	15	Septic tank/drainfield
Frontier West	6-76	16	8.5	Septic tank/drainfield
St. James Square				City sewer
Shradon Estates	Not Final			City sewer
Janela Court	2-77			Septic tank/drainfield
Crown Villa				Private sewer system (Juniper Utilitie
Crown Villa, 1st Add.	Site plan-- not subdivision		27	Private sewer system (Juniper Utilitie
Missionary First Baptist (with dormitory facilities)	1977			Septic tank/drainfield
Heritage	Not final			City sewer
Deprada Court	Not final			City sewer
Sunrise Village	Not final			Possible private sewerage system
Renwick Acres	10-14-77 Not final	16	6	Unknown
Brightenwood	Final - may be in UGB if changes approved			Septic tank/drainfield

## City, county officials set joint planning session

Bend City Commissioners and urban area planning commission Deschutes County Commissioners would have jurisdiction with the Bend will meet tonight at 7:30 at Bend City Urban Area, which has its boundary Hall to discuss how to plan Bend's outside the Bend city limits. growth.

The commissioners also will consider widening Nell Road between the Bend City Manager Art Johnson said the commissioners will consider city limits and St. Charles Medical Center. The section is located between Pilot Butte Junior High School and St. Charles. Such a body would replace the Bend Planning Commission, which deals with planning inside the city limits.

It also would take over some of the duties of the Deschutes County Planning Commission, which handles all planning within areas of Deschutes County not now incorporated. At the request of Deschutes County Commissioner Bob Montgomery. He said signs are becoming too numerous along county roads as well as along some city streets, and he wondered what the city's code involves.

Exhibit D

Bend Bulletin 3-11-77  
Jim Swanson

# City, county to appoint joint committee to study differing building standards

By Steve Boyer  
Bulletin Staff Writer

Bend and Deschutes County commissioners Wednesday night took a step toward closer cooperation in controlling growth in the Bend Urban Area.

In a joint session at Bend City Hall, the commissioners set up a committee and city and county officials to determine what differences exist between city and county construction standards for developers. The study will focus on roads and water and sewer systems, the areas of the greatest differences.

At the meeting, city commissioners expressed concern that the city may become "surrounded by developments which use private water and sewer systems, a number of which already exist outside the city limits. The private systems often are incompatible with the city's. If the developments were to be annexed, said city commissioners, their existing water systems would have to be replaced with ones which meet city standards.

If the city were to become com-

pletely surrounded by private water and sewer systems, it could become locked into a fixed area and tax base. Then, said commissioners, city residents would be forced to pay an increasingly higher tax rate to provide services to the expanding population living outside the city limits but coming into the city to work and shop.

"If we allow this situation to degenerate, we're all laying down on the job," said Bend Mayor Clay Shepard.

Members of the joint committee are Dave Hoerning, Deschutes County director of public works; Charles Plummer, county engineer; Pete Hansen, Bend fire chief; Gary DeBernardi, county project coordinator, and John Hossick, city planner.

When the committee has completed its study of the differences in standards, commissioners decided, it will report back to them. Then they can get together again to attempt to resolve the discrepancies.

"We all have to bend a little bit, and I think we should," said Deschutes County Commissioner Bob Montgomery. "There's no question

about it. We have to have the same standards."

In setting up the joint committee, the commissioners rejected, at least for now, Shepard's idea of creating a planning commission for the Bend urban area. Part of the urban area outlined in the Bend Urban Area Comprehensive Plan, lies outside the city limits.

The Bend Planning Commission, which has jurisdiction inside the city limits, would be dissolved, said Shepard.

An urban area planning commission would take over its functions as well as those within that part of Deschutes County located inside the urban area boundary. County planning now is handled by the Deschutes County Planning Commission.

Urban area planning commission members would be appointed, said Shepard, some by the county commission and some by the city commission.

On matters affecting areas inside the city limits, he said, the urban area commission would report to the city commission. In the rest of the urban area, it would report to the county

commission.

Shepard said the urban area commission would be able to resolve many of the differences in standards. While he won support from City Commissioner Dick Carlson, the proposal earned mostly questions from the three county commissioners.

County Commissioner Don Grubb said once a citizens' committee completes its work on zoning within the urban area, all a planning commission will be required to do is grant variances, or exceptions to the zoning requirements.

Montgomery wondered if the city still would need a planning department if the urban area commission were created. Commissioner Ab Young said two planning commissions still would be required, one for the urban area and one for the rest of the county.

"I don't think there's a dire need for one (urban area) planning commission, but I do think there's a need for common standards," said Montgomery.



*Bend Bulletin 10-6-77*

## Bend reverses city annexation policy in agreement with planner's suggestion

The City of Bend will begin to annex undeveloped land in a 180-degree shift from previous policy after the Bend City commission approved the change at its Wednesday night meeting.

The change had been recommended by the Bend Planning Commission following the presentation of a report by City Planner John Hossick.

The report compared the costs of annexing land before and after it is fully developed. Hossick told commissioners that regardless of which policy is pursued, the city will have to pay to improve streets, water lines and other services in areas which are annexed.

The report advocates annexing land before it is developed so the city has room to expand its area, population and tax base. The early annexations also will allow the city to gain tax revenue earlier than if it waited until after development, which is the present policy.

If the city continues its present policy, it also could become surrounded by developments with private sewer and water systems which have no wish to annex. Then the city would stagnate while residents moved to the suburbs, the report said.

Hossick and the commissioners emphasized that the report is simply a study, not a concrete proposal to annex the study area an 1,800-acre parcel of land located just north and east of the city. Hossick said the city

cannot unilaterally annex land except when residents or developers have previously agreed to annex in return for city water or sewer service.

Otherwise, said Hossick, state law requires that the city be presented with a petition signed by residents with majorities of the land, population and assessed valuation in the area. A single property owner adjacent to the city limits may also make an individual request, he said. The city can also call an election in which an area's property owners would vote on annexation.

Motel and restaurant owners in Bend's downtown area got the support of the commission in their attempts to be allowed to advertise their establishments along U.S. Highway 97. The commission authorized Mayor Clay Shepard to write a letter to the Oregon Department of Transportation supporting the request.

The commission made its decision after Delvin Plagman, owner of the Rainbow Motel in Bend, showed them a petition signed by Allan Crisler, director of the Bend Chamber of Commerce, and 24 restaurant and motel owners in town. The signs would be placed at the intersections of NE Third Street and NE Franklin Avenue and of N. Highway 97 and NE First Street.

The Department of Transportation controls what signs may be placed along Highway 97.

The commission also:

—Agreed to provide sewer ser-

vice to the proposed Winchester subdivision, located north and east of Charles Medical Center. The subdivision will consist of 112 single-family residences and duplexes.

—Awarded a contract to H Taylor Inc. of Bend for the construction of a water line from the city second well soon to be constructed, the city water system on the east side of the Deschutes River. The company was the low bidder for the project at \$89,914. The cost of the entire project is \$458,000. Half is being paid by the city and half by the U.S. Economic Development Agency.

## EXHIBIT "A"

Development Alternative in UG

For Discussion  
Amendment to Comprehensive Plan  
Development Alternative and Urban Service  
Policies

## Background

The City, on May 24, 1977, passed a \$9 million bond issue for construction of a regional sewer system. Final design is now underway. BECON, the sewer consultants, will be presenting a project delivery program report within the next several months and have indicated that construction is targeted to start early in 1978.

The City's existing sewage treatment plant has a capacity for approximately 1 million gallons per day. The disposal of effluent is to an open crevice. The amount of effluent the crevice can take is unknown. Several developments in the City and adjacent to the existing plant have been proposed. The developments could create more effluent than the plant and crevice can handle.

The City is striving to coordinate the development of a regional sewage system. It is taking steps to try to accommodate growth until the City's sewer system is enlarged. The provision of sewer service on an areawide basis will need the concurrence of the City, County and DEQ. An agreement should be reached on the regional sewerage system as the basis for future development. Steps should be taken to establish detailed engineering for Phase II areas; caution should be used in the formation of small districts that could impede the development of the regional system; and policies established that clarify when, how and under what type of jurisdiction the "interim" facilities may be permitted.

Several factors now appear to be true:

- 1) The City's sewer system is now assured.
- 2) Land available to be developed at greater densities is now greatly increased.
- 3) State law allows interim facilities in areas where a regional system is or will exist. DEQ's role is to protect the environment and under present regulations cannot deny or control small package plants without a local policy to support such action.
- 4) The development of half-acre lots is generally wasteful of land and can form a barrier to future sewer line construction due to high unit cost. A density of 10-12 people/acre is generally needed to jointly pay for sewers. This is 3 to 4 houses per acre.
- 5) The City and County do not have a definitive policy regarding sewer development within the urban area.
- 6) The history from other communities points to the need for close coordination of decisions effecting District formations, interim plants and provision of sewer services within an urban area.
- 7) There may be more development than the City's existing plant can handle without enlarging parts of the existing plant or development of temporary facilities.

Suggested Policies:

The Development Alternative specifies the need to make provision for sewer service when a financial commitment exists and the sewers will be available within 5 years. It is expected that the design definition timetable will give us a reasonable idea on those areas adjacent to the City that will be so situated.

- 1) Within the Phase II area discourage larger lot (1/2 acre +) developments that would form barriers to line extensions or make provisions for dry sewer lines to pass through such an area at the time of development or require dry line or wet line sewers and drill holes where a timetable and financial commitment exists.
- 2) Ask for Environmental Quality Commission approval of subsurface regulation for smaller lots without drainfield replacement areas or drill hole usage in areas where sewer lines are financially committed and assured within a 3-5 year period and where domestic or developed water sources would not be endangered. Also for approval of drill hole usage where the developer will complete the necessary lines to bring the development project sewage effluent to a point where it will connect to an assured system in a 3 to 5 year period provided that the lines so constructed are consistent with the overall facilities plan and meet any neighborhood drainage basin needs.

The City has made a financial commitment to a regional sewage system. The long term benefits to the community were the basis of this decision. We need to take steps that will make it attractive and practical to implement a regional system.

- 1) The County should consider formation of County Service district to provide sewer service.
- 2) Steps should be taken to implement Phase II sewer design. Aerial topographic mapping of the Phase II areas and design of drainage basin systems should be started.

JCH:ve  
8/12/77

density if all community services are provided. If community water service is provided, and if the area to be developed is preplanned to the approximate higher density shown on the plan, lots of less than 2-1/2 or less than 5 acres may be developed. The following general policies are recommended for Development Alternative areas:

Urban Standard Residential Areas -

1. Within community sewer facilities planning area or areas with existing community sewer system:

6,000 - 14,000 square foot lot size

Requirement: - Community sewer and water system or  
- Septic tank, drill hole, dry sewer and community water system.

2. Outside community sewer facilities planning area but within development alternative area for future community sewer system:

14,000 - 20,000 square foot lot size

Requirement: - Preplanned subdivision or land partition  
- Community water system  
- Septic tank and drain field

Multiple Family Areas -

1. Within community sewer facilities planning area:

1,000 - 3,000 square foot/dwelling unit

Requirement: - Install community sewer and water system

3,000 - 14,000 square foot/dwelling unit

Requirement: - Community sewer system or dry sewer and community water system

2. Outside community sewer facilities planning area, but within development alternative area for future community sewer system:

14,000 - 20,000 square foot/dwelling unit

Requirement: - Preplanned development  
- Community water system  
- Septic tank and drain field

The County has just begun to consider becoming involved in this problem and with good reason. Historically, there have been few problems with septic tank drainfields or drill holes in the County. Recently, changes in State regulations have virtually eliminated the use of drill holes for new development and have created an awareness and concern about future growth using drainfields.

The County has many problems to consider and much to do in the process of planning and establishing sewer service in the urban growth area. As mentioned earlier, a small area east of Pilot Butte could be served now. To provide service over fairly extensive areas would require formation of a service district and several years of planning and construction. Since there is no apparent problem in the area now, it may be very difficult to get voter approval of a sewer district. The most difficult part of this entire situation is that the problems all lie in the future and there are few if any indications of them today.

However, the purpose of any plan is to look to the future and attempt to foresee and avoid problems. If the plan is to be successful, problems must be solved in a context acceptable to the people of the community today. It is not possible at this time to set forth detailed and specific guidelines for Development Alternative areas because the options for development are not clear. Will the County initiate sewer service districts? Will the State regulations eventually require sewer service? Would large parts of the area be interested in annexation to the City as a means of obtaining services? How soon will enough new growth occur to make the problems more obvious? These and many other questions may remain unanswered for several years.

There are some things we do know about the future. The rock will continue to make construction cost higher than normal. The rock will probably continue to require blasting. The Bend Area will continue to grow. Growth pressure will increase land values and reduce lot sizes. Smaller lots will not work as well for individual disposal systems. Sanitation problems will result and, eventually, sewers will be required. It is not a question of whether or not sewers will be necessary, but rather, how to minimize the cost.

The solution to services and increased housing densities must be a joint public and private effort. If services are to be provided, the city and county must participate by doing those things which individual property owners or small developers cannot do for themselves. Facility planning for systems, establishment of districts and unification of standards are examples of functions and responsibilities of local government. As the city and county proceed with these activities, development alternative standards may change for some areas as additional engineering data becomes available.

The Development Alternative symbol consists of two colors in each case. The colors correspond in meaning to those used for other residential areas on the map. The color which symbolizes the larger lot size is the recommended housing density for that area without community services. It recognizes lot sizes generally found in the area at the present time. The second color symbolizes the recommended housing

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

Attachment B

1200 SIXTH AVENUE

SEATTLE, WASHINGTON 98101



ENVY TO  
ADM/CA H/S 443

MAR 15 1978

Mr. William H. Young, Director  
Department of Environmental Quality  
State of Oregon  
P. O. Box 1760  
Portland, Oregon 97207

Dear Mr. Young:

This letter outlines the present status and outlook in our processing of Construction Grants for the City of Bend project. As you know, we are now considering your proposal to change the plant site and revise disposal alternatives from that committed by our approval of the original Step II grant submittal.

In terms of the proposed change in plant location from upgrading on-site to a new plant at Site E, we are now conducting a cost comparison analysis on the two alternatives. A contract for this work has been issued to Brown and Caldwell Consulting Engineers and is scheduled for completion by April 6, 1978. Provided the proposed relocation is found cost-effective, we will propose a Negative (environmental) Declaration based upon environmental evaluations presented in the City's Supplemental Environmental Impact Assessment report. Since we have already approved the collection and interceptor portions of the project, a final Negative Declaration on a new plant site will enable all phases of the project to proceed expeditiously except for ultimate effluent disposal.

Consistent with your request we have determined to prepare an Environmental Impact Statement on the ultimate effluent disposal. Alternatives considered will at least include land application, and discharge to surface waters (including Deschutes River and irrigation canal) and to groundwater. A contract has already been issued to Jones and Stokes and Associates, Inc., to prepare the EIS, and completion is scheduled within one year. We are confident that the results will enable selection and completion of the effluent disposal system in good time to accommodate plant start-up which is not expected before December 1979.

The City has asked whether EPA will give prior approval to interim use of a drill hole for effluent disposal should a selected final disposal

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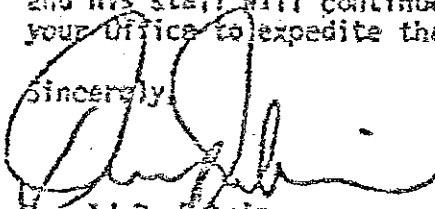
alternative not be ready in time for plant start-up. The Environmental Quality Commission has already approved such disposal. As you know, it is our policy to provide maximum protection to the quality of groundwaters in order to assure present and future public uses, including drinking water. In recognition of the irremediable nature of any damage done to underground aquifers, we are especially concerned that no unnecessary discharges of pollutants be allowed. Therefore, the EPA can only accept interim disposal to drill hole if it is the only feasible alternative available at the time of actual use. This conditional approval of the interim drill hole, contemplates that the EIS will be completed in time to actually preclude need for any interim disposal. In addition, we assume that the City will pursue and exhaust other available interim or final disposal alternatives, including discharge to the irrigation canal. We will also assume that the City will commit to aggressively constructing the final disposal system to limit the use, if any, of an interim solution.

Final EPA approval of effluent disposal to a drill hole also is contingent upon two other conditions.

1. That discharge to a drill hole is found environmentally acceptable. Results of the EIS could satisfy this requirement.
2. That a comprehensive ground water monitoring program approved by EPA be established and operable prior to the time of first discharge. This monitoring program is intended to evaluate the fate and impact of effluent on the receiving ground water aquifers, including the regional ground water table.

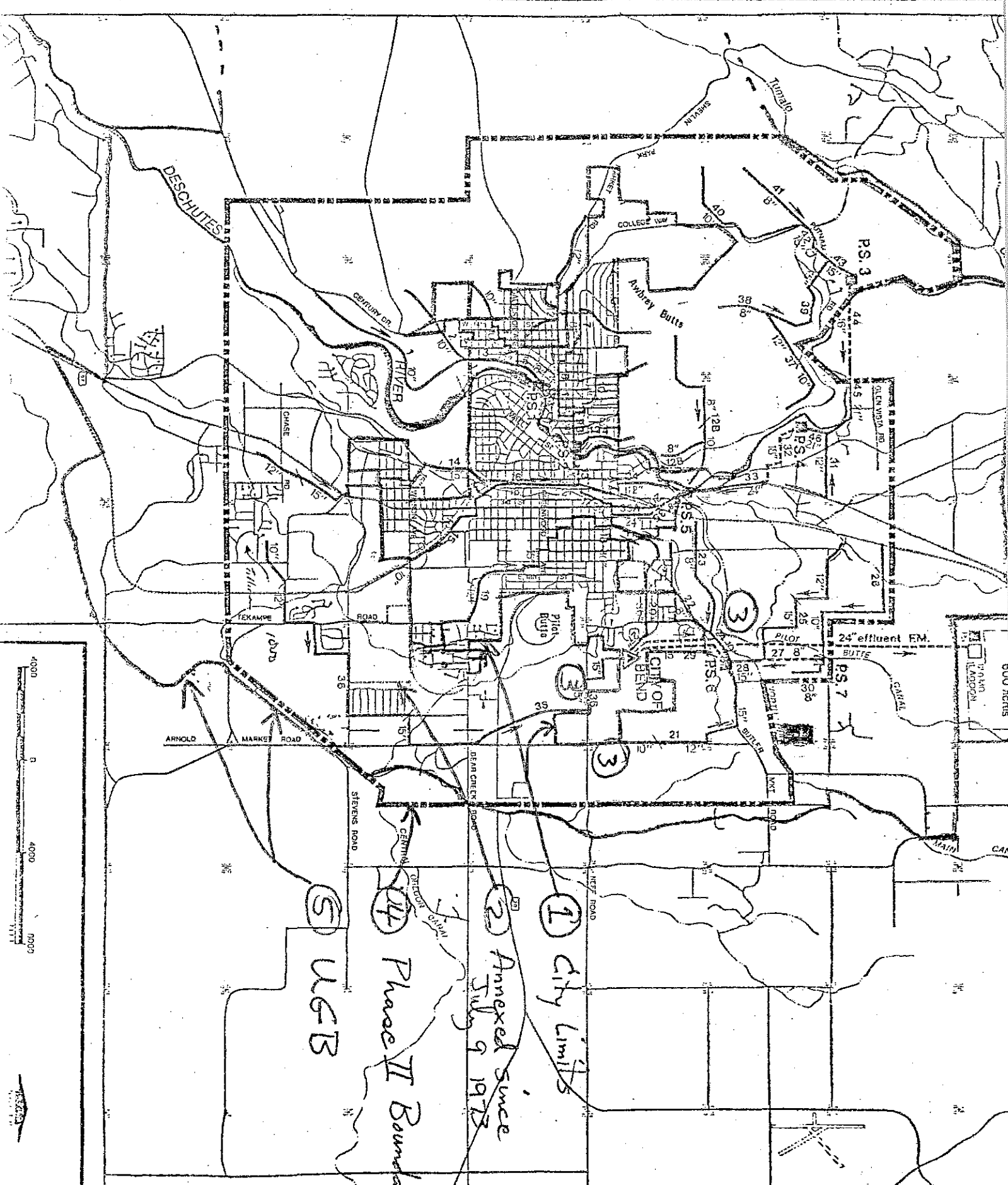
Please be assured that we are very concerned to assure early construction and completion of this very important sewage collection and treatment system for the City of Bend. If you have any questions about our status in this project, please do not hesitate to call. John Vlastelicia and his staff will continue to coordinate our efforts and progress with your office to expedite the project.

Sincerely,



Donald P. Bois  
Regional Administrator

287





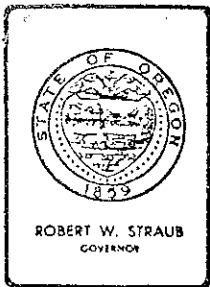
3. Thus a question exists as to whether DEQ and its contract agent, Deschutes County Health Department, can continue septic tank approvals in the Phase 2 area when such approvals are or may be in conflict with local plan elements. To what extent are DEQ actions controlled by planning laws is a key question.

4. Possible DEQ alternatives range as follows:

- a. No action--continue septic tank and drainfield approvals/denials without regard to local planning.
- b. Obtain a written program from the Deschutes County Commission which shows how DEQ and the Commission can work together to insure that Phase 2 sewerage construction occurs in accordance with the approved facilities plan and its amendments, which show proposed trunk sewer locations. The program shall diagram an implementation strategy which addresses:
  - 1) Who will plan collector sewers;
  - 2) When sewerage facilities will be constructed;
  - 3) How sewerage facilities will be financed;
  - 4) Who will implement planning, design and construction;
  - 5) How development will be handled in the interim to insure that it does not impair implementation.
- c. Restrict subsurface sewage disposal systems in the Phase 2 area until at least one of the following occurs:
  - 1) Deschutes County forms a County Service District to design and construct sewerage facilities in the Phase 2 area to accommodate any county approvals in the UGB; or
  - 2) An equivalent public body is formed to regulate these activities.

#### Director's Recommendation

1. The Director recommends that the Commission direct the staff to work with the Deschutes County Commission to obtain a written agreement outlining how DEQ and the County Commission can work together to solve the problems discussed in this report, and further direct the staff to schedule a public hearing on November 29, 1977 in Bend to take testimony on the proposed working agreement between DEQ and the County and on other alternative causes of action the EQC could pursue.



*John/HD/BF return to Shuck*

Attachment E

## Department of Environmental Quality

P. O. Box 1760, Portland, Oregon 97207

~~1234 S.W. MORRISON STREET, PORTLAND, OREGON 97295~~ Telephone (503) 229-5395

*Feb* **January 7, 1978**

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

**RECEIVED**

Deschutes County Commissioners  
County Court House  
Bend, Oregon 97701

Attention: Abe Young, Chairman

Gentlemen:

Thank you for the time we spent on January 25, 1978 to discuss the sewerage considerations in the Bend urban area, in addition to the city of Bend's sewage project.

As we discussed, the city and county need to agree on how sewerage service will be provided within the urban growth area. The county and city must work closely together since the Phase I project involves the construction of the major interceptors and regional sewage treatment facility to serve the greater Bend area.

Deschutes county needs to identify the areas in Phase II where sewers will be needed and provided. This should be related to density of development, sewage disposal problems, areas with disposal wells and areas with soil limitations. This information will be helpful to establish where sewers must be constructed and where other alternatives for sewage disposal will be used. It appears to us that the entire area may not need to be sewered.

As we related to you in our meeting, there are several governmental structures which have legal authority to plan, construct and operate sewerage projects. I feel that a County Service District, in conjunction with a city, gives an area the best unit to plan and construct these projects. The County Service District can provide other needed services and in our experience can achieve better overall planning coordination. Of course, this is a local decision. We presently work with different types of sewerage agencies.

I must emphasize that the county and city need to immediately begin the extensive work of Phase II area sewage disposal planning and implementation. My concern is that lack of attention and delays, now, will only make future necessary construction difficult and unnecessarily costly.

My staff will be happy to contribute to your efforts in their areas of expertise.

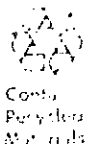
Sincerely,

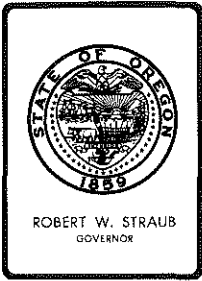
*W. H. Young*

WILLIAM H. YOUNG  
Director

WHY/bw

- cc: Deschutes County Health Dept.  
Attn. John Glover
- cc: Water Quality, DEQ
- cc: Central Region ✓





## Environmental Quality Commission

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director, DEQ  
Subject: Agenda Item No. F, March 31, 1978 EQC Meeting

NPDES July 1, 1977 Compliance Date - Request for approval of Stipulated Consent Orders for permittees not meeting July 1, 1977 compliance deadline.

### Background

The Department is continuing its enforcement actions against NPDES Permittees in violation of the July 1, 1977 deadline for secondary treatment through stipulated consent orders which impose a new, reasonably achievable and enforceable construction schedule.

### Summation

The City of Newport is unable to consistently treat sewage to the required level of secondary treatment at its municipal treatment facility. The Department has reached agreement with the City on a consent order which provides for an orderly construction/modification of the existing facilities and interim treatment limitations.

### Director's Recommendation

I recommend that the Commission approve Stipulation and Final Order No. WQ-NWR-78-25, Department of Environmental Quality v. City of Newport.

WILLIAM H. YOUNG

FMB:gcd  
229-5372  
March 21, 1978  
Attachment: Final Order No. WQ-NWR-78-25



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Materials



1 facility. Respondent has not completed construction and has not commenced operation  
2 thereof.

3 4. Respondent presently is capable of treating its effluent so as to meet the  
4 following effluent limitations, measured as specified in the Permit:

Parameter	Average Effluent Concentrations		Effluent Loadings				
	Monthly	Weekly	Monthly Average	Weekly Average	Daily Maximum		
			kg/day (lb/day)	kg/day (lb/day)	kg	(lbs)	
Jun 1 - Oct 31:							
BOD	45mg/l	60mg/l	272 (600)	363 (800)	544	(1200)	
TSS	45mg/l	60mg/l	272 (600)	363 (800)	544	(1200)	
Nov 1 - May 31:							
BOD	45mg/l	60mg/l	272 (600)	363 (800)	544	(1200)	
TSS	45mg/l	60mg/l	272 (600)	363 (800)	544	(1200)	

12 5. The Department and Respondent recognize and admit that:

13 a. Until the proposed new or modified waste water treatment  
14 facility is completed and put into full operation, Respondent  
15 will violate the effluent limitations set forth in Paragraph  
16 2 above the vast majority, if not all, of the time that any  
17 effluent is discharged.

18 b. Respondent has committed violations of its Permit and related  
19 statutes and regulations. Those violations have been disclosed  
20 in Respondent's waste discharge monitoring reports to the  
21 Department, covering the period from April 4, 1974 through the  
22 date which the order below is issued by the Environmental  
23 Quality Commission.

24 5. The Department and Respondent also recognize that the Environmental Quality  
25 Commission has the power to impose a civil penalty and to issue an abatement order  
26 for any such violation. Therefore, pursuant to ORS 183.415(4), the Department and

1 Respondent wish to resolve those violations in advance by stipulated final order  
2 requiring certain action, and waiving certain legal rights to notices, answers,  
3 hearings and judicial review on these matters.

4 7. The Department and Respondent intend to limit the violations which this  
5 stipulated final order will settle to all those violations specified in paragraph  
6 5 above, occurring through (a) the date that compliance with all effluent limitations  
7 is required, as specified in paragraph A(1) below, or (b) until July 1, 1983, which-  
8 ever first occurs.

9 8. This stipulated final order is not intended to settle any violation of any  
10 effluent limitations set forth in paragraph 4 above. Furthermore, this stipulated  
11 final order is not intended to limit, in any way, the Department's right to proceed  
12 against Respondent in any forum for any past or future violations not expressly  
13 settled herein.

14 NOW THEREFORE, it is stipulated and agreed that:

15 A. The Environmental Quality Commission shall issue a final order:

16 (1) Requiring Respondent to comply with the following schedule:

17 (a) Submit proper and complete Step I grant application by  
18 May 31, 1978.

19 (b) Submit proper and complete facility plan report and  
20 Step II grant application within nine (9) months of  
21 Step I grant offer.

22 (c) Submit complete and biddable final plans and specifications  
23 and a proper and complete Step III grant application within  
24 seven (7) months of Step II grant offer.

25 (d) Start construction within three (3) months of Step III  
26 grant offer.

- 1 (e) Submit a progress report within nine (9) months  
2 of Step III grant offer.
- 3 (f) Complete construction within fifteen (15) months  
4 of Step III grant offer.
- 5 (g) Demonstrate compliance with the final effluent  
6 limitations specified in the Permit (or in the  
7 renewed permit) within thirty (30) days of completing  
8 construction.

9 (2) Requiring Respondent to meet the interim effluent limitations set forth  
10 in paragraph 4 above until the date set in the schedule in paragraph A(1) above for  
11 achieving compliance with the final effluent limitations.

12 (3) Requiring Respondent to comply with all the terms, schedules and conditions  
13 of the Permit, except those modified by paragraphs A(1) and (2) above.

14 B. Regarding the violations set forth in paragraph 5 above, which are expressly  
15 settled herein, the parties hereby waive any and all of their rights to any and all  
16 notices, hearings, judicial review, and to service of a copy of the final order herein.

17 C. Respondent acknowledges that it has actual notice of the contents and  
18 requirements of this stipulated and final order and that failure to fulfill any of  
19 the requirements hereof would constitute a violation of this stipulated final order.  
20 Therefore, should Respondent commit any violation of this stipulated final order,  
21 Respondent hereby waives any rights it might then have to any and all ORS 468.125(1)  
22 advance notices prior to the assessment of civil penalties for any and all such  
23 violations. However, Respondent does not waive its rights to any and all ORS 468.135  
24 (1) notices of assessment of civil penalty for any and all violations of this stipulate  
25 final order.

26 DEPARTMENT OF ENVIRONMENTAL QUALITY

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Date: 3-21-78

By: William H. Young  
WILLIAM H. YOUNG  
Director

RESPONDENT

Date: \_\_\_\_\_

By: [Signature]  
Name: JOHN D. BRENNEMAN  
Title: MAYOR

FINAL ORDER

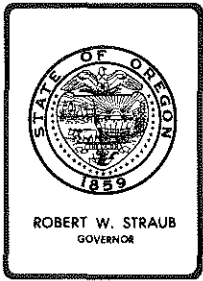
IT IS SO ORDERED:

ENVIRONMENTAL QUALITY COMMISSION

Date: \_\_\_\_\_

By \_\_\_\_\_  
WILLIAM H. YOUNG, Director  
Department of Environmental Quality  
Pursuant to OAR 340-11-136(1)





## *Environmental Quality Commission*

P.O. BOX 1760, PORTLAND, OR 97207

~~1234 5th Morrison Street, Portland, Oregon 97205~~ PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. G, March 31, 1978, EQC Meeting

### Public Hearing on Proposed Order Prohibiting or Limiting Installation of Subsurface Sewage Disposal Systems Within the River Road-Santa Clara Area, Lane County

### Background

Significant development and increased growth in the River Road-Santa Clara area began in the 1940's and 1950's and reached a peak in the 1960's. Between 1940 and 1977 the population increased from approximately 3,000 to more than 27,000.

The River Road-Santa Clara area is the largest concentration of population in Lane County, outside of incorporated cities.

Essentially all of the population in the area is served by individual subsurface sewage disposal systems (numbering more than 8,500 systems).

Water supply to the River Road-Santa Clara area is provided through two water districts which purchase water from the Eugene Water and Electric Board. The River Road Water District is located south of Beltline Road with the Santa Clara Water District serving northerly of Beltline Road.

Numerous shallow wells exist in the area with usage predominately for irrigation purposes. It is possible that some wells within the water districts may be used as potable water supplies.

For several years, local public health officials have been concerned that extensive development of River Road-Santa Clara area may be causing contamination of the shallow groundwater in the area. Specifically, the concerns have been related to the large concentration of subsurface sewage disposal systems in use in the area and their effect upon not only the well water supplies within the local area, but upon the well water supplies of those individuals living down gradient of the River Road-Santa Clara area.



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Effective June 9, 1971, the Lane County Board of Commissioners adopted a moratorium of new major subdivision activity in the River Road-Santa Clara area based upon the above concerns. Subsequently, a groundwater study of the area, published in June 1972, by Roger Dickinson, indicated nitrate contamination to the groundwater in excess of U. S. Public Health Service drinking water standards and concluded that such contamination was related to the dense development on subsurface sewage disposal. A more recent groundwater contamination study (1977) of the area by the Lane County Environmental Health Division proved inconclusive due to unusually low groundwater levels that year.

On August 3, 1977, the Board of Commissioners employed a consultant to evaluate the groundwater contamination situation. The purpose of the study was to evaluate the groundwater quality in the River Road-Santa Clara area and its relationship to existing and projected development in the area to the extent permitted by presently available information.

On February 22, 1978, the Lane County Board of Commissioners adopted a resolution which requests that the Environmental Quality Commission place a moratorium upon the issuance of construction permits and additional subsurface sewage disposal approvals within the boundaries of River Road-Santa Clara. The Board further resolved to aggressively pursue a solution to the waste disposal needs of the area and to reassess the situation after six months to ascertain whether or not the moratorium should be continued.

#### Statement of Need for Rule Making

1. Oregon Revised Statute (ORS) 454.625 requires the Commission to adopt such rules as it considers necessary for the purpose of carrying out ORS 454.605 to 454.745.
2. Orders limiting or prohibiting construction under ORS 454.685 are imposed by the Commission through adoption of an amendment to Oregon Administrative Rule (OAR) 340-71-020.

The adoption of a rule imposing a moratorium in the River Road-Santa Clara area is necessary to prevent further degradation of groundwater supplies while a plan of action is developed for resolving the problem.

3. The document relied upon in considering the need for the proposed rule is:

Ground-Water Contamination Evaluation, River Road-Santa Clara, Oregon  
(Review Draft) Dated January 28, 1978

By: Environmental Geology and Groundwater  
H. Randy Sweet  
Consulting Geologist/Hydrogeologist

### Evaluation

Although the major subdivision moratorium in the River Road-Santa Clara area is still in effect, development activity in the area has persisted, but at a slower rate.

#### Geology:

The River Road-Santa Clara area is underlain by recent alluvium: Lenses of gravel, pebbles and sand with minor silt and clay. Older alluvium occupies the western portion of the area while younger alluvium predominates the flood plain of the Willamette River. Both the older and younger alluvium provide large quantities of water to wells; evidence of their high hydraulic conductivity.

#### Soils:

Excessively well-drained to moderately well-drained soils dominate the River Road-Santa Clara area, including gravelly alluvium, sandy loam, silt loam, and silty clay loam. Most of the soils in the area readily accept septic tank effluent.

#### Hydrogeology:

The River Road-Santa Clara area receives more than 40 inches of precipitation annually. Precipitation is the major source of recharge to the shallow alluvial aquifer in the area with about 13 inches annually reaching the water table and the balance accounted for by runoff, evaporation, and/or transpiration by vegetation.

The Willamette River and its tributaries provide the main surface drains for the regional, intermediate, and local groundwater discharge. The deep seated regional and intermediate flow systems receive recharge from the Cascade and Coast Ranges, as well as their foothills. The shallower local flow system is recharged by the above mentioned infiltrating precipitation on and immediately adjacent to the valley plain. Groundwater underflow in the local system is generally from the south (Eugene area) and toward the north-northwest. The shallow nature of the local groundwater flow system as well as its high permeability or hydraulic conductivity make it particularly accessible for development, but also susceptible to contamination from surface sources.

While the immediate River Road-Santa Clara area utilizes imported water for domestic purposes, supplied through water districts serving the area, the area downgradient depends on groundwater as a sole source for domestic purposes.

#### Residential Density:

The net residential density of the area north of Beltline Road is approximately three and one-half units per acre, while the area south of Beltline Road has a net residential density of approximately four and one-quarter units per acre.

#### Parcel Size:

The residential parcel size in the area north of Beltline Road indicates 58 percent of the parcels to be 10,000 square feet or less, 33 percent of the parcels to be between 10,000 and 20,000 square feet in size and 8 percent to be larger than 20,000 square feet.

In the area south of Beltline Road 52 percent of parcels are 10,000 square feet or less in size, 40 percent are between 10,000 and 20,000 square feet in size and 7 percent are greater than 20,000 square feet in size.

#### Population Projections:

Population projections for the year 2000 place the population of the River Road-Santa Clara area at more than 40,000.

ORS 454.685 provides, in part, that whenever the Environmental Quality Commission finds that the construction of subsurface sewage disposal systems should be limited or prohibited in an area, it shall issue an order limiting or prohibiting such construction. The order shall issue only after public hearing for which more than 30 days notice is given.

Such order would issue in the form of an amendment to OAR 340-71-020 by adding a new subsection (9) as shown on Attachment "A".

#### Summation

1. The development density and parcel size existing in the River Road-Santa Clara area are consistent with development patterns inside many incorporated cities, including the City of Eugene.
2. The River Road-Santa Clara area represents a potential groundwater contamination problem resulting from subsurface sewage disposal systems in a densely developed residential community as well as to down-gradient water supplies.
3. The Lane County Board of Commissioners, by resolution, has requested the Environmental Quality Commission to impose a moratorium of six months duration on new subsurface sewage systems and reports of favorable site evaluations for subsurface sewage disposal systems.
4. ORS 454.685 provides for imposition of moratoriums by the Commission.

#### Director's Recommendation

1. Impose a moratorium on issuance of construction permits for new subsurface sewage disposal systems and favorable reports of site suitability in the River Road-Santa Clara area of Lane County by adopting the proposed amendment to OAR 340-71-020 as shown in Attachment "A".
2. Direct Department staff to work with Lane County to resolve the issue of groundwater contamination in the River Road-Santa Clara area within the six months period proposed by the Lane County Board of Commissioners, if possible.

3. After successful resolution of the groundwater contamination problem in the River Road-Santa Clara area, the Commission repeal the proposed amendment to OAR 340-71-020, thereby lifting the moratorium.



WILLIAM H. YOUNG

Jack Osborne/jms

229-6218

March 20, 1978

Attachments: "A" Proposed Amendment to OAR 340-71-020

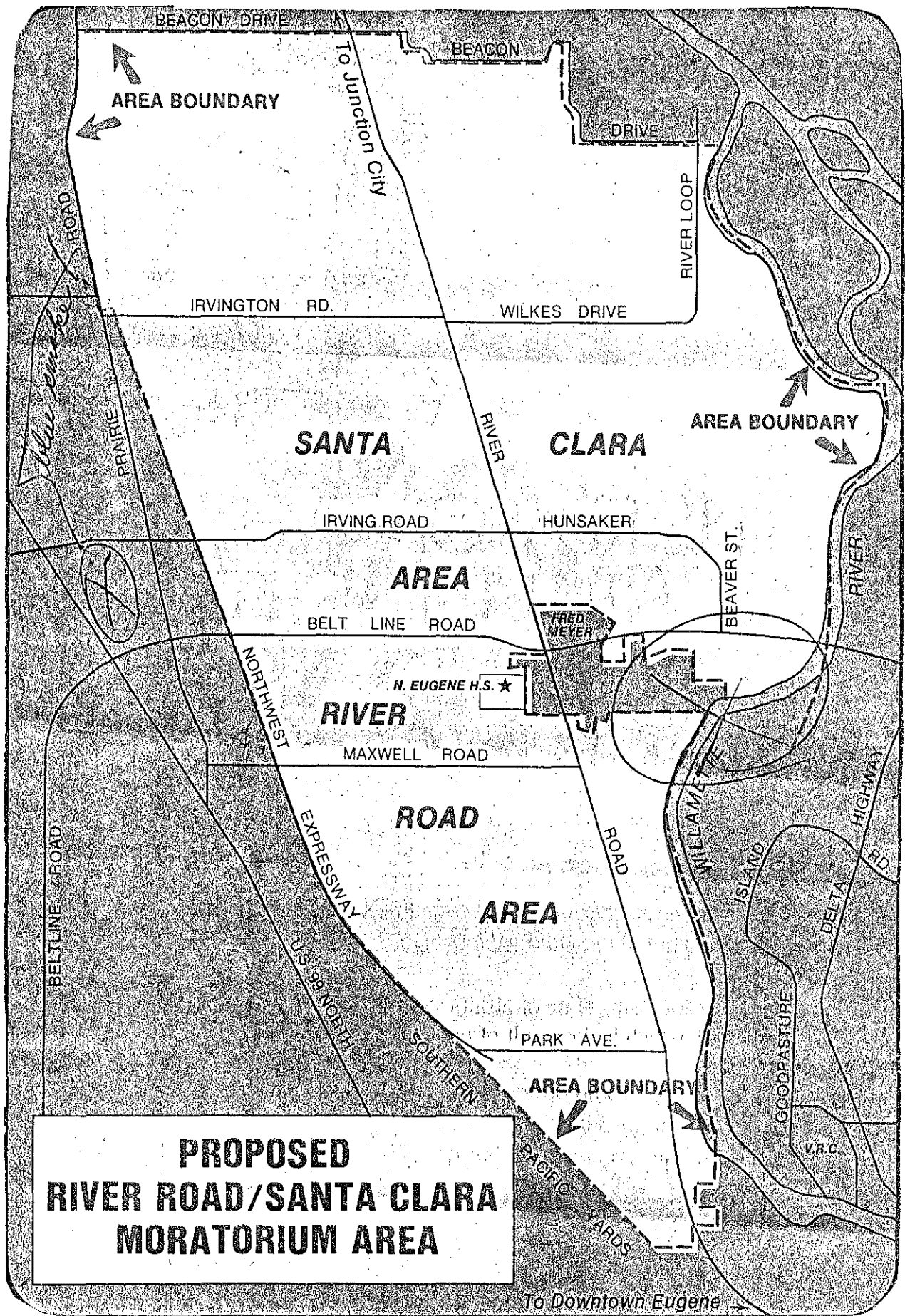
"B" Map of Proposed River Road-Santa Clara Moratorium  
Area

PROPOSED

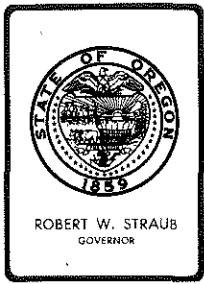
Amend Oregon Administrative Rules 340-71-020 by adding a new subsection (9) to read as follows:

"(9) Pursuant to ORS 454.685, neither the Director nor his authorized representatives shall issue either construction permits or favorable reports of evaluation of site suitability for new subsurface sewage disposal systems within the boundaries of the following described geographic area of the State:

The area generally known as River Road - Santa Clara, and defined by the Boundary submitted by the Board of County Commissioners for Lane which is bounded on the South by the City of Eugene, on the West by the Southern Pacific Railroad, on the North by Beacon Drive, and on the East by the Willamette River, and containing all or portions of T-16S, R-4W, Sections 33, 34, 35, 36, T-17S, R-4W, Sections 1, 2, 3, 4, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, and T-17S, R-1E, Sections 6, 7, 18, Willamette Meridian."







## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item H, March 31, 1978, EQC Meeting,  
Consideration of Adoption of Proposed Field Burning Rule  
OAR Chapter 340, Section 26-015 (4)(d)(c)

### BACKGROUND

In response to the legislation requirement to adopt field burning rules the Environmental Quality Commission:

1. Consulted and received the recommendations of Oregon State University and the Department.
2. Received and reviewed public testimony at its February 24th meeting and public hearing.
3. Received and reviewed further written testimony in the ten day period following the 24th meeting.
4. Adopted at the special meeting on March 17, rules based on the recommendations and testimony received.

In addition to testimony, the Commission received a formal opinion (No. 7575) and a response to an opinion request (dated March 16, 1978) from the state's Attorney General. Two excerpts from the March 16th letter summarize the Attorney General's reply.

"We point out that the EQC has an obligation to do its utmost to comply with both ORS 468.475 and the State Implementation Plan. In this regard, ORS 468.475 must be seen as a directive from the legislature to EQC to do everything in its power to secure a revision of the SIP which would permit burning of the full 180,000 acres specified in that statute. However, until EQC does in fact receive approval from the EPA to burn in excess of the 50,000 acres specified in the SIP as presently approved, EQC is subject to the limits set out in that plan, notwithstanding the directive of ORS 468.475."



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"Nevertheless, in view of the clear direction from the Oregon legislature that the EQC permit burning of 180,000 acres, we believe that EQC must do all in its power to secure EPA approval to burn that amount, or as close thereto as possible. Therefore, if a formal SIP revision is impossible, we believe the EQC should seek EPA approval of the "control strategy" alternative noted above, even if implementation of such a strategy creates the possibility of a citizens suit. However, until approval is secured from the EPA to burn more than 50,000 acres, the EQC is subject to the acreage specified in the SIP."

Based on this letter and discussion at the March 17th meeting, the Commission acted to adopt rules eliminating specific acreage amounts for the annual acreage limitation. The following language was adopted.

OAR, Chapter 340, Section 26-013(1)

Except for acreage allowed to be burned under 26-013(7) and (8), the [M] maximum acreage to be open burned under these rules [shall not exceed the following]:

(a) [During 1977, not more than 95,000 acres.]

During 1978, shall not exceed the maximum number of acres permitted by law.

(b) [In 1978 and each year thereafter, the Commission, after taking into consideration the factors listed in subsection (2) of ORS-468-460, may be order issue permits for the burning of not more than 50,000 acres.]

During 1979 and each year thereafter shall be established by the Commission by January 1 of 1979 and by January 1 of each odd year thereafter. This determination shall be made after taking into consideration the factors listed in subsection (2) of ORS 468.460, shall by order indicate the number of acres for which permits may be issued for the burning of such acreage as it considers appropriate and necessary, upon finding that open burning of such acreage will not substantially impair public health and safety and will not substantially interfere with compliance with relevant state and federal laws regarding air quality.

In conjunction with the rule adoption the Commission adopted the following policy statement:

(1) The Department shall conduct experimental burning by requiring areas to be burned using into-the-wind strip lighting and back-burning techniques during the period July 1 to August 31, 1978. During such period research shall be conducted on the effect of such techniques on characteristic emissions and plume behavior. The Department shall determine whether such techniques reduce low level smoke emissions.

(2) If the Department finds such techniques reduce the total amount of particulate emissions and will not adversely affect air quality, it shall require the use of such techniques for burning stubble of those grasses specifically not susceptible to damage by use of such techniques.

In the March 17 staff report, the staff provided for consideration an optional rule change which would prohibit the burning of south priority acreage upwind of Eugene-Springfield. The change was discussed in detail by the Commission. However, due to confusion regarding the location in the rule of the proposed optional change and because of the uncertain impacts associated with this rule change the Commission directed staff to further explain the consequences of the change at the March 31 meeting.

The March 17 meeting was concluded with the adoption of the proposed rules, as amended at the meeting and with the understanding that the optional rule may be adopted based on staff analysis and discussion at the March 31 meeting.

#### STATEMENT OF NEED

Please refer to the Statement of Need in the March 17, 1978, staff report to the EQC.

#### EVALUATION

The optional rule change presented to the Commission at the March 17 meeting was intended to be used in lieu of Section 26-015(4)(d)(C) of the field burning rules adopted at that meeting. The adopted rule and presently proposed optional rules are as follows:

Option 1 (adopted March 17, 1978)

26-015(4)(d)(C)

All south priority acreages located upwind of the Eugene-Springfield priority area shall be burned using backing fire or into-the-wind striplighting techniques except as provided by 26-015(4)(e).

Option 2 (substitute this wording for that adopted)

26-015(4)(d)(C)

No south priority acreages shall be burned upwind of the Eugene-Springfield non-attainment area.

Option 3 (revise adopted wording and add Option 2 as (D))

26-015(4)(d)

(C) No south priority acreages shall be burned upwind of its associated priority area unless backing fire or into-the-wind striplighting techniques are used except that this section shall be subject to 26-015(4)(e).

(D) No south priority acreages shall be burned upwind of the Eugene-Springfield non-attainment area.

Further restrictions on burning south priority acreages should result in substantial benefit to the Eugene-Springfield area air quality. However, a number of undesirable offsetting factors also accrue. The overall effects are addressed below.

### 1. Burning Accomplishment

Burning of south priority fields may be reduced if the slower backfiring techniques of Option 1 limits the amount of acreage that can be burned during burning periods. In addition, these techniques may limit perennial burning because of potential damage to these crops.

It is expected that rule Options 2 or 3 would further reduce the acreage burned when compared to Option 1. Additional restrictions on allowable wind conditions for priority burning would in general result in a lower percentage of these areas being burned.

In this season staff believes a 50% reduction in the south priority acreage allocated for burning should be expected, or about 15,000 acres, if Option 2 or 3 is selected.

Implementation of Option 3 would require backfiring of priority fields upwind of the adjacent priority area and prohibit burning of priority fields upwind of Eugene-Springfield. It would allow headfiring of fields under specific wind conditions which would not carry the smoke toward its adjacent priority area or toward Eugene-Springfield.

There is the potential for great disparity in the effect of this rule change depending on an individual's geographic location. Individuals with large percentages of their grass acreage in a south Valley priority area may be greatly restricted by this change.

### 2. Eugene-Springfield Air Quality

Currently smoke intrusions into Eugene-Springfield occur on a more or less expected basis as a result of regular north Valley burning and south priority burning and on an unexpected basis, from regular south Valley burning. The smoke management program, in part, is designed to minimize the effects of the expected smoke intrusions and to prevent the unexpected intrusions.

The rules, as adopted by the Commission on March 17, 1978, (Option 1) are expected to reduce emissions from the acreage burned using backfiring techniques along with some reduction in plume rise. The net effect of this rule change on smoke intrusions into Eugene is difficult to assess.

The proposed Options 2 or 3 should essentially eliminate smoke intrusions into Eugene resulting from the burning of south priority acres. Smoke intrusions would be expected only from fields located in the north Valley some 45-80 miles distant. Of the approximately 32,000 acres allocated for burning in south priority areas, about 25,000 acres are currently burned upwind of and affect the Eugene-Springfield area. Reductions in burning upwind of this area are expected to result in reduced smoke intrusion incidences with their associated visibility reductions, and large complaint totals. Based on previous seasons data, reductions in these major smoke intrusions may amount to as much as 50% of the annual total.

Estimating the quantitative effects of these rule changes on local air quality is more difficult especially since available data are not fully adequate. The Department's best estimations of emission reductions and ambient impacts are as follows:

<u>Rule Option</u>	<u>Estimated Emission Reductions (ton/yr)</u>	<u>Estimated Air Quality Impact (ug/m<sup>3</sup>)</u> <u>Annual Geometric Mean</u>
<u>Option 1</u>		
(Backfiring south priority acres upwind of Eugene-Springfield)	233	0.24
<u>Option 2</u>		
(No burning of south priority upwind of Eugene-Springfield)	345	0.36
<u>Option 3</u>		
(No burning of south priority upwind of Eugene-Springfield and backfiring of south priority acreage upwind of its adjacent priority area)	490	0.52

### 3. DEQ Field Burning Air Quality Surveillance System

As stated in the March 17 staff report, implementation of Options 2 or 3 would cast considerable doubt over the results of the proposed surveillance effort. In particular the data collected would not be representative of the effects of previous burning or of estimating the impact of any future burning program which includes south priority burning as presently conducted.

Whatever the overall impact of field burning on Eugene-Springfield attainment of particulate standards, it is believed that the burning of 20,000-30,000 acres within 45 miles of Eugene is responsible for a significant portion of the total effect.

### SUMMATION

It is believed that adoption of rule Option 2 or 3 would result in a reduction in the adverse effects of field burning on Eugene-Springfield air quality. However, such a reduction by its very nature jeopardizes the validity of results from the Department's 1978 field burning surveillance program unless the Commission is prepared to permanently prohibit such burning.

In addition, either option would be selectively restrictive for growers with large percentages of their acreage in priority areas, however, Options 2 or 3 would be considerably more restrictive than Option 1.

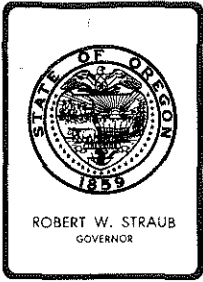
DIRECTOR'S RECOMMENDATION

It is the Director's recommendation that the Commission retain the present rule and not adopt Option 2 or 3 which would further restrict south priority burning, in order that the Department's studies of the field burning impact this summer may provide representative and useful input into the formal State Implementation Plan revision application which must be submitted to EPA by April 1979.



WILLIAM H. YOUNG

SAF/DRW/kz  
229-5753  
3/29/78



## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item H, March 31, 1978, EQC Meeting

### Interim One-Year Control Strategy for Total Suspended Particulate in the Eugene-Springfield AQMA

#### Background

On October 6, 1977, the DEQ submitted a State Implementation Plan (SIP) revision to the Environmental Protection Agency (EPA) for approval. The plan revision was required as a result of action by the Oregon Legislature to change the 1978 limitation on grass seed field burning from 50,000 to 180,000 acres. EPA's review of the revision concluded that the revision did not conform to the substantive and procedural requirements of the Federal Clean Air Act. In returning the submission, EPA suggested that Oregon modify its revision by including a one year interim control strategy for 1978 which would demonstrate that all reasonable measures will be taken in 1978 to make further progress toward attainment of particulate air quality standards in the Eugene-Springfield Air Quality Maintenance Area (AQMA). A permanent strategy must be approved by EPA no later than July 1, 1979, in order to avoid stringent sanctions including prohibitions on major new industrial growth.

EPA has indicated that an interim control strategy must include the following elements:

1. All reasonable measures to alleviate the particulate problem in the Willamette Valley.
2. Dates when measures will be implemented.
3. Schedule for developing SIP Revisions to be submitted in early 1979.
4. Means to be taken to prevent standards from being violated.

The first three requirements were mentioned in the January 27, 1978, letter from EPA which returned the original revision request. The latter requirement was recently mentioned to DEQ through EPA's legal counsel.

The Department completed drafting a proposed interim control strategy during the week of March 20, 1978, and sent it to all interested parties for comment. (See Attachment I.) This strategy was developed with the advice of the Attorney General's office that an acceptable strategy should be attempted to be developed with the 180,000 acres authorized by the 1977 legislature.



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On March 27, 1978, meetings were held with the cities of Eugene and Springfield, the Oregon Seed Council and Department of Forestry. Major comments from these groups are summarized below:

City of Eugene Comments (See Attachment 2)

1. Plan does not justify total relaxation from 50,000 acre limit to 180,000 acre limit. (It does not provide sufficient offset.)
2. Plan should not include offset credits from sources having planned emission reductions under existing SIP.
3. Slash burning emissions could be substantially greater in 1978 than in 1977.
4. An acceptable acreage limit should be based on a) an amount necessary to conduct an adequate monitoring program; and, b) an amount which can be justified on a true offset basis.

City of Springfield Comments

1. Maintains neutrality on the field burning issue.
2. Very willing to administer the road dust control program providing funds are supplied.

Oregon Seed Council Comments

1. Felt effectiveness of several strategy elements could have been calculated in a manner which would show more positive benefit.
2. Opposed to prohibiting south Valley priority burning on northwind conditions on grounds of discrimination and hardship.

Department of Forestry Comments

1. Indicated that non-priority burning could take place during field burning season given very favorable ventilation conditions.

Evaluation

Revised Interim Strategy

The Department has considered comments received on the draft interim strategy and has made some revisions to it. A summary of the revised proposed strategy is shown in Table I.



Table 1  
Revised Interim Control Strategy Elements

<u>Strategy Element</u>	<u>Particulate Emission Reduction</u> (1977-1978 tons/yr)
-New field burning rules straw moisture limit	395
-Field back firing requirement	307
-Existing fugitive dust control	42
-Additional fugitive dust control	187
-Additional industrial control	<u>110</u>
Total	921

The revised interim strategy now contains only control measures which are additional to the present SIP. The originally included "planned industrial source control" element (135 tons/yr) was eliminated to meet this criteria. This change should satisfy one of the City of Eugene's major objections to the initial draft.

The slash burning priority program element (305 tons/yr) was eliminated after the Department of Forestry indicated non-priority slash may be burned during the 1978 field burning season given favorable meteorology. It is also recognized that up to an additional 20,000 acres of slash might be burned in 1978 as compared to 1977 if more favorable meteorological conditions occur. For the purposes of the interim strategy, however, similar meteorological years were assumed and no change in emissions is estimated.

The field burning south priority prohibition element was eliminated on the assumption the EQC would follow staff recommendations to not adopt this proposed rule on the grounds it would adversely effect the usefulness of the planned monitoring program. Regarding the entire field burning program, there may be other air quality improvements from a revised field burning smoke management plan; however, these are not quantifiable (See Attachment 3).

The proposed additional industrial control element (116 tons/yr) was reduced by 6 tons/yr as the result of the inability of one industry to activate an existing pollution control device because of mechanical problems.

### Strategy Effectiveness

It is believed that strategy effectiveness should be based on the effect it will have on the Eugene-Springfield AQMA air quality since this is the only area in the Willamette Valley which exceeds Federal particulate air quality standards. EPA has estimated that field burning has a maximum impact of 4 ug/m<sup>3</sup> on the annual mean levels. The revised proposed interim strategy would result in a projected 3.5 ug/m<sup>3</sup> improvement in annual mean levels. See Table 2. This is equivalent to offsetting air quality impact from 162,000 acres of field burning. In other terms this offset would exceed by 25% the offset needed to nullify the impact of the additional

130,000 acres authorized by the 1977 legislature (over the present 50,000 acreage limit contained in the existing SIP). This offset should satisfy another of the City of Eugene's major objections to the original draft strategy. The overall effect of the revised control strategy would be to make a 28% step towards (from 1977 to 1978) in meeting the primary (health standard) particulate air quality standard in the Eugene-Springfield AQMA.

Table 2  
Improvement in Particulate Air Quality  
(in Eugene-Springfield AQMA)

<u>Strategy Element</u>	<u>Annual Air Quality Improvement</u> ( $\mu\text{g}/\text{m}^3$ )
-New field burning rules straw moisture limit	0.42
-Field back firing requirement	0.32
-Existing fugitive dust control	0.43
-Additional fugitive dust control	1.95
-Additional Industrial Control	<u>0.38</u>
Total	3.5

Noteworthy is the projection that even if the slash burning emissions increase above 1977 levels to the maximum projected, this would have an adverse impact on the annual mean particulate levels in the Eugene-Springfield AQMA of  $0.27 \mu\text{g}/\text{m}^3$ . The effectiveness of the revised strategy would be reduced to  $3.2 \mu\text{g}/\text{m}^3$  which still would more than offset the air quality impact of the additional 130,000 acres imposed by 1977 legislative action.

In calculating effectiveness of the proposed strategy elements the Department has used conservative assumptions throughout. The suggested calculations mentioned by the Oregon Seed Council, except for the rainfall correction for road dust control, have been rejected in favor of maintaining this conservatism.

#### EPA Approval

The Department believes the revised proposed one-year interim control strategy meets EPA requirements and also satisfies major concerns of affected parties. It is believed the strategy contains all reasonable measures to alleviate the particulate problem in the Willamette Valley. The strategy would in fact exceed the EPA 20%/year guideline for making reasonable progress toward attainment of the primary (health) standard, and would more than offset the annual air quality impact from the increased grass field acreage authorized to be burned by the 1977 legislature.

A schedule for strategy element implementation is contained in Attachment 1 as required by EPA. A schedule for development of the permanent SIP revision has been submitted to EPA as part of the normal program planning process and is contained in Attachment 4. The Department will supply EPA with a copy of the smoke management agreement with the Department of Forestry and will utilize this program to curtail slash and/or field burning on any day particulate standard violations may be approached.

Summation

1. EPA has returned Oregon's SIP revision which proposed increasing 1978 field burning acreage from 50,000 to 180,000 and suggested that a one-year interim control strategy be submitted which shows that all reasonable measures will be taken in 1978 to alleviate the particulate problem in the Willamette Valley.
2. An interim control strategy has been drafted and revised after consultation with affected parties which should meet all requirements of EPA and should generally satisfy major concerns of all affected parties.
3. The interim strategy would allow up to 180,000 acres of grass fields to be burned but would provide particulate air quality impact offsets in the critical Eugene-Springfield AQMA sufficient to more than compensate for the impact of the increased field burning acreage authorized by the 1977 legislature.
4. The interim control strategy would provide significant particulate emission reductions from field burning (through better burning techniques), unpaved road dust control, and further industrial processes controls. An unquantifiable but possible improvement is also expected from full implementation of a new slash burning priority burn program.
5. Smoke management measures will also be taken to curtail field and/or slash burning on a daily basis in order to avoid violation of air quality standards.

Director's Recommendation

It is the Director's recommendation that the EQC approve the proposed one-year interim control strategy and require the Director to immediately submit the strategy with all appropriate documentation to the EPA for their review and approval.

*Bill*

WILLIAM H. YOUNG

J. F. Kowalczyk:as  
229-6459  
3/29/78  
Attachments 4

1

March 20, 1978

To: All Interested Parties

Enclosed is the Department's first draft of an interim particulate control strategy for the Eugene Air Quality Maintenance Area. This has been developed in response to the January 27, 1978 letter from the U. S. Environmental Protection Agency. Your comments are invited. Please direct these and any questions you have to Mr. John Kowalczyk at 229-6459, preferably by March 24, 1978.

On March 27, the Department will meet with the cities of Eugene and Springfield and the Oregon Seed Council in an attempt to finalize the strategy for submittal to the Environmental Quality Commission at its March 31st meeting.

There are several points that should be noted when reviewing the strategy. Of greatest importance is the belief that the Department has considered all feasible means of making further progress toward attainment of national ambient air quality standards for suspended particulate in the Eugene AQMA. From the alternatives considered, the Department has selected those which it considers reasonable and implementable in 1978. Section 3F of the technical support document discusses those items which were rejected as unreasonable and unimplementable.

Noteworthy is the fact that the proposed interim control strategy promises to obtain significant emission reductions from the four major sources of particulate suspected of materially contributing to nonattainment conditions in the AQMA. These sources are forest slash and grass field burning, fugitive road dust and industrial sources. The Department has projected that if all planned and proposed elements of the interim strategy are implemented this would, in fact, make a 33 percent step towards attainment of the primary (health) standard in 1978.

The unpaved road dust control plan is listed as proposed since funding in the range of \$25,000 would have to be obtained in order to implement it. This element of the strategy is projected to contribute the most toward attainment of standards and therefore should be strongly considered for implementation. Means of attaining this funding will be explored at the March 27 meeting.

The slash burning control element is based on eliminating nonpriority burning during the field burning season. If meteorological conditions are similar in 1978 to 1977, it is expected that emissions would be reduced by 305 tons/yr. If meteorological conditions are substantially different in 1978 than in 1977, it is conceivable that considerably more or less slash would be burned than in 1977. Unfortunately, the Department has no authority to restrict burning forest

Page 2  
March 20, 1978

slash. The Oregon Department of Forestry is committed to implement a priority burning plan during the 1978 field burning season. The ODOF has indicated that further curtailment of burning would increase the already growing backlog of scheduled burns and further increase the hazards of leaving the material in the forest.

The Department is hopeful that an interim strategy can be put together which will be acceptable to EPA and all parties concerned. We are also hopeful of completing this task in the near future so the ultimate fate of field burning in 1978 can be determined and so that we can put our full efforts into developing a permanent particulate control strategy for this area by January 1, 1979, as mandated by Congress.

Your comments and suggestions on this strategy will be welcomed.

Sincerely,



WILLIAM H. YOUNG  
Director

JFK:h

cc: \*Governor Bob Straub  
Senator Jason Boe  
Senator Philip Lang  
\*Oregon Seed Council  
\*U. S. EPA, Region X  
Senator Keith Burbidge  
Representative Bud Byers  
Representative Nancy Fadeley  
Senator John Powell  
Senator George Wingard  
Senator L. B. Day  
Willamette Valley Legislators  
\*City of Eugene  
\*City of Springfield  
\*Associated Oregon Industries  
\*Lane Regional Air Pollution Authority  
\*Oregon Department of Forestry  
Oregon Environmental Council  
Lane County League of Women Voters  
\*Eugene Register Guard  
\*Albany Democrat Herald  
\*Joe B. Richards  
\*Grace S. Phinney  
\*Ronald M. Somers  
\*Al Densmore  
\* Jacklyn L. Hallock

\* Received Interim Control Strategy Technical Support Document

DRAFT

Eugene-Springfield Air Quality Maintenance Area  
Interim One-Year Control Strategy  
for Total Suspended Particulate

Technical Support Document

DRAFT

Department of Environmental Quality  
Air Quality Division  
P. O. Box 1760  
Portland, Oregon 97207

March 1978

Eugene-Springfield Air Quality Maintenance Area  
Interim One-Year Control Strategy  
for Total Suspended Particulate

Technical Support Document

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Eugene-Springfield Air Quality Maintenance Area  
Interim One-Year Control Strategy

Summary

On October 6, 1977, the DEQ submitted a State Implementation Plan (SIP) revision to the Environmental Protection Agency (EPA) for approval. The plan revision was required as a result of action by the Oregon Legislature to change the 1978 limitation on grass seed field burning from 50,000 to 180,000 acres. EPA's review of the revision concluded that the revision did not conform to the substantive and procedural requirements of the Federal Clean Air Act. In returning the submission, EPA suggested that Oregon modify its revision by including a one year interim control strategy for 1978 which would demonstrate that all reasonable measures will be taken in 1978 to make further progress toward attainment of particulate air quality standards in the Eugene-Springfield Air Quality Maintenance Area (AQMA). A permanent strategy must be approved by EPA no later than July 1, 1979, in order to avoid stringent sanctions including prohibitions on major new industrial growth.

Strategy Elements

The Department has investigated what it believes to be all feasible means of reducing particulate emissions in and around the Eugene-Springfield AQMA. Those measures considered reasonable and implementable in 1978 have been selected and form the basis for a proposed one-year interim control strategy. The proposed strategy would result in significant (1675 tons/year) particulate emission reductions from field and slash burning, fugitive dust source (road dust) and industrial/institutional sources. This equivalent to about 45 percent of the 3761 tons/year of particulate emitted from grass field burning in 1977 or (in terms of equivalent grass field acreage) a reduction of 67,000 acres. These four source types are believed to be among the major sources affecting nonattainment of of suspended particulate standards in the AQMA.

A summary of the proposed strategy is shown in Table 1.

Table 1  
1977 vs 1978  
Particulate Emission Reductions  
(tons/year)

<u>Strategy Element</u>	<u>Reduction</u>
(Planned)	
--New field burning rules Straw moisture limit	395
--Backfiring requirement	307
--Slash burning priority burn program	305



<u>Strategy Element</u>	<u>Reduction</u>
--Planned industrial source control	135
--Existing fugitive dust control measures	<u>47</u>
SUBTOTAL	1189
Proposed	
--Field burning south priority prohibition	208
--Additional fugitive dust control	162
--Additional industrial control	<u>116</u>
SUBTOTAL	486
TOTAL	1675 tons

(Total field burning particulate emissions 1977 (3671 tons))

Strategy Effectiveness

In terms of actual air quality improvement, it is projected that the interim strategy would achieve a  $4 \text{ ug/m}^3$  improvement in annual average air quality or 33% of the improvement needed to meet primary (health) standards in the AQMA. A summary of the proposed strategy effectiveness on air quality is shown in Table II.

Table II  
Improvement in Particulate Air Quality  
(in Eugene-Springfield AQMA)

<u>Strategy Element</u> (already planned)	<u>Annual Air Quality</u> <u>Improvement (ug/m<sup>3</sup>)</u>
--New field burning rules Straw moisture limit	.42
Backfire requirement	.32
--Slash burning priority program	.09
--Industrial source control	.47
--Fugitive dust control	<u>.48</u>
SUBTOTAL	1.78

<u>Strategy Element</u>	<u>Annual Air Quality Improvement (ug/m<sup>3</sup>)</u>
(proposed)	
--Field burning south priority prohibition	.22
--Fugitive dust control	1.69
--Industrial source control	<u>.40</u>
SUBTOTAL	2.31
TOTAL	4.09 ug/m <sup>3</sup>

(Total reduction to meet primary standard is 12.3 ug/m<sup>3</sup>)

Noteworthy is the fact that about 90% of the emission reductions and 50% of the air quality improvement will be associated with fine particles.

A strategy to fully meet primary standards at this time would have to include such measures as a total elimination of field burning and a 28% reduction in current industrial emissions or a 42% reduction in industrial emissions with the 180,000 acre limit remaining in effect. This type of a strategy was rejected as being unreasonable on many counts, including adverse economic impact, inadequate implementing time, and inadequate data base to insure effectiveness.

#### Enforceability

The Department believes that existing permit compliance schedules, Department field burning rules and commitment from the local governments will insure the implementation and enforcement of those strategy elements identified as already planned. Regarding the proposed items, additional field burning rules will be needed, funding (\$25,000) must be obtained to implement the road dust program and a commitment must be obtained from two sources to implement further emission reduction measures.

#### EPA Approval

The Department believes the proposed interim strategy should be acceptable to EPA. EPA has requested that the strategy must contain all reasonable measures to improve particulate air quality and that a schedule of implementation be provided. The Department believes these requests have been satisfied.

In addition, the Clean Air Act Amendments of 1977, require that all plan amendments contain provisions such that reasonable further progress be made to attain compliance with air quality standards. EPA guidelines have defined reasonable further progress as equal yearly improvements until the time air quality standards must be met which is December 31, 1982, for primary standards. This translates to a 20% improvement for each of the five years remaining until the deadline.

The Department's already planned strategy elements and the proposed fugitive dust program would achieve at least a 28% improvement in 1978. Without any of the proposed elements it would fall short of the requirement achieving only a 14.5% improvement.

If an interim strategy acceptable to EPA is not developed then it appears the 50,000 acre limit in the present State Implementation Plan would apply according to a recent State Attorney General's opinion (see Appendix 2).

Eugene-Springfield Air Quality Maintenance Area  
Interim One-Year Control Strategy  
for Total Suspended Particulate

Part 1. Introduction

On October 6, 1977, the Department submitted a State Implementation Plan (SIP) revision to the Environmental Protection Agency for approval. The plan revision was required as a result of action by the Oregon Legislature to change the 1978 season limit on grass seed field burning from 50,000 to 180,000 acres. EPA's review of the revision submittal concluded that the revision does not conform to the substantive and procedural requirements of the Federal Clean Air Acts. In returning the submission, EPA suggested that Oregon modify its revision by including a one-year interim control strategy designed to insure that reasonable progress is being made toward attainment of National Ambient Air Quality Standards for Total Suspended Particulate (see January 27, 1978, letter from EPA in Appendix D). A permanent strategy must be approved by EPA no later than July 1979 to avoid stringent sanctions, including prohibitions on major industrial growth.

The interim control strategy described herein is intended to fulfill the conditions described in the EPA letter and demonstrate that all reasonable measures will be taken and reasonable further progress will be made during 1978 toward attainment of particulate air quality standards. The interim strategy will result in significant emission reductions from industrial, field burning, fugitive dust and slash burning sources during the 1978 calendar year. These sources are believed to be major contributors to the Eugene-Springfield AQMA particulate nonattainment problem.

The interim strategy includes authorization to open field burn up to 180,000 acres of registered fields during the 1978 season. This is based on the State Attorney General's February 28, 1978 decision to the effect that the Environmental Quality Commission cannot lawfully authorize less than the number of acres required under OAR 468.475(2) unless the EQC cannot comply with EPA requirements through other means (i.e., control of other sources through an acceptable interim strategy). The Attorney General's opinion is included in Appendix 2.

Part 2. Interim Control Strategy Elements

The interim control strategy is basically composed of planned and proposed emission reductions for each element that will occur in 1978 emissions relative to 1977 emissions. Each element included in the strategy is discussed below in general terms.

A. Field Burning Emission Reductions - Planned

Field burning emission reductions have been calculated based on the following changes to the field burning smoke management program.

1. Backfiring versus headfiring of all south valley priority acreage. Emission reduction of 307 tons/year.
2. Prohibited burning above a 20 percent fuel moisture content (FMC) after September 1, 1978. Emission reduction of 395 ton/year.

3. Prohibition of south valley priority acreage when on an upwind trajectory of Eugene-Springfield area. An additional emission reduction of 208 tons/year.

The Department has included the first two of the three by rule. Number 3 above is only mentioned as a further restriction for EQC consideration on March 31, 1978.

#### B. Slash Burning Emission Reduction

Effective July 15 through September 15, 1978, the Oregon Department of Forestry will implement a slash burning priority system as a supplement to their approved smoke management program with DEQ. The priority burning system will result in only priority slash burning during the field burning season with an expected annual net reduction of about 305 tons of particulate. This program is expected to reduce the total annual emissions by a similar amount. The priority system is described in the attached letter (see Appendix 3).

#### C. Fugitive Dust Controls

1. Planned 1978 - Fugitive dust emissions generated from unpaved roads within the AQMA have been reduced by the paving of 1.25 miles of road by the City of Springfield during the summer and fall of 1977 and the spring of 1978, thereby reducing fugitive dust emissions by 47 tons.
2. Proposed - Implementation of a fugitive dust interim control strategy for unpaved roads within the primary standard violation area of Springfield is proposed during the June 1 - December 31, 1978 period. A reduction of 162 tons will be achieved during 1978 as a result of this program. Results will be evaluated for possible inclusion in the January 1979 SIP submission to EPA. This would require identification of funding and agreement by the City of Springfield.

#### D. Industrial Emission Reductions

1. Planned 1978 particulate emission reduction of 135 tons/year within the AQMA as a result of regulations now in force.
2. Proposed - All new emission reductions (116 tons/year) which can be achieved by industrial sources between January 1 and December 31, 1978 (short of production curtailment). These reductions will require special agreements with the sources to insure implementation.

### Part 3. Emission Reductions Analysis

The emission reductions to be accomplished by the interim control strategy and those achieved or to be achieved since January 1, 1978 are described below. The air quality impact of the reductions are discussed in Part 4.

#### A. Field Burning Emission Reductions

The field burning emission reductions will be achieved through a program consisting of three elements, each of which is discussed below. Appendix 5 contains more details of the calculations.

1. Backfiring of all south valley priority acreage (307 tons/year reduction) -Planned

Three techniques were used to estimate the emission reduction achieved by backfiring. Using a method developed by Carroll (Atmospheric Environment, 1977), an estimated reduction in emission of 50% relative to leadfiring was found or 6 pounds/ton of straw. Assuming 32,286 acres of fields burned at 3.8 tons of straw per acre, this emission factor provides a reduction of 368 tons. A second reduction estimate based on regression curves relating fuel moisture content to emission from backfiring indicated a potential reduction of 1349 tons. By assuming a straw distribution more appropriate for the Willamette Valley an estimate of 245 tons/year reduction is obtained. An average of the two closest approximations  $(368 + 245)/2$  provides the best estimate reduction of 307 tons/year.

2. Prohibition on burning of fields after September 1 with more than 20% fuel moisture. (375 tons/year reduction) - Planned

To reduce particulate emissions from fields with heavy regrowth late in the season, it is proposed to restrict the burning of fields with a fuel moisture content greater than 20%. Using an average 27% fuel moisture content and Carroll's data, emission factors of 37 and 47 pounds/ton of straw for 20% and 27% fuel moisture is obtained. Based on September and October 1977 acreage burned, a reduction of 1317 tons/year would result. Adjusting Carroll's figures for straw loading more typical of the Willamette Valley adjusts the reduction to 375 tons/year.

3. Prohibited burning of south priority acres under north winds (Proposed) (208 tons/year reduction)

This reduction is presented as an additional emission reduction plan for the consideration of the EQC. By prohibiting burning of south priority acres upwind of Eugene-Springfield (on north wind days) one-half of the priority acreage would not be likely to be burned, resulting in a 208 ton reduction in emissions. This prohibition may be considered nontypical of how fields have been burned or how the industry would request them to be burned in the future. While it would help air quality this year the requirement would have adverse impact on the federal air monitoring program by not providing a critical impact situation for evaluation.

## B. Slash Burning Reductions - Planned

The Oregon Department of Forestry (DOF) has committed itself to burn only priority forest slash during the 1978 field burning season (July 15 - September 15). A priority system has been established under which the only slash allowed to be burned during this 60-day period in the Coastal and Cascade Districts must meet rigid criteria (see Appendix 3). A review of DOF 1977 slash burning records indicates that 67,752 tons of nonpriority slash was burned during the 1977 field burning season, which resulted in 305 tons of particulate emissions (9 pounds TSP/ton slash). Based on this information, it is estimated that 1978 slash burning emissions during the field burning season will be 305 tons less than in 1977, assuming comparable meteorological conditions in 1978. Since the DOF already has a backlog of forest slash to burn, and since it already attempts to burn the maximum amount of slash per day, the nonpriority slash not burned during the 1978 field burning season is unlikely to be burned during the remainder of the 1978 season (in 1977, the last significant slash burning day was October 23).

This analysis is based on an assumption of comparable meteorological conditions in 1978 as compared to 1977. In the event that the 1978 meteorology is significantly different, the actual amount of slash burned over the entire 1978 field burning season could be higher or lower than in 1977, and is impossible to predict.

## C. Fugitive Dust Control Reductions

Unpaved roads within the Eugene-Springfield AQMA emit about 3,500 tons per year of particulate or about 22% of the total AQMA emissions. Within Springfield, the emission of dust from unpaved roads near the monitoring sites exceeding air quality standards is a significant source. Microscopic analysis of suspended particulate samples has shown that a large portion of the material is dust. Since these emissions occur at low levels, their impacts on the monitoring sites may be more significant than previously expected.

The interim strategy will reduce emissions from unpaved roads through a demonstration project designed to apply a dust control palliative to 6.3 miles of unpaved road within the primary standard violation area. Additional reductions have already been achieved by road paving completed by the City of Springfield. These elements are discussed below in detail.

### 1. Existing Fugitive Dust Controls - Planned

The City of Springfield has paved 3/4 miles of unpaved roads since July 1977 and is committed to the paving of an additional 0.5 miles of unpaved road by June 30, 1978. All of the 1.25 miles of improved roads is within the primary violation rollback area (see Figure 2). The paving of these roads will reduce annual particulate emissions within this area by 46.8 tons during 1978. This figure is less than the actual 78 ton/year reduction because the paving occurs midway through the year in the summer period, and this changes the total annual emissions.

The emission reduction was calculated based on the EPA emission factor for particulate emissions generated by vehicle traffic over unpaved roads of 818 g/VMT and average Springfield unpaved road traffic counts of 191 VMT/day, obtained in August 1977 traffic counts.

2. Fugitive Dust Control Demonstration Project - Proposed

A demonstration control project to minimize fugitive particulate emissions from unpaved roads and lots is proposed. A significant number of unpaved roads and yards are located in the immediate vicinity of the area surrounding the Springfield City shops which has measured violations of the primary TSP standard. Microscopic analysis of TSP samples collected at the Springfield City shops site during July, August and September 1975 indicated that an average of 41% of the particulate was soil dust and an additional 16% was various mineral matter. Soil dust particulate is entrained by vehicle activity over unpaved or paved areas and by wind entrainment of soil materials. A demonstration program would reasonably be expected to improve the particulate air quality concentrations within the primary violation area. The demonstration control program could also provide insight into the impact of emissions from these unpaved areas and the effectiveness of permanent dust control measures.

Specific Dust Control Program

It is proposed that 6.3 miles of unpaved roads be treated with a dust control product which can reasonably be expected to provide 70% control efficiency of dust particulate entrained by traffic on those unpaved roads.

There are 6.8 miles of unpaved roads within the primary violation rollback area. Five tenths (.5) miles of these roads are already scheduled to be paved in spring of 1978 by the City of Springfield. The remaining 6.3 miles of unpaved roads in this area are estimated to contribute 399 tons of dust particulate (less than 30 microns) per year.

The estimated reduction of dust particulate by treating 6.3 miles of roads would be 279 tons given a 70% control efficiency for the dust control treatment for a full 12 months. Assuming that these roads were to be treated by June 1, 1978, total TSP emissions in the Primary Violation Rollback Area would be 162 tons less in the calendar year 1978 than they were in calendar year 1977. 1978 calendar year emissions within that area would be 1186 tons as compared to 1977 calendar year emissions of 1348 tons, which represents a 12% decrease in emissions. Within the 7 month period of June - December 1978, emissions within that area would be 20.5% less than if the dust control program were conducted.

Research to date indicates that the most effective dust control product with minimum environmental consequence is an emulsified asphalt product. Conversations with several dust control experts indicate that spray application of an emulsified asphalt solution is the most cost-effective method of application for temporary dust control as is desired for this interim control strategy. Contact with these sources indicates that a 75% control efficiency can reasonably be expected over the 7 month period. Thus, the 70% control efficiency assumed for this analysis is conservative. Complete



application costs are estimated at \$3600/mile based on information from the Spokane County Air Pollution Authority (\$900/mile per application) and an average of four applications for each of these unpaved roads during the summer period. Complete application costs for these 6.3 miles of unpaved roads are thus estimated at \$25000. The frequency of application for each specific unpaved road would depend on traffic volumes and road conditions.

Research by the Arizona Department of Transportation found that an alternative application method for emulsified asphalt can provide an even greater control efficiency, albeit at a greater cost. This method provides 94.7% control efficiency after 5 months and 84.4% control efficiency after 14 months, but is estimated to cost \$12,000 per mile of unpaved road. If this method were to be applied to these 6.3 miles of unpaved roads an additional reduction of 65 tons of particulate emissions would occur during the 7 month period at a differential cost of about \$50,000.

D. Industrial Point Source Reductions

This section documents reductions in particulate emissions from industrial or other point sources over the 1977-1978 period. For this analysis, total emissions from these sources in January-December 1977 have been compared to total emissions during January-December 1978 to derive the net difference between 1977 and 1978 total emissions. The initial part of this analysis, which is discussed in Part I below, consisted of a review, with LRAPA assistance, of net emission reductions which have occurred or have been committed to during the 1978 calendar year. The second part of this analysis discusses all feasible additional emission reductions which industrial or other point sources may be willing to undertake as part of this interim particulate control strategy. During the limited time available for analysis, numerous particulate emission sources were contacted in an effort to determine whether any short-term emission reductions could be achieved during the remainder of the 1978 year.

1) Existing Industrial Emissions Reduction - Planned

A comparison of total 1977 emissions from industrial or other large point sources within the Eugene-Springfield AQMA and total 1978 emissions from these sources shows that 1978 total emissions will be 134 tons less than in 1977. This net reduction in actual emissions during these two years is the sum of 28 tons of particulate emission increases and 162 tons of particulate emission decreases. The Table below details the changes in particulate emissions attributed to various sources:

<u>Source</u>	<u>1977-1978 Tons Emission Increase</u>	<u>1977-1978 Tons Emission Decrease</u>	<u>Explanation Of Change</u>
Weyerhaeuser Co., Springfield Particleboard Plant	-	110	A 13.5 lb/hr reduction occurred on Dec. 1, 1977 via additional cyclone control. A baghouse was added to plant cyclone and materials conveyor was covered by Jan. 1, 1978. LRAPA permit requires an emission reduction of 48.1 lb/hr by Oct. 1, 1978.
University of Oregon Boiler System	-	30	Exhaust from 2nd largest boiler was scrubbed in CPC Dry Scrubber during Jan. 1978.
Willamette Industries Springfield	-	10.5	New controls - baghouse for existing veneer dryer required by April 1, 1978. New veneer dryer to come on line in August 1978.

Barker Willamette Co.	-	3.5	Sawmill with annual emissions of 7 tons/year was closed in July 1977.
Star Lumber Co.	-	3.5	Sawmill with annual emissions of 7 tons/year was closed in July 1977.
Weyerhaeuser Co., Springfield Pulp Mill	-	4.0	Modifications to the recovery furnace electrostatic precipitator.
Miscellaneous Source Changes		1.8	
Bioenergy Co.	18	-	This new source, a fiber pelletizing plant is limited by permit to emission rate of 36 tons/year. Startup is expected in July 1978.
Bohemia Particleboard	6.5	-	New hog-fuel boiler emits approximately 3 lbs/hr. Operation began in July 1977.
Lane County Waste Treatment Plant	3.5	-	Baghouse control will be required for the air classifying system, which is expected to limit the emission rate to 5 tons/year. Startup expected in late April 1978.
<u>Total 1977-1978 Emission Decreases</u>		163.3	Tons TSP
<u>Total 1977-1978 Emission Increases</u>		28.2	Tons TSP
<u>Net 1977-1978 Emission Decrease</u>		135.1	Tons TSP

## 2) Proposed Industrial or Point Source Controls

During the short period available for this analysis, numerous industrial sources and other point sources of particulate emissions were contacted to determine whether any feasible short-term particulate reductions could be achieved during the remainder of 1978 as part of this interim control strategy. The Lane Regional Air Pollution Authority assisted in contacting candidate sources for short-term emission reductions resulting in two additional control possibilities for the remainder of 1978 which are presented as additional reductions. These reductions would reduce 1978 total emissions by 116 tons and are described below. Section F below discusses the alternative emission reductions which were pursued without success.

The University of Oregon operates 4 hog-fuel fired boilers, the largest two of which are now equipped such that their effluent can be channeled through

a CPC Dry Rock Scrubber which removes significant flyash particulate from the gas stream. Currently the exhaust from the second-largest boiler (#1) are not channeled through the CPC Scrubber because of problems in disposing of the collected fly-ash. If a suitable fly-ash disposal method can be found by June 1, 1978, the exhaust from both of the largest two boilers could be effectively scrubbed for the remainder of the year. If emissions from boiler #1 are controlled via the CPC Scrubber during the period June 1 - December 31, 1978, 1978 total emissions from the U. of O. Boiler System will be reduced by 110 tons.

The Georgia Pacific Springfield Plywood Plant has a mist eliminator in place (which is not now being utilized) which is capable of reducing veneer dryer emissions by 4 lbs/hr. This unit, which requires 35 horsepower, could be utilized to reduce 1978 particulate emissions by 6.8 total tons during the period June 1 - December 31 (16 hours/day) at an electric energy cost of approximately \$2600 (2.5¢/kwh, 85% conversion efficiency). Georgia Pacific indicates that it is still under some electric energy restrictions.

E. Emission Reduction Analysis

The table below summarizes emission reductions that will occur as a result of the interim control strategy. Emission sources within the Eugene-Springfield AQMA will reduce their emissions by 182 tons during 1978. Field burning and slash burning emission sources located outside the AQMA will reduce their emissions by 1,007 tons/year. Optional control strategies proposed would reduce particulate emissions by an additional 486 tons/year. These values compare to total estimated emissions within the AQMA of 16,140 tons.

	<u>1978</u> <u>Emission Reductions</u> <u>(tons)</u>	<u>Implementation</u> <u>Date</u>
I. Planned Source Reductions		
A. Industrial-Existing	135	Jan.-Oct. 1978*
B. Slash Burning	305	May 1, 1978
C. Fugitive Dust Control -Existing	47	June 1978
D. Field Burning		
1) Prohibited burning after September if fuel moisture 20%	395	April 1, 1978
2) Backfirings of South priority fields	<u>307</u>	April 1, 1978
	Subtotal 1189	

\*According to source schedules detailed in Section 3(D)1.

2. Proposed Reductions		
A. Prohibited burning of South Priority fields under N. winds	208	April 1, 1978
B. Additional Fugitive Dust Control	162	June 1, 1978
C. Industrial-Additional	<u>116</u>	June 1, 1978
	Subtotal 486	
	Grand Total 1675	

Modifications to the Field Burning Smoke Management Program will reduce particulate emissions by 702 tons/year, and reductions in slash burning during the 1978 period will reduce emissions by 305 tons/year. The slash burning particulate reduced would be a combustion-generated particulate, generally with a fine particle size comparable to field-burning smoke particles.

Approximately 87% of the total possible emission reductions would be attributed to fine particulate emissions. This is very significant when considering the desirability of reducing adverse health and visibility impacts within the AQMA.

The fugitive dust controls, both the existing and the proposed demonstration program, will occur within the Primary Violation Area, and can be expected to significantly improve particulate air quality within that area. Dust emissions from unpaved roads are low-level emissions which may have an impact more significant than previously estimated. Microscopic analysis of particulate samples in the area with highest particulate concentrations has shown that on the order of 40% of the particulate is soil dust. Although it is not clear how much of this soil dust is attributable to vehicle traffic or to wind entrainment of dust particles, the application of dust control techniques to all unpaved roads within this area should help improve particulate air quality.

A survey of point source emission changes (1977 vs 1978) within Lane, Linn, Benton, Polk, Yamhill and Marion counties resulted in a net increase of 35 tons. These increases were not included in this analysis due to the insignificant nature of the impact on background particulate levels entering the AQMA.

F. Other Measures Considered

A wide variety of alternative emission reductions were considered during preparation of this interim strategy. Discussed are alternatives which were rejected as being impractical and unreasonable.

Field Burning Emission Reductions

1. Field Burning Machines

The use of field burning machines was considered for use in the 1978 burning season, but effective burning machines which reduce particulate emissions have not yet been developed. The practical problems of building effective burning machines have not yet been surmounted.

2. Alternate Year Burning

Alternate year burning has been considered as a method to reduce the total acreage burned each year. This practice is used now since approximately 280,000 acres need to be burned each year and a mandatory acreage limitation of 180,000 acres has been established, thus forcing growers to burn the fields on a 'most needed' basis to minimize crop and land damage and to maximize yields. Present day agronomic technology has not produced sufficient criteria to establish a priority system.

3. Rainfall Period Burning Restrictions

Prohibiting field burning for a set number of days after rainfall periods was considered, but was rejected because a precise formula is not likely to provide any significant additional emission reduction. It is already standard practice in the Field Burning Smoke Management Program to contact Fire Districts throughout the valley after rainfall periods to determine whether grass fields are too wet to burn effectively. Again, the parameter which is most critical is the grass straw moisture content and this factor is already being addressed.

4. Harvesting Restrictions

A restriction to prohibit burning for a set number of days after grass seed harvesting was considered, but this option is not likely to be effective in reducing emissions per acre. Harvesting generally occurs in dry periods anyway, which means that such a restriction could not reasonably be expected to improve burning conditions significantly.

5. Back-Fire All Fields

Back-firing of all grass field acreage throughout the valley was considered, but was rejected as a valley-wide strategy because grass-field smoke impact can be best minimized in most of the valley by maximizing the plume rise of grass field smoke. Back-firing of priority South Valley acreage under North wind conditions is proposed as an option because back-firing does reduce the mass of particulate emissions and because this category of acreage and conditions is the type of burning which is most likely to impact on the Eugene-Springfield AQMA. The application of back-firing techniques require about twice as long as head-firing techniques. Back-firing of grass fields can be damaging to certain species of perennial grasses, and some species are subject to burnout.

Fugitive Dust Emission Reductions

1. Paved Road Dust Control

Consideration was given to measures which could reduce particulate emissions generated by vehicle traffic over paved and unpaved roads in the AQMA. The option of more frequent cleaning of paved streets to reduce the material on street surfaces which can be entrained by traffic was explored, but the cities of

Eugene and Springfield indicated that no additional funds would be available for such work during the remainder of 1978. In addition to this difficulty, information is not available to quantify the air quality improvement associated with more frequent cleaning of streets. In fact, some information indicates no beneficial air quality improvement from such practices.

2. Unpaved Road Dust Control

The demonstration dust control project which is proposed for 6.3 miles of unpaved Springfield roads is most appropriately oriented towards Springfield unpaved roads both because of the high concentration of unpaved roads there and because microscopic analysis of particulate samples from the Springfield area shows that area is significantly influenced by soil dust particulate. Although such dust control measures may eventually be applied to more unpaved roads throughout the AQMA, the results and effectiveness from a demonstration dust control project should be analyzed first before the application of the proposed technique to all such unpaved roads within the AQMA.

3. Parking Lot Dust Control

A number of firms with dirt parking lots were contacted to determine whether they could upgrade their parking lots in 1978 (from dirt to gravel or to pavement) to reduce fugitive dust emissions generated by vehicle traffic over those unpaved lots. Unfortunately, no firm commitments were achievable for the remainder of 1978.

## Industrial and Other Major Source Emission Reductions

### 1. Fuel Switching

Facilities with major wood-fired boilers were contacted to determine whether fuel-switching to less polluting fuels could be accomplished during 1978 but this option was determined to be economically impractical. Natural gas and residual oil were determined to cost 7 to 9 times as much as available hog-fuel on a BTU basis. Also, the majority of the AQMA's large hog-fuel boilers do not currently have natural gas burning capabilities. Such fuel-switching would run counter to President Carter's goal of conservation of less abundant fossil fuels.

### 2. Major Emission Source Control

The five largest emission sources or companies (Weyerhaeuser Co, Georgia Pacific Co., Kingsford Co., Eugene Water and Electric Board, and the University of Oregon), which collectively account for 85% of all industrial emissions in the AQMA, were all individually contacted. Aside from the potential reductions at the U of O and at Georgia Pacific which were previously identified, no additional short-term emission reductions were identified as achievable during the remainder of 1978. Additional control equipment would have to be employed to achieve further emission reductions and it was judged impossible to have such equipment installed in less than one year.

### 3. Dry Fuel

Some wood products companies indicated that they might be able to sell less of their dry wood byproducts fuel and burn those dry materials as boiler fuel. This would reduce the average moisture content of their boiler fuel and assumedly lead to cleaner combustion. Unfortunately this emission reduction is not readily quantifiable, nor were any firm commitments achievable from any of the companies.

## Slash Burning Emission Reductions

### 1. Additional restrictions on slash burning tonnage

The Department of Forestry has agreed to apply a priority system to slash burning in the Cascade and Coastal Districts during the 1978 field burning season. Additional firm restrictions on the amount of slash burning to be allowed during 1978 were not considered reasonable because of the lack of alternative methods which can achieve the objectives of slash burning (fire hazard reduction, pest control, silvicultural purposes, etc.). Further, restrictions to slash burning are outside of DEQ's jurisdiction.



2. Non-quantifiable measures

Additional measures will be undertaken during 1978 which should improve smoke management procedures and which should improve knowledge about which meteorological conditions and burning practices are most likely to result in smoke intrusions into populated areas. Although these measures do represent progress toward the goal of minimizing slash smoke impact on populated areas, it is not possible to quantify the air quality improvement which such activities may generate.

The Department of Forestry Smoke Management Program will utilize a new radio communication system to provide better coordination with the DEQ Field Burning Smoke Management Program. The DOF will provide DEQ with access to meteorological information not previously available to the DEQ to assist the DEQ Field Burning Smoke Management Program.

The DEQ will provide the DOF with air quality data to enable a more accurate determination of periods when slash smoke intrudes into populated areas. The DOF will document the extent of slash smoke intrusions into populated areas within 72 hours of each such intrusion. This type of rapid feedback should aid in the practical determination of which type of meteorological conditions and burning practices are most likely to result in smoke intrusions into populated areas. This knowledge will be a significant aid in developing improved slash smoke management procedures for future years.

Part 4: Air Quality Impact Analysis

The air quality impact analysis of the emission reduction described above are summarized in this section. The analysis is largely based on the use of a Proportional Rollback model to estimate the improvement in air quality resulting from the interim strategy emission reductions. More accurate airshed dispersion models will not be available until later in the year when programs now in process are completed.

The analysis consists of two parts; an analysis of the impact reduction upon the Primary Annual Geometric Mean Air Quality Standard ( $75 \text{ ug/m}^3$ ) and the 24 hour Secondary Air Quality Standard (not to exceed  $150 \text{ ug/m}^3$  more than once per year). The impact on secondary standards exceedances has been assessed for two periods; (a) one in which no field or slash burning activity occurred and (b) an August day on which field and slash burning activity occurred.

A. Primary Standard Violation - Annual (Geometric Mean)

The table below summarizes the particulate air quality within and near the AQMA during 1977.

	** ( $\text{ug/m}^3$ ) Annual Geo. Mean	No. Samples			( $\text{ug/m}^3$ ) 2nd Highest Concentration	Maximum
		>150	>260			
Eugene Airport	30.4	58	0	0	88	105
Eugene Comm. Bldg.	62.0	62	3	0	180	255
Westmoreland	56.2	58	3	0	184	228
South Eugene	32.4	61	0	0	100	123
Oakway Mall	58.0	57	0	0	120	163
Springfield City Shops	87.3	55	11	0	185	217
Springfield Library	74.8	60	4	0	167	238
Thurston High School	48.3	60	0	0	141	141
1250 N. 18th (DMV)	64.4	55	0	0	140	148
28th and C Street	74.3	50	2	0	153	161
Walterville	30.8	60	0	0	79	98
Mohawk	25.3	59	0	0	68	70
Coburg	41.8	60	1	0	150	169
Junction City	51.8	59	1	0	111	171
Creswell	26.6	59	0	0	82	95
Oakridge	49.4	57	0	0	117	122
			<u>25</u>	<u>0</u>		

\*Data tabulated by LRAPA

\*\*Based on 6th Day Sampling

Although the only site at which the annual primary standard was violated was the Springfield City shops, other nearby monitoring locations clearly confirm that high particulate levels near the Primary Annual Standard do exist in a significant portion of Springfield. Figure 1 shows that distribution of particulate within the AQMA and identifies the areas exceeding the Primary and Secondary Annual Air Quality Standards.

The area in which the Primary Standard Rollback Analysis had been applied is shown in Figure 2. This encompasses the area which exceeded the Primary Standard during 1977. Emission reductions (planned and proposed) within the Rollback Area and their expected impact reduction is summarized below. Details of the Rollback Analysis are included in the Appendix.

Annual Particulate Air Quality  
Improvements at the Highest Monitoring Site

<u>Source</u>	<u>Annual Impact Reduction (ug/m<sup>3</sup>)</u>
Planned	
1. Industrial - Existing	0.47
2. Slash burning	0.09
3. Fugitive dust - Existing	0.48
4. Field burning	
a. Prohibited burning after September 1 if fuel moisture >20%	0.42
b. Backfiring of south priority fields	<u>0.32</u>
SUBTOTAL	1.78 ug/m <sup>3</sup>
Proposed Reductions	
5. Prohibit burning of south priority fields under north winds (option)	0.22
6. Additional fugitive dust control	1.69
7. Industrial additional	<u>0.40</u>
SUBTOTAL	2.31
TOTAL	4.09

B. Secondary Standard Violation - Annual Geometric Mean

The impact of the Control Strategy on attainment of the Annual Secondary Standard is discussed below. The rollback calculations are based on the Secondary Standard Violation Rollback Area shown in Figure 3. The rollback calculations are included in the Appendix.

Summary of Annual  
Secondary Standard Violation  
Area Rollback

<u>Source</u>	<u>ug/m<sup>3</sup></u>
1. Background	
A. Slash burning	0.09
B. Field burning	
1. Prohibited after September 1 with >20% fuel moisture	0.42
2. Backfiring	0.32
C. Violation area rollback	
1. Fugitive burning - planned	0.12
2. Industrial - proposed	<u>0.37</u>
SUBTOTAL	1.32 ug/m <sup>3</sup>
 <u>Proposed</u>	
1. Field burning - prohibited under north winds - south priority	0.22
2. Fugitive dust control	0.44
3. Industrial	<u>0.31</u>
SUBTOTAL	0.97 ug/m <sup>3</sup>
TOTAL	2.29 ug/m <sup>3</sup>

C. Secondary Standard Violations (24 hours)

To evaluate the effect of the interim strategy on violations of the 24 hours Secondary Standard (150 ug/m<sup>3</sup>), two days on which the standard was exceeded during 1977 were examined.

On June 30, 1977, the second highest particulate concentration at an SIP monitoring site (Springfield City shops) was recorded (185 ug/m<sup>3</sup>). Progress toward air quality standard attainment should be based on this period. No field or slash burning was occurring.

On August 23, 1977, the only secondary standard violation recorded in the AQMA occurred during field burning at the City shops site (153 ug/m<sup>3</sup>). Slash and field burning activity of August 23 was 400 tons of slash burning and 38,773 acres of grass fields burned. It is believed important to analyze the effectiveness of the interim strategy on a violation day in which field burning had a potential impact.

The air quality rollback analysis summary for these two days follows:

	<u>June 30, 1977</u> ug/m <sup>3</sup>	<u>August 23, 1977</u> ug/m <sup>3</sup>
<u>Planned</u>		
1. Background reduction		
Slash burning	-0-	0.20
Field burning	-0-	-0-
2. Violation area (AQMA) rollback		
Industrial - existing	1.76	0.14
Fugitive dust - existing	<u>1.34</u>	<u>0.12</u>
SUBTOTAL	3.10 ug/m <sup>3</sup>	0.46 ug/m <sup>3</sup>
<u>Proposed</u>		
1. Fugitive dust - additional	4.80	0.44
2. Prohibit burning - south priority, north winds	-0-	-0-
3. Industrial - additional	<u>2.58</u>	<u>0.20</u>
SUBTOTAL	7.38 ug/m <sup>3</sup>	0.64 ug/m <sup>3</sup>
TOTAL	10.48 ug/m <sup>3</sup>	1.10 ug/m <sup>3</sup>

Analysis of weather and burning conditions on August 23 in relation to the planned and proposed emission reduction concluded that none of the reduction criteria would have applied to this case. Therefore, no impact reduction would have occurred.

D. Air Quality Impact Analysis

The following table summarizes the particulate air quality impact reductions which would occur as a result of the interim strategy.

Interim Strategy Particulate  
Air Quality Impact Reductions Summary (ug/m<sup>3</sup>)

<u>Source</u>	Annual Standard		Impact Reduction on 24 hour Secondary Standard (Field/Slash)	
	<u>Primary</u>	<u>Secondary</u>	<u>2nd Highest Day</u>	<u>Impact</u>
<u>Planned</u>				
Industrial - existing	0.47	0.37	1.76	0.14
Slash burning	0.09	0.09	-0-	0.20

Field Burning				
--Prohibited after September 1 if fuel moisture >20%	0.42	0.42	-0-	-0-
--Backfiring south priority fields	0.32	0.32	-0-	-0-
Fugitive Dust - existing	<u>0.48</u>	<u>0.12</u>	<u>1.34</u>	<u>0.12</u>
SUBTOTAL	1.78	1.32	3.10	0.46

Proposed

Prohibit burning of south priority acres under north winds	0.22	0.22	-0-	-0-
Additional fugitive dust control	1.69	0.44	4.80	0.44
Industrial - additional	<u>0.40</u>	<u>0.31</u>	<u>2.58</u>	<u>0.20</u>
SUBTOTAL	2.31 (18.7%)*	0.97 (3.5%)*	7.38 (2.8%)*	0.64 (21.3%)*
TOTAL	4.09 (33.2%)*	2.29 (8.3%)*	10.48 (29.9%)*	1.10 (36.6%)*

\* Reduction required to attain the respective standard.

A 12.3 ug/m<sup>3</sup> reduction in the annual particulate levels at the worst monitoring site (Springfield City shops) is required to attain the primary (health) standard. A 27.3 ug/m<sup>3</sup> reduction is required to attain the annual secondary standard and 35 ug/m<sup>3</sup> to attain the 24 hour secondary standard on the second highest day.

The interim strategy will provide 33% of the progress toward attainment of the primary standard if the proposed emission reduction programs are implemented. A 14.5% progress toward standard attainment will result if none of the proposed elements are adopted.

Following are several important aspects of the Control Strategy:

1. Most of the emission reductions will occur at some distance away from the primary violation area, but the greatest single impact reduction will result from the control of fugitive dust emission in the immediate vicinity of the Springfield City shops monitoring site.
2. Although fugitive dust control is important to attainment of the weight-based standard, this control program element will emphasize reduction in large particles which have a lesser adverse influence on visibility and health.

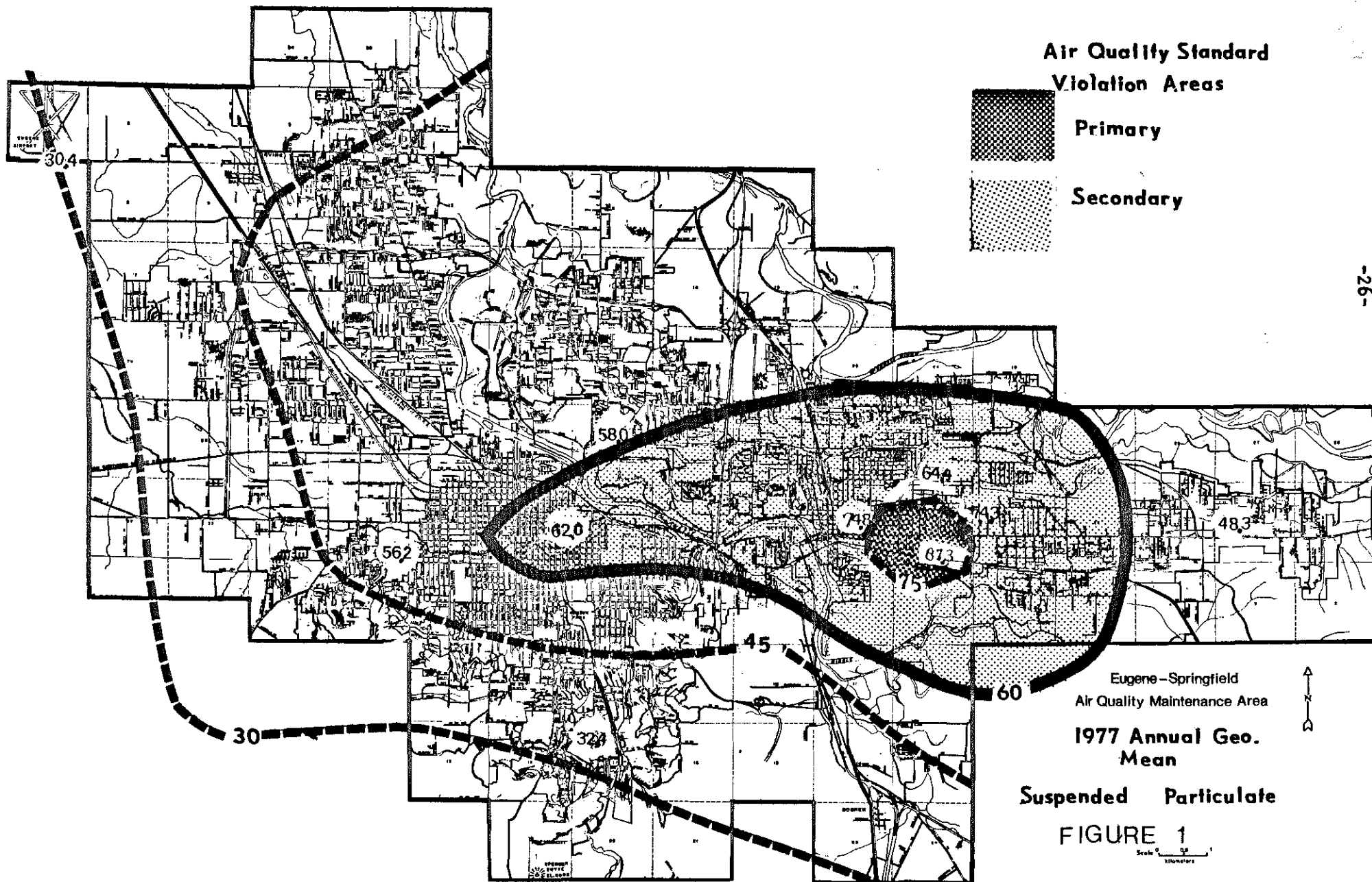
3. Even though no specific impact credit was given to field burning reduction in terms of 24 hour standard violations in the AQMA, a reduction of 702 tons (or 1,070 tons/year if the option is implemented) in emission will be beneficial to other areas of the Valley's air quality and represent an 18.6% (28.4%) reduction in field burning emissions.
4. Emission reductions achieved by the strategy will be the greatest during the summer and fall months.

Part 5. Control Strategy Enforcement

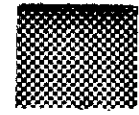
This section describes the means by which achievement of the emission reduction included in the interim control strategy will be assured.

<u>Control Strategy Element</u>	<u>Enforcement Mechanism</u>
1. Field burning reductions	Contained in rules to be adopted by the Environmental Quality Commission on March 17, 1978, and effective during the 1978 field burning season
2. Fugitive dust controls --Planned reductions planned	Funds necessary to pave 1/2 mile of unpaved road in Springfield have been committed by the City of Springfield through the Federal Housing and Community Development Act by June 1978. A letter of intent from the City of Springfield has been received
--Proposed reduction	\$25,000 in funding must be authorized to support the fugitive dust control program to treat 6.3 miles of unpaved road in Springfield. Contract requirements will include a provision to insure the program is implemented by June 1978
3. Industrial emission reductions --Existing "planned" reductions	Being implemented through Air Contaminant Discharge Permits administered by Lane Regional Air Pollution Authority
--Additional (proposed) reductions	To be written into source Air Contaminant Discharge Permits by Lane Regional Air Pollution Authority to insure implementation by June 1978
4. Slash burning emission reductions	Implementation of the Oregon Department of Forestry Priority Burning Plan will be assured through an inter-agency agreement signed by the Department Director and the State Forestry. The agreement will contain provisions to insure implementation by May 1978

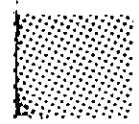




**Air Quality Standard  
Violation Areas**



**Primary**



**Secondary**

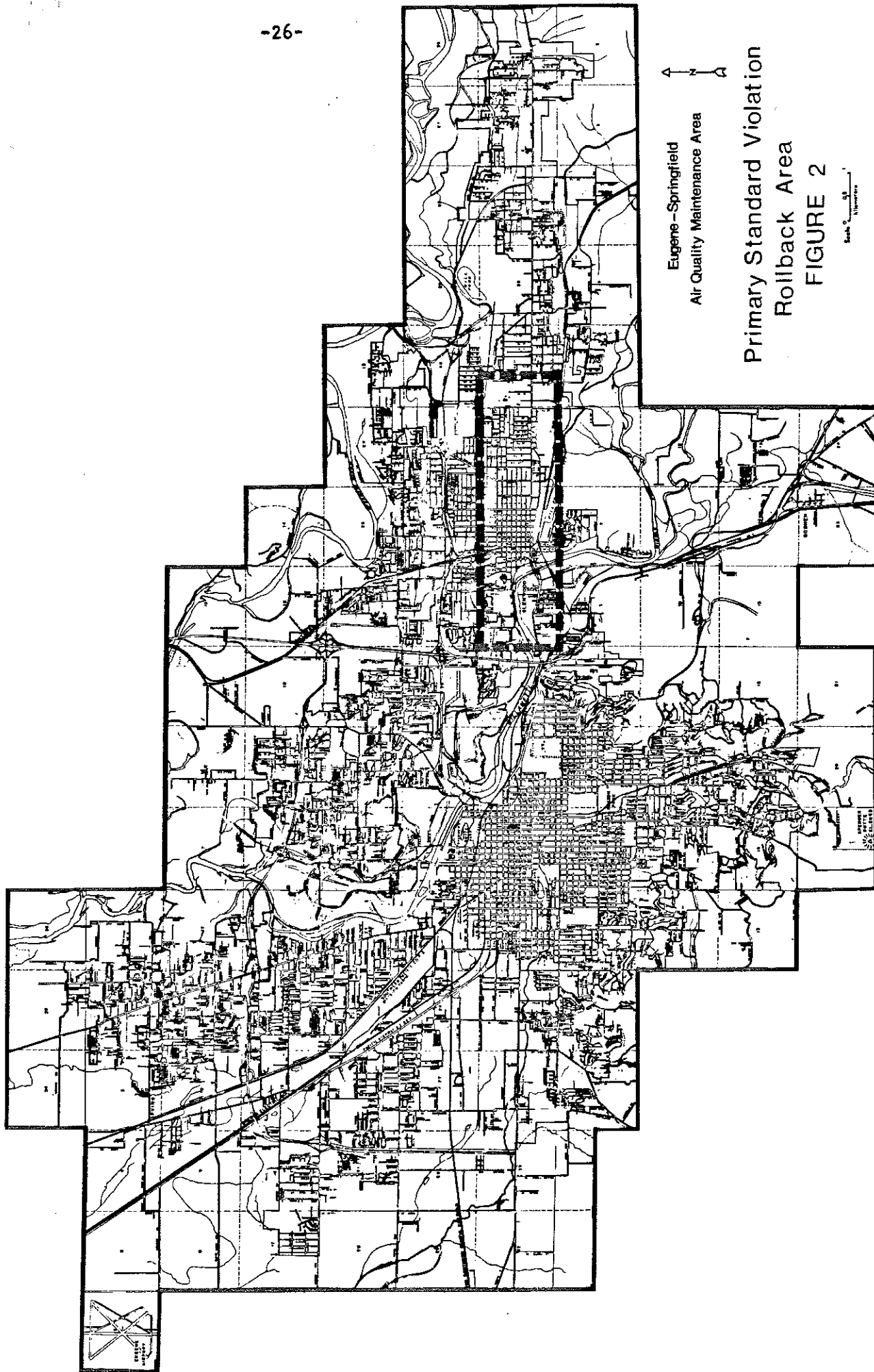
Eugene-Springfield  
Air Quality Maintenance Area

1977 Annual Geo.  
Mean

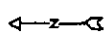
Suspended Particulate

FIGURE 1

Scale 0 5 Kilometers



Eugene - Springfield  
Air Quality Maintenance Area



Primary Standard Violation  
Rollback Area  
FIGURE 2

Scale 1:50,000

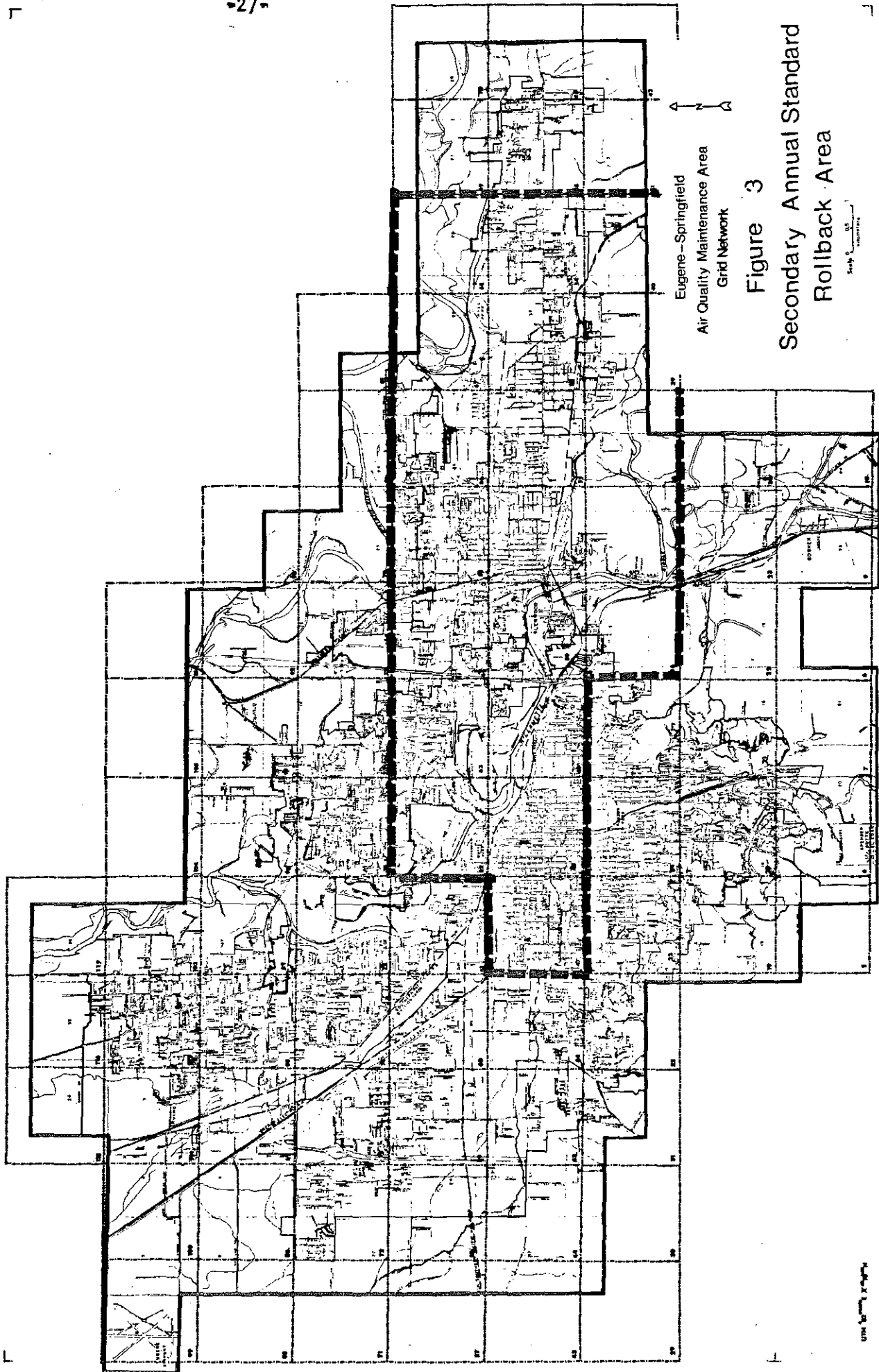
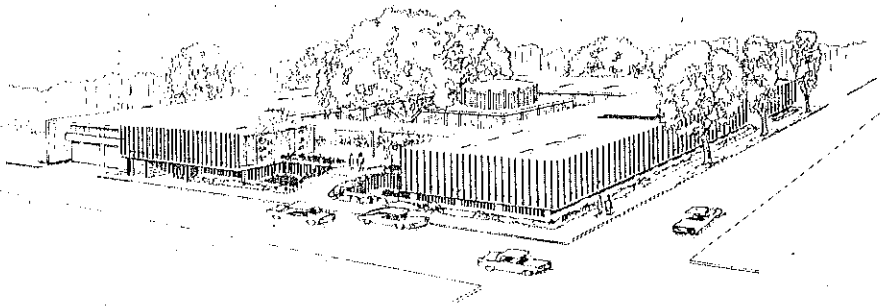
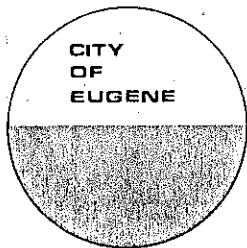


Figure 3  
Secondary Annual Standard  
Rollback Area



CIVIL DEPARTMENT

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EUGENE, OREGON 97401

503/687-5080

M E M O R A N D U M

To: Department of Environmental Quality Staff  
 From: City of Eugene  
 Re: Proposed Interim Control Strategy  
 Date: March 27, 1978

After review of the proposed Interim Control Strategy Summary together with the Technical Support Document, the City of Eugene wishes to note several general and specific objections to the proposed recommendations and methodology used in support thereof.

General Objections:

1. The Interim Control Strategy is to be submitted to EPA as one of two alternatives suggested in the January 27, 1978 letter from Regional Administrator Dubois to Director Young. That letter directs that the strategy show "that all reasonable measures will be taken in 1978 to alleviate the particulate problem in the Willamette Valley." Our understanding of the scope of the proposed submittal is that it is an initial and partial step toward attainment of the annual primary particulate standard in the Eugene-Springfield AQMA. Without degrading the importance of these efforts, it is only partially responsive to EPA's suggested goal of alleviating the particulate problem (including both primary and secondary standard violations as well as the health problems from fine particulates even assuming attainment) in the Willamette Valley (a broader geographic area than the Eugene-Springfield AQMA).

2. In order to appreciate the necessary content of such a submittal it is necessary to focus upon its purpose. This control strategy will not amend applicable state and federal law which presently limit the amount of field burning to 50,000 acres for the 1978 burning season. This limit is and will be enforceable should suit be brought by any citizen (including the City of Eugene) to enforce the present law. As we understand it, EPA approval of the submission will only guarantee that EPA will not institute proceedings to enforce the present SIP limitations on field burning. This

March 27, 1978

plan, then, is to serve to justify prosecutorial forbearance because of the illegal authorization of an increase of 130,000 acres of allowable burning. Thus, the plan must serve not only to show that some steps are being taken toward primary standard attainment but must serve to justify the state's action in relaxing controls on the primary particulate polluter when the area affected does not meet federal and state standards. In other words, the state cannot justify taking five steps backwards from its own goal of advancing ten paces by claiming that overall we have lost only three paces.

3. When a state develops its implementation plan, it says that it is necessary to regulate all of these sources in these particular amounts and ways in order to assure that reasonable steps toward compliance are being taken. In regulating only particular sources through the plan a state necessarily limits the amount of allowable pollution from these regulated sources. The plan then is a formal commitment to particularly limit pollution from a set number of sources.

What is being discussed today is an increase in the amount of pollution from this set number of sources by increasing the allowable emissions from only one of several regulated emitters (field burning). The state seeks to partially justify this abandonment of its prior commitment by showing that other sources are following the plan (planned industrial source control). Moreover, additional justification is sought by decreasing pollution from non-SIP regulated sources (slash burning). The latter efforts, in our view, do not serve to justify an increase in the pollution from SIP regulated sources. We believe that there must be a corresponding offset in one part of the plan to justify increased pollution from another source regulated in the plan. This is so if any credence is to be given to the state's prior determination that a set amount of pollution reduction from a set number of sources is necessary for attainment.

4. Field burning is seasonal and it is primarily during the months of August and September that particulates from field burning cause health problems and violations of federal and state standards. Part of the justification for the increased amount of allowable emissions from field burning is that other sources have decreased their annual emissions. A different picture emerges when one compares the planned monthly increase in field burning emissions with the planned monthly decreases from other sources. What results is an extremely substantial increase in particulate pollution during the months of August and September by allowing increased burning. In essence the state is contending that we can allow an increase in particulates during August and September because other sources are emitting less during March and April. In our view such a rationalization is insufficient.

March 27, 1978

5. The assumption as to the amount of particulates emitted from field burning is in error. The proposed submittal assumes an emission factor based upon 45.6 lbs./acre figure. This was derived from Boubel and Melend's work in 1967-69. We have previously documented that this figure underestimates the amount of emitted particulates by a significant amount. See, City of Eugene Preliminary Technical Report on the Impact of Field Burning (February 23, 1978) pp 11-12. Our research indicates that 57-77 lbs./acre are actually emitted. Using a 67 lbs./acre figure the actual increase in particulate pollution from an increase of 130,000 acres is 4355 tons. The proposed submission is based upon an assumed 2964 tons increase. This disparity underscores the necessity for field burning acreage decreases for an effective control strategy. Leaving aside the above objections, the planned reductions of 1189 tons offsets only 27% of the increased amount of field burning emissions. If all proposed measures are adopted (1675 tons) it will offset only 38% of planned increase. We believe the amount of offsets to be insufficient.

#### Specific Objections:

1. We are unclear as to the methodology used in determining the slash burning restrictions. Essentially the same smoke management and priority acreage program for 1978 was used in 1977. According to the 1977 Annual Report, Oregon Smoke Management Plan (DOF) the Priority Burning System was used for the period of July 25 to September 18, 1977. The seven day increase for 1978 is minimal given the usually dry conditions of mid-July. Last year, as part of the smoke management program for slash burning there was no burning done on days when field burning was allowed. Given the extreme dry conditions of last summer which minimized even priority burning, we fail to see how any decreases will result in 1978. There were general or limited restrictions on all burning for the following periods: August 2-10, 15-23 and September 8-15, 1977.

This discrepancy can be readily ascertained by reference to Appendix 3 of the Technical Support Document. According to the information in that appendix, there were 4,522 acres of priority burning during the entire year of 1977. But it is estimated that there will be 13,913 priority acres burned in only the 1978 field burning season, a nearly threefold increase. What this suggests is that while a priority acreage allotment will reduce slash burning from what is normally burned, there will be a quite significant increase in slash burning for 1978 as compared to 1977. Thus, more accurate calculations are needed to determine not the amount of offsets from

March 27, 1978

slash burning but the amount of the increase in particulate emissions from 1978 slash burning as compared with 1977. Our preliminary estimate is that there will be a 1071 ton increase.

2. While not an objection, we do wish to point out that the stated amounts of reductions from use of the backfiring and moisture content restrictions are underestimated in our view. Similarly, the emissions factor from slash burning is low.

3. We have previously suggested control strategies to minimize the effects of additional burning. Some of these suggestions have been incorporated into the proposed strategy. We do believe that into-the-wind striplighting for all annual grass crops is presently feasible. This conclusion is based upon comparison of the meteorological conditions of the Sacramento Valley (where such lighting techniques have been extensively used for a number of years) with conditions which exist in the Willamette Valley. This data has been given to DEQ in our informal meetings with DEQ staff. The objection that such lighting technique will increase low level smoke concentrations is refuted by recent California data which has also been disclosed to DEQ. Use of striplighting for all annuals would decrease the particulate emissions by another 1000 tons.

4. We also suggest that a prohibition on burning until two sunny days after measurable rainfall is necessary. Moisture content of the fuel is the most important variable affecting particulate emissions. Such a regulation would be easy to enforce within the existing smoke management program.

5. It is the position of the City of Eugene that further acreage reductions will be necessary in order to effectively minimize the particulate problem in the Willamette Valley. In light of the proposed industrial and fugitive dust offsets together with changes in burning practices the allowable acreage may be a figure substantially greater than 50,000 acres. Some figure above 50,000 acres may be necessary in order to effectively monitor field burning smoke to determine its impact on populated areas. The precise acreage figure will, of course, vary depending upon whether the proposed strategy elements are accomplished and whether further changes in the burning practices are required.

JOHNSON, HARRANG & MERCER  
CITY ATTORNEYS

Stanton F. Long

SFL:jw

NON-QUANTIFIABLE FIELD BURNING-SMOKE MANAGEMENT MEASURES

Several revisions to the Field Burning Smoke Management Program are expected to result in emission reductions which are difficult to quantify. Since these changes are intimately related to daily meteorology (especially under adverse burning conditions which are transient in nature), estimating effects is nearly impossible.

DEQ and the Oregon Seed Council will jointly utilize a central radio system to communicate to both fire district permit issuing agents and grass seed growers. By rule, any individual who receives a burning permit, must also maintain an operating radio system receiver at the site and burn in accordance with DEQ advisory broadcasts. This is expected to allow very rapid dissemination of burning information especially stop and start orders. This is not expected to eliminate field burning smoke intrusion, however, the length and intensity of intrusions resulting from unexpected weather changes should be lessened. In addition, better response to burning releases will result in more acres burned during the best ventilation periods rather than during periods of poorer ventilation.

The time for extinguishing fires has been moved earlier in the day to one and one half hours before sunset. Previously the deadline was one-half hour before sunset. This should help minimize the burning during a period of reduced vertical mixing. Earlier "fires-out" times will often be designated by DEQ as conditions warrant.

A minimum mixing height of 4000 feet is specified for allowing burning of south priority acreages, replacing the previous value of 3500 feet. Since, in general, these acreages are burned under north winds, reductions in smoke impact on the Eugene-Springfield area are expected. This additional limitation will also eliminate some burning periods when compared to previous seasons and may therefore result in reductions in acreage burned.

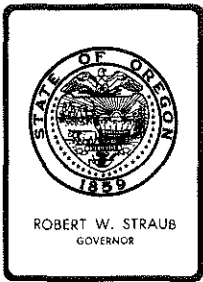
Although not addressed in rules, the DEQ will conduct smoke management training sessions this spring in an effort to better inform growers and fire districts of techniques and practices most effective in reducing field smoke effects.



SIP REVISION SCHEDULE

1. Nonattainment area: Eugene AQMA
2. Pollutant: Particulate (Primary)

	<u>Schedule</u>	<u>Date to be Completed</u>
3.	Complete Emission Inventory	Done
4.	Develop draft control strategy revisions, including regulations for traditional sources and schedules to develop legally enforceable procedures for nontraditional sources.	December 1, 1979
5.	Submit draft control strategy to EPA	January 1, 1979
6.	Hold Public Hearing	February 1, 1979
7.	Adopt revisions	March 1, 1979
8.	Submit to EPA	April 1, 1979



## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item 1, March 31, 1978 EQC Meeting

#### Adoption of Rules to Amend Oregon's Clean Air Act Implementation Plan Involving Particulate Control Strategy for the Medford-Ashland AQMA

### Background

At the February 24, 1978 meeting, the EQC deferred adoption of particulate control strategy rules for the Medford-Ashland AQMA. This postponement was made to allow time to consider recent and strenuous objections from industry on requirements to control particleboard dryers and provide control equipment on veneer dryers which would be upgradable to approximately 85% collection efficiency.

### Evaluation

The Department has maintained that the rules should be adopted as proposed in order to provide some margin of safety and room for growth and to keep the most viable options open for further control. These options may be needed in the immediate future as a substitute for failure to implement a required strategy or to accommodate desirable growth and development or proposed modifications to existing industries.

Review of recent air quality data and consideration of several recent requests by local companies to modify their operations along with several new potential industrial inquiries greatly reinforces the need to consider the growth implication of the control strategy rules that may be adopted. Before considering the above items in detail it should be pointed out that in the case of proposed particleboard dryer rules, pilot plant testing by International Paper has indicated a wet-ESP can reach collection efficiencies of greater than 99% on a gas stream typical of particle dryers. This indicates great promise for meeting the proposed requirements. Waiting to adopt this rule until the EPA study on particleboard dryers is completed will not settle the issue on whether dryers can meet the proposed rules. The EPA study will gather base data for use in selecting and operating appropriate pilot units. Only when pilot tests are completed will the information necessary to technically judge whether the proposed rule can be met be available.



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In the case of the veneer dryer control upgradable requirement, industry has indicated they would be satisfied if the requirement was just limited to "providing upgradable equipment" without specifying to what degree they should be upgradable. The Department views industries suggestions as equivalent to no upgradable requirement as all control equipment is upgradable to some degree. Without a specific guideline defining degree of upgradability, the Department would have to approve all equipment proposed including equipment which may not be upgradable to that currently demonstrated by state-of-the-art equipment-like mist eliminators.

Recent information makes the consideration of the growth element of the control strategy extremely critical in terms of effectiveness of the strategy and accommodation of requested changes in several local industrial processes.

A complete summary of particulate air quality data is shown below:

Particulate Summary

<u>Station</u>	<u>Year</u>	<u>Annual geometric mean (ug/m<sup>3</sup>)</u>
Medford Courthouse	1970	76.7
	1971	78.9
	1972	83.4
	1973	69.9
	1974	78.9
	1975	71.7
	1976	103.2
	1977	88.8
Federal Primary (Health) Standard		75
Federal Secondary (Welfare) Standard		60

The proposed control strategy was based on a 1976 projected air quality level of 72 ug/m<sup>3</sup>. The above table shows extremely abnormally high actual levels in 1976 and 1977. The 1976 high data can be attributed to a great extent to the 100 year drought and associated poor ventilation and high dust levels. The cause of the 1977 high levels is unknown. If in fact actual particulate air quality has permanently worsened, it would appear that the proposed control strategy, even with some built in growth, would not meet standards. Of most alarm is the fact that Federal health standards were exceeded in 1976 and 1977.

Compounding the possible worsening air quality is the fact that there are several recently proposed industrial developments which collectively could not all be approved even if the entire growth element on the proposed strategy were available. These are listed below.

Source	Proposal	Estimated Emission Increase (Ton/yr)	Approx. Growth Use
Existing plant	Convert gas fired veneer dryer to wood combustion	35	50%

Source	Proposal	Estimated Emission Increase (Ton/yr)	Approx. Growth Use
Existing Plant	Add new dryer	25	35%
Existing plant	Consolidate operations from around state in Medford	?	?
New plant	Battery plant	50	33%
New plant	Rockwool insulation	50	33%
New plant	Roofing plant	2	2%

Other conversions of existing veneer dryers to wood waste combustion also appear likely in the near future because of the energy savings involved.

#### Alternatives

Alternatives which should be considered in responding to the problems cited include:

1. Adopt Rules as Originally Proposed

This should provide an acceptable strategy to EPA, provide some small theoretical room for growth, keep a most viable option open for further control. This would allow some new emissions in the airshed as a debit against growth allocation and could result in worse air quality if in fact there really is no actual growth in the plan because of unexplained permanent worsening in air quality.

2. Adopt Rules as Originally Proposed Without Upgrade

Same as 1. except no readily viable options would be available for further control if needed.

3. Adopt Rules as Proposed but Delete Veneer Dryer Control Upgrade and Postpone Particleboard Control Program.

Strategy would not theoretically provide for attainment and therefore would likely be rejected by EPA. If acceptable strategy is not adopted by EPA by July 1, 1979, then all major growth would be prohibited by EPA.

4. Adopt Rules as Proposed Except Require State-of-Art Control for Veneer Dryers and Drop Particleboard Rules

This would provide sufficient air quality improvements to theoretically attain standards while satisfying present industrial objections to rules. This would be a more cost effective measure than 1. and 2. and would not be as technology forcing type requirement. This would be a significant change from existing proposed rules and likely warrant consideration by the Advisory Committee and new rule hearings. This process could take another 3 - 6 months before rules are adopted.

5. Adopt More Stringent Rules

Controlling all cyclones with baghouses, requiring baghouses on wood-fired boilers and requiring 85% control on veneer dryers would bring all these sources to what might be considered state-of-the-art. This would provide maximum assurance of attaining air quality standards and provide maximum flexibility to accommodate growth. The timing problem mentioned in 4. would occur and the economic impact on local industry would be about 3 times greater than presently proposed rules would impose.

6. Adopt Rules as Proposed and Adopt a Permanent Trade-Off Policy

This would prevent worsening of air quality due to growth since any growth would be required to obtain trade-offs. This proposal could have least economic impact of any of the alternatives which would have to be adopted to allow a reasonable amount of growth. Maintaining veneer dryer control upgrade requirement would keep a viable option open for use as a trade-off on a site by site basis.

Of all the alternatives, the last appears to be the most feasible to implement in the short run to provide room for growth and insure that new air shed emissions don't worsen an already very severe and possibly worsening problem. A similar situation faced in the Portland area a few years ago was handled in a similar manner. Alternative 5 is probably most desirable from an air quality management standpoint, but it would take several months to adopt and likely will raise great objections from an economic standpoint.

Summation

1. If industry objections on upgrading requirements for veneer dryers and control requirements for particle dryers are satisfied in the Medford Control Strategy Rules, growth potential for new and existing industry in the AQMA would almost immediately be totally curtailed.
2. The growth margin built into the proposed control strategy now appears inadequate to accommodate several recent proposals from existing industries to modify their operations or accommodate several new industries considering location in the AQMA.
3. Recent total suspended particulate monitoring data shows levels over the last two years significantly higher than levels over the previous 5 years. This raises concern that the small growth and margin of safety factor built into the proposed control strategy may be non-existent.
4. Alternatives to problems identified above include:
  - a) Adopting the proposed control strategy less the specific veneer dryer upgrading requirement and accepting essentially a no growth condition for new and existing industry.
  - b) Adopt tighter rules than originally proposed which will allow for greater margin of safety and growth.
  - c) Adopt rules as proposed and proceed to immediately develop permanent trade-off rules.

5. While modifying the proposed control strategy to provide for a significant amount of safety margin and room for growth may be the most desirable alternative, it appears from a practicable implementation time standpoint that development of a trade-off rule would be the most acceptable solution to maintain progress towards improving air quality without substantially adversely restricting existing and new growth and development.

Director's Recommendation

It is the Director's recommendation that the EQC adopt the rules as proposed at the February 24, 1978 meeting and direct the Department to develop a permanent emission trade-off rule for the AQMA as expeditiously as practicable.

*Bill*

Director

JFKowalczyk:h  
229-6459

Attachments:  
Specific Air Pollution Control Rules for  
the Medford-Ashland Air Quality Maintenance Area

DIVISION 30\*  
SPECIFIC AIR POLLUTION CONTROL RULES FOR THE  
MEDFORD-ASHLAND AIR QUALITY MAINTENANCE AREA

PURPOSES AND APPLICATION

340-30-005 The rules in this Division shall apply in the Medford-Ashland Air Quality Maintenance Area (AQMA). The purpose of these rules is to deal specifically with the unique air quality control needs of the Medford-Ashland AQMA. These rules shall apply in addition to all other rules of the Environmental Quality Commission. The adoption of these rules shall not, in any way, affect the applicability in the Medford-Ashland AQMA of all other rules of the Environmental Quality Commission and the latter shall remain in full force and effect, except as expressly provided otherwise. In cases of apparent [duplication] conflict, the most stringent rule shall apply.

DEFINITIONS

340-30-010 As used in these rules, and unless otherwise required by context:

(1) "Medford-Ashland Air Quality Maintenance Area" is defined as beginning at a point approximately one mile NE of the town of Eagle Point, Jackson County, Oregon, at the NE corner of Section 36, T35S, R1W; thence South along the Willamette Meridian to the SE corner of Section 25, T37S, R1W; thence SE along a line to the SE corner of Section 9, T39S, R2E; thence SSE to the SE corner of Section 22, T39S, R2E; thence South to the SE corner of Section 27, T39S, R2E; thence SW to the SE corner of Section 33, T39S, R2E; thence West to the SW corner of Section 31, T39S, R2E; thence NW to the NW corner of Section 36, T39S, R1E; thence West to the SW corner of Section 26, T29S, R1E; thence NW along a line to the SE corner of Section 7, T39S, R1E; thence West to the SW corner of Section 12, T39S, R1W; thence NW along a line to the SW corner of Section 20, T39S, R1W; thence West to the SW corner of Section 24, T38S, R2W; thence NW along a line to the SW corner of

\* These proposed rules include modifications to those proposed rules which were the subject of a public hearing in Medford on December 16, 1977. Portions of those proposed rules which have been deleted are enclosed by brackets and additions have been underlined.

Section 4, T38S, R2W; thence West to the SW corner of Section 5, T38S, R2W; thence NW along a line to the SW corner of Section 31, T37S, R2W, thence North along a line to the Rogue River, thence North and East along the Rogue River to the North boundary of Section 32, T35S, R1W; thence East along a line to the point of beginning.

(2) "Charcoal Producing" Plant means an industrial operation which uses the destructive distillation of wood to obtain the fixed carbon in the wood.

(3) "Air Conveying System" means an air moving device, such as a fan or blower, associated ductwork, and a cyclone or other collection device, the purpose of which is to move material from one point to another by entrainment in a moving airstream.

(4) "Particulate Matter" means any matter, except uncombined water, which exists as a liquid or solid at standard conditions.

(5) "Standard Conditions" means a temperature of 60° Fahrenheit (15.6° Celsius) and a pressure of 14.7 pounds per square inch absolute (1.03 Kilograms per square centimeter).

(6) "Wood Waste Boiler" means equipment which uses indirect heat transfer from the products of combustion of wood waste to provide heat or power.

(7) "Veneer Dryer" means equipment in which veneer is dried.

(8) "Wigwam Waste Burner" [is defined in Section 340-25-005(4).] means a burner which consists of a single combustion chamber, has the general features of a truncated cone, and is used for the incineration of wastes.

(9) "Collection Efficiency" means the overall performance of the air cleaning device in terms of ratio of weight of material collected to total weight of input to the collector.

(10) "Domestic Waste" means combustible household waste, other than wet garbage, such as paper, cardboard, leaves, yard clippings, wood or similar materials generated in a dwelling housing four (4) families or less, or on the real property on which the dwelling is situated.

(11) "Open Burning" means burning conducted in such a manner that combustion air and combustion products may not be effectively controlled including, but not limited to, burning conducted in open outdoor fires, burn barrels, and backyard incinerators.

(12) "Dry Standard Cubic Foot" means the amount of gas that would occupy a volume of one cubic foot, if the gas were free of uncombined water at standard conditions.



#### WOOD WASTE BOILERS

340-30-015 No person shall cause or permit the emission of particulate matter from any wood waste boiler with a heat input greater than [15] 35 million BTU/hr in excess of 0.050 grain per dry standard cubic foot (1.14 grams per cubic meter) of exhaust gas, corrected to 12 percent carbon dioxide, [as an annual average or 0.10 grains per standard cubic foot of exhaust gas corrected to 12 percent carbon dioxide as a two hour average test. Control equipment shall be installed to meet a design criteria of 0.05 grains per standard cubic foot corrected to 12 percent carbon dioxide. The equipment shall demonstrate capability to meet their design level during the startup phase of operation.] as an annual average.

#### VENEER DRYERS

340-30-020 No person shall cause or permit any veneer dryer to violate the rules of Section 340-25-315(1) except that, for the purposes of this Section, subsection 340-25-315(1)(c) shall become applicable on [April 1, 1978] June 1, 1978. In addition, air pollution control equipment installed to meet the opacity requirements of Section 340-25-315(1) shall be designed such that the particulate collection efficiency can be practicably upgraded [to approximately 85 percent over uncontrolled emissions.] to emission control performance level presently demonstrated by a wet scrubber in series with a fiber bed mist eliminator or a catalytic afterburner operating at 600°F (316°C) or equivalent.

[NOTE: Section 340-25-315(1) is the veneer dryer rule which has been in effect in areas of the state outside of special problem areas. It is attached to these proposed rules for reference.]

#### AIR CONVEYING SYSTEMS

340-30-025 All air conveying systems emitting greater than 10 tons per year of particulate matter to the atmosphere at the time of adoption of these rules shall, with the prior written approval of the Department, be equipped with a control system with collection efficiency [equivalent to that of a bag filter] of at least 98.5 percent.

#### WOOD PARTICLE DRYERS AT HARDBOARD AND PARTICLEBOARD PLANTS

340-30-030 No person shall cause or permit the total emission of particulate matter from all wood particle dryers at a plant site to exceed 0.35 pounds per 1,000 square feet of board produced by the plant on a 3/4" basis as an annual average.

#### WIGWAM WASTE BURNERS

340-30-035 No person shall cause or permit the operation of any wigwam burner, except for [an emergency condition when operation is authorized in writing by the Director of the Department] short-term conditions when disposal of plant waste by other methods is extremely impracticable and operation is authorized in writing by the Director of the Department.

#### CHARCOAL PRODUCING PLANTS

340-30-040(1) No person shall cause or permit the emission of particulate matter from charcoal producing plant sources including, but not limited to, charcoal furnaces, heat recovery boilers and wood dryers using any portion of the charcoal furnace off-gases as a heat source, in excess of a total from all sources within the plant site of 10.0 pounds per ton of charcoal produced (5.0 grams per Kilogram of charcoal produced) as an annual average.

(2) Emissions from char storage, briquet making, boilers not using charcoal furnace off-gases, and fugitive sources are excluded in determining compliance with subsection (1).

(3) Charcoal producing plants as described in (1) above shall be exempt from the limitations of 340-21-030(1) and (2) and 340-21-040 which concern particulate emission concentrations and process weight.

#### COMPLIANCE SCHEDULES

340-30-045 The person responsible for an existing emission source subject to 340-30-015 through 340-30-040 shall proceed promptly with a program to comply as soon as practicable with these rules. A proposed program and implementation plan shall be submitted no later than [April 1, 1978] June 1, 1978, for each emission source to the Department for review and written approval. The Department shall within 45 days of receipt of a complete proposed program and implementation plan, notify the person concerned as to whether or not it is acceptable.

The Department shall establish a schedule of compliance, including increments of progress, for each affected emission source. Each schedule shall include the dates, as soon as practicable, by which compliance shall be achieved, but in no case shall full compliance be later than the following dates:

- (a) Wood Waste Boilers shall comply with Section 340-30-015 as soon as practicable, in accordance with approved compliance schedules, but by no later than January 1, 1980.
- (b) Veneer Dryers shall comply with Section 340-30-020 as soon as practicable, in accordance with approved compliance schedules, but by no later than January 1, 1980.
- (c) Air Conveying System shall comply with Section 340-30-025 as soon as practicable, in accordance with approved compliance schedules, by not later than January 1, 1981.
- (d) Wood Particle Dryers at Hardboard and Particleboard Plants shall comply with Section 340-30-030 as soon as practicable, in accordance with approved compliance schedules, but by no later than January 1, 1981.
- (e) Wigwam Waste Burners shall comply with Section 340-30-035 as soon as practicable, in accordance with approved compliance schedules, but by no later than [January 1, 1979] January 1, 1980.
- (f) Charcoal Producing Plants shall comply with Section 340-30-040 as soon as practicable, in accordance with approved compliance schedules, but by no later than January 1, 1982.

Compliance schedule for Charcoal Producing Plants and Wood Particle Dryers at Hardboard and Particleboard Plants shall contain reasonably expeditious interim dates and pilot testing programs for control to meet the emission limits in 340-30-040(1) and 340-30-030, respectively. If pilot testing and cost analysis indicates that meeting the emission limits of these rules may be impractical, a public hearing shall be held no later than July 1, 1980, for Charcoal Producing Plants and January 1, 1980, for Wood Particle Dryers at Hardboard and Particleboard Plants to consider amendments to this limit.

#### CONTINUOUS MONITORING

340-30-050 The Department may require the installation and operation of instruments and recorders for measuring emissions and/or the parameters which affect the emission of air contaminants from sources covered by these rules to ensure that the sources and the air pollution control equipment are operated at all times at their full efficiency and effectiveness so

that the emission of air contaminants is kept at the lowest practicable level. The instruments and recorders shall be periodically calibrated. The method and frequency of calibration shall be approved in writing by the Department. The recorded information shall be kept for a period of at least one year and shall be made available to the Department upon request.

SOURCE TESTING

340-30-055 The person responsible for the following sources of particulate emissions shall make or have made tests to determine the type, quantity, quality and duration of emissions, and/or process parameters affecting emissions, in conformance with test methods on file with the Department at the following frequencies:

<u>Source</u>	<u>Test Frequency</u>
Wood Waste Boilers	Once every year*
Veneer Dryers	[Once every 3 years] <u>Once every year until</u> <u>January 1, 1983 and once</u> <u>every 3 years thereafter</u>
Wood Particle Dryers at Hardboard and Particleboard Plants	[Once every 2 years] <u>Once every year</u>
Charcoal Producing Plants	Once every [year] <u>year*</u>

[\* If this test exceeds 0.05 grains/scf at 12 percent CO<sub>2</sub> then 3 additional tests shall be required at 3 month intervals with all four tests being averaged to determine compliance with the annual standard.]

\* If this test exceeds the annual emission limitation then three (3) additional tests shall be required at three (3) month intervals with all four (4) tests being averaged to determine compliance with the annual standard. No single test shall be greater than twice the annual average emission limitation for that source.

Source testing shall begin at these frequencies within 90 days of the date by which compliance is to be achieved for each individual emission source.

These source testing requirements shall remain in effect unless waived in writing by the Department because of adequate demonstration that the source is consistently operating at lowest practicable levels.

Source tests on wood waste boilers shall not be performed during periods of soot blowing, grate cleaning or other operating conditions which may result in temporary excursions from normal.

Source tests shall be performed within 90 days of the startup of air pollution control systems.

#### TOTAL PLANT SITE EMISSIONS

340-30-060 The Department shall have the authority to limit the total amount of particulate matter emitted from a plant site, consistent with requirements in these rules. Such limitation will be applied, where necessary, to ensure that ambient air quality standards are not caused to be exceeded by the plant site emissions and that plant site emissions are kept to lowest practicable levels.

#### NEW SOURCES

340-30-065 New sources shall be required to comply with [these rules] Sections 340-30-015 through 340-30-040 immediately upon initiation of operation.

#### OPEN BURNING

340-30-070 No open burning of domestic waste shall be initiated on any day or at any time when the Department advises fire permit issuing agencies that open burning is not allowed because of adverse meteorological or air quality conditions.

Board Products Industries  
(Veneer, Plywood, Particleboard, Hardboard)

Hist: Filed 3-31-71 as DEQ 26,  
Eff. 4-25-71  
Amended by DEQ 132,  
Filed and Eff. 4-11-77

### Definitions

340-25-305 (1) "Department" means Department of Environmental Quality.

(2) "Emission" means a release into the outdoor atmosphere of air contaminants.

(3) "Hardboard" means a flat panel made from wood that has been reduced to basic wood fibers and bonded by adhesive properties under pressure.

(4) "Operations" includes plant, mill, or facility.

(5) "Particleboard" means matformed flat panels consisting of wood particles bonded together with synthetic resin or other suitable binder.

(6) "Person" means the same as ORS 468.005(5).

(7) "Plywood" means a flat panel built generally of an odd number of thin sheets of veneers of wood in which the grain direction of each ply or layer is at right angles to the one adjacent to it.

(8) "Tempering oven" means any facility used to bake hardboard following an oil treatment process.

(9) "Veneer" means a single flat panel of wood not exceeding 1/4 inch in thickness formed by slicing or peeling from a log.

(10) "Opacity" is defined by section 340-21-005(4).

(11) "Visual opacity determination" consists of a minimum of 25 opacity readings recorded every 15 to 30 seconds and taken by a trained observer.

(12) "Opacity readings" are the individual readings which comprise a visual opacity determination.

(13) "Fugitive emissions" are defined by section 340-21-050(1).

(14) "Special problem area" means the formally designated Portland, Eugene-Springfield, and Medford AQMA's and other specifically defined areas that the Environmental Quality Commission may formally designate in the future. The purpose of such designation will be to assign more stringent emission limits as may be necessary to attain and maintain ambient air standards or to protect the public health or welfare.

Statutory Authority: ORS 468.295

### General Provisions

340-25-310 (1) These regulations establish minimum performance and emission standards for veneer, plywood, particleboard, and hardboard manufacturing operations.

(2) Emission limitations established herein are in addition to, and not in lieu of, general emission standards for visible emissions, fuel burning equipment, and refuse burning equipment, except as provided for in section 340-25-315.

(3) Emission limitations established herein and stated in terms of pounds per 1000 square feet of production shall be computed on an hourly basis using the maximum 8 hour production capacity of the plant.

(4) Upon adoption of these regulations, each affected veneer, plywood, particleboard, and hardboard plant shall proceed with a progressive and timely program of air pollution control, applying the highest and best practicable treatment and control currently available. Each plant shall at the request of the Department submit periodic reports in such form and frequency as directed to demonstrate the progress being made toward full compliance with these regulations.

Statutory Authority: ORS 468.295

Hist: Filed 3-31-71 as DEQ 26,  
Eff. 4-25-71  
Amended by DEQ 132,  
Filed and Eff. 4-11-77

### Veneer and Plywood Manufacturing Operations

340-25-315 (1) Veneer Dryers:

(a) Consistent with section 340-25-310(1) through (4), it is the objective of this section to control air contaminant emissions, including, but not limited to, condensable hydrocarbons such that visible emissions from each veneer dryer located outside special problem areas are limited to a level which does not cause a characteristic "blue haze" to be observable.

(b) No person shall operate any veneer dryer outside a special problem area such that visible air contaminants emitted from

any dryer stack or emission point exceed:

- (A) A design opacity of 10%,
- (B) An average operating opacity of 10%, and
- (C) A maximum opacity of 20%.

Where the presence of uncombined water is the only reason for the failure to meet the above requirements, said requirements shall not apply.

(c) After July 1, 1977, no person shall operate a veneer dryer located outside a special problem area unless:

(A) The owner or operator has submitted a program and time schedule for installing an emission control system which has been approved in writing by the Department as being capable of complying with subsection 340-25-315(1)(b)(A), (B), and (C),

(B) The veneer dryer is equipped with an emission control system which has been approved in writing by the Department and is capable of complying with subsection 340-25-315(1)(b), (B) and (C), or

(C) The owner or operator has demonstrated and the Department has agreed in writing that the dryer is capable of being operated and is operated in continuous compliance with subsection 340-25-315(1)(b)(B) and (C).

(d) Each veneer dryer shall be maintained and operated at all times such that air contaminant generating processes and all contaminant control equipment shall be at full efficiency and effectiveness so that the emission of air contaminants are kept at the lowest practicable levels.

(e) No person shall willfully cause or permit the installation or use of any means, such as dilution, which, without resulting in a reduction in the total amount of air contaminants emitted, conceals an emission which would otherwise violate this rule.

(f) Where effective measures are not taken to minimize fugitive emissions, the Department may require that the equipment or structures in which processing, handling, and storage are done, be tightly closed, modified, or operated in such a way that air contaminants are minimized, controlled, or removed before discharge to the open air.

(g) The Department may require more restrictive emission limits than provided in section 340-25-315(1)(b) for an individual

plant upon a finding by the Commission that the individual plant is located or is proposed to be located in a special problem area. The more restrictive emission limits for special problem areas may be established on the basis of allowable emissions expressed in opacity, pounds per hour, or total maximum daily emissions to the atmosphere, or a combination thereof.

(2) Other Emission Sources:

(a) No person shall cause to be emitted particulate matter from veneer and plywood mill sources, including, but not limited to, sanding machines, saws, presses, barkers, hogs, chippers, and other material size reduction equipment, process or space ventilation systems, and truck loading and unloading facilities in excess of a total from all sources within the plant site of one (1.0) pound per 1000 square feet of plywood or veneer production on a 3/8 inch basis of finished product equivalent.

(b) Excepted from subsection (a) are veneer dryers, fuel burning equipment, and refuse burning equipment.

(3) Monitoring and Reporting: The Department may require any veneer dryer facility to establish an effective program for monitoring the visible air contaminant emissions from each veneer dryer emission point. The program shall be subject to review and approval by the Department and shall consist of the following:

(a) A specified minimum frequency for performing visual opacity determinations on each veneer dryer emission point;

(b) All data obtained shall be recorded on copies of a "Veneer Dryer Visual Emissions Monitoring Form" which shall be provided by the Department of Environmental Quality or on an alternative form which is approved by the Department; and

(c) A specified period during which all records shall be maintained at the mill site for inspection by authorized representatives of the Department.

Statutory Authority: ORS 468.295

Hist: Filed 3-31-71 as DEQ 26,

Eff. 4-25-71

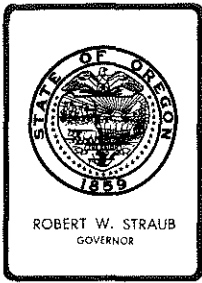
Amended 2-15-72 by DEQ 37,

Eff. 3-1-72

Amended by DEQ 43(Temp),

Filed and Eff. 5-5-72 through

9-1-72



## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. J, March 31, 1978, EQC Meeting

### Proposed Adoption of Rules Controlling Emissions from Crude Oil Tankers Calling on Oregon Ports

#### Background

The Environmental Quality Commission heard oral testimony and saw written comments on a proposed Crude Oil Tanker Rule at its February 24, 1978 meeting. The comments were mostly adverse and were comprehensive; therefore, passage of a rule was deferred to this meeting so that the staff could respond to the adverse comments.

The Commission approved permits for the proposed GATX crude oil transfer terminal at the February meeting. The commission will now decide whether or not to mitigate the associated air contaminants from tankers calling at the terminal.

#### Evaluation

##### U.S. Coast Guard

The Coast Guard pointed out that Federal rules required the use of segregated ballast and inerting systems. They also observed that limiting un-segregated ballast to 25% could be unrealistic as some vessels may require more for safe navigation.

In response to these objections the staff dropped all inerting restrictions from the rules. Inerting, if available, will not expel pollutants as ordinarily used when tankers are off-loaded at Port Westward. The staff considered modifying the ballasting limit to 35%, specifically exempting segregated ballasting from the rule, and allowing the Coast Guard to declare emergency sea conditions so that ballasting over 35% would be allowed. This sort of change would really permit all ballasting. The Department, instead, recommends limiting ballast to 35% of deadweight tonnage. If more ballast is needed, hydrocarbon emissions would have to be captured or destroyed with 90% efficiency. Segregated ballast is exempted by the rule. This form of the rule would exclude very few tankers; most can conform to this operating restriction without the need for added equipment. On the other hand, this rule specifically puts a limit on the amount of hydrocarbon emissions from this new source.



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### Port of Portland

The Port of Portland pointed out that vessels first unloading at Port Westward could secondly steam up the river to a Portland shipyard for overhaul. Shipyards require tankers to be purged of hydrocarbon vapors before being worked on. Language allowing this required purging was added to the rule, but requires the tanker to disperse the vapors by purging when in transit.

### Western Oil and Gas Association

Mr. Robert K. Wrede, representing Western Oil and Gas Association, presented industry's comprehensive objections to the tanker rule. Letters from West Coast Shipping Company and Shell Oil Company raised some of the same objections.

Jurisdiction--Mr. Wrede claims that Oregon does not have jurisdiction over tankers. In reply, the rules proposed attempt to limit only the major pollutants entering Oregon jurisdiction from the tankers. The clauses referring to tanker operations are merely meant as practical methods for limiting pollutants which the State of Oregon would find acceptable. If tanker crewmen enter Oregon jurisdiction, leaving the tanker, they must obey Oregon law. In like manner, it is proposed that when sulfur oxides leave the tanker and enter an Oregon airshed, that they not exceed a concentration of 1000 ppm, which is achieved by limiting the sulfur in the fuel to 1.75%; this is the present rule for stationary sources. When vessels, foreign or domestic, have emitted black smoke exceeding opacity rules, these vessels have been issued violations, and some fined. Such fines have been paid. In Puget Sound, one fine was appealed to the State Pollution Control Hearings Board. The Board made the Japan Line pay the fine. Therefore, the staff contends, after reviewing the matter with the Oregon Attorney General's Office, that air pollution from tankers is subject to Oregon rules when it enters the airshed of Oregon. This opinion is based on statements in the recent Supreme Court's Washington vs Arco ruling where a reference to the Huron Portland Cement Co. vs City of Detroit recognizes a local government's right to regulate air contaminant emissions from vessels in interstate commerce.

### Need for Rules--Severity of Air Pollution

Mr. Wrede questioned the staff's contention that tankers cause a severe enough pollution problem to need control.

Current staff computations, based on conditions as shown, have SO<sub>x</sub> emissions as follows:

<u>Conditions</u>	<u>Worst Case Emissions</u>	<u>Most Probable Emissions</u>
Crude Oil Through-Put	17,625,000 $\frac{\text{BBL}}{\text{YR}}$	11,750,000 $\frac{\text{BBL}}{\text{YR}}$
% Sulfur in Tanker Fuel	3.2%	1.75%
<u>Pollutants Emitted from Tankers</u>		
SO <sub>x</sub> at Port Westward	137 Tons/yr	50 Tons/yr
SO <sub>x</sub> at Lower Columbia	48 Tons/yr	18 Tons/yr

It is important to note that the uncontrolled sulfur oxides emissions at Port Westward exceed 100 tons/year if the maximum through-put is used. Emissions of over 100 tons of SO<sub>x</sub> per year require Federal review for Prevention of Significant Deterioration (PSD). The staff is proposing imposition of the 1.75% limit in fuel oil to limit emissions to below the 100 ton/yr break point. Federal guidelines in computation for PSD require use of the maximum permitted through-put in the computation.

The current staff computations have hydrocarbon (HC) emissions as follows:

<u>Pollutants Emitted from Tankers calling at Port Westward</u>	<u>Worst Case Emissions</u>	<u>Most Probable Emissions</u>
HC at Port Westward	350 Tons/yr	65 Tons/yr
HC at Lower Columbia	101 Tons/yr	70 Tons/yr

The federal New Source Review rules affect HC sources emitting at over 250 tons/yr or over a guideline of 2500 lbs/day of HC. While the most probable emissions of 65 tons/yr fall below this value, the most probable emission of 4000 lbs/day is above the guideline. Therefore, the staff proposes reasonably available control strategy to control or disperse these emissions; namely, the control of purging, venting, gas freeing, or tank washing.

The point is that by restricting emissions to a minor source rate, the Department has assured that no adverse air quality impact will occur. At higher rates problems could occur although an extensive modeling analysis would be needed to confirm or deny this. The Department has foregone the lengthy analysis approach in order to process the permits as expeditiously as possible.

The proposed rule is similar to a Model Rule for Controlling Emissions from Lightering Operations, passed by the California Air Resources Board on November 21, 1977. The current proposed revision of that rule still limits the per cent sulfur in the fuel oil (part b) and requires control of organic vapor emissions (part c). The model rule has not yet been adopted for implementation by any Coastal Control District, but those districts from San Francisco to San Diego are in the process of studying the model rule for adoption.

The airshed into which crude oil tankers will be discharging their SO<sub>x</sub> and HC has considerable restrictions on it. Immediately west of the proposed GATX terminal is Portland General Electric's combined cycle combustion turbine 583 MW generating facility, known as the Beaver generating plant. Condition 7.b. of the Beaver plant's air contaminant discharge permit limits the distillate or crude oil fuel to 0.3% sulfur maximum. Condition 7.c. of the Beaver plant's permit requires it to cease operation if SO<sub>x</sub> ambient air standards are violated at the Beaver or Oak Point sampling stations. Other sources of SO<sub>x</sub> in the vicinity are the pulp mills at Wauna and Longview, which also have emission limits.

The Beaver turbine plant emits more nitrogen oxides than SO<sub>x</sub>. These nitrogen oxides can combine with HC emitted from the tankers, and, in the presence of sunlight, form photochemical oxidants. The oxidant standard is being violated in Portland, which is downwind from Port Westward during the oxidant season. Therefore the Department must minimize any new, large, concentrated source of HC in this airshed.

#### West Coast Shipping Company et al

West Coast Shipping Company objected to the higher cost of low sulfur fuel oil. Mr. Wrede conjectured that some tankers would have to add separate fuel tanks dedicated to low sulfur fuel. In a March 6 phone call, Bruce Frolich of Chevron Shipping Company pointed out that low sulfur fuel oil is unavailable at certain foreign ports where crude oil is loaded; he asked exemption for incoming foreign vessels until they could take on low sulfur fuel at Port Westward from a barge dispatched from Portland.

Low sulfur fuel oil is available in Portland. It is also available in California ports, and with the promulgation of their lightering rule, it will become more common. It may be possible for tankers to burn their cargo if it is below the sulfur limit; the gas turbines owned by Portland General Electric at Port Westward have this capability. The increased cost and logistical effort to secure supplies of low sulfur fuel oil is simply a requirement to enable the tankers calling at Port Westward to adequately control their sulfur dioxide emissions.

#### Summation

1. The staff has modified the ballasting and inerting restrictions objected to by the U.S. Coast Guard.
2. The purging required by shipyards has been specifically allowed.
3. By precedents in enforcing opacity rules, the staff and Attorney General believe Oregon has jurisdiction over air contaminant emissions from tankers.
4. Without a tanker rule, SO<sub>x</sub> emissions from the proposed tanker traffic at Port Westward would cause the project to be subject to federal Prevention of Significant Deterioration rules, although an extensive analysis would be needed to quantify the severity of their impact.

5. The additional cost of using low sulfur oil should not be prohibitive, and it appears low sulfur fuel restrictions will be becoming a universal requirement in West Coast ports in the near future.
6. In order for GATX to build its proposed crude oil transfer terminal at Port Westward, either adequate control of tanker emissions must be assured or an extensive air contaminant impact analysis must be made to demonstrate no adverse effects on local air quality. Because the impact analysis has not been done, the Department recommends the attached tanker rule to limit tanker emissions.

Director's Recommendation

It is recommended that the Commission adopt the attached crude oil tanker rule as modified, OAR 340-22-075, -080, -085, -090, and -095.



WILLIAM H. YOUNG

P. B. Bosserman:as  
229-6278  
March 22, 1978  
Attachment: Proposed Rule

(Additions to February 10 rule draft underlined, deletions bracketed.)

## ADDITION TO DIVISION 22

## Crude Oil Tankers

Definitions 340-22-075. As used in these rules, unless otherwise required by context:

- (1) "Crude Oil Tanker" means any vessel, which is carrying crude oil, exceeding 10,000 deadweight tons. It includes large barges and lighters, exceeding 10,000 deadweight tons, which carry crude oil.

Fuel Oil Sulfur Content 340-22-080.

- (1) After October 1, 1978, no crude oil tanker within the jurisdiction of Oregon for a purpose of discharging or taking on crude oil at a crude oil trans-shipping terminal, or of leaving such jurisdiction thereafter, shall burn fuel oil containing more than 1.75 percent sulfur by weight.
- (2) If emission controls or a process (such as a scrubber for SO<sub>2</sub> on an inerting system) is used to reduce sulfur oxides, higher percent sulfur fuel oil may be burned if the resulting emissions are no higher than that which would result from burning 1.75 percent sulfur fuel oil.

Tanker [Inerting] Purging 340-22-085

After October 1, 1978, no crude oil tanker within the jurisdiction of Oregon, for a purpose of discharging or taking on crude oil at a crude oil trans-shipping terminal, or of leaving such jurisdiction thereafter, shall purge, vent, gas free, [inert] or tank wash its cargo tanks when such action emits hydrocarbon vapors. This restriction shall not apply if hydrocarbon emission control is provided which has a collection or destruction efficiency of at least 90 percent. This restriction shall not apply to tankers entering shipyards before leaving the jurisdiction of Oregon, but such tankers shall disperse uncontrolled hydrocarbon emissions by accomplishing the required purging while in transit.

[Tanker Ballasting]

[After October 1, 1978, no crude oil tanker within the jurisdiction of Oregon for a purpose of discharging or taking on crude oil, or of leaving such jurisdiction thereafter, shall take on unsegregated ballast exceeding 25 percent of its dead weight tonnage when such action emits hydrocarbon vapors.]

Tanker Venting from Ballasting 340-22-090

The venting prohibited in 340-22-085 includes venting from unsegregated ballasting; however, tankers may ballast to 35 percent of their deadweight tonnage without collecting or destroying the resulting hydrocarbon emissions; ballasting in excess of 35 percent is not allowed unless the resulting hydrocarbon emissions are 90 percent collected or destroyed.

The taking on of ballast into segregated ballast tanks, which are uncontaminated by crude oil, is not included in or restricted by the rules of Division 22.

Relief Valve Exception 340-22-095

The prohibitions of these rules shall not apply to the release of organic vapors into the atmosphere from tank pressure relief valves resulting from diurnal temperature and pressure changes within tanks, provided such valves are properly installed, maintained, and operated.





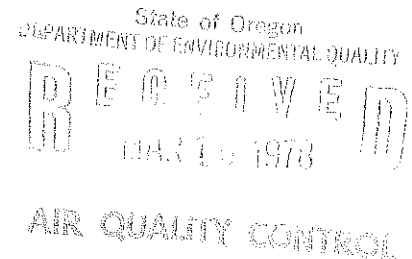
## Chevron Shipping Company

555 Market Street, San Francisco, CA 94105

Mail Address: P.O. Box 3069, San Francisco, CA 94119

March 10, 1978

*P.A.N. 3/16*  
Mr. Peter B. Bosserman  
Associate Engineer  
Air Quality Division  
Department of Environmental Quality  
P. O. Box 1760  
Portland, Oregon 97207



Dear Mr. Bosserman:

At the February 24, 1978 Oregon Department of Environmental Quality hearing, the Western Oil and Gas Association (WOGA) presented testimony opposing adoption of the proposed crude oil tanker regulations. Chevron is a member of WOGA and supports that presentation.

Apparently as a result of that hearing, we have just received modified regulations which we understand are to be considered at a public hearing on March 31. We still consider the earlier WOGA testimony to be equally applicable to these modified proposals. Without again going into the detail on the WOGA presentation covering the overriding need for uniformity and a valid scientific data basis demonstrating a need for regulations, we have listed some of our operational concerns with the specifics of the proposed rules.

- The availability of the fuel sulfur specified as well as the possible extensive vessel fuel system modification required for a vessel to burn such fuel in Oregon are severe problems. As you know vessels trade in many different areas of the United States and worldwide and the bunker fuels available to them do not normally meet proposed Oregon requirements.
- The possible requirement of an unproven, unsafe hydrocarbon emission control device with your stated "destructive efficiency of at least 90%" is unrealistic. The previous testimony on this subject by the U.S. Coast Guard, which is actively involved in this area, has estimated development of such devices for marine use is years away.
- We understand you are continuing to discuss with the U.S. Coast Guard the problems in the proposal to limit ballasting. We, too, are very concerned with any rule that might limit the safe ballasting of a vessel since we are dealing with an area of vessel safety where limited ballasting could result in damage, decreased stability, as well as impaired maneuverability. The implication of such a requirement needs to be thoroughly explored.

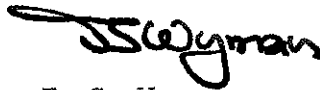


March 10, 1978

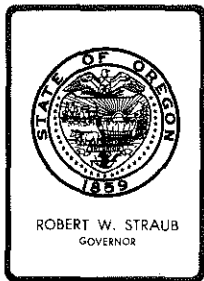
- We interpret the word "transfer" terminal in the proposed regulation to really mean "transshipping" and suggest that such a wording change would be more definitive.

In summary, we share your concern in the environmental areas. However, we believe the best approach in justifying whatever regulations are required to meet ambient air quality standards is on a valid scientific basis and must recognize the need for regulatory uniformity in maritime operations since vessels trade to many different areas. We hope you will seriously reconsider our comments as well as WOGA's in your upcoming hearing.

Sincerely yours,



T. S. Wyman  
Manager, Maritime Relations



## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. L, March 31, 1978, EQC Meeting

King City Sewage Treatment Plant - Consideration of Petition From George and Margaret Benz Regarding Permit to Operate the King City Sewage Treatment Plant

### Background

The Tualatin Development Company (TDC) operates a sewage treatment plant serving King City and the developments of Summerfield, Royal Mobile Villa and El Dorado in Washington County.

The plant operates under NPDES Permit No. 2541-J (Attachment 1) which was recently renewed in January 1977. Since the plants construction in 1964 the permit has been issued and renewed under the condition that it is operated as an interim facility and the use thereof to be terminated and connection made to an approved area-wide sewage system as soon as service is available. In this case, the Unified Sewage Agency (USA) represents the approved area-wide sewage agency.

On March 7, 1978 the Department received the petition (Attachment 2) from Mr. and Mrs. George Benz requesting a public hearing before the EQC and that thereafter an order be issued by the EQC for the cancellation of the TDC permit and closing of the plant. The request is based upon the allegations cited in the petition.

### Evaluation

In its original design the King City STP discharged treated effluent to the small creek adjacent to the plant and which also flows through the Benz property on S.W. 113th, approximately 1/4 mile away.

In 1964 the discharging to small streams was an established practice for many treatment plants. In the early life of this plant and others of similar design many problems were experienced. Many of these plants have been eliminated with the implementation of the USA Master Plan and the construction of the Durham and Rock Creek STPs. Due to the delay in the interceptor which would have eliminated the King City plant and the sensitivity of the residents on the creek, this plant was equipped with pumping equipment and an outfall line to the Tualatin River. An overflow line to the creek was maintained at the plant in the event of malfunctions which could eliminate or reduce the capability of the plant to pump



Contains  
Recycled  
Materials

to the Tualatin River. The permit cites the Tualatin River as the primary receiving stream, however, Condition G4(c), which generally prohibits by-passing, does permit such an occurrence in order to prevent loss of life or severe property damage. Since construction of the outfall line and remodeling of the plant in 1972 discharges to the creek from the plant facilities have occurred and are cited in the attached summary (Attachment 3). These discharges have primarily been due to plant flooding (explanation cited in the enclosed letter (Attachment 4) from the Washington County Public Works Department, dated 3/9/78) and to mechanical malfunctions. The Department does not consider the discharges to be intentional acts to violate. In fact, the plant cannot be mechanically controlled to by-pass and has not discharged since February 10, 1978 when the Royal Mobile Villa pump station malfunctioned.

It must be remembered that this is an interim facility which is scheduled to be eliminated with the construction of the USA Upper Tualatin Interceptor (awaiting federal construction funding; completion projected for the fall of 1979). Because of the limited life of this facility, the Department does not believe major expenditures for plant modification are either warranted nor would they necessarily give full assurances that there would be no further discharges to the creek. Nevertheless, it is the Department's opinion that the potential for future discharges can be minimized. By letter dated 3/3/78 the Tualatin Development Company was requested to provide an auxiliary effluent pump and motor for the STP and warning systems for the pumps and motors at the STP, Royal Mobile Villa and Summerfield pumps station. In the enclosed letter (Attachment 5) dated 3/14/78 Tualatin Development Company submitted copies of the purchase orders for the subject equipment totaling \$4,704. The auxiliary pump will add back-up pumping capabilities should the two existing effluent pumps be damaged during a flood or experience mechanical problems. The warning system will provide 24-hour alerts of mechanical problems. In addition, TDC is in the process of connecting the Summerfield pump station to the USA Durham STP which will result in the removal of 383 hook-ups (approximately 100,000 gal/day) to the King City plant.

#### Summation

1. The Tualatin Development Company operates the King City STP under NPDES Permit No. 2541-J. The plant serves a population of approximately 3,000 people.
2. The Department acknowledges that periodic discharges have occurred to the small creek adjacent to the plant. These discharges which have primarily been treated and disinfected effluent have been due to flooding and equipment malfunction; not intentional acts.
3. The plant is operated as an interim facility under the USA Master Plan and is scheduled to be abandoned upon construction of the Upper Tualatin Interceptor.

3/21/78

Page 3

4. Being an interim facility, expensive modifications are not warranted nor would they necessarily guarantee no discharge. Nevertheless, efforts have been initiated to minimize the potential for future discharges. The staff of USA in a report - King City Waste Treatment Facilities (Attachment 6) - is in agreement that when these improvements are provided and with proper operation and maintenance, future discharges from the STP and pump stations can be avoided.
5. Revocation of the permit and closing of the plant is not the solution. It would have the effect of displacing approximately 3,000 residents, the majority of which are retired. The surest solution is the hook-up of the sewer system to the Upper Tualatin Interceptor and abandonment of the Sewage Treatment Plant.

Director's Recommendation

It is recommended that the Environmental Quality Commission deny the petitioners request to revoke the Tualatin Development Company's NPDES permit and close the plant.

*Bill*

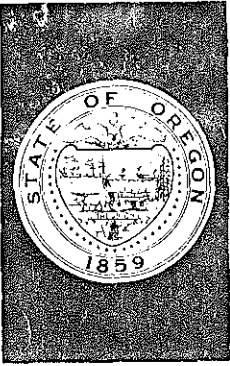
WILLIAM H. YOUNG

Thomas R. Bispham or Robert Gilbert:dc  
(503) 229-5209  
3/21/78

- Attachment 1 - NPDES Permit No. 2541-J
- Attachment 2 - Petition to Cancel Permit
- Attachment 3 - King City Sewage Treatment Plant File, Portland Region
- Attachment 4 - Letter from John F. Crockett to Robert E. Gilbert, dated 3/9/78
- Attachment 5 - Letter from Roy Brown to Thomas R. Bispham, dated 3/14/78
- Attachment 6 - USA, King City Waste Treatment Facilities - Staff Report, dated 3/14/78

*P.A.B.*

ATTACHMENT I



**DEPARTMENT OF ENVIRONMENTAL QUALITY**

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5395

January 19, 1977

Mr. Roy Brown, Vice President  
Tualatin Development Company, Inc.  
15300 S. W. 116th Avenue  
Tigard, Oregon 97223

Dear Mr. Brown:

Re: Waste Discharge Permit  
File No. 46270  
(King City STP)

The Department of Environmental Quality has completed its review of your permit application and the comments received regarding the preliminary draft permit which was mailed to you for review on October 20, 1976 and has issued the attached NPDES Waste Discharge Permit.

In accordance with the requirements of regulations promulgated pursuant to the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) the Environmental Protection Agency has reviewed this NPDES permit and approved its issuance by letter dated January 11, 1977.

This permit will be considered as the final action on permit application number OR-102737-5.

Copies of monitoring report forms will be sent to you by our regional office under separate cover.

You are urged to carefully read the permit and take all possible steps to comply with the conditions contained therein so that our Oregon environment can be preserved. Any questions regarding the permit should be addressed to our Portland Regional Office, 1234 S. W. Morrison Street, Portland, Oregon 97205, telephone 229-5415.

Sincerely,  
Original Signed By  
William H. Young

JAN 19 1977  
WILLIAM H. YOUNG  
Director

CKA:ts  
Attachment

cc: ✓ Portland Region, DEQ

DEPARTMENT OF ENVIRONMENTAL QUALITY  
 1224 S. W. Morrison Street  
 Portland, Oregon 97205  
 Telephone: (503) 226-5696

Permit Number: 2541-J  
 Expiration Date: 12/31/81  
 File Number: 46270  
 Page 1 of 8

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
**WASTE DISCHARGE PERMIT**

Issued pursuant to ORS 468.740 and U.S.P.L. 92-500

<p>ISSUED TO:</p> <p>Tualatin Development Company, Inc.          15100 S. W. 116th Avenue          Tigard, Oregon 97223</p> <p>PLANT TYPE AND LOCATION:</p> <p>Sewage Treatment Plant          King City</p> <p>Issued in response to Application number  <u>OP-112737-5</u> received <u>7/16/76</u></p> <p><u>William E. Young</u> <u>JAN 19 1977</u>          William E. Young, Director Date</p>	<p>SOURCES COVERED BY THIS PERMIT:</p> <table border="1"> <thead> <tr> <th>Type of Waste</th> <th>Outfall Number</th> <th>Outfall Location</th> </tr> </thead> <tbody> <tr> <td>Domestic Sewage</td> <td>001</td> <td>RM 11.0</td> </tr> </tbody> </table> <p>RECEIVING STREAM INFORMATION:</p> <p>Major Basin: <u>Willamette</u>          Minor Basin: <u>Tualatin</u>          Receiving Stream: <u>Tualatin River</u>          County: <u>Washington</u>          Applicable Standards: <u>CAR 340-41-095</u></p>	Type of Waste	Outfall Number	Outfall Location	Domestic Sewage	001	RM 11.0
Type of Waste	Outfall Number	Outfall Location					
Domestic Sewage	001	RM 11.0					

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify or operate waste water treatment, control and disposal facilities and discharge adequately treated waste waters in conformance with requirements, limitations and conditions set forth in attached schedules as follows:

Schedule A - Waste Discharge Limitations not to be Exceeded	<u>2</u>
Schedule B - Minimum Monitoring and Reporting Requirements	<u>3</u>
Schedule C - Compliance Conditions and Schedules	<u>-</u>
Schedule D - Special Conditions	<u>4</u>
General Conditions	<u>5-8</u>

All other direct and indirect waste discharges to public waters are prohibited.

This permit does not relieve the permittee from responsibility for compliance with other applicable Federal, state or local laws, rules or standards.

State of Oregon  
 Department of Environmental Quality  
**PERMIT CONDITIONS**

Permit Number: 2541-J  
 Expiration Date: 12/31/81  
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Tualatin Development Company, Inc., King City Plant

SCHEDULE A

1. Waste Discharge Limitations not to be Exceeded After Permit Issuance Date

Outfall Number 001 (Sewage treatment plant outfall)

Parameter	Average Effluent Concentrations		Effluent Loadings		Mg
	Monthly	Weekly	Monthly Average	Weekly Average	
	kg/day	kg/day	(lb/day)	(lb/day)	(lb/d)
Jun 1 - Oct 31:					
BOD	20 mg/l	30 mg/l	21 (46)	31 (69)	42 (92)
TSS	20 mg/l	30 mg/l	21 (46)	31 (69)	42 (92)
FC per 100 ml	100	200			
Nov 1 - May 31:					
BOD	20 mg/l	30 mg/l	21 (46)	31 (69)	42 (92)
TSS	20 mg/l	30 mg/l	21 (46)	31 (69)	42 (92)
FC per 100 ml	200	400			

Other Parameters (year around)

pH  
 Average dry weather flow to the treatment facility

Limitations

Shall be within the range 6.0 - 9.0  
1041 m<sup>3</sup>/d (0.228 MGD)

2. Notwithstanding the effluent limitations established by this permit, no wastes shall be discharged and no activities shall be conducted which will violate Water Quality Standards as adopted in ORS 340-41-095 except in the following defined mixing zone:

The allowable mixing zone shall not exceed a portion of the Tualatin River which extends from the point of discharge to 50 feet downstream.

State of Oregon  
Department of Environmental Quality  
PERMIT CONDITIONS

Permit Number: 2541-J  
Expiration Date: 12/31/81  
Page 3 of 8

Tualatin Development Company, Inc., King City Plant

SCHEDULE B

Minimum Monitoring and Reporting Requirements  
(unless otherwise approved in writing by the Department)

Outfall Number 001 (sewage treatment plant outfall)

<u>Item or Parameter</u>	<u>Minimum Frequency</u>	<u>Type of Sample</u>
Total Flow (MGD)	Daily	--
Quantity Chlorine Used	Daily	--
Affluent Chlorine Residual	Daily	--
BOD-5 (influent)	2 times per week	Composite
BOD-5 (effluent)	2 times per week	Composite
Suspended Solids (influent)	2 times per week	Composite
Suspended Solids (effluent)	2 times per week	Composite
pH (influent and effluent)	3 times per week	Grab
Fecal Coliform (effluent)	Monthly	Grab
Sludge Volume	Daily	--

Monitoring reports shall include a record of the location and method of disposal of all sludge and a record of all applicable equipment breakdowns and bypassing.

Reporting Procedures

Monitoring results shall be reported on approved forms. The reporting period is the calendar month. Reports must be submitted to the Department by the 15th day of the following month.

State of Oregon  
Department of Environmental Quality  
PERMIT CONDITIONS

Permit Number: 2541-J  
Expiration Date: 12/31/81  
Page 4 of 8

Tualatin Development Company, Inc., King City Plant

SCHEDULE B

Special Conditions

1. The permittee's proposed waste treatment and disposal facilities are considered to be interim facilities and the use thereof shall be terminate and connection made to an approved area-wide sewerage system as soon as service is available.
2. Connection of new waste loads to new or existing sewers or the expansion of existing waste loads is permitted subject to the following requirements:
  - a. The added waste load shall not cause any of the limitations of this permit to be exceeded.
  - b. Adequate treatment plant capacity shall be maintained so as to prevent either nuisance or hazardous conditions from developing in the receiving stream.
  - c. Requests for permits to connect exceptionally large waste loads shall be reviewed by the Department of Environmental Quality prior to issuance.
  - d. All permits issued for sewer connections shall be either used or revoked within 90 days of the date of issuance.
  - e. Full cooperation shall be given by the permittee in the development of both interim and long-range treatment facilities.
3. As soon as practicable, but not more than 90 days after the Unified Sewerage Agency interceptor is available for service, the permittee shall connect to the U.S.A. system and abandon the existing waste treatment facility.

State of Oregon  
Department of Environmental Quality  
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Permit Number: 2541-J  
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Tualatin Development Company, Inc., King City Plant

GENERAL CONDITIONS

- G1. All discharges and activities authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit.
- G2. Monitoring records:
- All records of monitoring activities and results, including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records, shall be retained by the permittee for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Director.
  - The permittee shall record for each measurement or sample taken pursuant to the requirements of this permit the following information: (1) the date, exact place and time of sampling; (2) the dates the analyses were performed; (3) who performed the analyses; (4) the analytical techniques or methods used and (5) the results of all required analyses.
  - Samples and measurements taken to meet the requirements of this condition shall be representative of the volume and nature of the monitored discharge.
  - All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless approved otherwise in writing by the Department, conform to the latest edition of the following reference:  
  
American Public Health Association, Standard Methods for the Examination of Water and Wastewaters (13th ed. 1971).
  - Samples collected and/or analyzed by the Department may be used toward satisfying the monitoring requirements of this permit.
- G3. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance and testing functions required to insure compliance with the conditions of this permit.
- G4. All waste collection, control, treatment and disposal facilities shall be inspected at least daily when in operation and be operated in a manner consistent with the following:

State of Oregon  
Department of Environmental Quality  
PERMIT CONDITIONS

Permit Number: 2541-J  
Expiration Date: 12/31/81  
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Tualatin Development Company, Inc., King City Plant

- At all times all facilities shall be operated as efficiently as possible and in a manner which will minimize discharges and prevent health hazards and nuisance conditions.
  - All screenings, grit and sludge shall be disposed of in a manner approved by the Department of Environmental Quality such that it does not reach any of the waters of the state or create a health hazard or nuisance condition.
  - Bypassing of untreated waste is generally prohibited. No bypassing shall occur without prior written permission from the Department except where unavoidable to prevent loss of life or severe property damage.
- G5. Whenever a facility expansion, production increase or process modification is anticipated which will result in a change in the character of pollutants to be discharged or which will result in a new or increased discharge that will exceed the conditions of this permit, a new application must be submitted together with the necessary reports, plans and specifications for the proposed changes. No change shall be made until plans have been approved and a new permit or permit modification has been issued.
- G6. The permittee shall require the following of all industrial users of the municipal sewerage and sewage treatment system:
- Each industrial user shall pay its fair share of construction costs and operation, maintenance and replacement costs in accordance with guidelines promulgated pursuant to Section 204(b)(2) of the Federal Act.
  - Each industrial user shall provide applicable pretreatment of waste in accordance with guidelines promulgated pursuant to Section 307(b)(1) of the Federal Act. Any industrial user subject to these requirements shall be required to submit to the permittee periodic notice (over intervals not to exceed 9 months) of progress toward full compliance with the requirements of the pretreatment guidelines. Copies of these notices shall be forwarded to the Department.
  - The effluent from each industrial user shall be adequately monitored either by the permittee or by the industry for the permittee pursuant to Section 308 of the Federal Act. These monitoring records shall be retained by the permittee and made available to the Department upon request.



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Department of Environmental Quality  
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Tualatin Development Company, Inc., King City Plant

G7. The permittee shall notify the Department in writing each time an industrial user which will discharge more than 10,000 gallons per day is connected to the sewerage system, unless the industrial user is discharging only domestic sewage at volumes not expected to have a noticeable impact on the sewage treatment works. Such notice shall include information on (a) the quality and quantity of pollutants to be introduced to the treatment plant and (b) any anticipated impact of such change in the quality or quantity of effluent to be discharged from the treatment works.

A similar notice is also required each time there is a substantial change in volume or character of waste being discharged to the treatment works from industrial users already connected to the sewerage system.

G8. After notice and opportunity for a hearing this permit may be modified, suspended or revoked in whole or in part during its term for cause including but not limited to the following:

- a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the Commission;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in the condition of the receiving waters or any other condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

G9. The permittee shall, at all reasonable times, allow authorized representatives of the Department of Environmental Quality:

- a. To enter upon the permittee's premises where an effluent source or disposal system is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy any records required to be kept under the terms and conditions of this permit;
- c. To inspect any monitoring equipment or monitoring method required by this permit; or
- d. To sample any discharge of pollutants.

G10. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

G11. The Department of Environmental Quality, its officers, agents and employees shall not sustain any liability on account of the issuance of this permit or on account of the construction or maintenance of facilities because of this permit.

State of Oregon  
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Tualatin Development Company, Inc., King City Plant

G12. In the event the permittee is unable to comply with all of the conditions of this permit because of a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, the permittee shall:

- a. Immediately take action to stop, contain and clean up the unauthorized discharges and correct the problem.
- b. Immediately notify the Department of Environmental Quality so that an investigation can be made to evaluate the impact and the corrective actions taken and determine additional action that must be taken.
- c. Submit a detailed written report describing the breakdown, the actual quantity and quality of resulting waste discharges, corrective action taken, steps taken to prevent a recurrence and any other pertinent information.

Compliance with these requirements does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for failure to comply.

G13. If a toxic effluent standard or prohibition (including any schedule or compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Federal Act for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee shall be so notified.

G14. Definitions of terms and abbreviations used in this permit:

- a. BOD means five-day biochemical oxygen demand.
- b. TSS means total suspended solids.
- c. mg/l means milligrams per liter.
- d. kg means kilograms.
- e. m<sup>3</sup>/d means cubic meters per day.
- f. MGD means million gallons per day.
- g. Averages for BOD and TSS are based on arithmetic mean of samples taken.
- h. Average coliform or fecal coliform is based on geometric mean of samples taken.
- i. Composite sample means a combination of samples collected, generally at equal intervals over a 24-hour period, and apportioned according to the volume of flow at the time of sampling.
- j. FC means fecal coliform bacteria.

ATTACHMENT 2

Before the Environmental Quality Commission  
of the State of Oregon

In the Matter of	*	
Permit #2541-J	*	Petition to Cancel Permit
Tualatin Development Corporation	*	

-----

I

Come now the undersigned petitioners and show that George Benz and Margaret Benz are husband and wife, residents, citizens and taxpayers of Washington County, Oregon, that they own and occupy lands and a residence in the immediate vicinity of the King City Sewage Treatment Plant; said plant being owned and operated by the Tualatin Development Corporation.

II

That the Tualatin Development Corporation is a private corporation organized under the laws of the State of Oregon engaged in the development of lands and buildings of residences in the City of King City, in a subdivision of land known as Summerfield, and in trailer courts known as Royal Mobile Villa and El Dorado.

That sewage originating in the city of King City is accepted for treatment by the Tualatin Development Corporation at said King City treatment plant under a contract between said city and said corporation.

That sewage originating in Summerfield and the trailer courts, El Dorado and Royal Mobile Villa is treated at said corporation's King City treatment plant.

RECEIVED  
MAR - 9 1978

DEPT. OF ENVIROMENTAL QUALITY

### III

That the King City Sewage Treatment Plant is operated under Permit # 2541-J issued January 19, 1977 by the Department of Environmental Quality of the State of Oregon to the said Tualatin Development Corporation.

That the receiving stream designated exclusively for discharges under said permit is the Tualatin River.

### IV

That said sewage plant and the sewer system appurtenant thereto is designed to allow raw sewage from King City, Summerfield, and said trailer courts and treated effluent to be discharged over and upon petitioners residential property.

### V

That from the commencement of the operation of said plant in 1964, effluent and raw sewage has been collected at said plant and discharged onto petitioners lands endangering the health and well-being of petitioners and their children. That said conduct has resulted in a serious deterioration of the value of the lands of petitioners and adjoining owners.

### VI

That said permit of January 17, 1977 - 2541-J prohibits the use of petitioners property as a point of discharge of either effluent or raw sewage.

### VII

That the unlawful discharge, as aforesaid, is continuing at the

pleasure of the Tualatin Development Corporation and has been known and countenanced by various staff members of the Department of Environmental Quality.

VIII

That petitioners have complained of and reported said violations at various and pertinent times to the Tualatin Development Corporation, to the city of King City, to the Department of Environmental Quality, all to no avail.

IX

That the continued operation of said plant is contrary to the public interest and is a definite public health hazard.

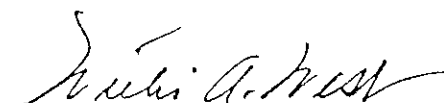
X

That said permit is subject to cancellation for the willful and intentional violation of the conditions of said permit pertaining to the discharge of effluent and raw sewage.

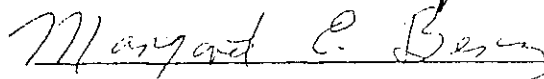
XI

That said plant as designed and now operated, is a public nuisance under the provisions of ORS 468.720 and constitutes an indictable offense under the provisions of ORS 468.990.

Wherefore, your petitioners pray that a public hearing in this matter be called promptly; and thereafter an order be issued cancelling said permit and closing said plant; and such further action be taken under the criminal statutes as is mete and proper.

  
\_\_\_\_\_  
Attorney for Petitioners

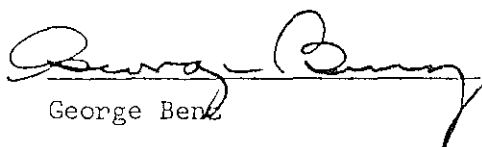
  
\_\_\_\_\_  
George U. Benz                      Petitioner

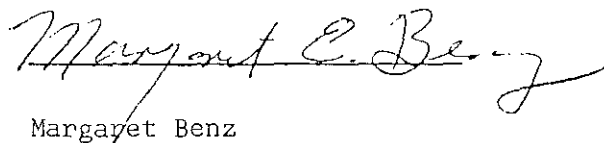
  
\_\_\_\_\_  
Margaret E. Benz                      Petitioner

State of Oregon  
County of Multnomah

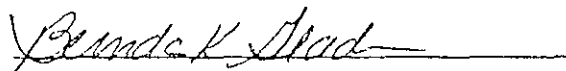
\*  
\*  
\*

We, George Benz and Margaret Benz, being first duly sworn, each depose and say that we are the petitioners herein, that we have read the foregoing petition and that the statements therein made are true as we verily believe.

  
George Benz

  
Margaret Benz

Subscribed and sworn to before me this 9<sup>th</sup> day of March, 1978.

  
Notary Public for Oregon

My commission expires May 16, 1981

Affidavit of Mailing

State of Oregon  
County of Multnomah

\*  
\* SS  
\*

I, Willis A. West, being first duly sworn depose and say that I am attorney for the within petitioners, and that I served a true copy, certified as such by me, upon the city of King City and the Tualatin Development Corporation by placing the same in the U.S. Mails, postage prepaid addressed to each at their respective mailing addresses on the 9th day of March 1978.

*Willis A. West*

Subscribed and sworn to before me this 9th day of March 1978.

*Burde L. Shaw*

Notary Public for Oregon

My commission expires May 16, 1981

### ATTACHMENT 3

#### KING CITY SEWAGE TREATMENT PLANT FILE PORTLAND REGION

- February 13, 1978 - RCD memo to SCC, TRB, REG. Notified by TDC on 2/10/78 that pump station at Royal Mobile not operating. Sewage going to creek. Back on line same day and Benzs' & Steel notified.
- February 3, 1978 - Treated effluent pump (standby) called in by B. Judd of TDC. Back on line. No discharge to creek.
- January 12, 1978 - RDC memo to SCC, TRB. - B. Judd called in that treated effluent pump will be pulled out. A portion of the treated effluent still discharging to small creek. Cl<sub>2</sub> residual 5 ppm.
- January 10, 1978 - RCD memo to SCC, TRB - inspected plant 1/9/78. Most equipment still down due to December '77 flooding. A portion of the treated effluent going to the creek.
- December 13, 1977 - Mr. B memo to RCD, TRB. B. Judd called in that plant was flooded.
- September 12, 1977 - TRB memo to SCC, RCD, REG - Inspected golf course lagoon. Water level decreased and there was no infiltration to the storm sewer. Program to eliminate problem initiated.
- September 12, 1977 - Mr. ~~A/B~~ memo to TRB - Mrs. Benz called to report that creek cleared up last night 9/11/77.
- TRB memo to REG, SCC, RCD - On September 9, 1977 - 11:30 a.m. Mrs. Benz reported that the creek had turned bright green. On investigation of SCC and TRB, there was inflow from golf course lagoon to storm sewer and then to creek. King City Civic Association and King City were informed of problem. Pond lowered to a point where inflow stopped.
- August 24, 1977 - TRB memo to RCD - Mrs. Steel called on 8/23/77 at 3:37 p.m. to report foam on creek. TRB requested Mr. Riscoe of King City Civic Association to inspect King City STP and golf course lagoon. Mr. Riscoe reported back and there was no bypassing from both facilities. Mrs. Steel was advised of finding.
- August 24, 1977 - TRB memo to RCD - TRB inspected King City STP and creek on 8/21/77. Creek was clear and no bypassing from STP.
- August 17, 1977 - RCD stream survey of creek. Results showed no indication of any human fecal contamination. Mrs. Benz reported that creek was in good shape.
- August 12, 1977 - TRB & RCD stream survey of creek. Results showed no indication of human fecal contamination.

August 4, 1977 - RCD memo to TRB. TDC was contacted by Mrs. Benz on apparent green coloring of creek. TDC checked King City STP and creek. There was no STP bypassing. Mrs. Benz was informed by TDC of findings.

July 13, 1977 - TRB memo to RCD, SCC, REG. TRB met with Mrs. Benz 7/12/77 10:30 a.m. Mrs. Benz reported that the creek turned to green color since July 8, 1977 to July 12, 1977 and she took a sample 7/11/77. TRB's opinion was green color due to algae. As per DEQ lab sample taken by Mrs. Benz was invalid due to the incorrect sampling procedure. Results were not accurate.

June 6, 1977 - RCD and GBS stream survey at King City. No human fecal contamination.

May 10, 1977 - RCD memo to SCC, REG, TRB (DMB memo dated 5/1/77 enclosed) DMB contacted by Mr. Benz and Mr. Steel 5/1/77 about increased flow and foam in the creek. DMB contacted STP operator and found that both treated effluent pumps were not working. Float switch of one pump was broken and second float switch got stuck. Operator turned on the second treated effluent pump. TDC replaced mechanical float switch to a mercury type float switch. Complainants were contacted of actions taken.

February 10, 1977 - DMB memo to SCC, TRB. DMB received complaint from Mrs. Benz on 2/10/77 about discoloration of creek. DMB found the creek fairly turbid and light brown in color. No bypass from STP.

December 6, 1976 - DMB memo to SCC, TRB, REG. DMB received complaint on 12/4/76 on green coloration of creek. Inspected STP but there was no bypass from plant.

June 4, 1976 - DMB memo to SCC, RCD, TRB, REG. DMB received complaint from Mrs. Benz of green coloration in the creek. STP was not discharging anything to creek. DMB found that golf course lagoon overflowed to storm drain then to the creek. BY DEQ letter dated 6/11/76 and King City Civic Association June 21, 1976 letter overflowing problem was solved.

March 20, 1974 - Mr. Sandberg, Washington County Public Health letter dated March 20, 1974 to Mrs. Benz. Power failure on February 16, 1974 due to weather conditions resulted to overflow of plant effluent to the creek.

May 31, 1973 - D.W. O'Guinn memo to FMB. Investigated complaint of Mrs. Benz on 5/24/73 on discharge of sewage from King City STP. There was no evidence of bypassing from STP.

January 24, 1972 - E.R. Lynd memo to file. John Day, King City STP operator reported that the plant was flooded due to a small culvert under the highway. There was no bypassing from the plant.

June 25, 1971 - JAJ memo to file. King City STP flooded due to a downstream culvert and high runoff.

January 18, 1971 - ERL memo to PAS, JAJ. John Day of King City STP was flooded to about 7 ft. deep water. Motors had to be removed and cleaned. No power.



INITIALS

RCD - Renato Dulay - Engineer, Portland Region, DEQ  
SCC - Steven Carter, Engineer, Portland Region, DEQ  
TRB - Tom Bispham, Asst. Mgr., Portland Region, DEQ  
REG - Robert Gilbert, Mgr., Portland Region, DEQ  
TDC - Tualatin Development Company  
STP - Sewage Treatment Plant  
GBS - Bruce Sutherland, Biologist, Portland Region, DEQ  
DMB - David Baker, Engineer, Portland Region, DEQ  
FMB - Fred Bolton, Administrator, Regional Operations, DEQ  
ERL - Ed Lynd, Engineer, Water Quality Division, DEQ  
PAS - Pete Smith, Engineer, Water Quality Division, DEQ  
JAJ - Joe Jensen, Engineer, Water Quality Division, DEQ



# WASHINGTON COUNTY

ADMINISTRATION BUILDING — 150 N. FIRST AVENUE  
HILLSBORO, OREGON 97123

## BOARD OF COMMISSIONERS

MILLER M. DURIS, Chairman  
BILL BLOOM  
VIRGINIA DAGG  
RICHARD C. HEISLER  
RAY MILLER

March 9, 1978

## DEPT. OF PUBLIC WORKS

JOHN F. CROCKETT, Director  
ROOM 201  
(503) 648-8886

Dept. of Environmental Quality

RECEIVED  
MAR 10 1978

Robert E. Gilbert  
Manager, Northwest Region  
Department of Environmental Quality  
P.O. Box 1760  
Portland, Oregon 97207

NORTHWEST REGION

Re: King City Sewage Treatment Plant

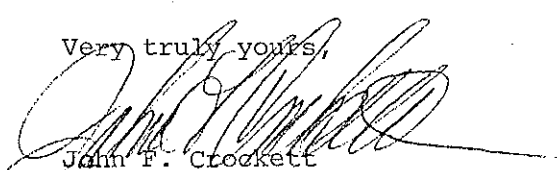
Dear Mr. Gilbert:

Our staff has done a very brief analysis of the drainage basin which contains King City and its sewage treatment plant. Most of the information came from the engineering firm of Harris-McMonagle Engineers, who have done much of the engineering work concerning King City. From the point where the runoff passes near the King City treatment plant, it proceeds by open channel to Pacific Highway, passes under Pacific Highway in a culvert and under a mobile home development east of Pacific Highway also in a culvert. Leaving the mobile home development, the runoff proceeds easterly in an open channel to S.W. 113th Avenue. The runoff passes under 113th Avenue in a culvert and then proceeds via open channel to the Tualatin River. Along this route, the open channel portions reportedly are poorly maintained and the crossing beneath 113th Avenue is by means of a culvert that is significantly smaller in diameter than those further upstream. Either of these conditions could be cause for backup of water into and around the King City plant.

Washington County has no jurisdiction over drainage facilities on private property. Further, Pacific Highway is a state highway under Oregon State Highway Division jurisdiction. The mobile home development is made up entirely of private roads and is therefore private property. 113th Avenue is a county road between Durham Road and a point just north of the culvert crossing, however, it is not a county road, that is, merely a public road not maintained by the county at the location where the culvert crossing is. Therefore at no point between the King City treatment plant and the Tualatin River is the subject drainage way under County jurisdiction. We are unable to expend funds on facilities other than those beneath county roads, therefore will be unable to expend our road fund monies to analyze or correct any of the drainage facilities within the lower portion of this drainage basin. I would suggest you contact the firm of Harris-McMonagle as they are very aware of the situation and probably have much of the information needed to perform the drainage study you suggest. We will be happy to provide whatever information we can in the matter.

Should you have further questions, please feel free to contact me or Jerry Morse of this office.

Very truly yours,

  
John F. Crockett

Director of Public Works

JFC:ja



4/12  
JCM  
7  
RGG

## TUALATIN DEVELOPMENT CO., INC.

15300 S. W. 116th Avenue

TIGARD, OREGON 97223

March 14, 1978

Mr. Thomas R. Bispham  
Department of Environmental Quality  
Post Office Box 1760  
Portland, Oregon 97207

Dear Mr. Bispham:

Per your request of March 3, 1978:

1. Provide the STP with an auxiliary pump and motor (preferably gasoline/diesel) with the capability to pump 600,000 gallons per day to the Tualatin River - this was ordered March 10, 1978.
2. Provide the STP (effluent pumps and blower motors) and pump stations serving the mobile home park and Summerfield with a 24 hour malfunction warning system. This was ordered March 14, 1978.

I will keep you posted on installation dates.

Sincerely,

TUALATIN DEVELOPMENT CO., INC.

Roy Brown  
Vice President

RB:lk

cc: City of King City - Mayor  
Unified Sewerage Agency - Gary Kramer

Dept. of Environmental Quality

RECEIVED  
MAR 15 1978

NORTHWEST REGION

# PURCHASE ORDER

This Number Must Appear On All Invoices—Packages—Deliv. Slips

96859

To Guy, Klaus Pump and Equipment

Address \_\_\_\_\_ DATE March 10, 1978

Ship To Eldon at King City Sewer Treatment Plant Job No. \_\_\_\_\_

Chg. 500-525

PLEASE NOTIFY US IMMEDIATELY IF YOU ARE UNABLE TO SHIP COMPLETE ORDER BY DATE SPECIFIED

QUANTITY	PLEASE SUPPLY ITEMS LISTED BELOW	PRICE
1	New 4" Centrifugal Pump Model 300WLS	2,719
	Total Cost Less Installation	
	Plus Freight	

DATE REQUIRED

PER Christy

• Show P.O. Number on all invoices and delivery slips. • Send separate invoices on job order. • Invoice in duplicate.

Tualatin Development Co.  
 TIGARD, ORE. 97223  
 15300 S.W. 116th AVE.  
 639-3101  
 Tualatin-Franklin

# PURCHASE ORDER

This Number Must Appear On All Invoices—Packages—Deliv. Slips

96868

To Phillips Electronics

Address \_\_\_\_\_ DATE 3-14-78

Ship To To King City Sewer Plant Job No. \_\_\_\_\_

Chg. 500-525

PLEASE NOTIFY US IMMEDIATELY IF YOU ARE UNABLE TO SHIP COMPLETE ORDER BY DATE SPECIFIED

QUANTITY	PLEASE SUPPLY ITEMS LISTED BELOW	PRICE
4	Electronic meters for monitoring the water level in pump station @ \$455.00 ea	1,820
1	meter for blough in manhole	165
		1,985

DATE REQUIRED

PER [Signature]

Tualatin Development Co.  
 TIGARD, ORE. 97223  
 15300 S.W. 116th AVE.  
 639-3101  
 Tualatin-Franklin

# WASHINGTON COUNTY

Inter-Department Correspondence

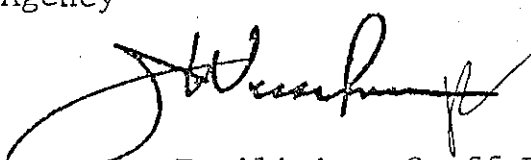
Date March 14, 1978

ATTACHMENT 6

REG  
7/15  
802  
RCD  
REG

o : Board of Directors  
Unified Sewerage Agency

rom : Joel Wesselman  
General Manager



subject : King City Waste Treatment Facilities--Staff Report

Pursuant to the Board's direction, the following is a report of an investigation made by Agency staff regarding the King City Sewage Treatment Plant and related sewer system. During the first week of March, staff personnel, in cooperation with the Department of Environmental Quality, made an on-site inspection to determine what steps could be taken to minimize the potential of sewage discharges to the small creek adjacent to the facilities. Based upon this investigation, DEQ issued the attached letters to Tualatin Development Corporation and the Washington County Department of Public Works, which call for the following points of action:

1. Providing the sewage treatment plant with an auxiliary pump and motor (preferably gasoline/diesel) with the capability to pump up to 600,000 gallons per day to the Tualatin River.
2. Providing the sewage treatment plant and pump stations serving the Royal Mobile Villa mobile home park and Summerfield with a 24-hour malfunction warning system.
3. An analysis of the drainage course to determine the cause of insufficient storm drainage capacity through the drainage course.

It is the Agency staff's opinion that if these improvements are provided and proper operation and maintenance is performed, the King City Sewage Treatment Plant and pumping stations can produce a quality effluent and avoid future sewage discharges from those facilities.

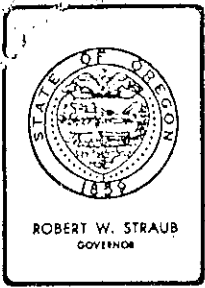
As a matter of information, Agency staff is also ready to respond to a Board request to take over the operation of the facilities including the sewage collection system under the jurisdiction of King City. With the approval of DEQ and Tualatin Development Corporation, the Agency could assure proper operation of the facilities. We would expect sewer service fees to be charged at the current Agency rate if this were to happen and, further, expect the Tualatin Development Corporation to fund any capital improvements needed for plant improvements.

At this time, the Agency has no responsibility for the maintenance and operation of the King City Plant. The responsibility to ensure proper operation falls with the Department of Environmental Quality as a function of administering waste discharge permits. As outlined at previous Board meetings, the ultimate solution to the King City

problem is through the construction of the Upper Tualatin River Interceptor sewer. Agency staff sees a distinct possibility of intercepting the King City plant by late fall of 1978, but no later than fall, 1979.

GFK:daf  
Attachments

RECEIVED  
Dept. of Environmental Quality  
MAR 21 1978  
NORTHWEST REGION



## Department of Environmental Quality

1234 S.W. MORRISON STREET, PORTLAND, OREGON 97205 Telephone (503) 229- 5342  
Post Office Box 1760, Portland, Oregon 97207

March 3, 1978

RECEIVED  
MAR 06 1978

Mr. Roy Brown  
Tualatin Development Company  
15300 S. W. 116th Avenue  
Tigard, Oregon 97223

U. S. A.  
WASHINGTON COUNTY

Re: WQ - King City  
Permit No. 2541-J  
Washington County

Dear Mr. Brown:

On March 1, 1978 representatives of this Department and the Unified Sewerage Agency of Washington County (USA) conducted an inspection of the King City sewage treatment plant (STP) and the Royal Mobile Villa pump station.

The purpose of this inspection was to determine what steps could reasonably be taken by TDC to minimize the potential of sewage discharges to the small creek adjacent to these facilities. Based upon our findings, we are requesting that the following steps be implemented and completed by March 31, 1978.

1. Provide the STP with an auxiliary pump and motor (preferably gasoline/diesel) with the capability to pump 600,000 gallons per day to the Tualatin River.
2. Provide the STP (effluent pumps and blower motors) and pump stations serving the mobile home park and Summerfield with a 24-hour malfunction warning system.

Per our conversation of March 2, 1978 it is our understanding that the auxiliary pump and motor for the pump station serving the mobile home park will be installed by March 4, 1978. Also, we understand that sampling arrangements for the STP have been completed and steps are being taken to hire a qualified operator.



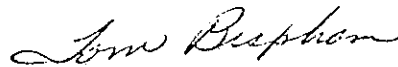
Contains  
Recycled  
Materials

Mr. Roy Brown  
page 2  
March 3, 1978

In closing, we request that you submit by March 15, 1978 a progress report relative to the above items.

Thank you for your cooperation. If you have any questions or if we can be of further assistance please feel free to call me at 229-5209.

Sincerely,

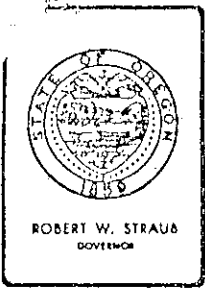


Thomas R. Bispham  
Assistant Manager  
Northwest Region

TRB/mjb

cc: City of King City  
Attn: Lloyd Carroll, Mayor  
Unified Sewerage Agency of Washington County  
Water Quality Division, DEQ





## Department of Environmental Quality

~~1204 S.W. MORRISON STREET, PORTLAND, OREGON 97205~~ Telephone (503) 229- 5209  
Post Office Box 1760, Portland, Oregon 97207

March 3, 1978

Mr. John Crockett, Director  
Washington County Department of Public Works  
150 North First Avenue  
Hillsboro, Oregon 97123

Re: WQ - King City  
Washington County

Dear Mr. Crockett:

During December 1977, flooding occurred at the King City sewage treatment plant causing problems with the treatment facility's effluent pump station. We are requesting your staff's assistance in undertaking a storm water analysis of that drainage basin. The flows expected from a high intensity rainfall storm and the ability of the culverts and/or any other constrictions downstream of the treatment facility to handle these flows are of particular concern.

Recommendations on correcting any deficiencies that would protect the sewage treatment plant and the downstream properties would be beneficial.

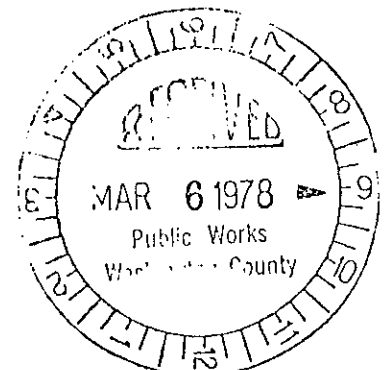
If you have any questions on this matter, please contact me at 229-5209.

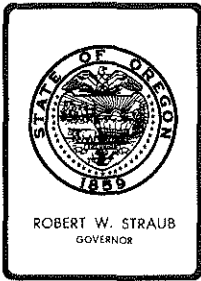
Sincerely,

Robert E. Gilbert  
Manager  
Northwest Region

REG/mjb

cc: Mr. George Benz  
City of King City  
Attn: Mr. Lloyd Carroll, Mayor  
Mr. Daniel O. Potter,  
Washington County Administrator  
Mr. L. Steel  
Tualatin Development Company  
Attn: Mr. Roy Brown  
Unified Sewerage Agency of Washington County  
Attn: Mr. Joel Wesselman, General Manager  
Water Quality Division, DEQ





## *Environmental Quality Commission*

POST OFFICE BOX 1760, PORTLAND, OREGON 97207 PHONE (503) 229-5696

To: Environmental Quality Commission

From: Director

Subject: Agenda Item M, March 31, 1978, EQC Meeting  
Clatsop Plains, Consideration of Adoption of Temporary Amendment  
to OAR 340-71-020(7)(b) & (7)(e).

### Background

At the October 21, 1977 meeting, the EQC adopted amendments to OAR 340-71-020(7) regarding Clatsop Plains. On March 23, 1978, the Department received a "Petition for Temporary Rule & Amendment to OAR 340-71-020(7)," (Attachment 1) from Clatsop County.

### Statement of Need for Rule Making

1. Under ORS 183.335(5), the EQC has the authority to adopt, amend or suspend a rule without notice if the EQC finds that its failure to act promptly will result in serious prejudice to the public interest or the interest of the parties concerned and sets forth the specific reasons for its findings.
2. On October 21, 1977, the EQC adopted OAR 340-71-020(7)(b)(C). The intent of this particular subsection was to comply with Clatsop County's request that planned unit developments (where the dwellings may be in a single building or otherwise concentrated but accompanied by land sufficient to provide at least one acre for each single family unit) be permitted. However, the subsection as it is worded now, does not allow planned unit developments or subdivision that include open space land or common area. Rewording to allow such development can be consistent with protection of the groundwater aquifer.

In addition, OAR 340-71-020(7)(b)(E) was written to prevent the parcelling of an existing lot so that the parcels would result in a greater family to acreage ratio than one single family to one acre. The present language is confusing to Clatsop County and its public. Rewording of this subsection to clearly reflect the EQC intent would be beneficial.

3. In considering the need for and in preparing the temporary rule, the Department has utilized the Petition (Attachment 1) as prepared by Clatsop County and the information as included in the Department's report on Clatsop Plains, Agenda Item No. G, October 21, 1977, EQC Meeting.



Contains  
Recycled  
Materials

Summation

1. Clatsop County has submitted a petition to the EQC as a result of a development presented to it by Joseph R. Camberg, and Clatsop Quality Construction Company. This proposal has been the subject of repeated, good faith consultation with county planners and the subject of considerable investment only to run aground on OAR 340-71-020(7)(b)(C). The apparent misunderstanding and confusion between the rule as drafted and the explanation of the rule as presented by the hearing officer is the cause of the problem. Clatsop County asserts that though this particular development will be immediately affected by any change in the rule, the citizens of the County generally will be affected and beneficially affected by the temporary rule and subsequent permanent amendment to OAR 340-71-020(7).

Director's Recommendation

The Director recommends that the EQC take the following actions:

1. Enter findings that:
  - A. Failure to act would result in serious prejudice to the public interest or the interest of the parties concerned in that Clatsop County has encouraged and caused investment by Joseph R. Camberg and Clatsop Quality Construction Company based on the County's interpretation that the proposed development did conform with OAR 340-71-020(7)(b)(C). In addition, the language in OAR 340-71-020(7)(b)(E) is confusing.
  - B. The attached proposed temporary rule amendment (Attachment 2) will continue to prevent unacceptable degradation of groundwater while allowing such development, as, at present, appears to be compatible with preserving the quality of the groundwater.
  - C. At the time, a comprehensive plan and appropriate zoning are accomplished, it is expected further review will be appropriate.
2. Adopt the attached temporary rule amendment to OAR 340-71-020(7)(b) and (7)(e) to take effect upon filing with the Secretary of State pursuant to ORS 183.355 for a period of not longer than 120 days.

3. Authorize the hearing officer to proceed with the appropriate hearings for permanent rule amendment to OAR 340-71-020(7)(b) and (7)(e). The hearing officer report to the EQC will be scheduled for the June, 1978 EQC Meeting.

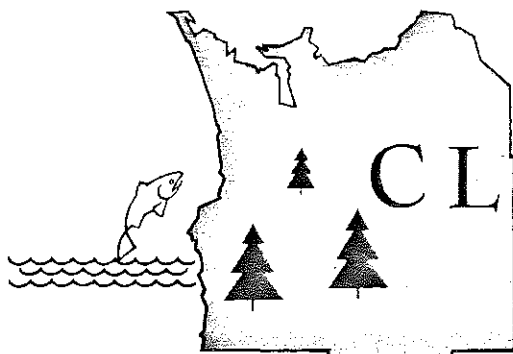
*Michael Downs*  
for  
William H. Young

Robert E. Gilbert  
(503) 229-5209  
3/29/78

Attachment 1 - Petition for Temporary Rule and Amendment to OAR 340-71-020(7), Clatsop County, March 23, 1978

Attachment 2 - Department of Environmental Quality, Temporary Rule Amendments to Chapter 340, Oregon Administrative Rules, Subsurface and Alternative Sewage Disposal, Clatsop Plains Moratorium

ATTACHMENT 1



# CLATSOP COUNTY

Courthouse . . . . Astoria, Oregon 97103

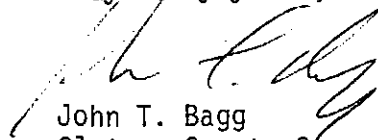
March 23, 1978

Mr. Bill Young, Director  
Department of Environmental Quality  
522 S. W. 5th - 5th Floor  
Portland, Oregon 97207

Dear Mr. Young:

Enclosed herewith for filing, please find a petition for a temporary rule and a request for an amendment to OAR 370-71-020(7). The language requested for adoption by temporary rule and the language suggested for amendment to OAR 370-71-020(7) is identical. The county has combined the petition for a temporary rule and an amendment to the rule for the sake of convenience.

Very truly yours,



John T. Bagg  
Clatsop County Counsel

JTB:jag  
Enclosure

Dept. of Environmental Quality

**R E C E I V E D**  
MAR 24 1978

NORTHWEST REGION

1 BEFORE THE ENVIRONMENTAL QUALITY COMMISSION OF THE STATE OF OREGON

2  
3 IN THE MATTER OF THE ADOPTION OF A)  
4 TEMPORARY RULE AND AN AMENDMENT TO)  
5 OAR 370-71-020(7). )

PETITION FOR TEMPORARY RULE  
AND AMENDMENT TO OAR 370-71-020(7)

6 I

7 Clatsop County, a political subdivision of the State of Oregon acting  
8 by and through its Board of Commissioners and hereinafter called "County",  
9 petitions the Environmental Quality Commission for the adoption of a temporary  
10 rule pursuant to the powers granted the Commission by ORS 183.335 and OAR 340-  
11 11-052. The County also petitions the Commission for a permanent amendment  
12 to OAR 370-71-020(7) pursuant to ORS 183.390 and OAR 340-11-047. The texts  
13 of the proposed temporary rule and of the proposed permanent amendment to OAR  
14 370-71-020(7) are identical.

15 That portion of OAR 370-71-020(7) proposed to be adopted temporarily  
16 and to be amended permanently is as set out below with the matter proposed  
17 to be deleted therefrom enclosed in brackets and the proposed additions thereto  
18 shown by underlining:

19 (b) Pursuant to ORS 454.685, within the areas set forth in sub-  
20 section (c) below, neither the Director nor his authorized representa-  
21 tive shall issue either construction permits for new subsurface sewage  
22 disposal systems or favorable reports of evaluation of site suitability,  
23 except to construct systems to be used under the following circumstances:

24 (A) [T]the system complies with all rules in effect at the  
25 time the permit is issued [.]; and,

26 (B) [T]the system is not to be installed within any of the  
areas subject to the prohibition set forth in subsection  
(a) above [.]; and,

(C) [T]the system is to be installed on an undivided parcel of  
one acre or more in size upon which the dwellings or  
buildings to be served by the system are located and which  
is owned fully or fully subject to a contract of purchase

1 by the same person or persons who own or are contract  
2 purchasers of the dwellings or buildings to be served by  
3 the system . ; except that, in a single planned unit  
4 development or single subdivision tract having enclosed  
5 boundaries and with open space land owned in common by  
6 all land owners, permits may be issued where the lot  
7 area upon which a dwelling is to be constructed is less  
8 than one acre but where each owner holds an undivided  
9 interest, in common with all other owners, in open space  
10 land of sufficient acreage within the boundaries of the  
11 development so that the density of the entire parcel  
12 shall not exceed one dwelling per acre when considered  
13 as a whole and where the requirements of subdivisions  
14 (A), (B), and (C) of this subsection are met; and,

15 (D)  the dwellings or buildings to be constructed or  
16 existing on the land parcel when fully occupied or used  
17 allow for no more than the equivalent of sewage flow for  
18 one single family per acre of the land parcel . ; and,

19 [(E)]  The land parcel upon which the system is to be constructed  
20 did not become of a size conforming to the requirement of  
21 paragraphs (C) and (D) of this subsection by any means so  
22 that a subsurface sewage disposal system may be used, in-  
23 stalled, or under a permit to be installed on any land  
24 which otherwise would not conform to paragraphs (C) and  
25 (D) of this subsection and, after using such means, would  
26 result in a greater family to acreage ratio than one single  
family to one acre or more of land for such land which  
otherwise would not conform to paragraphs (C) and (D)  
above.]

17 No construction permit shall be issued under this subsection for any  
18 parcel of land where the parcel is created out of an existing parcel or  
19 parcels and where the creation of the new parcel results in a reduction of  
20 size of the original parcel or parcels to less than one acre and where the  
21 original parcel or parcels so reduced serve or are occupied by a dwelling  
22 unit or by dwelling units or by any other subsurface sewage generating  
23 facility or thing.

24 (c) . . .

25 (e) The restrictions set forth in paragraphs (B) through [(E)]  
26 (D) of subsection (b) and in subsection (c) above shall not apply to pro-  
hibit permits for systems to serve one single family dwelling per parcel  
of land or less than one acre if such parcel's legal description was on  
file in the deed records of Clatsop County prior to April 2, 1977, either  
as a result of conveyance or as part of a platted subdivision.

1 II.

2 This petition is made because the rule, as it exists, does not allow  
3 the issuance of subsurface sewage permits on properties included within  
4 "planned unit developments" or subdivisions that include open space land.  
5 OAR 370-71-020(7) was adopted because the Commission found that the installation  
6 of subsurface sewage disposal systems in certain parts of the Clatsop Plains  
7 area would cause degradation of water quality or would create a health hazard.  
8 However, the minimum lot size requirement set forth in OAR 370-71-020(7)(b),  
9 as amended, is more restrictive than necessary to protect the public from the  
10 installation of a subsurface disposal system that would cause degradation of  
11 the quality of the public waters of the state or create a health hazard.  
12 The County stresses that as long as sufficient acreage exists in a residential  
13 development to allow for the equivalent sewage flow of one acre for each dwelling  
14 unit, the public health, safety and welfare will be protected. This equivalency  
15 can be provided by the "planned unit development" or a subdivision plat that  
16 includes land owned in common by all of the residents or owners within the  
17 boundaries of the unit or plat. Such developments do permit an efficient  
18 utilization of land consistent with the best available land use planning  
19 techniques. This particular kind of development tool, providing as it does  
20 for an averaging of total acreage per dwelling unit, is consistent with the  
21 public interest in a safe ground water supply.

22 The suggested deletion of subparagraph (E) and rephrasing within sub-  
23 paragraph (b) is for the sake of clarity. The County posits that the language  
24 in the existing subparagraph (E) is incomprehensible to the County and the public.

25 III

26 The Commission has authority to act to implement the changes suggested



1 above under ORS 183.335. Under that statute, the change suggested may be  
2 immediate and may exist for a period of not longer than 120 days after filing  
3 with the Secretary of State. The petitioner asks also that these changes  
4 be made permanent amendments to OAR 370-71-020(7) pursuant to the authority  
5 in ORS 183.335 and OAR 340-11-047.

#### 6 IV

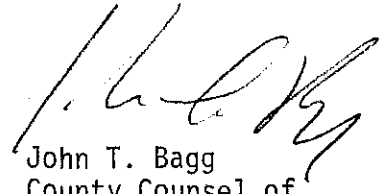
7 The petitioner posits that it will be affected by amendment of the rule  
8 in that it may process, as viable developments with the likelihood of approval,  
9 those planned unit developments and subdivisions proposed within the Clatsop  
10 Plains that provide for unconventional lot arrangements. Without the amendment,  
11 all but conventional divisions of property into one acre lots would be prohibited  
12 under OAR 370-71-020(7). This restriction is not needed by any existing or  
13 proposed county land use planning policy and does not serve to promote or  
14 effectuate good land use planning in Clatsop County. With the present rule,  
15 the County is in the difficult position of approving developments which will  
16 be effectively prohibited by the rule. The resultant confusing acceptance (by  
17 the County) and denial (by DEQ) of the development does disservice to the public  
18 and does not promote public health, safety and welfare.

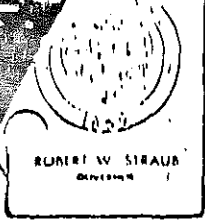
19 The clarification of subparagraph (E), as suggested, will give County  
20 planning staff, DEQ staff and the public an understandable rule and one that  
21 may, therefore, be followed and enforced.

#### 22 V

23 The County brings this petition as the result of a development presented  
24 to it by Joseph R. Camberg, 1920 Beach Drive, Seaside, Oregon 97318, and Clatsop  
25 Quality Construction Company, an Oregon corporation, P. O. Box 452, Gearhart,  
26 Oregon 97138 (represented by Hal Snow, Attorney at Law, 801 Commercial Street,

1 Astoria, Oregon 97103). It is his proposal that has alerted the County to  
2 the apparent misunderstanding and confusion between the rule as drafted and  
3 the explanation of the rule as presented by the hearings officer. See Exhibit  
4 "A" and in particular, paragraph entitled "Planned Unit Development". Clatsop  
5 County asserts, however, that though this particular development will be  
6 immediately affected by any change in the rule, the citizens of the County  
7 generally will be affected and beneficially affected by the prayed for temporary  
8 rule and subsequent permanent amendment to OAR 370-71-020(7).

9  
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11   
12 John T. Bagg  
13 County Counsel of  
14 Attorneys for Clatsop County  
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# Environmental Quality Commission

1234 S.W. MORRISON STREET, PORTLAND, OREGON 97205 PHONE (503) 229-5600

October 18, 1977

To: Environmental Quality Commission

From: Hearing Officer

Subject: Agenda Item G, October 21, 1977, EQC Meeting  
Addendum to Previous Agenda Item

## BACKGROUND

The October 11, 1977 hearing on this rule-amendment petition could not have occurred sooner and still have complied with Oregon law regarding public notice (ORS 454.685). This statutorily imposed time schedule, coupled with the requirement of staff time to present a responsible recommendation to the Commission has rendered this report quite late in contrast with normal Commission business of this magnitude. If the Commission decides deferment is in order for this problem, the reason is apparent.

The effort to get this matter before the Commission is reciprocal to the efforts of Clatsop County in locally exploring alternatives to the April 1, 1977 "Clatsop Plains moratorium" which the County then opposed. Since the County has diligently worked toward a basic modification that will still protect groundwater reserves, the Department has attempted to honor this effort by local government and bring this matter before the Commission at this late hour. The comments set forth below will result in a revision of the Proposed Rule Amendment and a revised recommendation. It should be noted that all are made independently of the Director who has not had opportunity for review. He may agree or disagree at the time of Commission deliberation.

## PLANNED UNIT DEVELOPMENTS

Clatsop County has asked that planned unit developments (where the dwellings may be in a single building or otherwise concentrated but accompanied by land sufficient to provide at least one acre for each single family unit) be permitted in the proposed rule. We have attempted to comply in our latest draft. (See subparagraphs (c) and (d) on page 9 of the Proposal).

## GRANDFATHERING OF EXISTING LOTS

We are assured in interviewing personnel in the Clatsop County Assessor's office that new lots of record (deeded or platted and filed under the subdivision law) receive tax lot numbers (which would have been included in our information) within two months of their recording. Hence, there is no danger that lots of record on or before April 1, 1977 have escaped our notice.

For each recorded lot under one acre in size in the proposed areas for one acre/family systems there may well be an owner of a large parcel who bought, built, and waited with the intention of selling a small part of his parcel to another builder later. Also, for each undersized lot there may well be a large lot whose owner intended planned unit development denser than one acre per family. Nevertheless, the undersized lots of record have constituted a dividing line the County has urged the Commission to draw. Therefore, it is recommended below that the 75 lots subject to Clatsop County's testimony, though of less than one acre in size, be allowed systems if they were of record prior to April 1, 1977. The 75 lots are a minor aspect of the 14 square mile study area. There will be available at the Commission meeting a map showing these lots. The use of the April 1 cutoff date will preclude preferential, windfall benefits for those who may have partitioned after the original moratorium for reasons other than development.

#### USE OF PARCELS WITH EXISTING SYSTEMS FOR AVOIDANCE OF THE RULE

A simple requirement that parcels be of a one acre/family equivalent size would leave open undesirable options. For example: A and B own contiguous 3/4 acre lots with houses and disposal systems located on the farthest 1/4 acre from their common property line. Already we have less than the desired one acre density. They could still each convey half an acre to C so as to make C's parcel eligible for a system and increase overall density to two families per acre. Wording has been proposed to prevent this.

#### CLATSOP COUNTY'S RELATION TO GEARHART ON THIS ISSUE

It was not entirely accurate for the drafter of the public hearing notice in this matter to characterize Gearhart as a place wherein the County wishes to see the moratorium remain. Gearhart took exception to this language and we apologize for it. Suffice it to say our information is that Gearhart is not among the areas where the County wishes to have the moratorium modified or removed. With regard to Gearhart, Hammond, and Warrenton, the staff continues to be respectful of the duties and rights of local government in this matter and will give serious consideration to such proposals as these cities may make in the future. At this point, we do not understand the County to be taking an incompatible position with ours and did not mean to imply otherwise.

#### CRITICISM OF THE SWEET REPORT

Among the conclusions of the consultant hired to evaluate the Sweet Report was the conjecture that more thorough review may indicate in the future that three families per acre on septic tank drainfield systems are appropriate in Gearhart. We neither endorse nor dispute this appraisal of the Gearhart area. The comments submitted tend, in general, to point out that the Sweet Report is conservative. We understand its author to be in agreement with this appraisal. Also, we understand the County to be cognizant of this aspect of the report. Our present recommendation is strengthened by such comment. It further emphasizes, for example, our inability to give sound technical reasons for denial of a permit to one intending to build on one acre. Reasons for lesser (or greater) restrictions may come in the future. When this happens, we will deal accordingly.

### FUTURE MODIFICATION

In the next ten months, the subject area is expected to develop a comprehensive plan. In a few months thereafter there will be zoning to implement the plan. It is readily apparent that the present recommendation should be considered temporary in nature. Future reexamination should address problems like that of Mrs. Steele and her neighbors to see if denial of a permit remains a sound course. Also, the impact on groundwater of the comprehensive plan and its resultant zoning will probably give new options to property owners. The present recommendation protects the aquifer with what conservative information is available and continues to leave open the opportunity for further evaluation.

### UNACCEPTABLE DEGRADATION

We have addressed requirements of future modification to "unacceptable" degradation as requested by the County.

### PROPOSED AMENDED DIRECTOR'S RECOMMENDATION

The Director recommends that the Commission take the following actions:

- 1) Enter findings that
  - a) The protection of the groundwater in the moratorium area requires continuation of the existing moratorium in the five unincorporated areas outlined in the County's letter of August 31, 1977. (Attachment E of the original agenda item 6 for October 21, 1977).
  - b) The preservation of water supplies for the future makes advisable the continuation of the moratorium in the two parcels of county-owned land and in Camp Rilea. This land was designated for future reserves in the County's August 31 letter.
  - c) There is no petition to modify the moratorium within the incorporated areas of Gearhart, Hammond, or Warrenton before the Commission and the moratorium should remain undisturbed until such time as the cities themselves or some other person petitions for modification and gives sufficient reason.
  - d) The seventy-five lots of record which are less than one acre in size but are not in the above-mentioned sub-areas of the moratorium do not threaten the 14 square mile aquifer study area with unacceptable groundwater degradation. While preferential, windfall benefits would accrue to allow systems on lots recorded after the April 1, 1977 moratorium date, the County's request to allow one single family system on such of these lots as were of record on April 1, 1977 and as otherwise qualify should be granted.
  - e) In the moratorium areas not mentioned above, septic tank/drain-field development not to exceed one single family flow equivalent per acre can take place without contributing unacceptable levels of nitrates of nitrogen to the groundwater beneath.

- f) The attached proposed rule amendment will continue to prevent unacceptable degradation of groundwater while allowing such development as, at present, appears to be compatible with preserving the quality of the groundwater.
  - g) The proposal, based upon conservative information, is subject to further review and does not prejudice future proposals which may be based on new information.
  - h) At the time a comprehensive plan and appropriate zoning are accomplished it is expected further review will be appropriate.
- 2) Adopt the attached proposed amendment to OAR 340-71-020(7) as a permanent rule to take effect immediately upon its filing with the Secretary of State.

Attachments

RECEIVED  
MAY 22 1988  
DEPT. OF ENVIRONMENT & NATURAL RESOURCES

ATTACHMENT 2

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TEMPORARY RULE AMENDMENTS TO  
CHAPTER 340, OREGON ADMINISTRATIVE RULES  
SUBSURFACE AND ALTERNATIVE SEWAGE DISPOSAL  
CLATSOP PLAINS MORATORIUM

71-020-(7)(b) Pursuant to ORS 454.685, within the areas set forth in subsection (c) below, neither the Director nor his authorized representative shall issue either construction permits for new subsurface sewage disposal systems or favorable reports of evaluation of site suitability, except to construct systems to be used under the following circumstances:

- (A) [T] the system complies with all rules in effect at the time the permit is issued [.] ; and,
- (B) [T] the system is not to be installed within any of the areas subject to the prohibition set forth in subsection (a) above [.] ; and,
- (C) [T] the system is to be installed on an undivided parcel of one acre or more in size upon which the dwellings or buildings to be served by the system are located and which is owned fully or fully subject to a contract of purchase by the same person or persons who own or are contract purchasers of the dwellings or buildings to be served by the system [.] except that, in a single planned unit development or single subdivision tract having enclosed boundaries and with open space land owned in common by all land owners, permits may be issued where the lot area upon which a dwelling is to be constructed is less than one acre but where each owner holds an undivided interest, in common

with all other owners, in open space land of sufficient acreage within the boundaries of the development so that the density of the entire parcel shall not exceed one dwelling per acre when considered as a whole and where the requirements of subdivisions (A), (B), and (C) of this subsection are met; and,

(D) [T] the dwellings or buildings to be constructed or existing on the land parcel when fully occupied or used allow for no more than the equivalent of sewage flow for one single family per acre of the land parcel [.]; and,

[E] [The land parcel upon which the system is to be constructed did not become of a size conforming to the requirement of paragraphs (C) and (D) of this subsection by any means so that a subsurface sewage disposal system may be used, installed, or under a permit to be installed on any land which otherwise would not conform to paragraphs (C) and (D) of this subsection and, after using such means, would result in a greater family to acreage ratio than one single family to one acre or more of land for such land which otherwise would not conform to paragraphs (C) and (D) above.]

No construction permit shall be issued under this subsection for any parcel of land where the parcel is created out of an existing parcel or parcels and where the creation of the new parcel results in a reduction of size of the original parcel or parcels to less than one acre and where the original parcel or parcels so reduced serve or are occupied by a dwelling



unit or by dwelling units or by any other subsurface sewage generating facility or thing.

71-020-(7) (e) The restrictions set forth in paragraphs (B) through [E] (D) of subsection (b) and in subsection (c) above shall not apply to prohibit permits for systems to serve one single family dwelling per parcel of land or less than one acre if such parcel's legal description was on file in the deed records of Clatsop County prior to April 2, 1977, either as a result of conveyance or as part of a platted subdivision.

Item J  
cc to C. L. ...

JOHN D. BURNS  
ATTORNEY AT LAW  
3121 FIRST NATIONAL BANK TOWER  
1300 S. W. FIFTH AVENUE  
PORTLAND, OREGON 97201

TELEPHONE 227-2577

AREA CODE 503

March 30, 1978

TO: Joe B. Richards, Chairman  
Grace S. Phinney  
Ronald M. Somers  
Jacqueline Hallock  
Albert H. Densmore

RE: Agenda Item No. J - Proposed  
Crude Oil Tanker Rules

Dear Mr. Chairman and Members of the Commission:

I have just been asked by the Western Oil and Gas Association to review the proposed crude oil tanker rules which appear as Item No. J on your March 31, 1978, agenda and to request permission to appear before you on their behalf to ask that you permit further evidence before considering these proposed rules for adoption.

Initially, I want you to know that I sincerely regret not being involved in this matter until yesterday and thereby having to come to you at this late date to ask for your consideration. However, my examination of these rules in the light of the legal issues involved, many of which I have had occasion to litigate in the past, has led me to the firm belief that the rules as proposed contain serious problems which will lead to immediate litigation unless these problems can be alleviated. I believe that most of these can be alleviated if you continue these proceedings to permit further public comment, particularly as to the staff report of March 23, 1978, to which we simply have not had sufficient opportunity to respond.

Some of these problems which I see are as follows:

First, a very practical problem is created by the limitation of ballast to 35 percent of deadweight tonnage. The Coast Guard has long recognized that ballasting directly affects the safety of a vessel, its crew and cargo. Therefore, the Coast Guard has refused to specify ballasting requirements recognizing that only the master, because of his intimate familiarity with his vessel's capability and his firsthand

opportunity to evaluate prevailing conditions, in the position to determine the ballast needed for safe operations. In sum, a master should not be placed in the awkward position of choosing between compliance with state regulations and safe vessel operations--particularly where insufficient ballast may affect the liabilities of owners and operators.

The problem is accentuated with respect to small tankers. As a general proposition, the smaller the tanker, the greater the percentage ballast per deadweight tonnage required. This means that some tankers cannot be safely operated in heavy weather often encountered at the Columbia bar if limited to 35 percent ballast.

The proposed alternative to limiting ballast to 35 percent of deadweight tonnage is 90 percent reduction in uncontrolled hydrocarbon emissions. Such emissions reductions could only be accomplished by installation of vessel vapor recovery systems which in fact do not now exist. In testimony presented to the California Air Resources Board on November 21, 1977, the Coast Guard declared that no such system has been approved for use on vessels. It further advised that no vessel vapor recovery system would be developed for at least three to five years. Even after a vapor recovery system may become available, a significant lead time would have to be provided for installation.

Secondly, the requirement of such design and construction modifications as a precondition to entry into state waters is precisely what the Supreme Court prohibited in Ray v. Atlantic Richfield Co., \_\_\_\_\_ U.S. \_\_\_\_\_ (3-6-78). Throughout the opinion, the compelling need for uniformity of regulation is repeatedly stressed. (See pages 10, 12, 15 and 25 n.28.) A Congressional policy of uniformly regulating the construction and design of crude oil tankers was found in Titles I and II of the Ports and Waterways Safety Act (46 U.S.C.A. Section 391a). Having reviewed that statute, the Supreme Court declared:

" \* \* \* that Congress intended uniform national standards for design and construction of tankers that would foreclose the imposition of different or more stringent state requirements. In particular, as we see it, Congress did not anticipate that a vessel found to be in compliance with the Secretary's [of Transportation] design and construction regulations and holding a Secretary's permit or its equivalent, to carry the relevant cargo would

nevertheless be barred by state law from operating in the navigable waters of the United States on the ground that its design characteristics constitute an undue hazard." p. 10.

To absolutely bar from Oregon waters those tankers not always capable of safely navigating with 35 percent or less ballast unless modified to permit vapor recovery exceeds in my judgment the limits on state regulatory authority expressed in Ray v. Atlantic Richfield Co., supra.

In this connection, I want to make it quite clear that I cannot agree with the interpretation of the Ray case and Huron Portland Cement Co. v. City of Detroit, 362 U.S. 440 (1960), set forth at page 2 of the above staff memorandum for it appears to me that, as in the Ray case, these rules, as proposed, would go beyond what was attempted in either Huron Portland Cement or Kelly v. Washington, 302 U.S. 1 (1937), by conditioning navigation upon tanker design or construction modifications. (See Ray at pp. 10-12.) The problems which the proposed ballasting regulations would create illustrates why the Supreme Court overturned such State regulatory action in Ray.

A third concern is presented by the kinds of practical problems envisioned by the proposed low sulphur fuel provision. This is because, while I appreciate your concerns over the level of sulphur, I note that your record is practically devoid of any evidence relating to this vital area other than the staff's memorandum which troubles me in several particulars, primary of which is the suggestion that the tankers "burn their own cargo." We would like to provide you with evidence to show you that since crude oil often contains low flashpoint components not present in bunker fuel oil, to use it as a vessel fuel would involve a serious risk of explosion. Similarly, to attempt to use cargo crude as fuel oil would involve vessel modifications which, again, I see as directly conflicting with Ray v. Arco, supra, since that case emphasized that States cannot require vessel modification as a condition to operating in state waters.

Finally, those tankers carrying crude oil owned by others are obliged to deliver such cargoes intact and are simply not at liberty to burn them for fuel as suggested by the memorandum. These concerns vis-a-vis the Federal policy of uniformity in the regulation of the design and construction of tankers (See Ray at pages 10, 12, 15 and 25 n.28) exist in the light of the

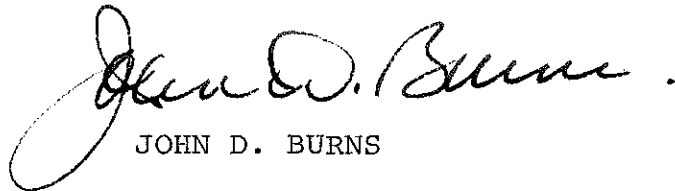
proposed alternative which would require installation of scrubbers on all vessels coming to Oregon from a port at which no low sulfur fuel is available. I don't know how we might resolve all of these problems to our mutual satisfaction but it seems to me that we should at least have the opportunity to attempt to do so and that is why additional time is so desperately needed at this point.

There is a final concern which exists due to the fact that these proposed rules relate only to tankers entering Oregon's waters for purposes of discharging or taking on crude oil at a crude oil trans-shipping terminal. By this proposal you place restrictions on tankers destined for such terminals which you do not place upon vessels with other destinations and consequently there is an immediate Equal Protection issue to overcome which, again, I believe has to be very carefully and judiciously examined before adoption of any rule.

Accordingly, I would appreciate it very much if you would give your serious consideration to deferring final action on these rules until we have an opportunity to respond fully to the above memorandum and confer with you on the problem-areas outlined above.

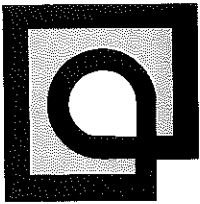
Thank you.

Respectfully,

A handwritten signature in cursive script, reading "John D. Burns". The signature is written in dark ink and is positioned above the printed name.

JOHN D. BURNS

JDB:d1



## WASHINGTON ENVIRONMENTAL COUNCIL

107 SOUTH MAIN, SEATTLE, WA. 98104 / 623-1483

AAUW  
Air Quality Coalition  
AIA  
AIP  
Alps  
CARHT  
Cascade Wilderness Club  
Citizens for Better Govt.  
Coalition Against Oil Pollution  
Colville Valley Env. Council  
Concerned about Trident  
Consumer Lobby for Refillable  
Beverage Containers  
Cougar Lake Wilderness Alliance  
Everett Garden Club  
Evergreen Fly Fishing Club  
Floating Homes Assoc.  
Hood Canal Env. Council  
Horn Hill Community  
Intermountain Alpine Club  
Izaak Walton League of America  
Junior League of Seattle  
Kitsap Audubon Society  
Lake Stickney Garden Club  
Lower Col. Audubon Society  
Marine Technology Society  
Mercer Island Env. Council  
Montlake Community Club  
The Mountaineers  
North Cascades Conservation  
Council  
Northwest Fly Anglers  
Northwest National Seashore  
Alliance  
Northwest Steelheaders  
Nisqually Delta Assoc.  
Oak Harbor Garden Club  
Olympic Park Assoc.  
Olympic Peninsula Audubon  
Society  
Pacific County Env. Council  
Pierce County Action  
Plichuck Audubon Society  
Planned Parenthood Center  
Protect the Peninsula's Future  
The Ptarmigans  
Puget Sound Beach Preservation  
Queen Anne Garden Club  
Recreational Equipment, Inc.  
S.A.V.E.  
Save Cypress Island Comm.  
Seattle Audubon Society  
Seattle Garden Club  
Shoreline League  
Sierra Club-PNW  
Skagit Alpine Club  
Skagit Env. Council  
Spokane Audubon Society  
Spokane Mountaineers  
Steelhead Trout Club  
Tahoma Audubon Society  
Thurston Action Committee  
Trailblazers  
University Methodist Temple  
Wash. Assoc. of College  
Biology Teachers  
Wash. Fed. of Garden Clubs  
Wash. Fly Fishing Club  
Wash. Kayak Club  
Wash. Roadside Council  
Wash. State Env. Health Assoc.  
Yakima Valley Audubon Soc.  
Zero Population Growth  
Spokane - Seattle

Commissioners  
Oregon Environmental Quality Commission  
State of Oregon  
Salem, Oregon 97310

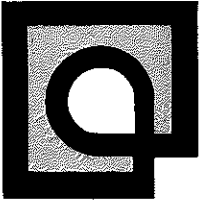
February 23, 1978

Gentlemen:

The Washington Environmental Council would like to go on record in support of the Oregon Environmental Council's concerns about the proposed oil transshipment facility at Port Westward. We would urge that your evaluation particularly address the following concerns:

- (1) Water Quality - will the proposal generate pollutants from storm-water runoff, sewage, disposal of shipboard wastes from bilges and bunkers that cannot be handled by existing or proposed water quality facilities;
- (2) Air Quality - will the pollution control measures under consideration by DEQ ensure no deterioration of the ambient air quality standards for the air shed that encompasses both the Oregon and Washington communities in that vicinity;
- (3) Oil Spill Avoidance - the potential for an oil spill can only increase as commercial river traffic on the Columbia River increases, can DEQ adopt and impose measures that absolutely minimize the probability of such an occurrence - in river transit, from ship to storage tank transfer, from storage tank to tank car transfer and enroute via rail along the Columbia;
- (4) Oil Spill Cleanup - Does the capability exist or can it be developed to contain and clean up any oil spill at any point from the Columbia River bar through to the refinery under any weather conditions at any time - is such a program being coordinated with the pertinent Federal, State(s) and private parties?

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
**RECEIVED**  
FEB 27 1978



WASHINGTON ENVIRONMENTAL COUNCIL

107 SOUTH MAIN, SEATTLE, WA. 98104 / 623-1483

All of us share a deep and abiding concern for the well-being of the Columbia River. The issue before you is not just oil transshipment or even "energy." Rather, the issue is how can we continue to impose increasing and conflicting demands upon the river - for transportation, irrigation, fisheries and recreation - without one particular use ultimately occurring to the detriment or exclusion of another; a decision made not in full public deliberation and debate, but by default, or more tragically, by unintended disaster.

Thank you for your time and consideration of our concerns. We shall be watching your proceedings with the greatest interest and concern. We do not envy the awesome responsibility you must assume in this decision.

Sincerely,

Richard F. Gorini  
Member of the Board  
(for)

Nancy Thomas  
WEC President

March 30, 1978

HAND DELIVERED

Department of Environmental Quality  
1234 SW Morrison Street  
Portland, Oregon 97205

Attention: William H. Young, Director

Re: Crude Oil Tanker Rules  
Agenda Item J, March 31, 1978,  
EQC Meeting

Dear Mr. Young:

At the request of NEDC and OEC, I am sending you this letter, which constitutes our written testimony concerning the proposed tanker regulations.

We believe the proposed regulations are inadequate. We believe that proposed Rule 340-22-080, to the extent it prohibits tanker operations in Oregon waters, is unconstitutional. In Ray v. Atlantic Richfield Co., \_\_\_\_\_ U.S. \_\_\_\_\_, 46 USLW 4200 (1978), the Supreme Court held invalid a Washington statute which purported to prohibit entry into state waters of tankers whose weight exceeds 125,000 DWT. Although the precise holding rested on statutory construction, 46 USLW, at 4206, the Court specifically took note of a portion of the Ports and Waterways Safety Act (PWSA), 46 USC § 391a(3), which reads in part as follows:

In order to secure effective provision (A) for vessel safety, and (B) for protection of the marine environment, the Secretary of the department in which the Coast Guard is operating. . . shall establish for the vessels to which this section applies such additional rules and regulations as may be necessary with respect to the design and construction, alteration, repair, and maintenance of such vessels, including, but not limited to, the superstructures, hulls, places for stowing and carrying such cargo, fittings, equipment, appliances, propulsive machinery, auxiliary machinery, and boilers. . . . (Emphasis added).

In light of this express reservation of federal authority to act, the failure, to date, of the United States to exercise this



Department of Environmental Quality  
March 30, 1978  
Page TWO

authority must imply that no regulation affecting tanker operation to the extent of the proposed rule is appropriate. See Ray, supra, 46 USLW, at 4207. Though the purposes of PWSA and the proposed regulation are arguably different, state authority is preempted when it would operate on the same object as federal regulation. Napier v. Atlantic Coast Line, 272 US 605, 612-13 (1926).

The proposed rule, unlike the Detroit smoke abatement rules in the Huron Portland Cement case, cited by your staff, would prevent, rather than merely burden, vessel operation. We are aware of no authority that permits states to bar from their ports vessels that are allowed by the United States to navigate in inland waters. See Douglas v. Seacoast Products, 431 US 265 (1977); Gibbons v. Ogden, 22 US (9 Wheat.) 1 (1824).

On the other hand, if it should be argued that the proposed regulation does not prohibit vessel operations, but merely subjects violators to statutory penalties, then we must submit that the proposed system of regulation is ineffectual. The provisions of ORS 468.130 to 468.140 are slow and cumbersome. Moreover, no means of enforcing the proposed rule is set forth. Although the staff report suggested that GATX be required to refuse delivery of oil cargoes from tankers whose fuel has too much sulfur, that proviso does not appear in the permit that was approved by the EQC last month. If enforcement of the proposed regulation is, in fact, non-existent, then federal review for Prevention of Significant Deterioration may be required.

The Commission has been alerted, by your staff and the witnesses at last month's hearing, of the consequences of a collision or stranding at the mouth of the Columbia River. Under the Ports and Waterways Safety Act, the Coast Guard is authorized to establish vessel traffic systems. 33 USC § 1221(1). Although we believe that the air contaminant and waste discharge permits should not have been granted at all, we submit that no further action should be taken with respect to the tanker rules until the Coast Guard has taken action to establish a vessel traffic system on the Columbia River, which is one of the most dangerous river entrances in the world.

Also, action should be deferred until the Corps of Engineers prepares an environmental impact statement. By federal law, the Corps is mandated to consider "secondary" environmental consequences, which consequences your staff and the EQC have, to date, not dealt with. See Port of Astoria v. Hodel, 8 ERC 1156, 1159 (D. Or. 1975); see also National Forest Preservation Group v. Butz, 485 F.2d 408 (9th Cir. 1973).

Department of Environmental Quality  
March 30, 1978  
Page THREE

In our opinion, the best course of all would be for the EQC to reconsider its grant of the permits. If permits should be issued at all, it should only be after a thorough federal review and adequate provision, at the state level, for enforcement of permissible state regulations.

I have enclosed with this letter five additional copies for the consideration of the Chairman and members of the EQC.

Very truly yours,

  
John Dudrey

JD:ncb  
Enclosures

cc: Robert M. Greening, Jr.  
Andrea Hyslop

DEQ

MORGAN & SHONKWILER

ATTORNEYS AT LAW

2111 N.E. 43RD AVE.

PORTLAND, OREGON 97213

TERRY D. MORGAN

JOHN W. SHONKWILER

TELEPHONES

(503) 287-6676

(503) 287-6411

January 26, 1978

Dept. of Environmental Quality

RECEIVED

JAN 26 1978

Environmental Quality Commission  
P. O. Box 1760  
Portland, Oregon 97207

PORTLAND REGION

Re: Amendments to City of Happy  
Valley Consent Order

Dear Commission Members:

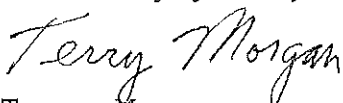
It has come to my attention that the DEQ Director has submitted a recommendation for your consideration at the January 27, 1978, meeting of the EQC regarding amendments to the City of Happy Valley Consent and Order on sewage disposal systems. I represent a group of landowners in Happy Valley who have advocated the installation of a sewer system for the Valley. The landowners' committee is generally in agreement with the Director's recommendation with the condition that the June 1st deadline be regarded as such by the Commission.

The City of Happy Valley has long delayed its facilities planning efforts. The latest excuse offered by the City is that the City could not act until the land use density question had been resolved. The City Council at its November session adopted a 1.5 acre average residential density for the entire city. As indicated in the letter from Michael Bye, dated November 23, 1977, additional decisions remain to be made which affect the facilities planning effort. The Commission should make it abundantly clear to the City of Happy Valley that further delays in the facilities planning effort due to postponement of land use decisions will not be tolerated by the Commission.

I also point out that LCDC has adopted a policy concerning lands within city limits which directs that these lands are to be considered either urban or urbanizable under LCDC goals. The Commission should carefully review the alternatives arrived at by the City to see if they are in compliance with the statewide rule.

Thank you for your consideration.

Sincerely yours,



Terry Morgan  
TM:sr

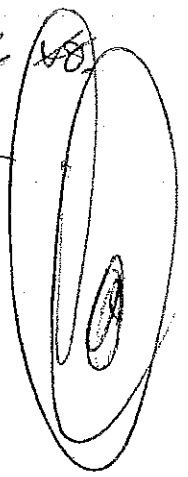
Mar. 6, 1978  
T. Jack Osborne  
Dep. of Environmental  
Quality  
P.O. Box 1760  
Portland, 97207

Dear Sir

I feel that emphasis to clean up the environment is directed in the wrong place. Farmers are being harassed for all the organic smoke that they deposit in our air already polluted by industry in this area.

Also I believe that sewage from the folks in this area can not be as harmful as industry waste. Please clean up the environment where it can be most beneficial to the environment.

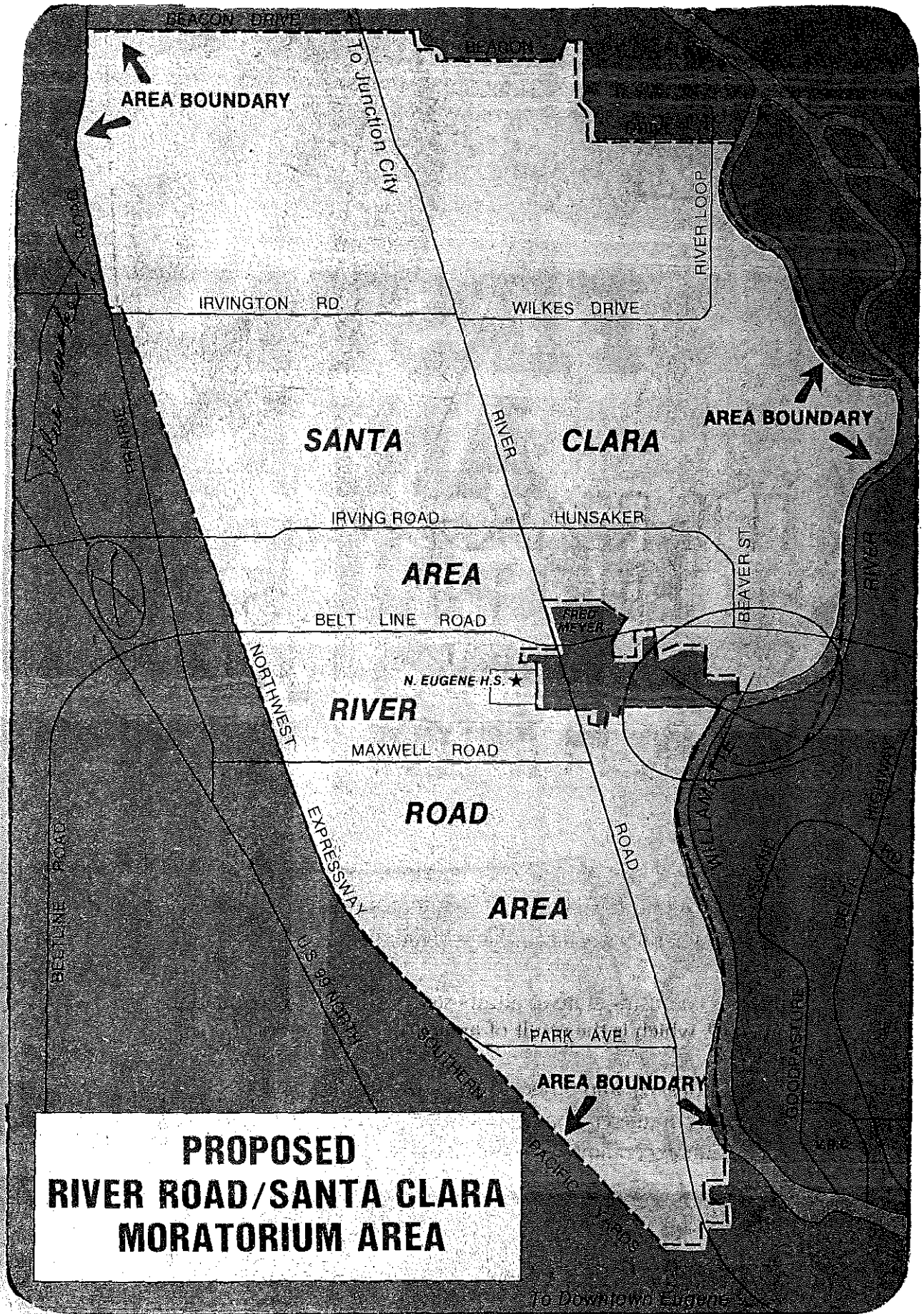
Love,  
Amy Higgins  
Dad's Family #8  
Eugene Ore  
1 97405



RECEIVED

MAR 10 1978

Water Quality Division  
Dept of Environmental Quality



**PROPOSED  
RIVER ROAD/SANTA CLARA  
MORATORIUM AREA**

To Downward Eugene

RECEIVED

MAR 13 1978

Eugene Oregon  
Mar. 7, 1978

G

Water Quality Division  
Dept. of Environmental Quality  
Dear Mr. Osborne

I can't attend any of the meetings about our septic tanks. But I do not want to go into the city no matter what happens to our septic tanks. But I do not think anything drastic is to happen to our septic tanks. We do have a very good under strata in the River Road area. I think it will be years before we will have a change but even then I would rather pay higher taxes to get sewers than going into city of Eugene. Can't we make arrangements with new systems Springfield and Eugene is going to have to care for sewer waste? I want to write more but know you are a busy person.

Sincerely  
Ethel Foster

Ethel Foster  
115 Oakleigh Lane  
Eugene, Ore. 97404

G

March 8, 1978

T. Jaak Osborne  
Dept. of Environmental Quality  
Portland, Oregon

Dear Sir,

We wish to put in our two cents, for what it is worth in this inflated market, concerning the River Road - Santa Clara septic tank moratorium.

In the twenty-five years we've lived on this street we have seen tremendous growth and have felt that city lot sizes and septic tanks should not go together. The soil is such in our area that apparently there are no great problems but that is not to say there never will be.

To get to the point where we are directly concerned, rather than allow more septic tanks on small lots and rather than call a complete moratorium, shouldn't it be more sensible and also fairer, to set a minimum lot size for any additional septic tanks, not only in this area but possibly the entire county or state. Perhaps an acre should be enough to insure the safety for all. No, we are not suggesting we cut the valley into one acre lots but allow septic tanks only in existing acre lots where normal growth is allowed and sewers are not yet serving them.

Yes, we do own such a piece of property, almost two acres adjoining our home/farm property. It is our intention to continue farming it but if our son wants to build a home on the property in the near future we hope it will be possible.

Thank you for considering our suggestion.

Sincerely,

*Mrs. Herbert G. Fortner (Janice)*

Mrs. Herbert G. Fortner

777 Irvington Drive

Eugene, Oregon, 97404

RECEIVED  
MAR 11 1978

1800 Hwy 99 N. #15  
Eugene, Or. 97402  
Mar. 31, 1978

Lane County Board of Commissioners  
Public Service Bldg.  
125 E. 8<sup>th</sup>  
Eugene, Or. 97401

Dear Sirs,

Irving Christian Church has grown in a year and a half, from a membership of 12 to 175 people. We are in an old building, without room for expansion. However, we have purchased adequate land in the Green Road - Santa Clara area on Irving Road. It is paid for, and we are ready to build, but we need a septic-tank permit. For this we have applied - many months ago. Please consider our plea, and grant our request. In exchange, we will be giving up the tank at the present location, so there is an even exchange.

Respectfully,  
Wendell C. & Evangeline  
Spriggs



LAB RESULTS

SAMPLE LOCATION	SOURCE DESCRIPTION	DATE COLLECTED	PH	COLIFORMS TOTAL Per 100 ml	COLIFORMS FECAL Per 100 ml	CHLORIDES Mg/l CL <sup>-</sup>	NITRATES Mg/l N	CONDUCTIVITY µmho/cm@ 25° C	PHOSPHORUS Mg/l P
2156 E. Irwin Eugene	Shallow well depth 20'	3/8/78	6.7	0	0	4.2	2.5	205	.063
1450 Jacobs Eugene	Shallow well depth 18'	3/8/78	6.5	20	Unable to Determine	3.8	2.5	210	0.158
Lane County PSB Eugene	Drilled Depth 345'	3/7/78	8.0	0	0	70.0	0.0	570	0.049
961 Forrester Way Eugene	Drilled Depth 22'	3/7/78	6.7	0	0	6.7	5.0	260	.092
440 Sunshine Acres Eugene	Drilled Depth ?	3/7/78	7.1	1	0	5.4	4.5	255	0.115
5007 Main St. Springfield	Drilled Depth ?	3/8/78	6.6	0	0	2.0	3.0	200	0.167
4155 "E" Street Springfield	Drilled Depth 60'	3/8/78	6.9	0	0	4.6	2.5	130	0.196
225 Chapman Lane Springfield	Shallow Well	3/8/78	6.3	0	0	3.8	4.5	230	0.106
2010 S. Shasta Lp. Eugene	Drilled Depth 65'	3/8/78	7.5	0	0	25.0	0.5	540	0.141
2041 S. Shasta Lp. Eugene	Drilled Depth 200'	3/8/78	6.8	0	0	7.8	1.5	450	0.035
Willamette River Skinner's Butte Park	Surface Water	3/13/78	6.8	100	10	1.2	1.0	53	0.036
AMERICAN PUBLIC HEALTH ASSOCIATION STANDARDS: MAXIMUM CONCENTRATIONS			5-9	0/100 ml	0/100 ml	250 Mg/l	10 Mg/l	None: Typically Between 150-300	None; Typical Below 0.2 Mg/l

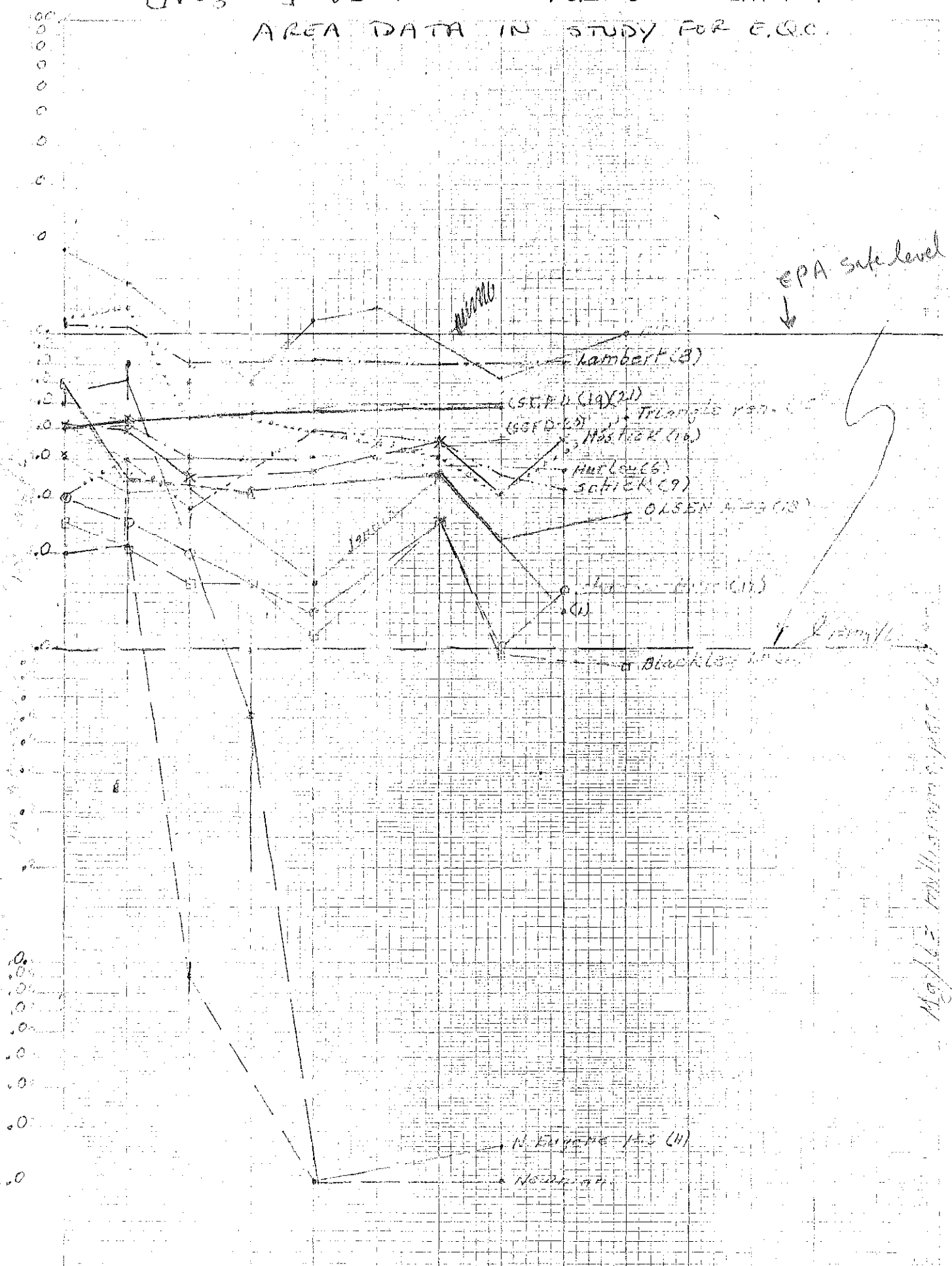
Well No.	Location	6-1-76	7-26-76	9-18-76	9-20-76	11-29-76	12-1-76	12-9-76	3-9-77	3-29-77	6-6-77	6-8-77	DEPTH	(N <sub>3</sub> +1)
1	Snowston-Janning	H 2,2 2,2	2.2/4 2,2 0,0	2.4/4 0,0	—	1.6 0,0	—	—	3.5 0,0	—	1.3 0,0	—	115	2.8
2	Newman	2 2,2	1.2/3 2,2	0.8/1 2,2	—	0.02 2,2	—	—	0.02 2,2	0.02 2,2	—	—	200	—
3	Major	—	—	—	—	—	—	—	—	—	—	—	20	—
4	North Eugene HS	6-7 2,2	4.2/8 2,2	0.2/1 0,0	—	0.02 0,0	—	—	0.26 0,0	2.6 0,0	—	—	142	4
5	Maasner	—	—	—	—	—	—	—	—	—	—	—	—	—
6	Hurley	5 2,2	4.4/6 2,2	3.0/5 5,0	—	—	—	—	—	—	3.7	—	56	—
7	Thomson	—	—	—	—	—	—	—	—	—	—	—	—	—
8	Lambert (Lambert)	10-11 2,2	6.2/11 16,2	6/11 13,0	—	8.2 1,0	—	—	8 0,0	6.5 0,0	8.1 0,0	—	—	—
9	Schick	3 6,3	2.8/5 8,2	2.8/3 5,3	—	4.9 2,0	—	—	4.5 2,2	3.5 2,2	3.2 3,3	—	48	—
10	Hosick	5 2,2	4.1/6 2,2	3.0/4 0,0	—	3.7 0,0	—	—	4.5 0,0	3.1 1,0	4.6 0,0	—	26	—
11	Frost	6 2,2	5.0/7 14,2	—	—	—	—	—	—	—	—	—	27	—
12	Shadow Hills	3 2,2	1.4/3.5 2,2	1.5/2.5 0,0	—	1.3 0,0	—	—	2.5 0,0	1.0 0,0	1.5 0,0	—	20	—
13	Lynn	4-5 2,2	—	—	—	—	—	—	—	—	—	—	103	—
14	Blackley In.	2-3 2,2	7.2/3 2,2	1.7/1.5 0,0	—	1.1 0,0	—	—	2.5 0,0	0.94 0,0	—	0.87 0,0	40	—
15	Triangle Ven.	(11) 315,2	17/7 2,2	0.8/4.8 300,7	—	4.4 25,0	—	—	4 100,10	3.2 TNR	—	5.4 400 TNR	74	6
16	Terry	—	—	—	—	—	—	—	—	—	—	—	—	—
17	Comac Ven.	—	—	—	—	—	—	—	—	—	—	—	—	—
18	Olsen M.F.G.	6-8 2,2	3-4 2,2	—	—	5.3/3.0 0,0	—	—	2.6 0,0	3.5 0,0	2.2 0,0	—	2.6 0,0	50
19	S.C.F.D. (199 Santa Clara)	6 2,2	5.3 2,2	—	—	6.1/5 2,2	—	—	5.9 2,0	—	6.0 6,0	—	—	—
20	S.C.F.D. (112 Irving Rd)	5 2,2	3.9 2,2	—	—	4.2/3.5 1,0	—	—	4.2 1,0	—	—	—	—	—
21	S.C.F.D. (River Ln I)	5 38,2	5.4 2,2	—	—	5.3/4.5 3,0	—	—	4.2 3,0	—	—	—	—	—
22	S.C.F.D. (River Ln II)	5 2,2	—	—	—	4.0 1,0	—	—	—	—	—	—	25	—
23	S.C.F.D. (1005 Ave. Rd)	4 2,2	3.1 2,2	—	—	4.2 1,0	—	—	—	—	—	—	25	—
24	S.C.F.D.	—	—	—	—	—	—	—	—	—	—	—	—	—
25	Empire Bowl L	—	—	—	—	—	—	—	—	—	—	—	—	—
208-3	Hough	H 11,2	2.6/3 2,2	2.5/3.5 3,0	—	—	—	—	—	—	4.7 4,0	—	—	4
208-5	Lewis	4-5 2,2	4.7/6 8,2	3.8/6 1,0	—	—	—	—	—	—	—	—	—	—
208-7	Sayles	6 2,2	4.7/1 6,2	1.0/6 1,0	—	6.0 1,0	—	—	4.8 0,0	4.3 2,0	—	—	—	—
	Hinds	17-18 2,2	1.5/14 2,2	6.8/8 0,0	—	6.8/8 1,0	—	—	1.2 0,0	—	—	—	—	—
	Spring Cir. V	7 4200, 1800	—	—	—	—	—	—	—	—	—	—	—	—

<25'

4  
M3

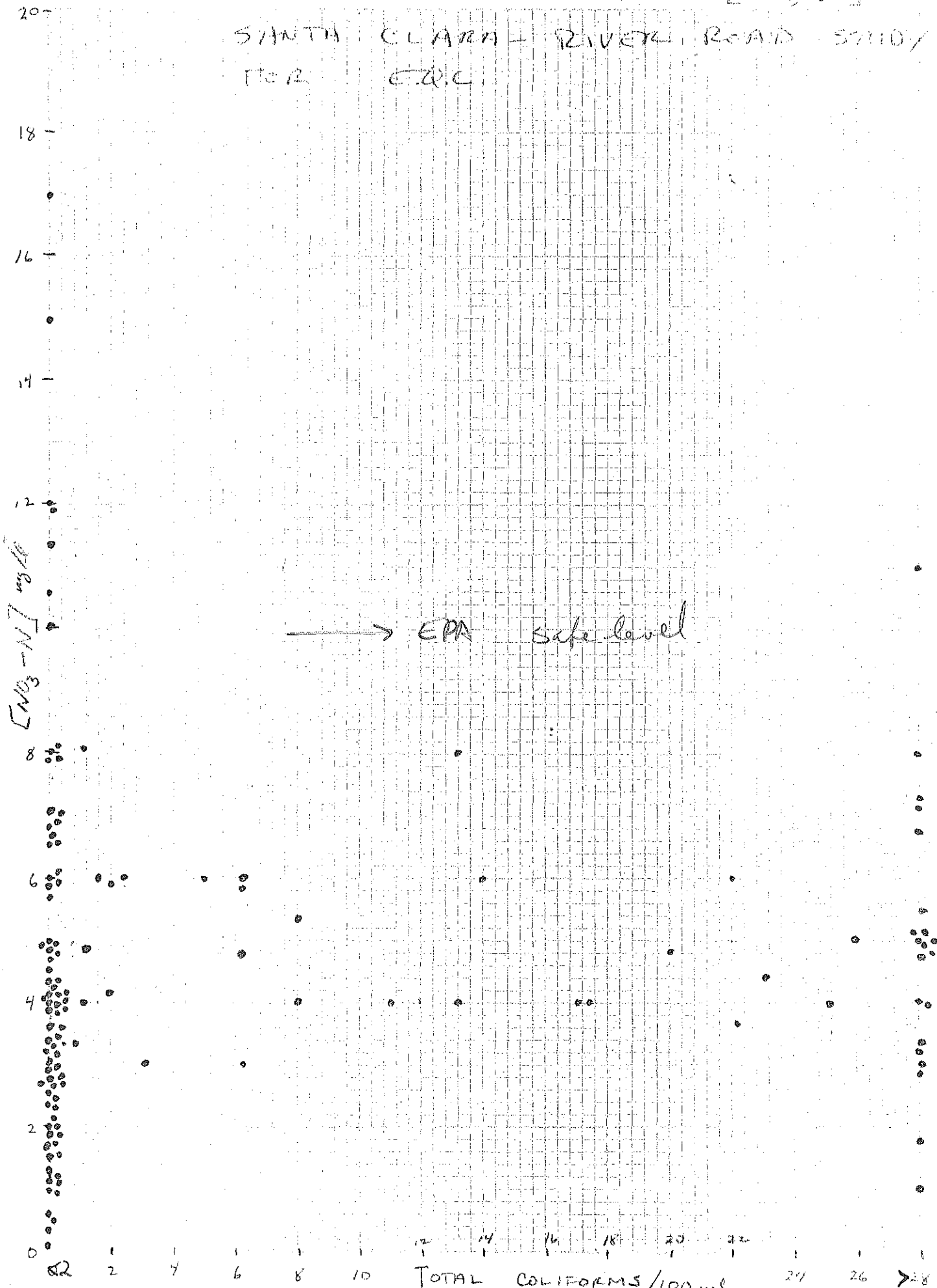
21

[NO<sub>3</sub>-N] vs TIME FOR SANTA CLARA RIVER RCD AREA DATA IN STUDY FOR E.C.C.



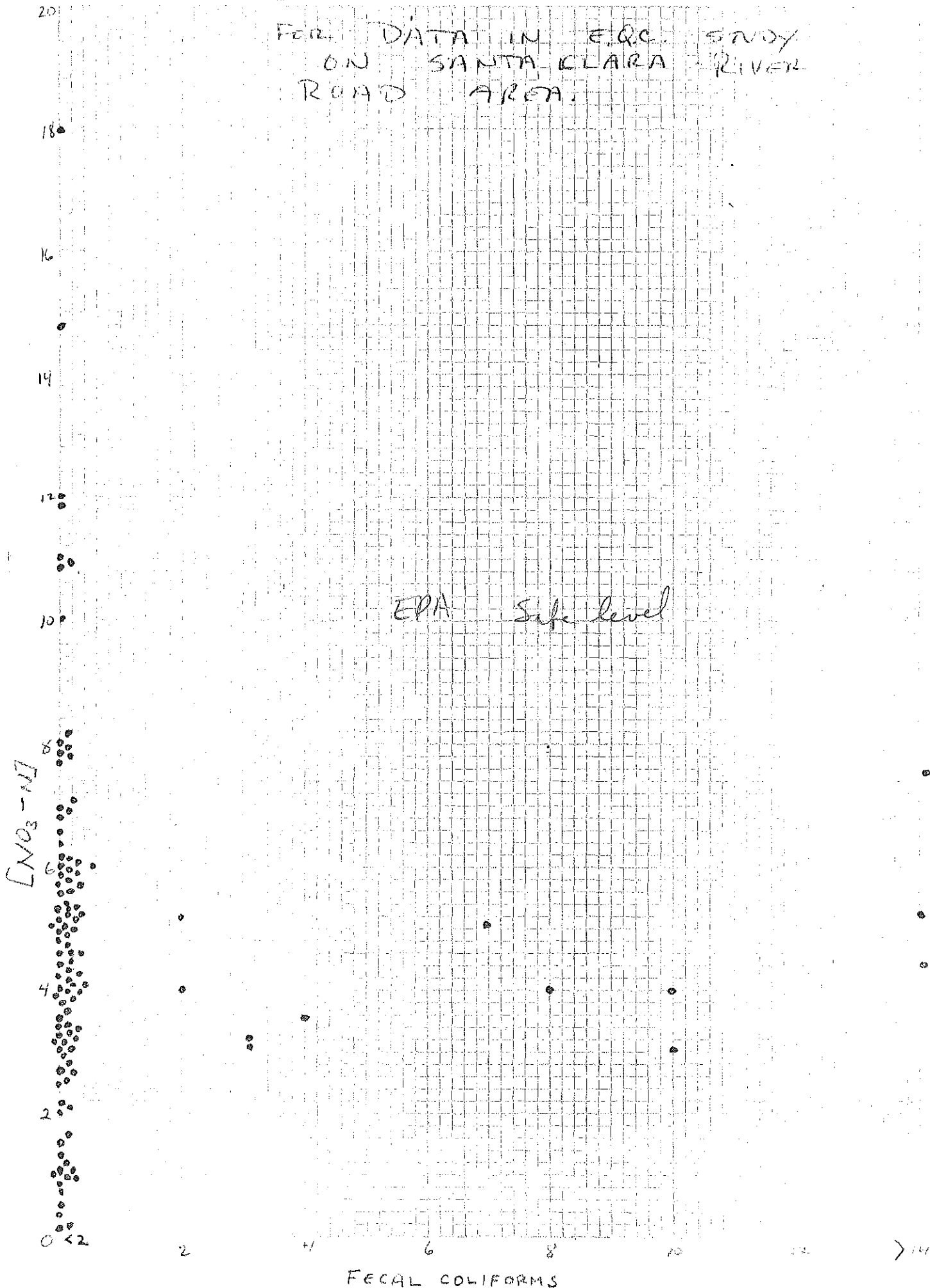
Mg/127 10/11/78

TOTAL COLIFORMS VS [NO<sub>3</sub>-N]  
 SANTA CLARA RIVER ROAD STUDY  
 FOR EPC



# [NO<sub>3</sub>-N] vs Fecal Coliforms Count

FOR DATA IN ERC STUDY  
ON SANTA CLARA RIVER  
ROAD AREA.



Present & Future Lot Sizes & Future Population Density Exhibits A & B

Current Lot sizes and general area space are larger than the lots of the City of Eugene, because of the nature of the area consisting generally of one family homes in a semi-rural area. Members of the River Road/Santa Clara Task Force (recently appointed & organized) were informed that at the present rate of development, all land space would be utilized in approximately three years. Thus, in fact, creating a self limiting moratorium (of three years) on the area. Under the 1990 Plan Map that I and several neighbors saw several years ago, it was noted that future plans for the area included heavy density urban type housing in the area of River Road. It is a well known fact that you cannot put 40 unit housing on a septic tank. The area must first be placed on sewer systems for this type of development to occur, thus a population change from 17 persons per acre to say 40 persons per acre can then occur. If this change does occur, (trippled population jump) and the changeover from current septic tank usage to that of sewers, then there may be a greater nitrate hazard from the exfiltration of sewer lines to the groundwater than is presently the case from septic tanks. (previous information-exfiltration- from person with sewer engineering expertise)

Topography-soil-geological characteristics

Exhibits C, D, E, F, G, H

The Soils of River Road/Santa Clara consist mainly of Class 1 Soils with some Class 2 (see map from U.S.D.A. conservation Dept.-they have been mapping all of Lane county) The soil scientist there indicated to me that we have as good soil condition as to be found in the U.S.A. for Septic Tanks, also it was stated on December 8, 1977 that our area had the best soil conditions in Lane County for septic tanks (statement J. Rust at Moratorium Hearing). This is important as to biological breakdown between the surface of the soil and the aquifer. Further, the down-gradient levels (map C-topographical) of the area from the city of Eugene (and hills thereof) would further indicate the probability of Groundwater originating south of us carrying nitrates and other pollutants (originating south of us) into our area. The city of Eugene (population close to 100,000) which is on sewers can and probably does produce much in the way of contaminants to the groundwater, through industry, air pollution, people fertilizing their lawns (3 cats, dogs etc) and other means (groundwater runoff) & most of the exfiltration occurs in the form of nitrates (formed from ammonia leaching from sewer lines into the soil which biologically changes to nitrate) Remember, the reason nitrate is used as a tracer in water is because it can travel so far- nitrates are also created in the atmosphere and brought down by rain, as well as from auto pollution/field burning. The amounts of these sources have not been checked for in relation to the River Road/Santa Clara Area, but should not be ignored scientifically, don't forget the legumes (plants), or the water pollution of the Willamette river (known to be carrying the top limit of pollution in the Eugene-Springfield area) and what the river can contribute to the groundwater Nitrogen level in the River Road/Santa Clara Area. Why have these sources of Nitrates been almost totally ignored? Especially in light of the studies done clear back to 1942 as reported in the Randy Sweet Report (Intern Report.), This is not scientific data collecting and what has been done is inconsistent and ignoring of many factors that can affect the resultant conclusions. You will find climate conditions discussed in his report. Also see notes (handwritten in folder/news article incl.) in Groundwater Report, Note also pages 40-51, and the final Summary of Report and the high incidence of assumptions made by Mr. Sweet, to make up for so many areas that are lacking in data, So many things have been ignored or never checked for. - Now in regards to C, It is known that the old river bed of the Willamette used to go through the Business District of Eugene and head north northwest, thus the old drainage flows (aquifer, etc) flow geologically in that direction. Many times it has been indicated in publicity/public meetings that Junction City/Alvord and areas north/northwest of River Road/Santa Clara are receiving suspicious groundwater from the River Road/Santa Clara Area. However, this totally ignores the fact that such statements have not been substantiated scientifically with data nor has the influence of the metropolitan area been taken into consideration

W.A. [unclear] 182

of any polutants originating outside the River Road/Santa Clara Area, that pass through to the northward. Now Bill Titus of the Enviromental Protection Department (as well as the information of the sewerling expert) indicated that a proper study would check for polutants entering an area, the area, and what polutants if any leaving the area (in order to determine if a hazard is created by a given area-scientificaly). Therefore since there is no data about polutants entering or leaving the area, and much other scientific data is also not available it would be prudent in vieu of the limited data available to do a proper area wide study as indicated by Mr. Titus. Especially in vieu of the fact that the residents of River Road/Santa Clara do not drink the grounwater, nor utalize it in household uses, for they purchase water for these purposes through their respective water boards/E.W.E.B. and the City of Eugene. And untill such a scientific Study is done, it is improper to raise a claim that the grounwater north of RR/SC is hazardous-potentially hazardous-etc. unless there is clear justification or proof of such a claim. The people have been asking for such information for a long time, or any substancial valid information, and have been beet with no answer or lacking/and questionable.data. The River Road/Santa Clara Task Force has asked for more data, because that given has been insufficient. If you have been furnished with any such data will you please share it with us th people, under the freedom of information act?

If "Nitrate Levels of 45-50 ppm (under the World Health Organization) -Exhibit G- in drinking water fail, for the most part, to cause acute symptoms of nitrate poisoning in adults, infants, and animals." Then your regulations of 10ppm would produce even less of a potential hazard, if any. The data so far available to the public is sporatic and inconsistant scientificaly (and is therefore question-able on the basis of it) Therefore is it prudent, or justifiable to lay a State moratorium on a people who are trying to presently lay plans for the future before they can complete their recomendations? The same people who have prudently paid a Sewering Charge for 25-27 years, collected by the City of Eugene, who have not been given any services during this time? These people have been Looking forward toward the development of alternative methods/and considering the ecological implications and hoping to be able to vote on a more viable method than annexation which is required by the City of Eugene. Other possiabilitys do exist, which are backed up by our commissioners new County policy (Exhibit H) - But if you impose a moratorium, it is indicated that "the area's ultimate annexation to Eugen will be almost automatically dictated." What is the price of a Vote in the Fall, \$10.00- \$100.00- \$1000.00- \$2000.00 - \$247,000.00 quarter of a million dollars? Close to a third of a Million Dollars? This is what the people have prudently Paid to reach a resolution, when the time evolved. Are you going to impose a moratorium on the limited/inconsistant data available (see Randy Sweet's conclusion)-before a proper study currently being requested can even be started) Thus almost automatically limiting the choice of the people to annexation under current curcumstances, as well as taking away their right to Vote? It is a high price for a people to pay, who have been prudent and are trying to resolve the problem. Can you not wait (in vieu of the limited data) untill (1) the Task Force recomendations are in, and (2) till the new Groundwater Study has been at least started? Why the rush? Is the evidence that overwhelming that no delay can be considered? I and the public have not heard of such overwhelming evidence nor seen any. Since we have no failing or marginal septic tanks, or immediate or present health hazard, a moderate (on the average-) soil condition, (most tanks are only 10-15) years old - it is respectfully requested that you rull in favor of the people to prudently make recomendations of their own in this matter, at least untill further scientific data is available.

Thank you

Vora Heintz

GROUND-WATER CONTAMINATION EVALUATION,  
RIVER ROAD-SANTA CLARA, OREGON

February 28, 1978

by: Environmental Geology and Ground Water  
H. Randy Sweet  
Consulting Geologist/Hydrogeologist



LANE COUNTY BOARD OF COMMISSIONERS

Jerry Rust, Chairman

Archie Weinstein

Bob Wood

Robert Wood

DEPARTMENT OF ENVIRONMENTAL QUALITY

Rich Owings, Director

WATER POLLUTION CONTROL DIVISION

Roy Burns, Director

Craig Starr, Project Director 687-3954

Printed by Lane County Service Bureau

March, 1978 Courthouse/PSB Eugene, Oregon 97401

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## SUMMARY AND CONCLUSIONS

Significant development and increased growth in the study area began in the 1940's and 1950's and reached a peak in the 1960's. Between 1940 and 1976 the population increased from approximately 3,000 to 27,500. The current estimate of dwelling units equivalents in the area is set at 8,488.

The study area is underlain by Recent alluvium, that is, lenses of gravel, pebbles and sand with minor silt and clay. Older alluvium occupies the western portion of the area while Younger alluvium predominates in the flood plain of the Willamette River. Both the Older and Younger alluvium provide large quantities of water to wells, evidence of their high permeability or hydraulic conductivity. A number of soil series have been mapped in the study area. Excessively well drained to moderately well drained soils dominate the area, including gravelly alluvium, sandy loam, silt loam and silty clay loam. Most of the soils in the area can readily accept septic tank effluent. However, subsurface disposal in the more well drained soils can result in rapid movement and inadequate treatment of septic tank effluent as it percolates from the disposal system to the shallow underlying alluvial aquifer. In other words, efficient disposal, but limited treatment of some constituents is the net result.

The Eugene area receives more than 40 inches of precipitation annually. Precipitation is the major source of recharge to the shallow alluvial aquifer in the area with about 13 inches annually reaching the water table and the balance is accounted for as runoff, evaporation and/or transpiration by vegetation.

The Willamette River and its tributaries are the main surface drains for the regional, intermediate and local ground-water discharge. The deep seated regional and intermediate flow systems receive recharge from the Cascades and Coast Range as well as their foothills. The shallower local flow system is recharged by the above mentioned infiltrating precipitation on and immediately adjacent to the valley plain. Ground-water underflow in the local system is generally from the south (Eugene area) and toward the north-northwest. The shallow nature of the local ground-water flow system as well as its high permeability or hydraulic conductivity make it particularly accessible for development, but also susceptible to contamination from surface sources. However, the immediate study area utilizes imported water for domestic purposes, that is through water districts serving the area, while the northern, down-gradient, area depends on ground water as a sole source for domestic supply. Household use and disposal of imported water via septic tank - drainfields may provide an estimated 1.1 billion gallons per year of aquifer recharge in the study area. This is about 30 percent of the total volume calculated for annual aquifer recharge.

The quality of the ground-water in the shallow, local flow system in the Willamette Valley is generally good under natural conditions. In developed areas, a number of contaminants can be introduced to the aquifer, for example, via septic tank-drainfield disposal as in this study area. Also, ground-water underflow from the adjacent up-gradient Eugene urban area may provide significant amount of contaminant to the study area. It is not possible to quantify this contribution due to lack of data points, specifically sampling stations.

While a number of parameters are important to water quality, nitrate is the major concern of this study. Nitrate is an excellent tracer in ground-water movement due to its relative mobility and ease of testing. Nitrate is also significant in that E.P.A. has set a primary drinking water limit of 10 mg/l nitrate-nitrogen. Nitrogen is introduced to the ground-water by both natural, e.g. precipitation and vegetation, and induced sources, e.g. fertilizers, sanitary wastes and other land use or disposal activities. In the study area it has been estimated that precipitation and water supply background account for about one percent, dwelling unit fertilizer use about 8 percent and sanitary wastes about 91 percent of the more than 536,000 lbs/yr of nitrogen generated. Note: agricultural fertilizer and "other" sources have not been quantified.

Applying the estimates outlined above for recharge and nitrogen production, and assuming that dispersion and dilution are the primary mechanisms for attenuation of the  $\text{NO}_3\text{-N}$  entering the ground-water, it is possible to calculate the resultant concentrations in the ground-water. Initial estimates of the theoretical concentrations range from 3.7 to 16 mg/l  $\text{NO}_3\text{-N}$ , given the existing development densities. These levels compare to measured values ranging from 1.5 to 26.2 mg/l  $\text{NO}_3\text{-N}$ , at selected sampling stations.

As noted earlier, a number of wells sample mixed local and intermediate flow systems and a number of the "selected" sampling stations lack complete data. Field inspection of sampling stations demonstrated that selection of available stations as well as sampling procedure appears to have biased some data points. Limited recharge during the most recent sampling period probably resulted in little vertical percolation of  $\text{NO}_3\text{-N}$  to the water table. In addition, no information is available regarding decay mechanisms and/or rates as well as existing or potential organic sinks of nitrogen. As a result of all of these shortcomings, it is not possible to verify the anticipated  $\text{NO}_3\text{-N}$  concentrations in the local, shallow ground-water in the River Road-Santa Clara area at this time.

This report concludes that:

1. A highly permeable and productive aquifer underlies the study area and this shallow aquifer is readily accessible for development as well as surface contaminants.
2. Disposal of sanitary wastes via on-site disposal systems is the primary source of nitrogen in the study area and as the population increases, a proportional increase in  $\text{NO}_3\text{-N}$  can be expected.
3. Theoretical and measured  $\text{NO}_3\text{-N}$  concentrations have been shown to locally exceed E.P.A. primary drinking water standards.
4. Areawide verification and/or calibration of a ground-water flow model is not possible given the paucity of available acceptable data.
5. Quantification of the extent of  $\text{NO}_3\text{-N}$  contamination in the study and down-gradient areas requires an improved data base.

## RECOMMENDATIONS

1. Complete inventory of nitrogen sources such as vegetative input, fertilizer use and industrial sources;
2. Sample background or up-gradient wells to determine "Eugene" and/or other underflow sources;
3. Define the ground-water flow system with vertical and horizontal potential gradients, relative permeability of strata, precipitation vs. recharge relationships and shallow aquifer mixing zones;
4. Delineate existing or potential nitrogen sinks and estimated decay rates;
5. Select sampling and testing sites including some surface waters for quality as well as seasonal response to precipitation, runoff and recharge; and
6. Sample, test, and analyze on a monthly basis and over one water year to include pH, electrical conductivity, ammonia, nitrate, chloride, sulfate and bacteria.

## INTRODUCTION

### Location

The River Road-Santa Clara study area occupies about 7,060 acres at the southern end of the Willamette Valley, between the Coast and Cascade Mountain Ranges, see Figure 1. Hydrologically, the area is in the upper Willamette Valley basin.

Most of the study area lies on a flat to moderately flat alluvial plain with elevations ranging from about 355 - 410 ft. above mean sea level. The eastern portion of the study area occupies a lower alluvial plain which is coextensive with the 100 year flood plain of the Willamette River. Elevations in this area range from about 350 - 385 ft. above mean sea level.

### Background

Historically, the study area was developed for agricultural purposes. As the City of Eugene grew, so did the adjacent suburban development including the study area. Population in the study area increased from approximately 3,000 to 27,500 between 1940 and 1976, see Figure 2. Approximately 50 percent of the study area is vacant at the present time, see Table 1. Table 2 includes the number of parcels in each land use within the various subareas. On-site disposal of wastewater has increased in proportion to the population growth as depicted on Figure 2. The ultimate receiver of infiltrating effluent is the shallow ground water..

Initial domestic water supply to the area was from shallow wells, and it is estimated that at least hundreds and perhaps thousands of un-registered shallow wells are presently located in the area. These supply some domestic

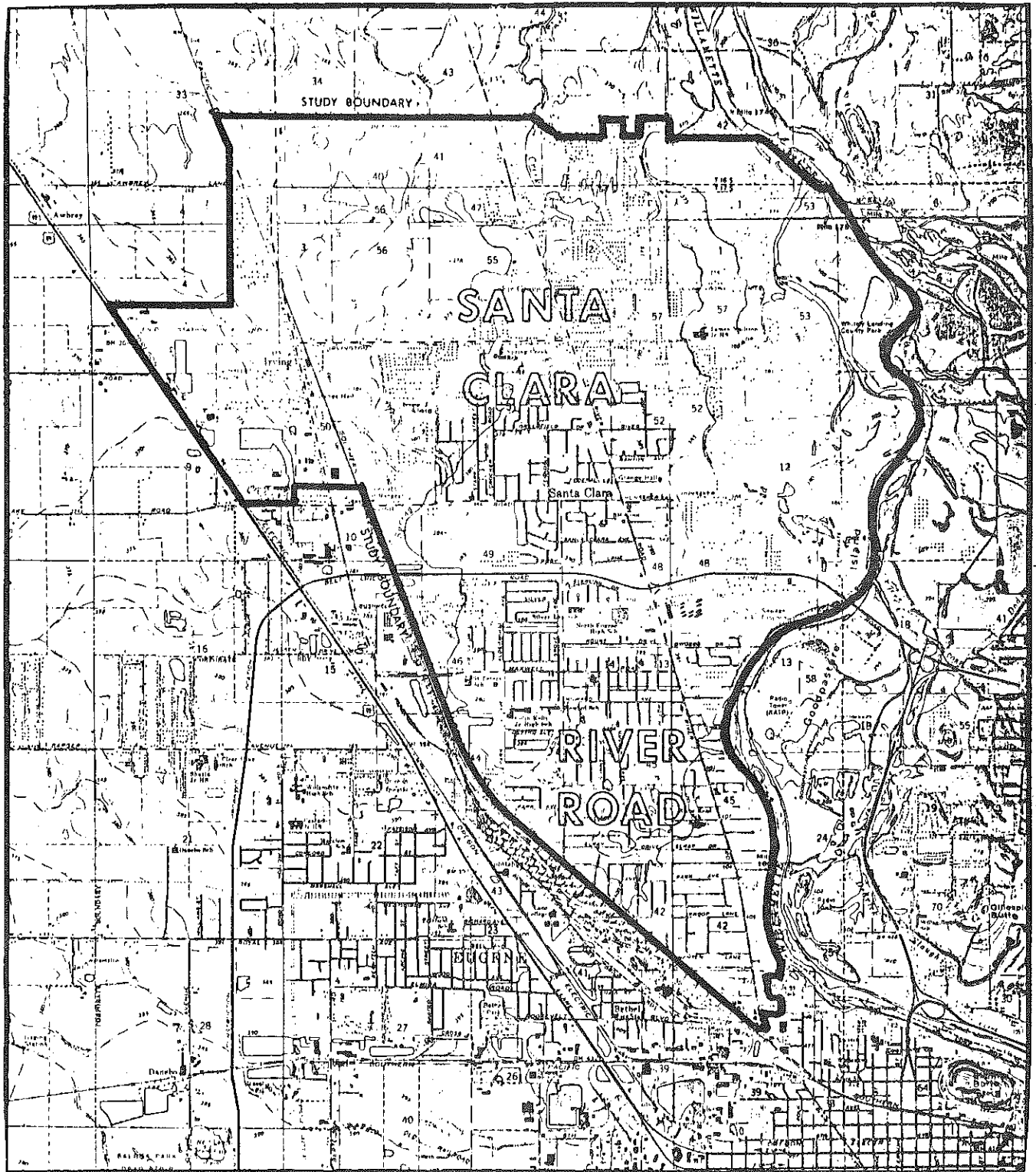


FIGURE 1

Lane County, Oregon  
River Road - Santa Clara

STUDY AREA



FIGURE 2  
RIVER ROAD - SANTA CLARA  
POPULATION AND ON-SITE DISPOSAL SYSTEMS

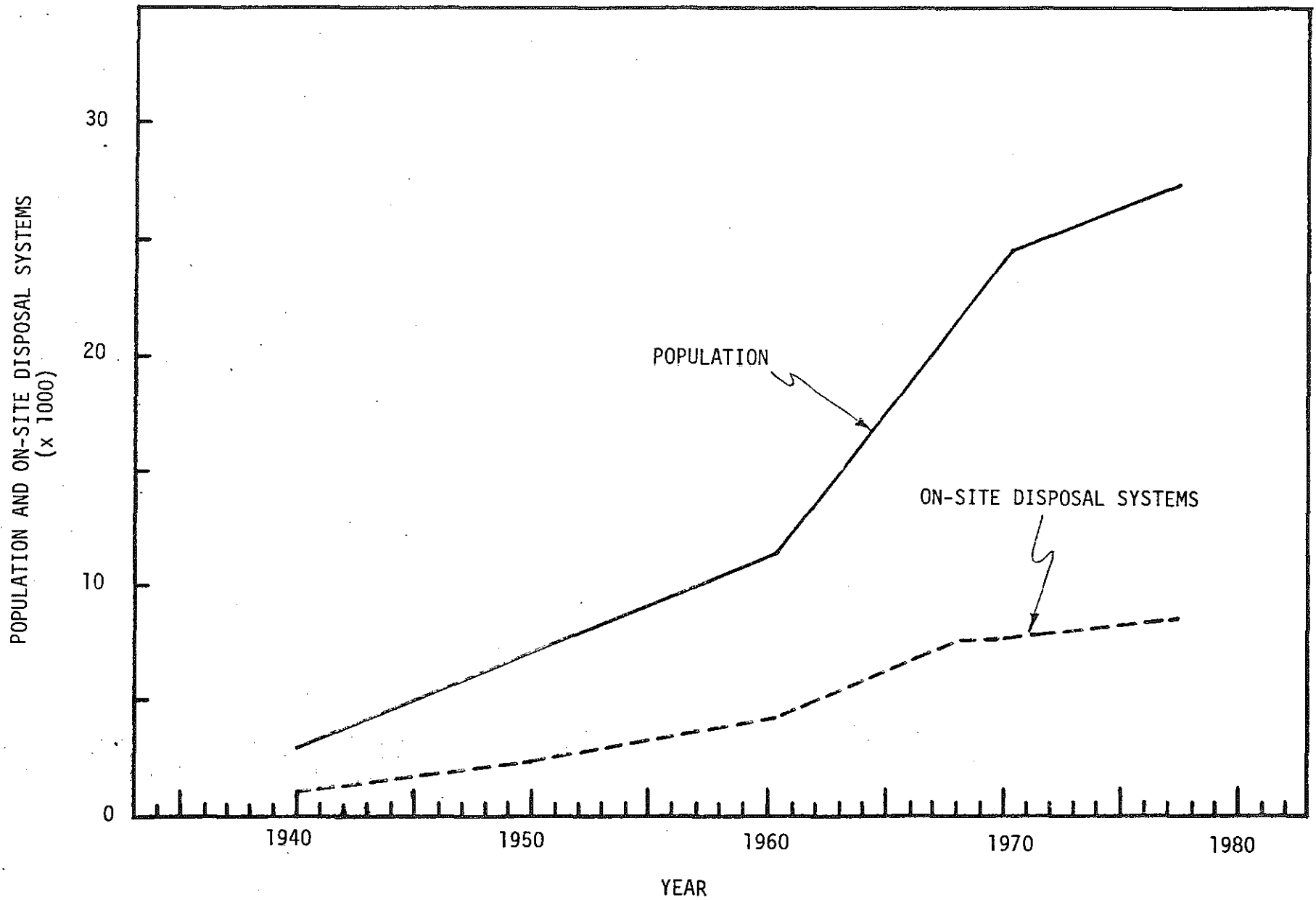


TABLE 1

## RIVER ROAD-SANTA CLARA LAND USE (Acres)

<u>District</u>	<u>Residential</u>	<u>Commercial</u>	<u>Vacant</u>	<u>Roads</u>	<u>Total</u>
Unclassified	27.84	2.31	223.31	777.48	1,030.95
Eugene	35.50	17.75	47.55	4.03	104.82
Lane Rural Fire	164.45	284.73	696.82	0.25	1,146.25
River Road Water	860.00	46.58	413.37	5.82	1,325.77
Santa-Clara Fire	85.70	12.41	858.00	0.00	956.11
Santa-Clara Water	<u>1,150.76</u>	<u>63.76</u>	<u>1,270.61</u>	<u>11.48</u>	<u>2,496.61</u>
Total	2,324.26	427.54	3,509.65	799.06	7,060.52

TABLE 2

## RIVER ROAD-SANTA CLARA LAND USE (PARCELS)

<u>District</u>	<u>Residential</u>	<u>Commercial</u>	<u>Vacant</u>	<u>Roads</u>	<u>Total</u>
Unclassified	64	1	37	688	790
Eugene	68	30	24	4	126
Lane Rural Fire	184	49	120	1	354
River Road Water	3,117	96	404	22	3,639
Santa Clara Fire	62	4	81	0	147
Santa Clara Water	<u>4,256</u>	<u>84</u>	<u>548</u>	<u>13</u>	<u>4,901</u>
Total	7,751	264	1,214	728	9,957

TABLE 3

RIVER ROAD--SANTA CLARA TAX LOT AREA WITHIN  
CENSUS TRACTS BY BLOCK GROUPS

TRACT	BLOCK-GROUP	AREA (Acres)
		10.3422
23		995.0036
23	100	66.1006
23	140	96.0596
23	200	241.1347
23	300	931.4750
23	400	2,322.1157
23		1.6799
24		41.0099
24	100	1,516.3918
24	141	2.5512
24	200	11.7863
24	300	382.7707
24	400	466.3933
24	500	359.7650
24	600	441.9357
24	900	3,224.2838
24		238.9046
27	100	257.9862
27	200	5.0368
27	300	2.4152
27	400	8.2615
27	600	512.6043
27		3.1139
28		273.4678
28	100	112.7750
28	200	115.6968
28	300	214.2188
28	400	71.7124
28	500	790.9847
28		22.8202
41		55.4977
41	100	102.7816
41	200	197.4158
41	300	117.2917
41	400	170.0839
41	500	85.5630
41	600	751.4539
41		7,601.4424

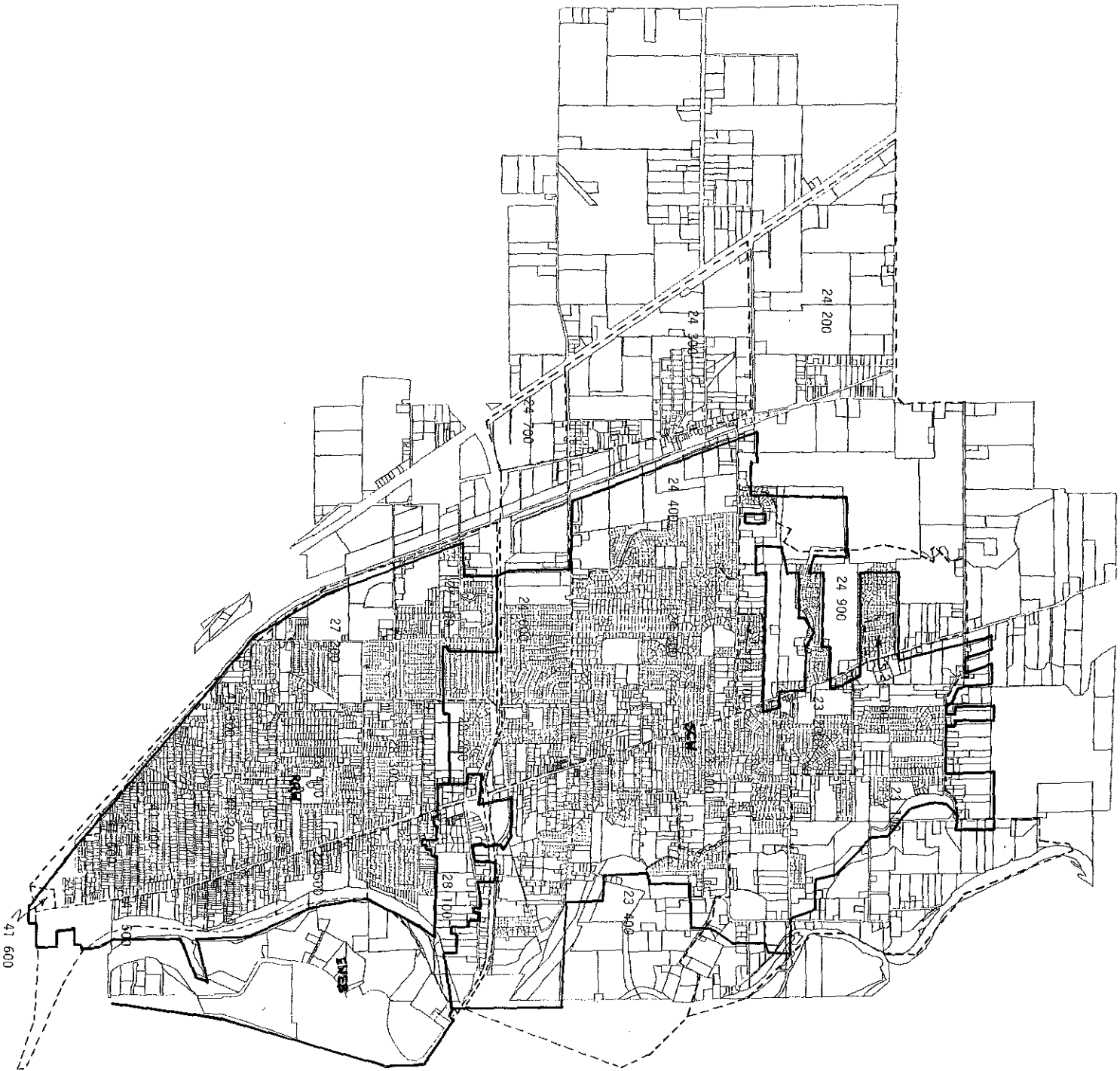
TABLE 4

## RIVER ROAD-SANTA CLARA WATER CONSUMPTION

(Gallons/1000)

MONTH	RIVER ROAD WATER DISTRICT			SANTA CLARA WATER DISTRICT		
	1970	1971	1976	1970	1971	1976
December (preceeding)	28,121	30,941	24,831		29,854	47,043
January	23,195	25,109	21,956	NO DATA AVAILABLE FOR 1970	27,661	33,259
February	25,825	29,432	21,622		25,982	35,309
March	24,274	29,545	22,515		29,616	37,048
April	29,255	30,011	26,216		25,839	32,340
May	46,913	32,759	35,527		27,562	42,119
June	66,315	53,490	53,058		31,813	52,373
July	113,380	80,820	59,831		46,703	64,426
August	83,242	66,334	38,913		73,485	121,633
September	34,005	29,053	38,497		63,456	73,880
October	28,715	28,151	30,059		36,776	71,922
November	28,560	30,666	29,302		29,458	48,336
December	30,941	29,422	20,017		29,854	29,476
From E.W.E.B. Records		464,792 (x 1000)	397,513 (x 1000)		447,827 (x 1000)	660,413 (x 1000)

FIGURE 3  
WATER DISTRICTS & BLOCK GROUPS  
RIVER ROAD - SANTA CLARA



and extensive irrigation waters. The immediate study area is now served by the River Road and Santa Clara Water Districts which import treated surface water to the area, see Table 4. Figure 3 outlines the boundaries of these service districts as well as census block groups for reference in using Table 3 and other discussion included in the balance of this report. It should be noted that the utilities service district extends to the north border of the study area, but that those areas further north continue to depend solely on ground water for domestic supplies.

Piper (1942) covered the Eugene area in his early reconnaissance investigation of geology and ground water within the Willamette Valley. Ham (1961) carried out a detailed water level study covering much of the study area in an unpublished thesis. Frank and Johnson (1970) inventoried selected ground-water data in the Eugene-Springfield area in conjunction with the preparation of a U.S. Geological Survey Water-Supply Paper covering that same area (Frank, 1973). Following Frank's initial work, Lane County provided support for a graduate thesis (Dickinson, 1972) to perform more detailed, site specific, work in the study area. As a follow-up to Dickinson's study, Lane County re-sampled portions of the study area between June, 1976, and June, 1977, as part of its "208 Areawide Wastewater Management Program", see Appendix A.

#### Purpose

The purpose of this investigation is to: 1) review all the above data sources and related available information including soils, population and density changes, wasteloads, and other significant parameters related to water quality in the area; 2) provide technical literature survey in conjunction with an evaluation of the existing data base; and 3) present a report to Lane County Environmental Health and Water Pollution Control Divisions. This report is to include a summary of background information; assessment of ground-water quality and its relationship to existing and projected residential development in the area; conclusions related to existing and/or potential ground-water contamination in the study area; and a review of the existing data base emphasizing deficiencies in the data. Also, programs for the collection of additional necessary data in the study area are considered and discussed.

#### Acknowledgements

Lane County's Water Pollution Control and Environment Health Divisions as well as the L-COG Research Section provided direction, support and valuable statistical information, respectively. Roy Burns, Craig Starr, John Stoner, Kay Percy and Kathi Wiederhold are acknowledged for their assistance. J. Frank of the U. S. Geological Survey provided support and file data. T. M. Rahe made available pre-publication data relating to potential ground-water bacterial contamination and movement. Carol Rutherford prepared the manuscript and Bruce Bittle the graphics.

## HYDROGEOLOGY

### Geology

The geology of Lane County and the Eugene area has been described by many authors including Wells and Peck (1961) and Vokes et. al. (1951). The study area is generally underlain by Recent alluvium. Frank (1973) and Dickinson (1972) have described two units within the Recent alluvium, i.e. Older alluvium and Younger alluvium, see Figure 4.

Older alluvium underlies the main valley plain and consists largely of interconnected lenses of coarse volcanic sand and gravel interspersed with fine sand and silt to a depth of about 100 feet. Below this depth the alluvial deposits grade into and interfinger with lenses of pebbles, sand, silt and clay. The shallower materials which are of prime importance in this study and yield large quantities of water to wells and are highly permeable or have high hydraulic conductivities.

Younger alluvium is coextensive with the flood plain of the Willamette River adjacent to the study area. These flood plain alluvial deposits underlie the Horseshoe and Ingram geomorphic surfaces, as outlined under "Soils and Geomorphology" and include up to 35-40 feet of cobbles, coarse gravel, and sand with minor silt and clay. Where developed this unit provides large quantities of water to wells, evidence of its high permeability or hydraulic conductivity.

### Soils and Geomorphology

General soil types in the Willamette Valley are related to the geomorphic surfaces within the Valley. Balster and Parsons (1968) have described these relationships. They include three geomorphic surfaces, i.e. Horseshoe, Ingram, and Winkle, within the study area.

The Horseshoe unit is the lowest flood plain of the Willamette River and is subject to annual flooding. Newberg, Camas and Cloquato soil series are generally mapped within this unit, see Figure 5.

The Ingram unit includes the higher of the two flood plain levels of the Willamette River. Topography on this unit is undulating with a maximum of eight feet of relief. The river commonly floods the lower parts of the unit but rarely the higher ridges. Chehalis, McBee, Wapato and Cloquato soil series are mapped within this unit, see Figure 5.

The Winkle unit is one of the more extensive surfaces on the valley floor. Most of the surface has the morphology of abandoned flood plains of aggrading streams. Low-relief and subparallel corrugations of old channels are still apparent reflecting braided, overloaded streams, ranging from small tributaries to the Willamette River. The extensive nature of the unit results in many soil types within it including Labish, Malabon, Coburg, Awbrey, Sifton, Salem, Clackamas, and Courtney. Salem soils are commonly extensive on the surface and include gravelly silt loam to very gravelly clay loam.

Major soils in the study area include the above mentioned Newberg, Camas, Cloquato, Chehalis, McBee and Wapato. They range in texture from gravelly alluvium to silty clay loam. Specific characteristics of each soil type is included in Table 5.

FIGURE 4  
GEOLOGY MAP  
RIVER ROAD - SANTA CLARA

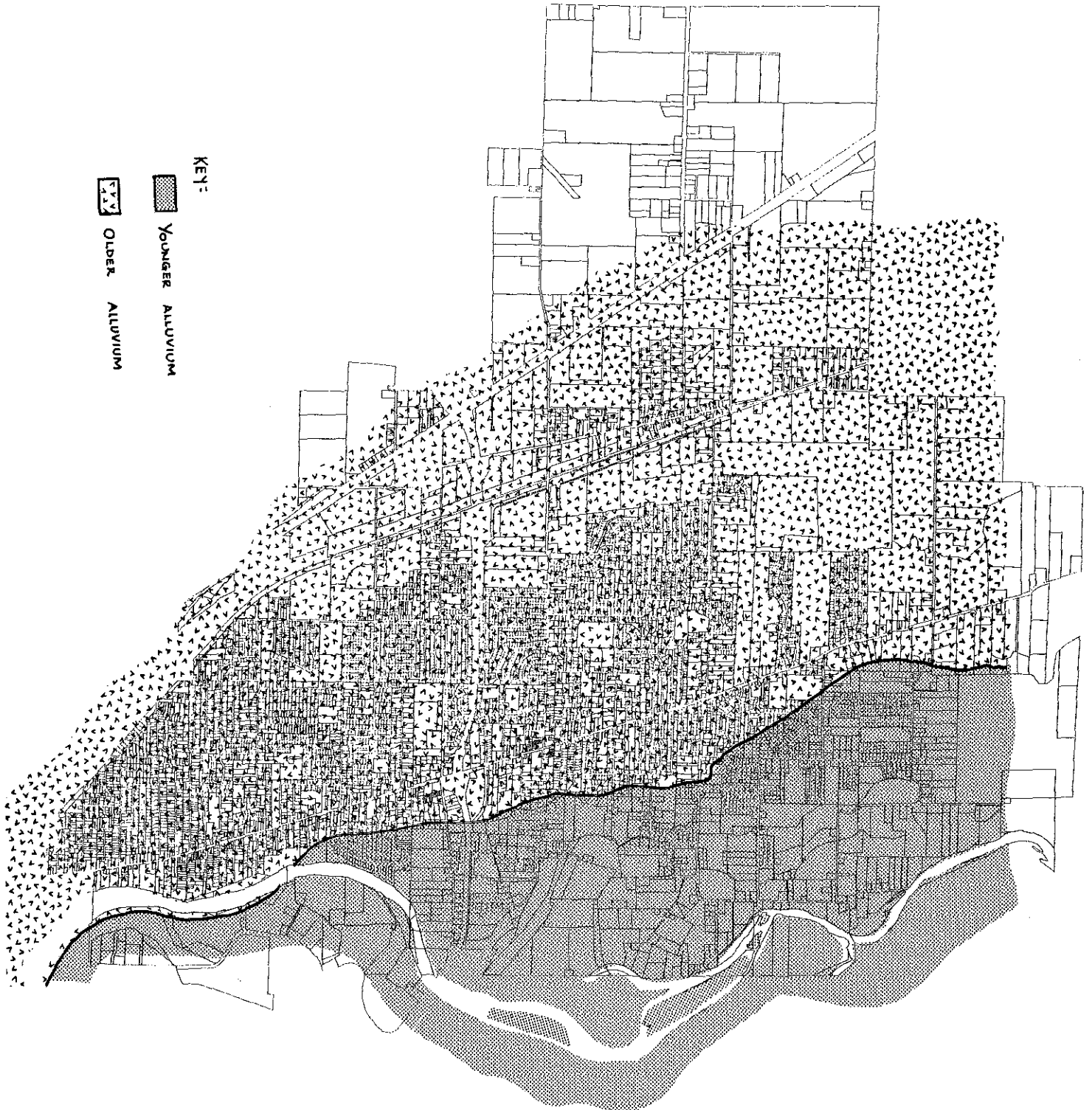




FIGURE 5  
SOILS MAP  
RIVER ROAD - SANTA CLARA

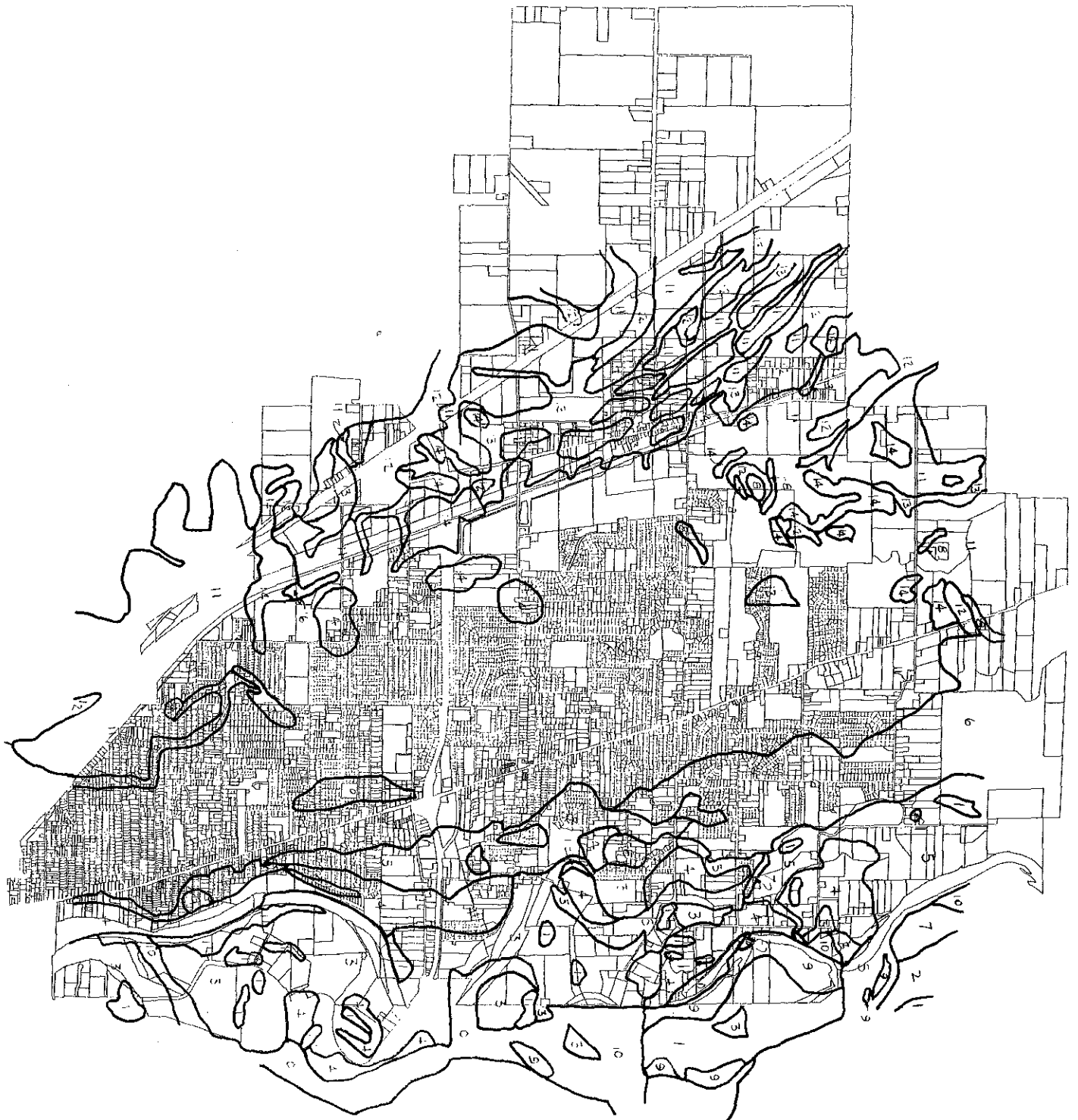


TABLE 5  
SOILS SUMMARY  
RIVER ROAD - SANTA CLARA

MAP NO.	SOIL CLASS. NO.	SOIL CLASSIFICATION NAME	SURFACE TEXTURE	SUBSOIL TEXTURE	PERMEAB. 0 to 36"	PERMEAB. 36 to 60"	REMARKS
1	1 A	Camas gravelly sandy loam	Gr. sand. loam	Gr. sand	Rapid	Rapid	Clean gravel at c20 inches.
2	4 A	Cloquato silt loam	Loam	Sa. loam	Moderate	Mod/Rapid	Sandy at c48 inches. Flood hazard.
3	10 A	Newburg loam	Loam	Sa. loam	Moderate	Mod/Rapid	Sandy at c50 inches. Flood hazard.
4	11 A	Newburg loam	Loam	Sa. loam	Moderate	Mod/Rapid	Sandy at c50 inches.
5	30 A	Chehalis silty clay loam	SiCL	Silt loam	Moderate	Moderate	-----
6	31 A	Chapman loam	Loam	Silt loam	Moderate	Moderate	Low flood hazard.
7	40 A	McBee silty clay loam	SiCL	Silt loam	Moderate	Mod/Slow	Depressed area. High water table.
8	55 A	Conser silty clay loam	SiCL	Si. clay	Moderate	Slow	Depressed area. Clayey at c30 inches.
9	75 A	River wash	Gravel	Gravel	Rapid	Rapid	No housing capability. Flood hazard.
10	76 A	Alluvial lands	Unmapped alluvial complex		-----	-----	No housing capability. Flood hazard.
11	260 A	Malabon silty clay loam	SiCL	SiCL	Moderate	Moderate	Regional water table at 5 feet or less.
12	270 A	Coburg silty clay loam	SiCL	Si. clay	Moderate	Mod/Slow	Perched water at c20 inches.
13	280 A	Awbrey silty clay loam	SiCL	Clay	Slow	V. slow	Heavy soil. Water to surface.
14	290 A	Salem gravelly silty clay loam	Gr. SiCL	Gravel	Moderate	Rapid	Gravelly at c30 inches.
15	500 C	Chehulpum silt loam	Silt loam	Si. clay	Moderate	Bedrock	Shallow to weathered bedrock.
16	GP	Gravel pit area	-----	-----	-----	-----	Area has been excavated for gravel. Water is usually standing in the pit area.

As noted in Table 5, the soils in the study area formed in mixed alluvium and generally range from excessively to moderately well drained. Soils with rapid draining characteristics commonly provide an excellent medium for "disposal" of septic tank-drainfield effluent. However, the low percentage of fine grained materials, i.e. silt and clay, can result in inadequate "treatment" of some chemical as well as biological constituents of the effluent, prior to its percolation into shallow alluvial aquifers.

### Hydrology

The Eugene area has a marine temperate climate with normal mild wet winter and warm dry summer seasons. Seasonal changes in rainfall are generally quite gradual even though the normal winter months, i.e. November, December and January, account for about 50 percent of the total annual precipitation. An average rainfall of 42.56 in/yr has been reported by the National Oceanic and Atmospheric Administration (1976). This corresponds to the 42.06 in/yr calculated for 1928 through 1977. This 50 year period is shown graphically on Figures 6 and 7 and includes the annual precipitation as well as the annual cumulative departure from mean precipitation. In this long-term plot, positive slopes indicate wet periods and negative slopes drier than average periods. For example, 1928 to 1945 was generally dry while 1968 to 1975 was a wet period.

Temperatures at Eugene generally reflect the marine climate. An average annual temperature of 52.6°F with a mean daily maximum of 63.4°F and minimum of 42.8°F have been reported (N.O.A.A., 1976). August, 1972, recorded the highest temperature, 106°F, and December, 1972, the lowest, -12°F. Table 6 includes the daily maximum, minimum and monthly average temperatures as well as the monthly normal and maximum monthly precipitation for 1941-1976.

Average monthly and annual evaporation are included as Table 7 and Frank (1973) reports that reservoir evaporation normally exceeds precipitation from May through September. Johnsgard (1963) has estimated the potential evapotranspiration for data collected at the Eugene Airport to be 21.7 in/yr. He reportedly developed this figure through application of the Thornwaite-Mather procedure.

The major surface water body in the vicinity of the study area is the Willamette River, see Figure 8, which borders the eastern edge. The Willamette is a seasonally losing and gaining stream, i.e. it provides leakage or bank storage recharge to the Recent alluvial aquifer during periods of high flow and receives seepage from the aquifer during low flow, respectively. Fern Ridge Reservoir is on the Long Tom River, more than three miles to the west. Fern Ridge receives recharge from the Long Tom whose measured annual discharge below the dam is 388,800 acre-ft/yr. About 13,330 acre-feet of Amazon's Creek's mean annual flow of 21,140 acre-feet is also diverted to Fern Ridge. The balance of Amazon Creek which drains portions of Eugene, flows south to north, about two miles west of the study area and eventually joins the Long Tom River. Frank (1973) has noted that unlike many of the larger surface drainageways in the Willamette Valley that "because of tight soils and the (locally) relatively low permeabilities of the aquifers along the course of the Long Tom River, little seepage of ground water can be expected to support streamflow ... (and therefore) any increase in streamflow downstream from Alvadore ... is probably due to runoff from the hills west of the river." Flat Creek also drains the western border and northwest portion of the study area eventually joining the Long Tom River north of Junction City. Spring Creek drains portions of the study, eventually discharging to the

FIGURE 6  
ANNUAL PRECIPITATION

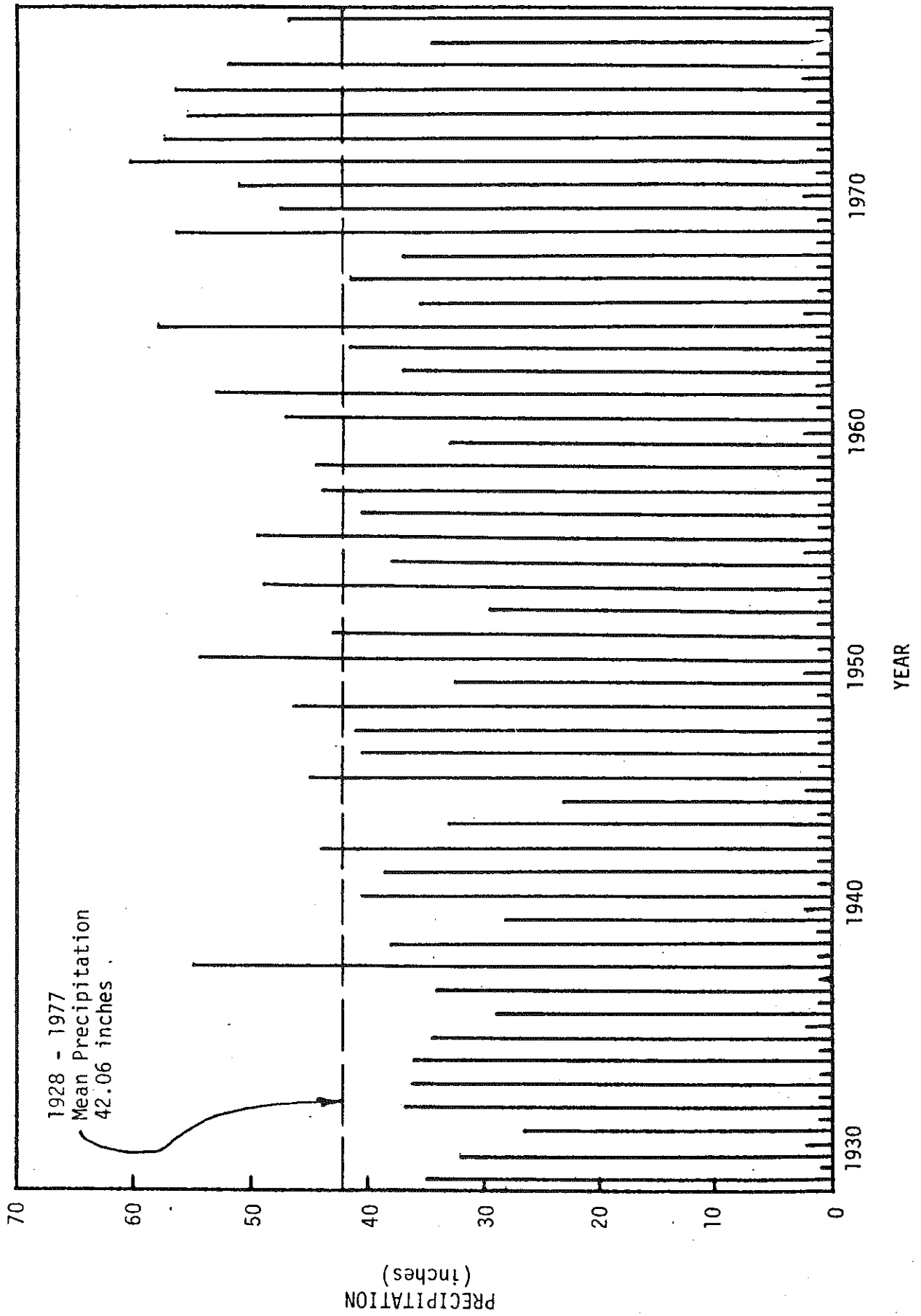


FIGURE 7  
CUMULATIVE DEPARTURE FROM 1928-1977 AVERAGE ANNUAL PRECIPITATION

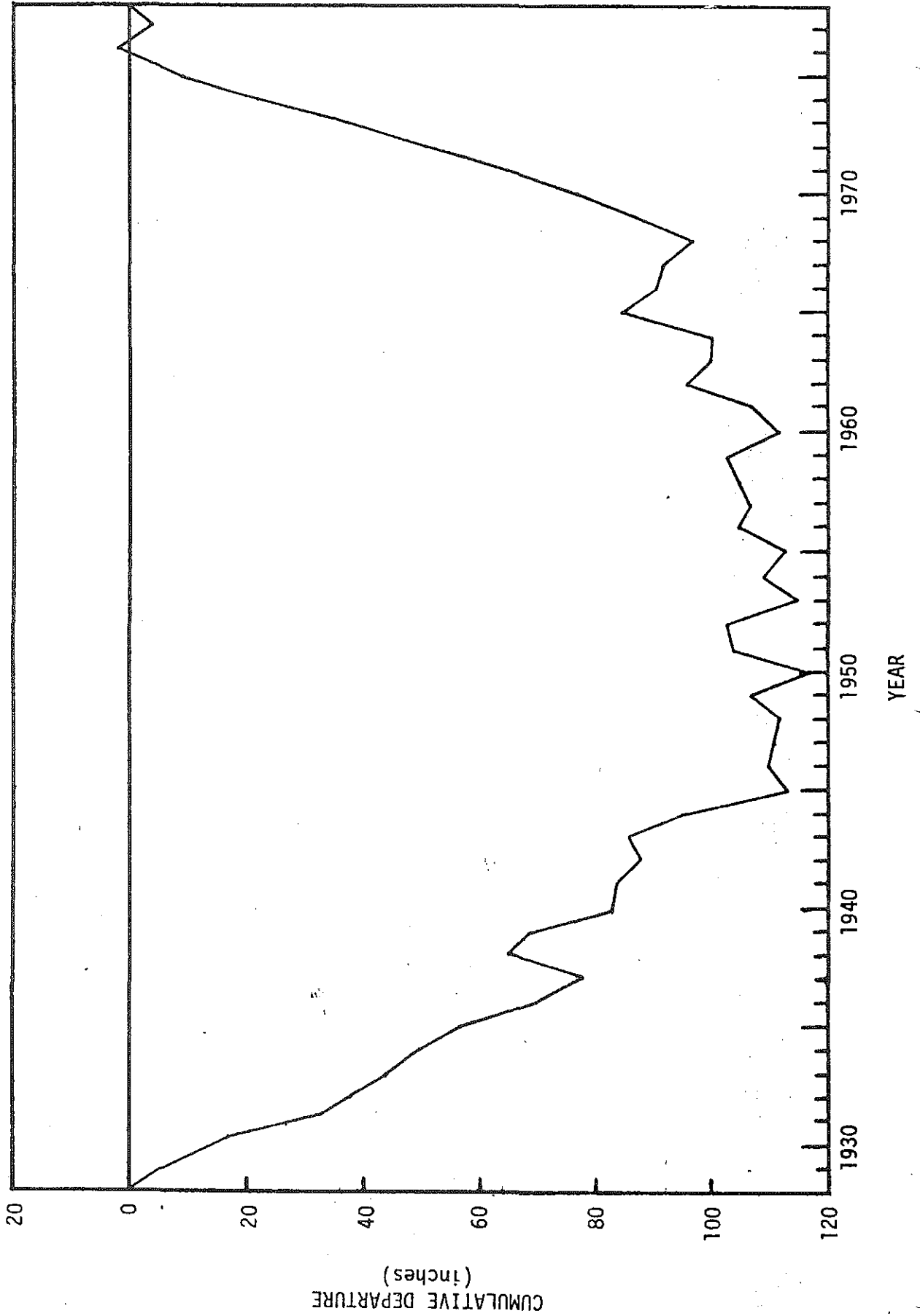


TABLE 6

## EUGENE TEMPERATURE AND PRECIPITATION DATA

MONTH	TEMPERATURE °F			PRECIPITATION IN INCHES	
	Daily Maximum	Daily Minimum	Monthly	Normal	Maximum Monthly
January	45.6	33.1	39.4	7.54	14.83
February	51.7	35.2	43.5	4.67	11.58
March	55.2	36.5	45.9	4.43	12.46
April	61.2	39.4	50.3	2.31	5.80
May	67.8	43.7	55.8	2.06	4.44
June	74.1	48.7	61.4	1.28	4.76
July	82.6	51.1	66.9	0.26	2.63
August	81.3	50.9	66.1	0.58	5.79
September	76.5	47.4	62.0	1.26	3.04
October	64.0	42.3	53.2	4.00	12.66
November	53.1	38.1	45.6	6.53	20.48
December	47.4	35.6	41.5	7.64	20.99
YEAR	63.4	41.8	52.6	42.56	20.99

From: N.O.A.A., 1976

TABLE 7

Average monthly and annual evaporation,  
in inches, at Fern Ridge Reservoir

(Data from records at Natl. Weather Service)

MONTH	Class A pan evaporation	Equivalent reservoir evaporation
January	0.34	0.24
February	.58	.41
March	1.48	1.04
April	2.84	1.99
May	5.00	3.50
June	5.77	4.04
July	8.24	5.77
August	6.88	4.82
September	4.60	3.22
October	1.71	1.20
November	.52	.36
December	.34	.24
Annual	38.30	26.83

From: Frank, 1973

Willamette River. Intermittent meandering tributaries and storm drains discharging to the above drainageways, including periodically inundated overflow channels, form the remainder of the River Road-Santa Clara surface drainage system, see Figure 8.

### Ground Water

Much recent work in ground water has involved the definition and delineation of ground-water flow systems. Freeze and Witherspoon (1966; 1967) and Freeze (1972) have generally discussed regional, intermediate and local ground-water recharge and discharge. Illian (1974) has outlined a conceptual model for basins investigations of ground-water flow systems, see Figure 9.

Figure 9 is a diagrammatic section showing the three systems. For the River Road-Santa Clara study area, the regional and intermediate recharge areas are the Cascade Mountains and the Coast Range as well as their foothills. These deep seated flow systems eventually discharge to the Recent alluvial aquifer and the Willamette River drainage. As shown on Figure 9 the movement in the deeper flow systems is dependent upon a change in potential energy and the dashed lines are termed equipotential lines. These equipotential lines relate in cross-section the water table contours, or potential gradients, commonly shown in map view. In fact, a combination of the two perspectives results in three-dimensional equipotential surfaces. Water migrates from areas of higher to lower potential. In the ground-water discharge areas, e.g. Willamette River, the potential gradient for the regional and intermediate flow is through the equipotential surfaces, vertically and obliquely toward the land surface.

Superimposed upon the regional and intermediate ground-water flow system is a local ground-water flow system. This local flow is dependent upon recharge and discharge in immediately adjacent areas. The local flow system is relatively shallow and sensitive to seasonal recharge from local sources such as precipitation. Its shallow nature also makes it more susceptible to contamination from surface sources, than the deeper flow systems.

When dealing with the local flow system there may be little change in potential gradient with increased depth, especially in highly permeable aquifers such as the Recent alluvium in the study area. In the study area, it is assumed that the water table map, e.g. Figure 8 is an accurate reflection of the gradient and hence the direction of flow in the local ground-water flow systems.

The rate and quantity of ground-water seepage or flow are a function of the gradient as described above as well as the permeability or hydraulic conductivity of the conduit, i.e. Recent alluvial aquifer, and its cross-sectional area. The rate of movement or seepage velocity is:

$$V = \frac{K \frac{dh}{dl}}{7.48 Sy}$$

V = Velocity (ft/day)

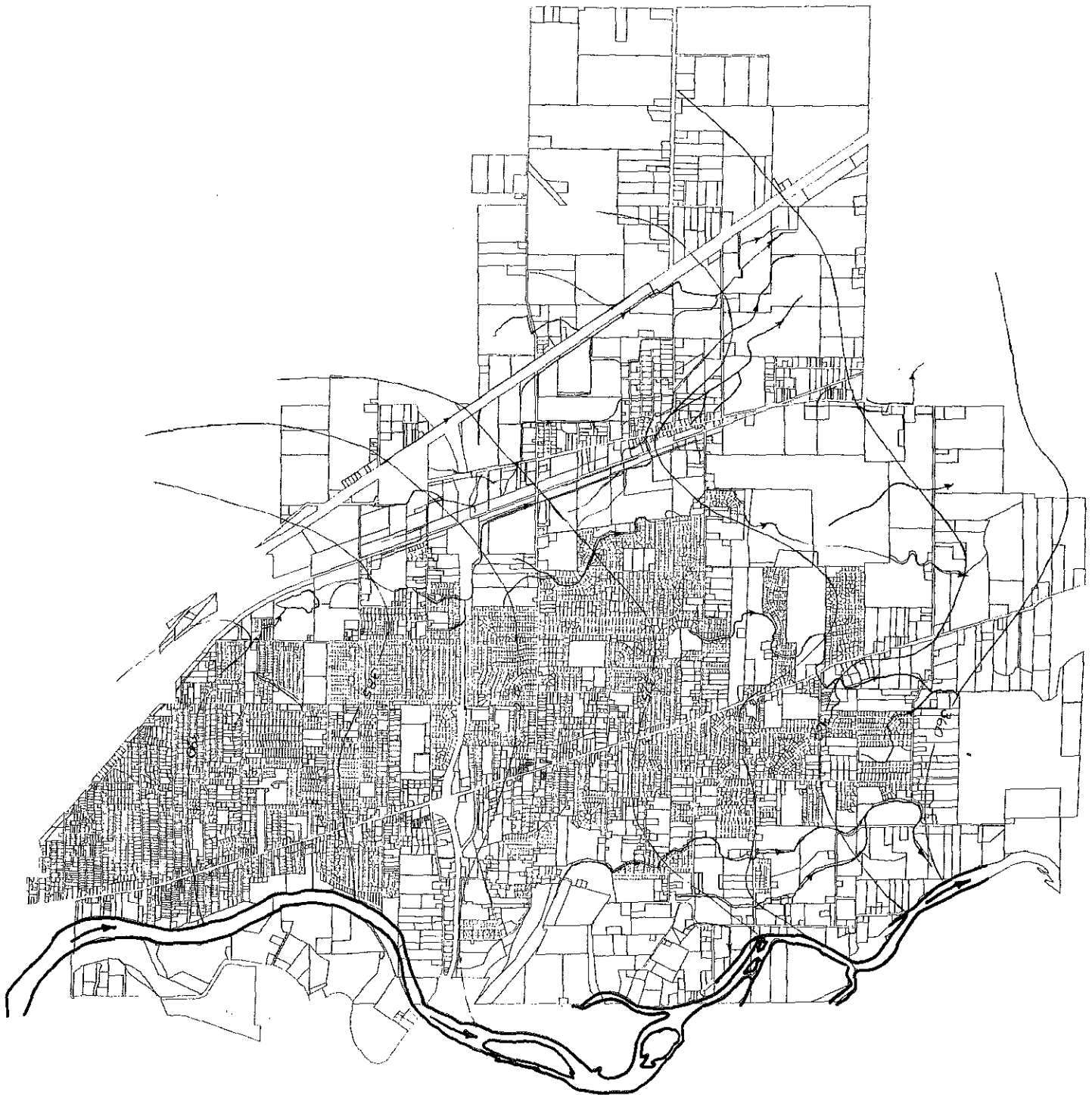
K = Hydraulic conductivity (gal/day/ft<sup>2</sup>)

$\frac{dh}{dl}$  = Gradient

Sy = Specific yield or effective porosity



FIGURE 8  
DRAINAGE SYSTEMS & WATER TABLE ELEVATIONS  
RIVER ROAD - SANTA CLARA



Frank (1973) has reported several transmissivity values for the "Older alluvial aquifer" ranging from 2,700 - 36,000 gal/day/ft which result in hydraulic conductivities of 24 - 112 gal/day/ft<sup>2</sup> with a mean of about 71 gal/day/ft<sup>2</sup>. Measured gradients taken in the study area from Frank's (1973) water table maps are approximately 30 ft/21,000 ft. or  $1.4 \times 10^{-3}$  ft/ft and he reports an average specific yield of 15.2 percent. These values result in a seepage velocity of 0.09 ft/day or nearly 33 ft/yr. Dickinson (1972) measured a much higher maximum transmissivity of 166,200 gal/day/ft and resultant hydraulic conductivity of 950 gal/day/ft<sup>2</sup>. He employed an "average porosity" of 26.2 percent and a gradient of  $1.7 \times 10^{-3}$  ft/ft to calculate a velocity of 0.8 ft/day or nearly 300 ft/yr. Dickinson (1972) emphasizes that "this figure closely approaches a maximum value for the Older alluvium."

Application of Frank's (1973) average values for aquifer constants to the study area makes it possible to calculate the volume of underflow in the study area:

$$Q = KIA$$

Q = Discharge (gal/day)  
 K = Hydraulic conductivity  
 I =  $\frac{dh}{dl}$  Gradient  
 A = Cross-sectional area

Conductivity and gradient values are given above and the cross-sectional area is calculated to be 190,000 ft<sup>2</sup>. This is based upon an average width of about 9,500 ft. and an effective saturated thickness of 20 ft. Twenty feet is used since the upper portion of the Older alluvial aquifer is of primary concern as explained in the ground-water flow system section. These values result in an average underflow of about 19,270 gal/day or 7.03 million-gallon/yr.

In order to determine the amount of water annually recharging the local flow system it is necessary to perform a water balance. This involves accounting for the following parameters:

$$\left[ \begin{array}{l} \text{Surface inflow} + \text{Subsurface inflow} + \text{Precipitation} \\ + \text{Imported water} + \text{Decrease in surface storage} \\ + \text{Decrease in ground-water storage} \end{array} \right]$$

$$= \left[ \begin{array}{l} \text{Surface outflow} + \text{Subsurface outflow} + \\ \text{consumptive use} + \text{Exported water} + \\ \text{Increase in surface storage} + \\ \text{Increase in ground-water storage} \end{array} \right]$$

In this form the equation includes all surface and subsurface water entering and leaving an area, generally a basin. For the purpose of approximation of recharge in this study area, which is not a discreet basin but bounded by artificial boundaries on the south, west and north, many of the terms are assumed to be steady state or quasi-steady state and therefore negligible. In fact, Frank (1973) has apparently assumed that long-term surface inflow-outflow, subsurface inflow-outflow, as well as changes in surface and subsurface storage are in a quasi-steady state. Based upon measured precipitation and water table fluctuation and his previously mentioned specific yield of 15 percent, he conservatively estimates an average annual recharge from precipitation of 13 inches.

FIGURE 9

GENERAL GROUND-WATER FLOW SYSTEM THROUGH A  
HYPOTHETICAL BASIN

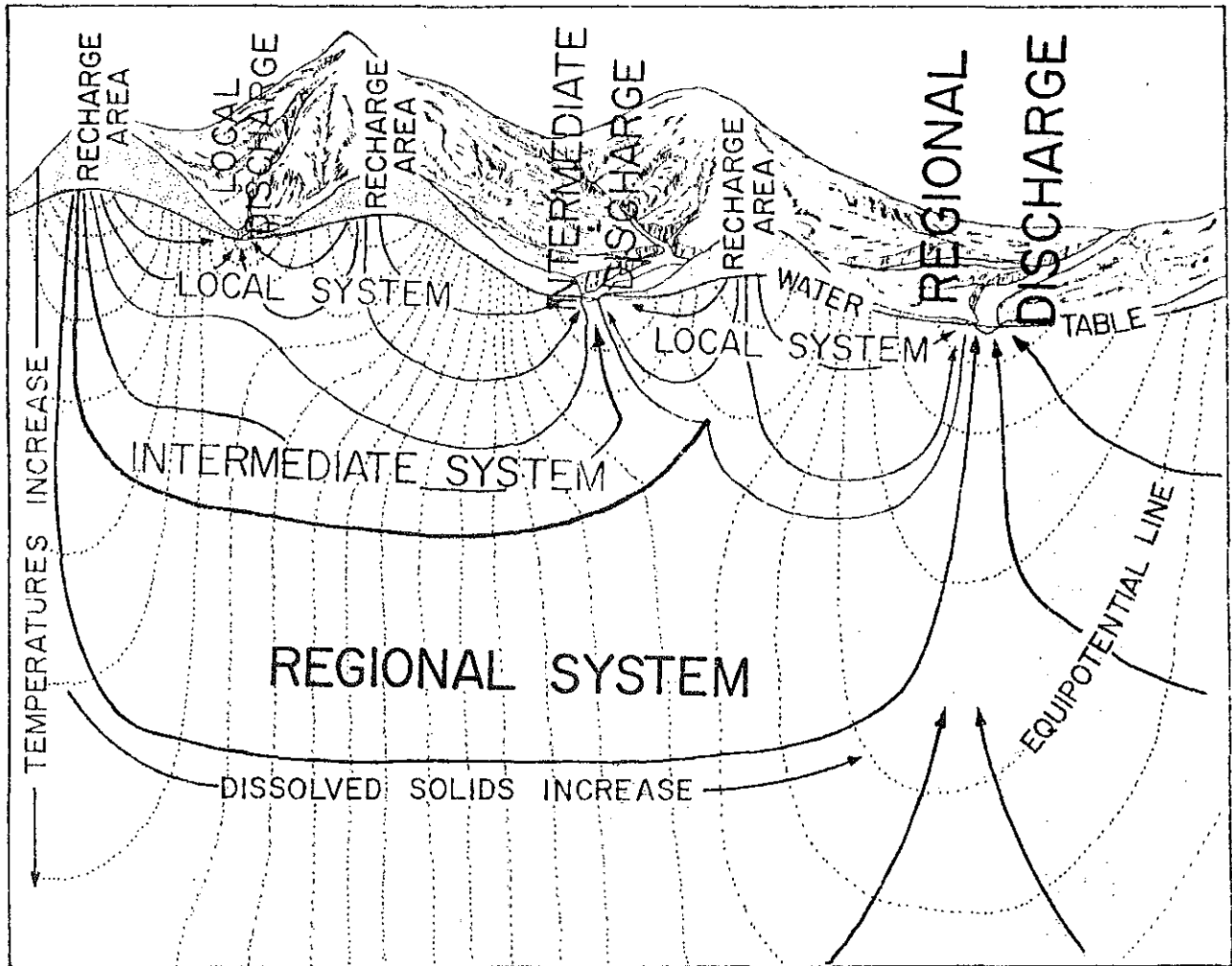


TABLE 8

GROUND-WATER RECHARGE  
RIVER ROAD-SANTA CLARA AREA

Precipitation

13 in/yr or 1.08 acre-ft/acre/yr (Frank, 1973)

(1.08 acre-ft/acre/yr) (7061 acre) ( $.326 \times 10^6$  gal/acre-ft)

$\approx$  2486 mil-gal/yr

Imported Water

Domestic

River Road Water District (1976)

397.51 mil-gal

Santa Clara Water District (1976)

660.41

1057.93 mil-gal/yr

Underflow

Assume quasi-steady state based on perusal of Frank, 1973. To be corrected as data allows.

Change in Storage

Assume quasi-steady state based on perusal of Frank, 1973. To be corrected as data allows.

Total Recharge

Precipitation

2486 mil-gal/yr

Imported

1058

3544 mil-gal/yr

NOTE: 70% precipitation

30% imported

Assuming equal distribution throughout study area (3544 mil-gal/yr) / (7061 acres)

$\approx$  0.50 mil-gal/acre/yr

The study area covers over 7,000 acres and an annual recharge from precipitation of about 2.49 billion-gallons/yr. is estimated, see Table 8. It should be emphasized that this is an average value for average climatic conditions. Imported water also accounts for a significant contribution to ground-water recharge in the study area. Records from the River Road and Santa Clara Water Districts are included in Table 4. These systems collectively account for more than one billion-gallons/yr. of imported domestic water in the study area. No attempt has been made to deduct water lost to consumptive use, e.g. evapotranspiration of irrigation water, in this estimate of recharge. Table 8 sums the recharge sources and demonstrates that about 70 percent of the study area recharge is from precipitation and 30 percent from imported domestic water.

Again, the above values are approximations based upon available published data. Refinement of these values is recommended for any quantitative estimate for the study area. Roof runoff, paved areas, storm drainage, etc., could, and probably do, alter the conditions in the developed portion of the study area. Necessary improvements in data collection are discussed further under Monitoring Program.

## WATER QUALITY

### Surface Water

The quality of the local surface waters is a function of both runoff and ground water in the study area. Data reflecting the quality of the Willamette River is available. However, almost no data for the many smaller drainageways in the study area has been accumulated.

Gaining and losing streams were discussed under Ground Water and point out the natural interdependence of ground and surface water in the study area. This time variant situation results in periodic mixing of ground and surface waters and attendant effects on the respective water qualities. A notable exception to this situation is the previously described Long Tom River which, due to the slowly permeable local aquifer, reportedly does not receive significant ground-water seepage (Frank, 1973).

Summer discharge of bank storage or local ground water to smaller streams and ponds can have a marked effect on their quality. However, no significantly critical situations in surface ponds or streams have been identified in the study area to allow quantification of this potential problem. Larger streams such as the Willamette River, with a mean annual flow of more than eight million acre-feet at Harrisburg, tend to mask such local bank storage effects.

Conversely, losing streams, seasonally recharging the aquifer, can also affect ground-water quality. Locally, the losing streams include small drainageways and ditches which carry local storm drainage. In urbanized areas this runoff is commonly nutrient rich and could be a source of significantly seasonal additions of contaminant to the local shallow aquifer. Other similar sources are unlined ponds and lagoons. These various sources require an inventory, additional study and data collection prior to quantification of their effect on the local shallow aquifer, see Monitoring Program. On the other hand a number of sources have been inventoried, see Table 9.

## Ground Water

The ground-water flow system discussion outlined the deep seated regional and intermediate flow. As shown on Figure 9, the deeper flow systems have long flow paths and hence increased subsurface residence time. Higher temperatures and increased dissolved solids concentrations are common to these systems. The deeper marine sediments and lower portions of the Recent alluvium which serve as a conduit for this flow also provide a source of such constituents as iron, manganese, calcium and chloride in this area. Because of their depth and high dissolved solids concentrations, water from these deeper ground-water flow systems are not generally developed in the study area.

Quality of the water in local ground-water flow systems in the Willamette Valley is generally very good for domestic purposes. As pointed out earlier, the shallow, local system is principally recharged through infiltrating precipitation. Normal background quality of the water in the local ground-water flow system is a product of the quality of the infiltrating rainfall and any dissolved solids eluded from the soils and Recent alluvium as it percolates to the saturated zone. Illian (1974) has also pointed out that "there is a greater risk of oxygen supported bacterial contamination ... due to the proximity of the shallow flow system to possible surface contaminants." Specific data on water quality for the shallow flow system is limited. However, Frank and Johnson (1970) and Frank (1973) have tabulated available water quality data for 23 wells in the Eugene-Springfield area. Ten of these wells pump water from the Recent alluvial aquifer and four of these ten data points are located in more rural, undeveloped areas. The range of reported values for several constituents for these four wells follow:

Dissolved Solids	105-148 mg/l
Iron	0.0-0.65 mg/l
Manganese	0.0-0.15 mg/l
Specific Conductance	120-142 micromhos/cm.
Sulfate	0.0-5.2 mg/l
Chloride	1.5-8.4 mg/l
Nitrate-Nitrogen	0.0-0.86 mg/l

NOTE: Nitrate concentrations are reported as nitrate in most older data and as nitrate-nitrogen in more recent data. Divide nitrate concentration (mg/l) by 4.4 to determine nitrate-nitrogen concentration (mg/l). The above nitrate-nitrogen range was originally reported as 0.0-3.8 mg/l nitrate.

This data is limited and is not adequate for quantitative comparisons with other more developed areas, but it does provide for some gross interpretations.

### Selected Nutrients and Contaminants

As discussed above, the local ground-water flow system in the shallow Recent alluvial aquifer is particularly susceptible to contaminant and/or nutrient influx. Nutrient or contaminant sources are grouped into two categories, natural and induced or related to mans activities, for the purpose of discussion. A number of nutrients or contaminants are addressed below including bacteria, phosphate, sulfate, chloride and nitrate.

Many bacteria occur naturally in the soil profile. In septic tank studies the fecal indicator bacterium Escherichia coli (abb. E. coli) are commonly measured. Although E. coli is not pathogenic or disease causing, it is present in human excrement and its presence in water indicates possible fecal contamination and potential presence of other pathogenic, organisms common to excreta. Potential bacterial contamination of the shallow aquifer in the study area is alluded to above, as well as being discussed by Frank (1973) and Dickinson (1972). Frank reported two of the sampled wells in the study area with bacterial contamination. Dickinson's data indicated that several wells may have periodically been contaminated by fecal coliform.

Patterson (1971) has reported on the early work of Elfreda Caldwell in the 1930's, which surmised that bacterial microorganisms are not capable of self movement or migration, but are carried along by the liquid flowing through the soil. Kaufman and Orlob (1956) have stated that the ideal ground-water tracer should correctly depict the movement of water through a porous medium without modifying the transmission characteristics of the system. Examination of their data indicates that some retardation of movement of coliform organisms during subsurface travel takes place. Also, they conclude that "organic materials are subject to decomposition ... and hence their value as water tracers are limited." In other words, they may provide a very conservative estimate of the rate and distance of travel.

Hansen et. al. (1978) have reported on movement of E. coli and Streptococcus faecalis in perched water tables in the Veneta soil series in Lane County. They found that in an area with only a two percent slope, bacteria moved relatively long distances in a short period of time; peaks in movement were associated with major rainfall; and that, under moist, cool climatic conditions the bacterial indicators survived in appreciable numbers through the 32 day sampling periods. Rahe (1978) in his thesis work at Oregon State University has concluded that saturated ground-water seepage velocities and indicator bacteria longevity, which is greatest during the cooler winter months when the water table is normally highest, are the major controls in subsurface bacterial movement. In hillside soils with abundant macro pores, some restrictive layers and an appreciable hydraulic head, movements up to 60 ft/hr were measured. In the River Road-Santa Clara area, if there are organism viabilities of 30-45 days, bacterial movement up to 100 ft. from drainfield is estimated, see Ground Water section. As noted above, bacterial indicators are a conservative measure of organic contamination. Very little research data is available regarding virus viability and potential subsurface travel. However, their smaller size may result in less impedence, e.g. filtration, as is common to bacterium in finer grained soils, hence increased rates as well as total travel distances.

Hem (1959) reports that phosphate ( $PO_4$ ) is found naturally in the mineral apatite in igneous rocks. Weathering of these rocks tends to release calcium phosphate. Also, phosphate is essential to plant and animal growth and organic wastes and leaching of soils may be important natural sources for phosphate in water. On the other hand, induced sources of phosphate include water treatment, although the dosage is usually small; fertilizers, as well as detergents, and result in considerable amounts of phosphorus in sewage effluents.

Reported phosphate levels are low in the ground water within the study area (Dickinson, 1972). Phosphorus is bound to ferric iron under oxidizing conditions, and under reducing conditions when the iron is converted to the ferrous state, the phosphorus establishes a new equilibrium with aluminum and/or calcium bound phosphates. Sikora and Corey (1977) have shown that problems with phosphorus contamination of ground water would be expected primarily with "very clean sandy soils, soils with high water tables ... and even in most of these soils the contamination would not become apparent until the soil absorption field had been in operation for a number of years." Dudley and Stephenson (1973) have also discussed the movement of phosphate to surface water bodies. Since surface water bodies are not a major concern in the present study and mechanisms of phosphate movements are complex, it is not included as a tracer in the balance of this study.

Hem (1959) has reported that igneous rocks and sulfides of heavy metals are common sources of sulfur. Oxidation during weathering provides soluble sulfates ( $SO_4$ ) which can be carried off by water. The most extensive natural occurrences of sulfate minerals are in evaporites, e.g. gypsum and anhydrite.

Sulfur is also involved in the life processes of animals. These may add sulfate to water indirectly, or remove it rather directly through sulfur reduction which may be promoted by bacteria and carbon or hydrocarbons. Sulfates are a soluble product of septic tank-drainfield effluent as well as from industrial plant wastes such as tanneries, sulfate-pulp mills ... and other plants that use sulfates or sulfuric acid (McKee and Wolf, 1963).

Drinking water standards (E.P.A., 1977) limit sulfate concentrations to 250 mg/l where a more suitable supply is not available. This limit does not appear to be based on tests or physiological effects other than a laxative action toward new users. Very limited data is available regarding sulfates in the Recent alluvium in the Willamette Valley. Sulfate concentrations are not included in the analyses available for the study area. However, they may be a useful addition for cross-reference in future monitoring.

Chloride (Cl) occurs naturally in igneous and sedimentary rock, especially evaporites, as well as playa lakes and sea water. Important induced sources include human and animal sewage and industrial effluents.

The use of chloride as a tracer is well established, see Kaufman and Orlob (1956). Chloride is a common constituent in septic-tank effluent; very soluble, and concentrations are easily measured in the laboratory and therefore it is useful as a ground-water tracer in studies attempting to monitor direction and flow and to delineate zones of ground-water contamination.

Like sulfate, the drinking water limit for chloride is relatively high, i.e. 250 mg/l (E.P.A., 1977). Chlorides in drinking water are generally not harmful to human beings until high concentrations are reached, although chlorides may be injurious to some people suffering from diseases of the heart or kidneys. Restrictions for drinking water are generally based on palatability rather than health (McKee and Wolf, 1963).

Dickinson (1972) noted levels of chlorides significantly higher than the "background" ranges reported above and stated that "the level of chloride



concentration was low ... (but) that such concentration as does exist is largely confined to densely populated areas ... (and) is possibly related to septic tank pollution." All levels measured during his study were less than 22 mg/l. Dudley and Stephenson (1973) noted that chloride and nitrate migrated with ground water over extended distances in their study of nutrient enrichment of ground water from septic tank disposal systems. They further pointed out "that while dilution acts to reduce concentration, the total amounts of chloride or nitrate in the ground water remain constant (or are additive) during down-gradient migration." This serves to emphasize that although chloride may not be a significant health hazard, it is an excellent cross-reference for tracing such constituents as nitrate.

Nitrate ( $\text{NO}_3$ ) is also a very mobile constituent in ground water. Nitrates are the end product of aerobic stabilization of organic nitrogen (McKee and Wolf, 1963; Hem, 1959). Nitrification of ammonia ( $\text{NH}_4$ ) to nitrite ( $\text{NO}_2$ ) and thence to nitrate ( $\text{NO}_3$ ) takes place relatively rapidly under oxidizing conditions. The concentration is generally reported as nitrogen (N), e.g.  $\text{NO}_3\text{-N}$ . These oxidizing conditions are common to the unsaturated zone between the land surface and the water table. Denitrification or a reduction in nitrogen concentration can take place through the volatilization of ammonia and its loss to the atmosphere. Some denitrification may also take place under very special circumstances within the soil (Lance, 1972). Sikora and Keeney (1975) have pointed out that the aerobic or oxidizing condition must precede an anaerobic or reducing condition for this subsurface denitrification or reduction of nitrate to take place. It is generally considered insignificant or minimal in septic tank drainfield systems. Ammonia volatilization, nitrate adsorption and chemodenitrification are likewise considered to have a minimal effect on nitrate concentrations below drainfields (Sikora and Corey, 1977). Nitrates constitute another nutrient to be considered in the evaluation of surface water quality with a minimum concentration of 0.3 mg/l required for algae growth (Sawyer, 1952; Muller, 1953).

Natural sources of nitrogen and ultimately  $\text{NO}_3\text{-N}$  are included in Table 9. This initial inventory of nitrogen sources is not complete but puts the relative importance to some major sources in perspective.

As described under Hydrogeology, precipitation is the major source of ground-water recharge in the study area. Reported concentrations of  $\text{NO}_3\text{-N}$  in rainwater range from Riffenburg's (1925) 0.2 mg/l which he attributed to the lightning induced combination of atmospheric nitrogen to nitric oxides which dissolve in rainwater to a low of 0.05 mg/l reported by Tarrant et. al. (1968) in Oregon. Many authors have discounted lightning as a significant source of  $\text{NO}_3\text{-N}$  and instead indicate a correlation between soil alkalinity and  $\text{NO}_3\text{-N}$  in rainfall (Junge, 1958; Feth, 1966). In their detailed study in Oregon, Tarrant, et. al. (1968) stated that the average concentration of total N was 0.05 mg/l in gross rainfall ... no measurable  $\text{NO}_2$  or  $\text{NH}_4$  (were found). Most of the N brought down in precipitation collected in the open was in the organic form and was attributed to locally generated airborne organic debris, including pollen". The 0.05 mg/l concentration value for  $\text{NO}_3\text{-N}$  for rainfall is used in this report.

Most of the nitrogen in the ecosystems is tied up in the organic form as plants and animals or their transitory decay products. Organic forms of nitrogen are oxidized to the nitrate form by natural biological processes. It is then recycled as it is used by plants and microorganisms. If the rate at which nitrates are utilized in the ecosystem is less than the nitrification rate, nitrates will accumulate in the soil and percolate downward into ground water. In other studies (Sweet, 1977) vegetative input was found to be the major natural source of nitrogen. Legumes as well as non-symbiotic legumes such as

TABLE 9

PRELIMINARY INVENTORY OF SELECTED NITROGEN SOURCES,  
RIVER ROAD-SANTA CLARA AREA

Natural Sources

Precipitation

$$(2486 \text{ mil-gal/yr}) (0.05 \text{ mg/l}) (8.34) = 1037 \text{ lbs/yr}$$

Vegetation

Assumed to be negligible until mapped.

Ground-Water Underflow

Assumed to be negligible until sampled.

Induced Sources

Water-Supply Background

$$(1058 \text{ mil-gal/yr}) (0.4 \text{ mg/l}) (8.34) = 3529 \text{ lbs/yr}$$

Land Use

Agriculture, livestock, storm runoff, industrial wastes, etc., to be added when available.

Dwelling Unit Fertilizer<sup>3</sup>

$$(5 \text{ lbs/du/yr}) (8488 \text{ du}) = 42,440 \text{ lbs/yr}$$

Sanitary Wastes<sup>4</sup>

$$(73 \text{ lbs/du/yr}) (3.16/4) (8488 \text{ du}) = \underline{489,758 \text{ lbs/yr}}$$

Total 536,764 lbs/yr

1. Infiltrating precipitation only (13 in/yr) with concentration reported by Tarrant et. al., 1968.
2. Annual metered water use with highest E.W.E.B. reported concentration.
3. Assumes one 50 lb. bag of 10-10-10 per dwelling unit/yr.
4. Walker et. al. (1973) reports 73 lbs/du/yr for family of 4 persons, adjusted to 3.16 persons/du, for septic tank nitrogen discharge.

Red alder (*Alnus rubra*) can provide large amounts of nitrogen to the ground water. Estimating the release rate of natural nitrogen to the ground water is complicated by a number of factors. Natural seasonal peaks in the release of  $\text{NO}_3\text{-N}$  to the ground water such as late in the fall, winter and early spring are reported by Viets and Hageman (1971). Organic materials in the soil can also tie up  $\text{NO}_3\text{-N}$  and act as a reservoir for its storage, further complicating predictions of natural release.

Potential major induced sources of nitrogen in the study area are included in Table 9. Some sources, e.g. nitrous oxides from auto and industrial emissions are not quantified in Table 9. Junge (1958) has indicated that they are of great importance only in high density industrialized areas. Another potential source is fertilizer use. Again, this source is not quantified due to lack of available data in the study area.

As explained under Hydrogeology, about 30 percent of the shallow aquifer recharge in the study area may be attributed to water imported for domestic use. The background  $\text{NO}_3\text{-N}$  in this imported water may account for 0.66 percent of the total quantity inventoried.

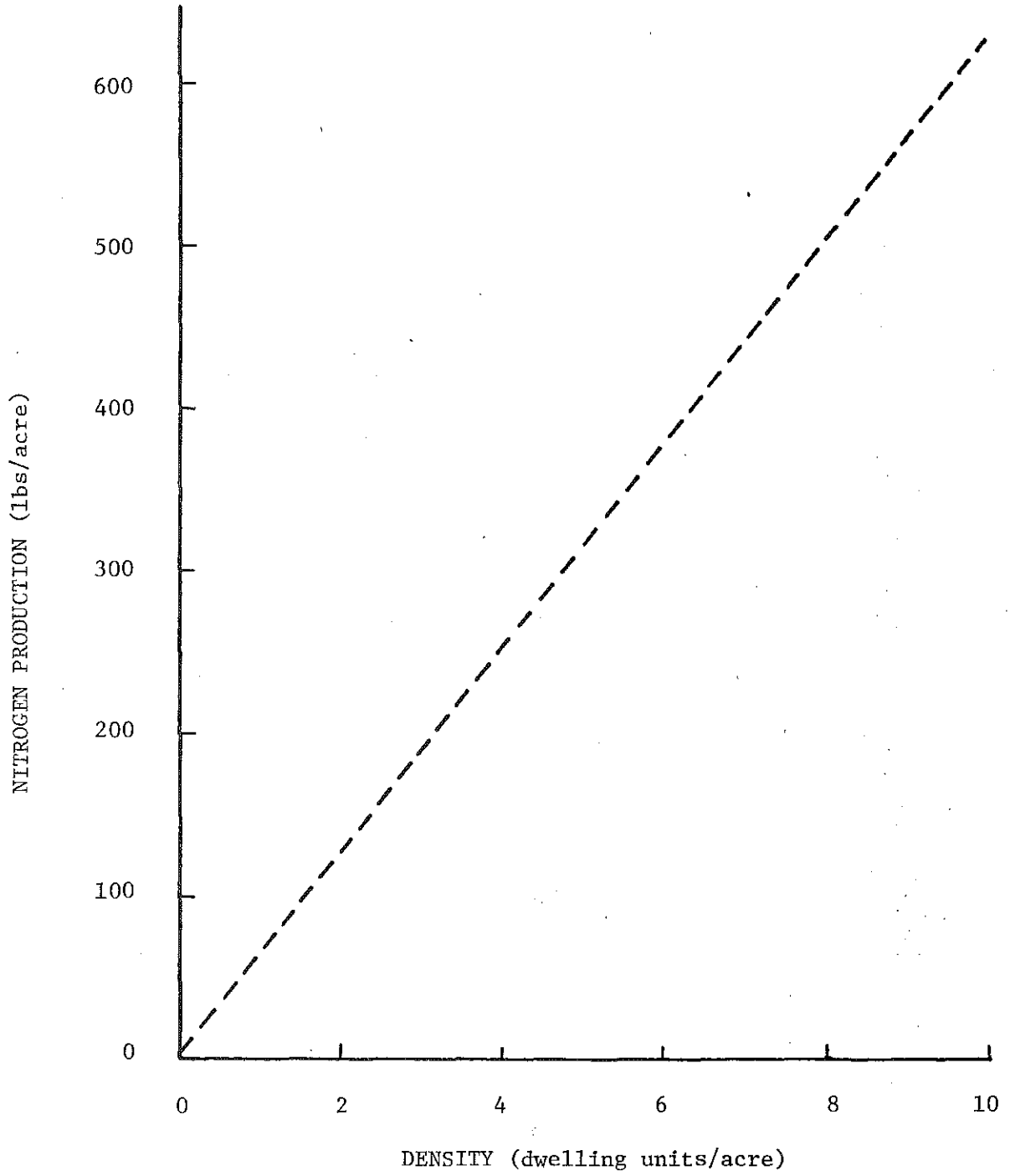
Assuming that each dwelling unit equivalent uses one 50 pound bag of 10-10-10 fertilizer annually, and that all the nitrogen in the fertilizer eventually percolates to the aquifer, about eight percent of the total quantity of nitrogen inventoried is due to this source. This amount requires adjustment to account for dry matter removal and the attendant removal of nitrogen.

On-site disposal of sanitary wastes is the major inventoried source of nitrogen and eventually nitrate-nitrogen to the shallow alluvial aquifer in the River Road-Santa Clara study area. Siegrist, et. al. (1976), reported on the work of several researchers who measured N contributions ranging from 0.016 to 0.037 lbs/day/capita while Siegrist et. al. reported 0.013 lbs/day/capita of N in the wastewater stream. Walker et. al. (1973) evaluated the subsurface disposal of septic tank effluent in sands and reported that "the average N-input per person was 18 lbs/yr. Essentially complete nitrification in the soil results in addition of approximately 73 lbs.  $\text{NO}_3\text{-N}$  to the ground water per year for an average family of four." Table 9 reflects an adjustment for population per dwelling unit in the study area. Figure 10 is a plot of the Theoretical Nitrogen Production for dwelling units per acre in the River Road-Santa Clara area.

The significance of  $\text{NO}_3\text{-N}$  in drinking water has been discussed for many years. Winton et. al. (1971) have reported that excessive nitrate ingestion in infants and/or nursing mothers may result in methemoglobinemia, i.e. blue babies. Other recent studies have questioned this relationship (Shearer, et. al. 1972; Shural, et. al. 1972). However, the fact remains that the E.P.A. Drinking Water Standards prohibit the use of water for drinking purposes when the nitrate-nitrogen ( $\text{NO}_3\text{-N}$ ) concentration is in excess of 10 mg/l.

FIGURE 10

THEORETICAL NITROGEN PRODUCTION,  
RIVER ROAD-SANTA CLARA



## BENEFICIAL USES

As stipulated under ORS 540.610, "beneficial use shall be the basis, the measure and the limit of all rights to the use of water in Oregon." Other sections, specifically ORS 537.525, deal with policy and (3) beneficial use without waste, (5) adequate and safe supplies of ground water for human consumption, (8) ... impairment of natural quality of ground water by pollution ..., (9) ... pollution of ground water exists or impends ... etc. Other aspects of protection of beneficial uses are covered in the Department of Environmental Quality Regulations Relating to Water Quality in Oregon, OAR Chapter 340 41-005 through 41-105.

Table 10 lists and Figure 11 displays locations for water rights of record in the study area. The beneficial use of the water right is listed under "Use" in Table 10. Domestic use is noticeably absent from Table 10, since ORS 537.545 exempts single or group domestic, irrigation of one-half acre or less and other relatively low volume water users from filing for water rights. These uses, however, constitute a significant beneficial use in and down-gradient from the study area. As previously mentioned, that area down-gradient from the study area is now and is projected to be solely dependent upon ground water for domestic supply. Therefore, assurance of a long-term potable water supply must be considered in any continuing or future evaluation of ground-water quality in the River Road-Santa Clara area.

TABLE 10  
RIVER ROAD - SANTA CLARA  
WATER RIGHTS OF RECORD

MAP LOCATION #	APPLICATION/REGISTRATION NO.	PERMIT NO.	CERT. NO.	NAME	USE	VOLUME
1	11014	7605	7363	Vogt	Irrigation	0.38 cfs
2	13391	9617	8939	Thompson	Irrigation	0.16 cfs
3	16179	11988	12376	Harper	Irrigation	0.09 cfs
4	21642	17003	16814	Peters	Irrigation	0.15 cfs
5	27511	21648	23606	Strong	Irrigation	0.44 cfs
6	32538	25883	29020	Walton	Irrigation	0.72 cfs
7	37636	28063	33441	Scott	Irrigation	0.32 cfs
8	49026	36693	-	Loucks	Irrigation	0.09 cfs
9	51355	38617	-	Riding	Irrigation	0.09 cfs
10	GR3535	-	GR3252	Haterius	Irrigation	200 gpm
11	GR312	-	GR2436	Chadwick	Irrigation	250 gpm
12	GR2132	-	GR3893	Clark	Irrigation	144 gpm
13	GR3247	-	GR3022	Shaffner Br.	Irrigation	150 gpm
14	GR2134	-	GR2047	Chapman	Irrigation	85 gpm
15	GR3245	-	GR3020	Shaffner Br.	Irrigation	300 gpm
16	GR3246	-	GR3021	Shaffner Br.	Irrigation	75 gpm
17	GR414	-	GR397	Guthrie	Irrigation	250 gpm
18	GR377	-	GR363	Brown	Irrigation	100 gpm
19	GR1723	-	GR1672	Carnon	Irrigation	82 gpm
20	GR2689	-	GR2547	Eberle	Irrigation	80 gpm
21	GR3244	-	GR3019	Shaffner Br.	Irrigation	200 gpm
22	GR2970	-	GR3908	Cornutt	Irrigation	40 gpm
23	GR3537	-	GR3255	Metcalf	Irrigation	100 gpm
24	GR1063	-	GR1025	MacLay	Irrigation	82 gpm
25	GR2332	-	GR2218	White	Irrigation	12 gpm
26	GR376	-	GR362	Thompson	Irrigation	250 gpm
27	GR4024	-	GR3624	Wise and	Irrigation	120 gpm
28	GR2475	-	GR2344	Kilburn/Smith	Irrigation	48 gpm
29	GR377	-	GR363	Brown	Irrigation	60 gpm
30	GR1350	-	GR1306	Strong	Irrigation	240 gpm
31	GR508	-	GR487	Terpening	Irrigation	120 gpm
32	GR2708	-	GR2857	Larson	Irrigation	340 gpm
33	GR2094	-	GR2011	Watson	Irrigation	100 gpm
34	GR2095	-	GR2012	Watson	Irrigation	100 gpm
35	GR3908	-	GR3548	Revell	Irrigation	100 gpm
36	GR3090	-	GR2893	McNett	Irrigation	70 gpm
37	GR377	-	GR363	Brown	Irrigation	120 gpm
38	GR3325	-	GR3083	Johnson	Irrigation	400 gpm
39	GR3901	-	GR3544	Haterius	Irrigation	200 gpm
40	GR1900	-	GR1835	McCarty	Irrigation	36.4 gpm
41	GR2972	-	GR2786	Heitz	Irrigation	70 gpm
42	GR2136	-	GR2049	Reinholz	Irrigation	120 gpm
43	GR1062	-	GR1024	MacLay	Irrigation	100 gpm

TABLE 10 - CONT.  
RIVER ROAD - SANTA CLARA  
WATER RIGHTS OF RECORD

MAP LOCATION #	APPLICATION/REGISTRATION #	PERMIT #	CERT. #	NAME	USE	VOLUME
44	GR2838	-	GR2674	Reid	Irrigation	150 gpm
45	GR3326	-	GR4098	Waldahl	Irrigation	15 gpm
46	GR3705	-	GR4085	Glass	Irrigation	200 gpm
47	GR3706	-	GR4086	Glass	Irrigation	400 gpm
48	GR555	-	GR1564	Fenn	Irrigation	320 gpm
49	GR2100	-	GR2017	Chambers	Irrigation	140 gpm
50	GR4245	-	GR4048	Blackford	Irrigation	60 gpm
51	GR546	-	GR521	Potter	Municipal	435 gpm
52	GR547	-	GR522	Potter	Municipal	435 -pm
53	GR2922	-	GR2752	Bedell	Irrigation	15 gpm
54	GR3545	-	GR3259	Theneil	Irrigation	220 gpm
55	GR2379	-	GR2261	Crutchley	Irrigation	60 pmp
56	GR430	-	GR416	Berntzen F.F.	Irrigation	180 gpm
57	GR3087	-	GR2890	VanKirk	Irrigation	100 gpm
58	GR2239	-	GR2140	Ewing	Irrigation	120 gpm
59	G606	G507	30883	Smith	Irrigation	0.07 cfs
60	G894	G782	27982	Thompson	Irrigation	0.1 cfs
61	G1112	G953	30375	Cairns	Irrigation	0.04 cfs
62	G3148	G2965	-	Eugene Parks	Irrigation	0.025 cfs
63	G3170	G2981	34653	Guthrie	Irrigation	0.34 cfs
64	G3137	G3014	-	Thompson	Irrigation	0.36 cfs
65	G5316	G5141	-	Babb	Irrigation	0.62 cfs
66	G5558	G5431	-	Everson/Scott	Irrigation	0.88 cfs
67	G6333	G5941	-	Riding	Irrigation	0.09 cfs
68	25706	20251	21006	Christianson	Irrigation	0.218 cfs
69	25914	20327	21299	Wike	Irrigation	0.10 cfs
70	G1710	G1570	30669	Armstrong	Irrigation	0.05 cfs
71	G5730	G5530	-	Everson	Irrigation	1.11 cfs
72	G6485	G6105	-	Armstrong	Irrigation	0.9 cfs
73	G6952	G6467	-	Bond	Irrigation	0.36 cfs

FIGURE 11  
 WATER RIGHTS OF RECORD  
 RIVER ROAD - SANTA CLARA





## MONITORING PROGRAM

### Historical Data and Interpretations

Data from several sources (Frank, 1973; Dickinson, 1972; and Lane County 208 Program, 1977) have been discussed. All available water quality data for the study area is included in Appendix A.

In an attempt to obtain an order of magnitude first approximation of the extent of the existing or potential future contamination of the shallow aquifer, a conservative, steady state, one dimensional, continuous stirred tank reaction model was developed. Assumptions in development of this model included uniform steady state underflow; uniform distribution of ground-water recharge from 13 in/yr of infiltrating precipitation plus the metered imported domestic water; as well as uniform introduction of the total nitrogen inventoried in Table 9. Figure 12 shows the theoretical concentrations to be expected from the above assumptions if dilution is the only attenuating mechanism. Dilution concentrations are shown for precipitation plus imported water and additional underflow dilution based on Frank (1973) or additional underflow dilution based on Dickinson (1972). Note that the background dilution is assumed to be clean or free of nitrogen and no decay constant is included in Figure 12. Again, the model assumes dilution only on an annual steady state basis.

Available data was subsequently compared to the theoretical levels. During the field locating and analysis of sample testing data it became apparent that some of the data points were mislocated; several numbering systems had been employed, see Table 11 and Figure 13; samples from deeper (intermediate) and shallow (local) ground-water flow systems as well as mixed samples were collected; continuous seasonal sampling and depth to water measurements were not available, see Table 12 and Appendix A; data points were apparently not measured and sampled in a uniform manner; and no suitable upgradient or background water quality samples were tested. Vicissitudes in the hydrologic regimen including the previously described wet vs. drought cycle periods make careful and complete data collection a necessity if the present extent and future migration of the potential ground-water contamination problem is to be quantified. In other words, it was not possible to calibrate the model and/or develop a decay constant with the available data.

Based on the previously discussed ground-water flow system it appears that eight of the sampling stations may provide acceptable data, see Tables 11 and 12, and Figure 14. Use of these wells to calibrate the model as noted above is not possible at this time due to the limited spatial distribution of the stations as well as the paucity of testing and depth to water data collected to date. They may be added to any future monitoring program.

In summary, data analysis does indicate a trend for increased NO<sub>3</sub>-N in the study area, i.e. above background levels and temporarily increasing concentrations. The data is insufficient to make quantitative projections in and down-gradient from the study area.

FIGURE 12

THEORETICAL NO<sub>3</sub>-N CONCENTRATION IN  
GROUND WATER, RIVER ROAD-SANTA CLARA

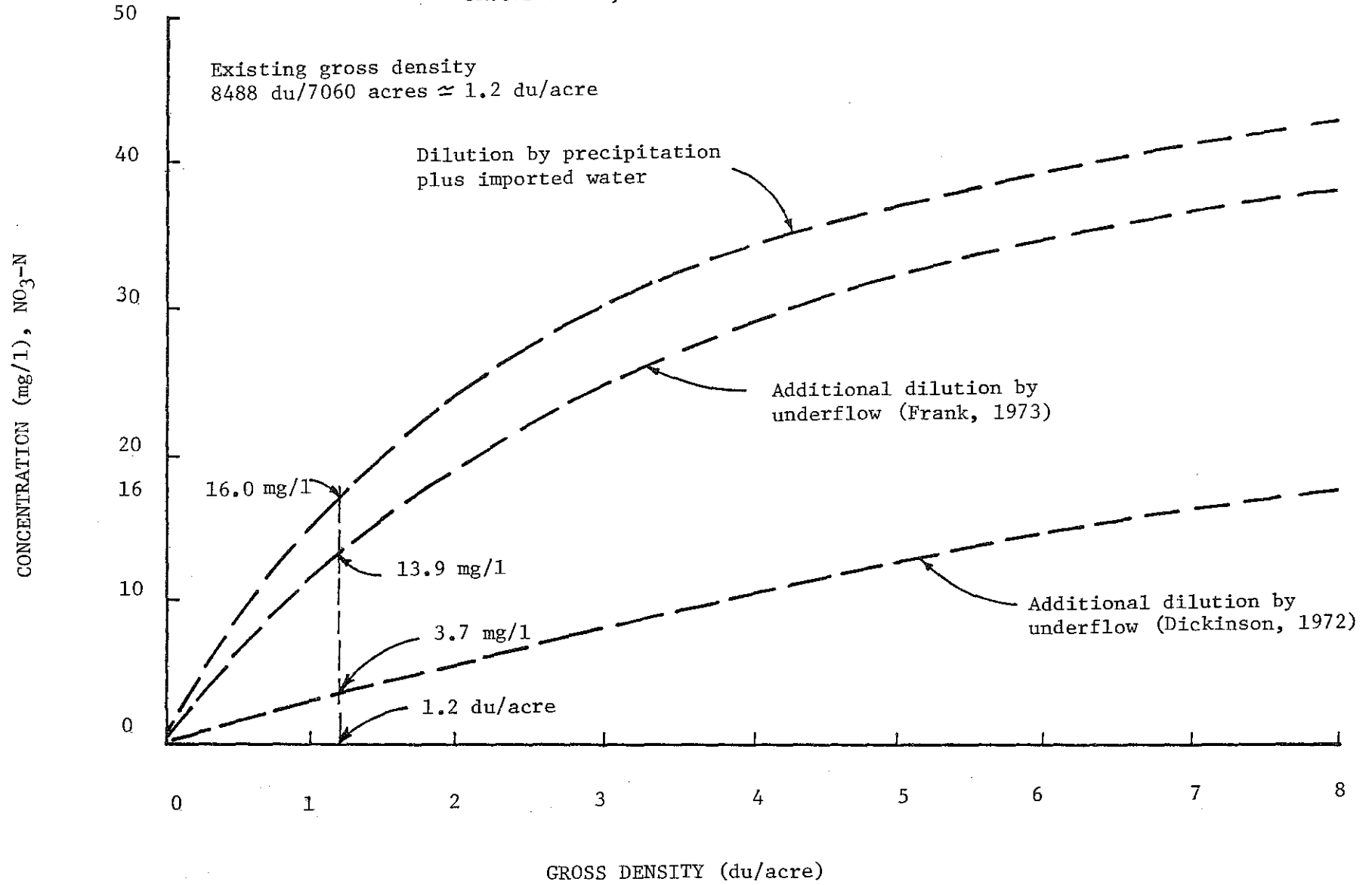
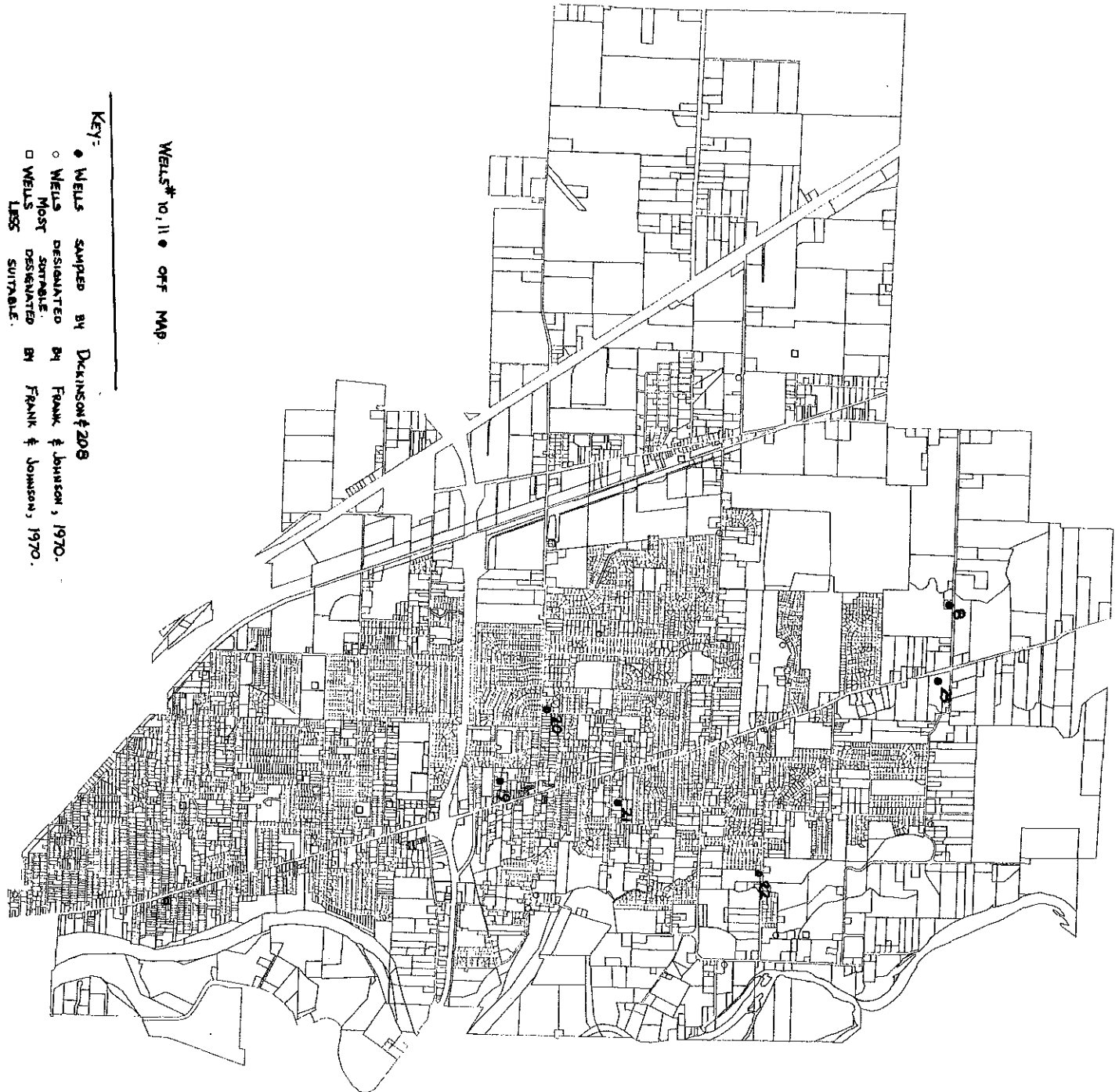


FIGURE 13  
POTENTIAL EXISTING SITES FOR SAMPLING  
RIVER ROAD - SANTA CLARA



Key:

- WELLS SAMPLED BY DICKINSON & 208
- WELLS DESIGNATED BY FRANK & JOHNSON, 1970.
- WELLS DESIGNATED BY FRANK & JOHNSON, 1970.
- LESS SUITABLE.

WELLS # 10, 11 ● OFF MAP

TABLE 11

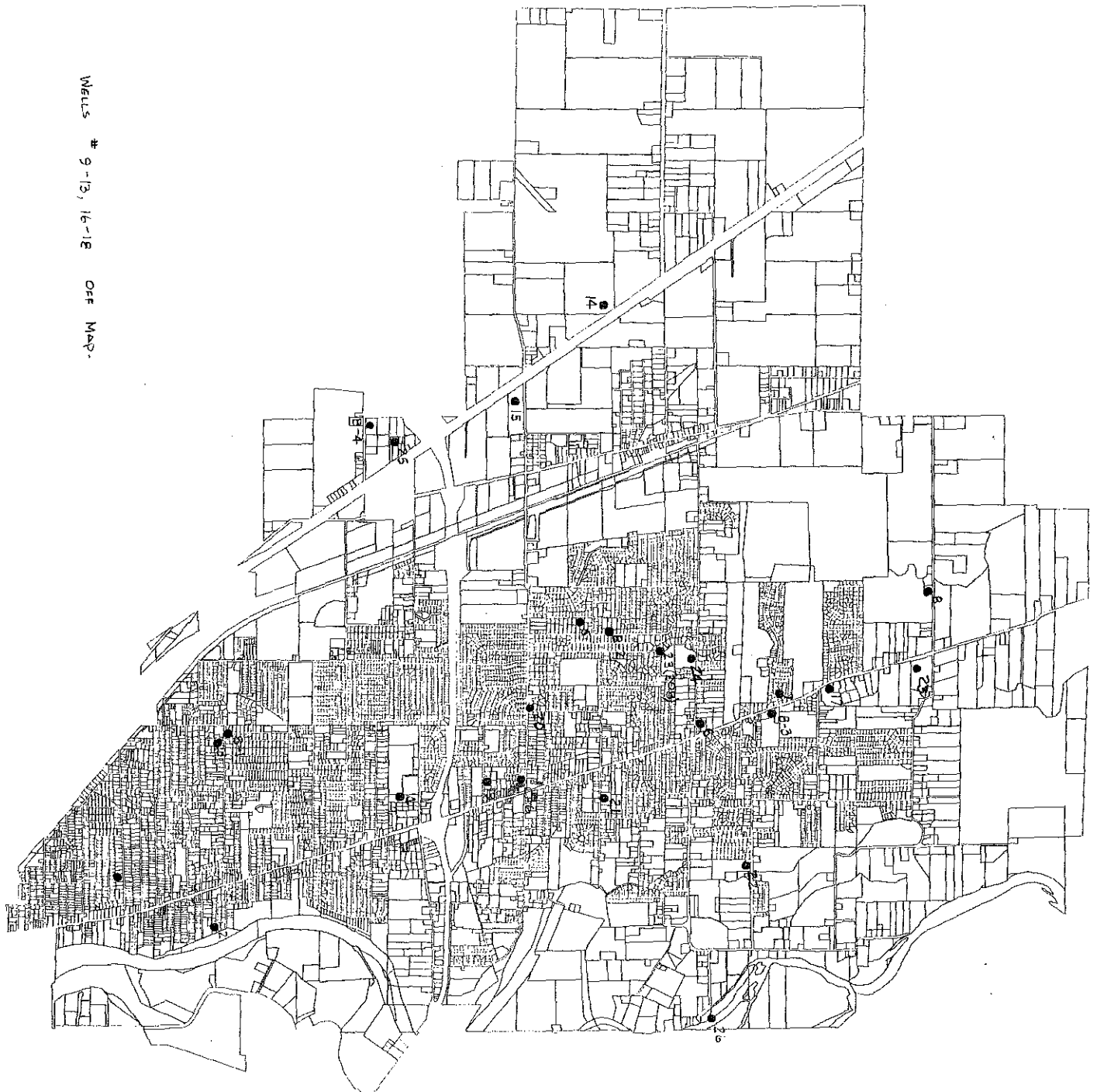
## RIVER ROAD-SANTA CLARA WELL SAMPLING STATIONS USED TO DATE, 1971-1977

Well Nos.			OWNER	DATA/ PERIOD	REMARKS	U.S.G.S. Ref. No.	FUTURE USE (see Table 12)
R.D.	208	Misc.					
1	1	A-1	Snellstrom-Jenning	Q /71-77	115' well	17S/4W-24cbc	No
2	2	A-2	Newman	Q /71-77	200' well	17S/4W-24 bad	No
3			Major	Q-D /71	20' well		
	3	B-1	Hough	Q /76-77			
4	4	A-3	N. Eugene H.S.	Q /71-77	142' well	17S/4W-14 aca	No
5			Maesner	Q-D /71	22' well (?) also 80' well	16S/4W-28dcc	
	5	B-2	Lewis	Q /76-77			
6	6	A-4	Hurley	Q /71-77	56' well; cased 36'	17S/4W-2cda	
7			Thomson	Q /71	40' well	17S/4W-2cbb	
	7	B-3	Sayles	Q /76-77	drilled well		
8	8	A-5	Lamert	Q /71-77	Drive pt. near drainfield	16S/4W-35cbc	yes
9	9	A-6	Schick	Q-D /71-77	48' well & 20' well; down-grad.	16S/4W-27cbd2	
10	11	A-8	Hostick	Q-D /71-77	26' well; 2nd well for depth; down-gradient	16S/4W-27adb	yes
	11	A-9?	Frost	Q-D /71-77	27' well; down gradient	16S/4W-15cdb	yes
	12	A-7	Shadow Hills	Q-D /71-77	20' well; also 140' well	16S/4W-16cac	
	13		Lyon	Q-D /71-77	103' well	16S/4W-21cdc	No
	14	A-15	Blackley Ln.	Q /71-77	40' well	17S/4W-5add	
	15	A-16	Triangle Ven.	Q /71-77	74' well		No
	16		Terry	Q /71	44' well		
	17		Camac Ven.	Q-D /71	130' well		
	18	A-17	Olsen Mfg.	Q-D /71-77	50' well		
	19	A-10	S.C.F.D.	Q-D /71-77	Drive pt.; depth @ nearby well		yes
	20	A-11	S.C.F.D.	Q-D /71-77	Drive pt.	17S/4W-11cac	yes
	21	A-12	S.C.F.D.	Q-D /71-77	Drive pt.	17S/4W-1caa	yes
	22	A-13	S.C.F.D.	Q-D /71-77	25' well	17S/4W-1caa	yes
	23	A-14	S.C.F.D.	Q-D /71-77	20 or 25' well; down-grad.	16S/4W/35cdc	yes
	24		S.C.F.D.	Q /71	200' well (?)		
	25		Empire Bowl	Q /71			
		B-4	Hinds	Q /76-77	21' well		
			Will. R.	Q /71			
	23		Spr. Cr.	Q /76-77			

Q - Quality sample

D - Depth to water table

FIGURE 14  
WATER QUALITY MONITORING STATIONS  
RIVER ROAD - SANTA CLARA



Wells # 9-13, 16-18 OFF MAP.

TABLE 12

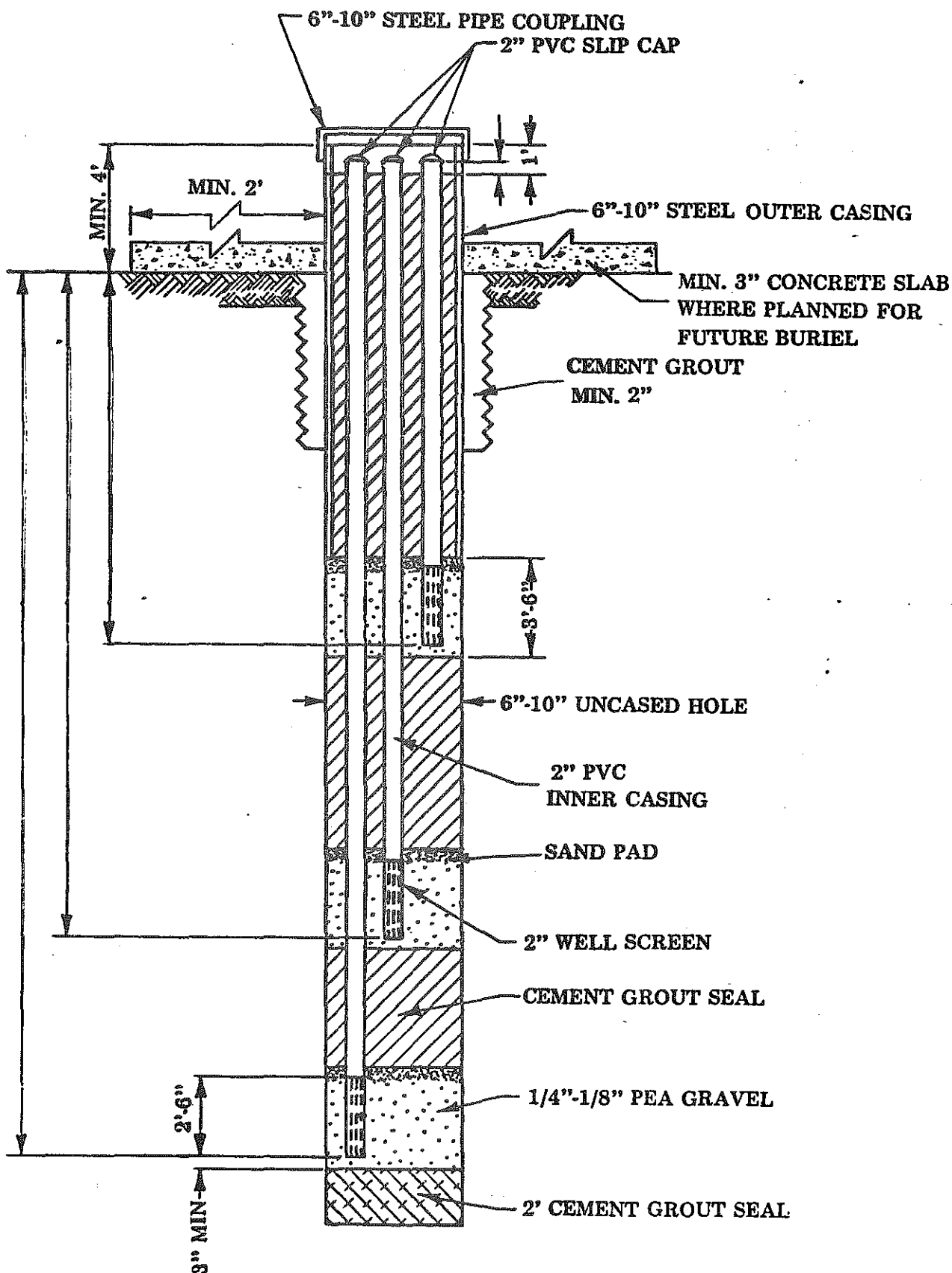
REPORTED NITRATE-NITROGEN AND DEPTH TO WATER DATA FOR SELECTED WELLS,  
RIVER ROAD-SANTA CLARA, 1971-77

WELL NO.			SAMPLE DATE (conc. (mg/l)/depth to water (ft.))										
U.S.G.S.	RD.	208	5/19/71	7/27/71	9/27/71	11/14/71	6/14/76	7/26/76	9/13/76	11/29/76	3/7/77	3/30/77	6/15/77
	19	13	-/	-/	-/	15.9/	6.0/	5.3/	6.1/	5.9/	-/	6.0/	-/
17S/4W/11cac	20	14	-/10.5	-/12.7	-/12.9	9.0/12.2	5.0/9.3	3.9/	4.2/	4.2/	-/	4.6/	-/
11ada	21	15	-/9.4	-/11.1	-/11.6	-/10.8	5.0/13.5	5.4/15.9	5.8/15.0	-/14.9	-/15.2	5.8/-	-/14.7
1caa	22	16	-/9.9	-/10.7	-/10.6	3.2/10.2	5.0/11.1	3.1/13.7	4.3/12.4	4.0/12.3	-/12.6	-/12.5	-/12.8
16S/4W-15cdb	11	12	10.3/10.8	7.1/12.8	7.5/13.0	5.6/12.4	6.0/	5.0/	-/	-/	-/	-/	-/
27adb	10	11	4.6/9.2	5.1/-	5.0/13.2	11.8/12.6	5.0/9.6	4.1/13.4	3.0/13.3	3.7/12.2	4.5/13.0	3.1/12.0	4.6/13.3
35cbc	8	8	15.9/	2.4/	14.1/	24.2/	10.0/	26.2/	1.5/	8.2/	8.0/	6.5/	8.1/
35cdc	23	17	-/6.7	-/8.1	-/8.3	5.3/7.7	4.0/5.0	3.1/7.2	4.7/6.8	4.2/6.6	-/6.8	-/6.7	-/7.2

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1. Depth to water measred @ 17S/4W-11dbd

FIGURE 15



**MULTIPLE COMPLETION MONITORING WELL**

## Future Monitoring and Data Collection

Any improved and/or expanded study program for the River Road-Santa Clara area will have to incorporate additional data not available at this time. This should include:

1. Complete inventory of nitrogen sources such as vegetative input, fertilizer use and industrial sources;
2. Sample background or up-gradient wells to determine "Eugene" and/or other underflow sources;
3. Define the ground-water flow system with vertical and horizontal potential gradients, relative permeability of strata, precipitation vs. recharge relationships and shallow aquifer mixing zones;
4. Delineate existing or potential nitrogen sinks and estimated decay rates;
5. Select sampling and testing sites including some surface waters for quality as well as seasonal response to precipitation, runoff and recharge; and
6. Sample, test, and analyze on a monthly basis and over one water year to include pH, electrical conductivity, ammonia, nitrate, chloride, sulfate and bacteria.

Data collection and development can be carried out at several levels of sophistication as described below. Each program includes a short discussion of its potential advantages and limitations.

The least sophisticated, Program A, approach is empirical. It would involve locating 40-50 suitable existing wells such as the eight listed in Table 12 and Appendix B. Selection would be based on spatial, hydrogeological and well construction considerations. Wells would be pump tested where possible to determine local aquifer characteristics; equipped with continuous water level recorders at several sites to directly measure recharge; sampled at least monthly; and the above data related to the local and areal distribution of nitrogen sources. Some well sites included in Frank and Johnson's (1970) well inventory of the area may possibly be employed and are included on Figure 14.

Program A is dependent upon an "average" or wet year for recharge and water table response. It does not define the depth of the mixing zone since it does not continuously monitor the top as well as selected levels within the saturated zone. It also assumes that a sufficient number of suitable wells are available.

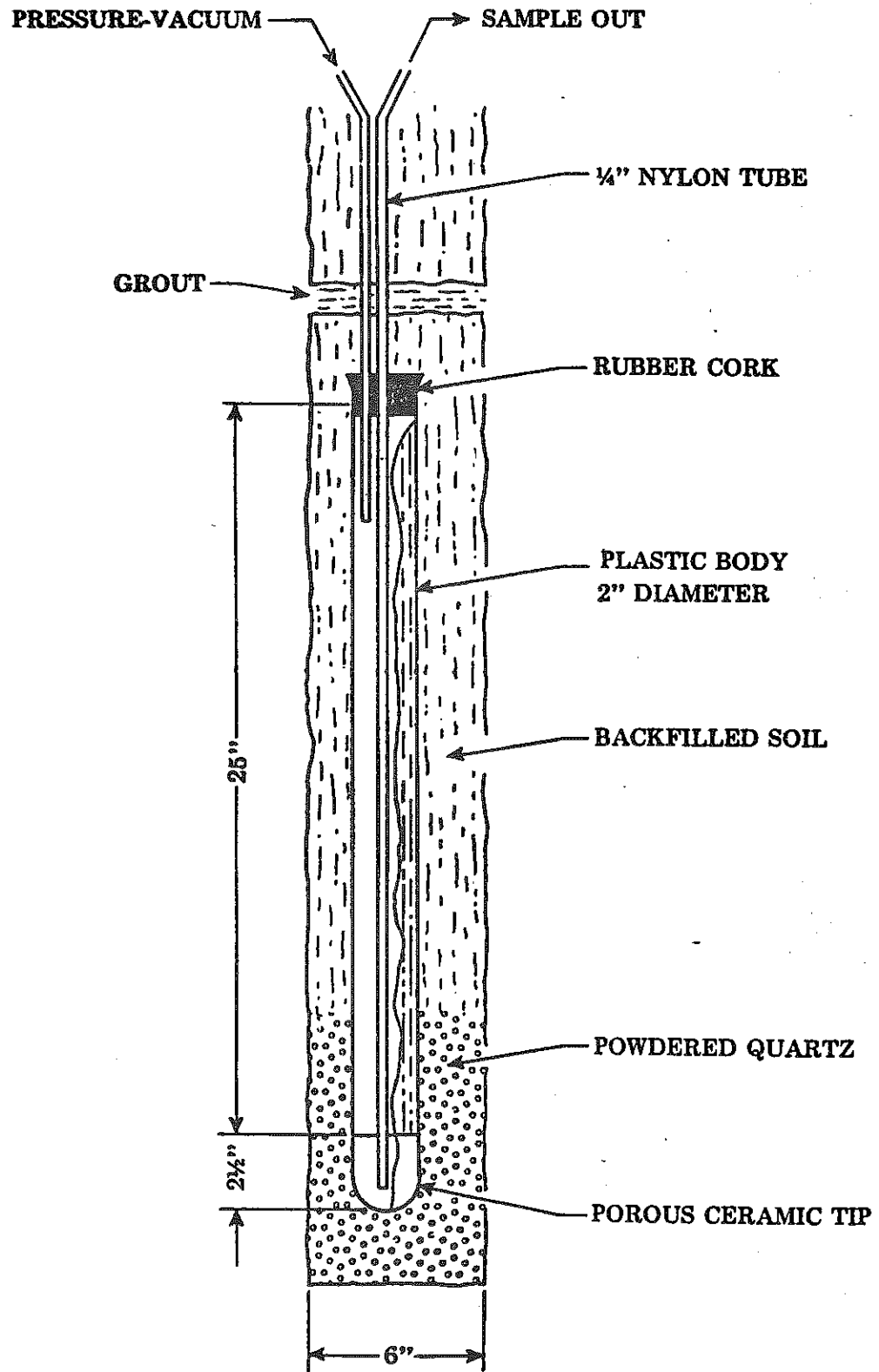
Program B is projected to include 10 existing wells with the addition of 20 new multiple completion piezometers at selected locations, see Figure 15. Aquifer testing, sampling and analysis would be similar to that described for Program A.



Major advantages of Program B over Program A are the selection of optimum sampling station locations; ability to estimate the vertical mixing zone; and control of the sampling stations through County ownership. Placement of several multiple completion wells immediately down-gradient from the study area would also demonstrate vertical mixing depths in that area and if necessary allow for remedial recommendations, e.g. special well standards. Although this program is also sensitive to an "average" or wet year, the multiple completion piezometers would allow for some projections, even with a depressed water table, since the multiple sampling levels provide continuous access to the top of the saturated zone.

Program C is projected to include the monitoring and sampling program outlined for Program B. Addition of two micro or local sampling sites to include variable depth suction lysimeter sampling (see Figure 16) and soils analyses for mechanical particle size testing, saturated hydraulic conductivity, organic content and cation-anion exchange capacities will aid in accurately defining vertical mixing zones, organic or other sinks and decay rates. Final analysis of the micro data collected in Program C would be through the modification and use of an existing two-dimensional saturated flow computer model (Cleary, 1977). This data would be integrated into the areawide sampling net described for Program B.

Advantages of Program C are primarily the refined definition of local hydrological characteristics and source-sink relationships. This better definition makes this program least susceptible to "average" or wet condition requirements.



**SUCTION LYSIMETER**

## REFERENCES

- Balster, C.A. and R. B. Parsons, 1968, Geomorphology and soils, Willamette Valley, Oregon: Ore. St. Univ., Ag. Exp. Sta. Special Rept. 265, 31 p.
- Cleary, R.W., 1977, Ground water pollution and hydrology mathematical models and computer programs: Manual for continuing engineering education course, Princeton Univ.
- Dickinson, R.G., Ground-water study of the Santa Clara-River Road area, Eugene, Oregon: Univ. of Ore. Masters Thesis, unpub., 99 p.
- Dudley, J.G. and D. A. Stephenson, 1973, Nutrient enrichment of ground water from septic tank disposal systems: Upper Great Lakes Commission, Inland Lake Renewal and Shoreland Demonstration Project Rept., 131 pp.
- Feth, J. H., 1966, Nitrogen compounds in natural water - a review: Water Resources Res., 2:41-58
- Frank, F.J., 1973, Ground water in the Eugene-Springfield area, southern Willamette Valley, Oregon: U.S. Geol. Survey Water-Supply Paper 2018, 65 p.
- Frank, F.J. and N.A. Johnson, 1970, Selected ground-water data in the Eugene-Springfield area, southern Willamette Valley, Oregon: Oregon State Engineer Ground Water Rpt. No. 14, 70 p.
- Ham, H.H., 1961, The ground-water geology of the southwestern quarter of the Eugene quadrangle, Oregon: Univ. of Ore., M.S. thesis, 170 p.
- Hansen, D.T., C. Hagedorn and G. H. Simonson, 1978, Survival and movement of fecal indicator bacteria in soil under conditions of saturated flow: Jour. of Env. Qual., in press.
- Hem, J.D., 1959, Study and interpretation of the chemical characteristics of natural water: U.S. Geol. Survey Water-Supply Paper 1473, 269 p.
- Illian, J.R., 1974, Oregon's Approach to Ground-Water Basin Investigations: Oregon St. Engineer's Office short report, 16 p.
- Johnsgard, G.A., 1963, Temperature and the water balance for Oregon weather stations: Agricultural Experiment Station Special Report 150, Oregon St. Univ., Corvallis, 124 p.
- Junge, C.E., 1958, The distribution of ammonia and nitrate in rainwater over the United States: Trans. Am. Geophys. Union 39 (2): 241-248
- Kaufman, W.J. and G.T. Orlob, 1956, An evaluation of ground-water tracers: Trans. Amer. Geophys. Union, Vol. 37, No. 3, p. 297-306
- Lance, J.C., 1972, Nitrogen removal by soil mechanisms: J. Water Pollut. Control Fed., V. 44, p. 1352-1361
- McKee, J.E. and H.W. Wolf, 1963, Water quality criteria: Calif. Water Res. Control Board Pub. 3-A, 548 p.

- Muller, W., 1953, Nitrogen content and pollution of streams: Water Pollution Abs., V. 28, No. 2, Abs. No. 454.
- National Oceanic and Atmospheric Administration, 1976, Local Climatological Data, Annual Summary with Comparative Data: U.S. Dept. of Commerce
- Patterson, J.W., R.A. Minear and T.K. Nedued, 1971, Septic tanks and the Environment: Ill. Inst. for Env. Qual., Rpt. No. 71-2, N.T.I.S. No. P.B. 204-519, 107 p.
- Piper, A.M., 1942, Ground-water resources of the Willamette Valley, Oregon: U.S. Geol. Survey Water-Supply Paper 890, 194p.
- Rahe, T.M., 1978, personal communication, Oregon St. Univ., Masters student.
- Riffenburg, H.B., 1925, Chemical character of ground waters of the northern Great Plains: U.S. Geol. Survey Water - Supply Paper 560, p. 31-52.
- Sawyer, C.N., 1952, Some new aspects of phosphates in relation to lake fertilization: Sewage and Ind. Wastes, V. 24, No. 6, p. 768-776.
- Shearer, L.A. et. al., 1972, Methemoglobin levels in infants in an area with high nitrate water supply: Am. Jour. Pub. Health, V. 62, p. 1174-80.
- Shural, H.I. and Nachman Gruener, 1972, Epedemiological and toxicological aspects of nitrates and nitrites in the environment: Am. Jour. Pub. Hlth., V. 62, N. 8, p. 1045-52.
- Siegrist, R., Witt, M. and W. C. Boyle, 1976, Characteristics of rural household wastewater: J. of Env. Eng. Div., p. 533-548.
- Sikora, L.J. and R.B. Corey, 1977, Fate of nitrogen and phosphorus in soils under septic tank waste disposal fields: a report from the Dept. of Soil Sci., Univ. of Wis., Madison, 18 p.
- Sikora, L.J. and D.R. Keeney, 1975, Laboratory studies on stimulation of biological denitrification: Proc. Nat. Home Sewage Disposal Symp., Am. Soc. Agr. Eng., p. 64-74.
- Sweet, H.R., 1977, Carrying capacity of the Clatsop Plains sand-dune aquifer, Oregon: Rept. to Clatsop Co. Commission and Oregon Department of Environmental Quality, 73 p.
- Tarrant, R.F., K.C. Lu, W.B. Bollen, and C.S. Chen, 1968, Nutrient cycling by throughfall and stemflow precipitation in three coastal Oregon forest types: U.S.D.A. Forest Service Research Paper, PNW-54, 7p.
- Viets, F.J. and R.H. Hageman, 1971, Factors affecting the accumulation of nitrate in soil, water and plants: Agricultural Handbook 413, Agricultural Research Service, U.S.D.A., 63 p.
- Vokes, H.E., Snavelly, P.D., Jr., and D.A. Myers, 1951, Geology of the southern and southwestern border area of the Willamette Valley, Oregon: U.S. Geol. Survey Oil and Gas Inv. Map OM-110.
- Walker, W.C., J. Bouma, D.R. Keeney and P.G. Olcott, 1973, Nitrogen transformations during subsurface disposal of septic tank effluent in sands: II. Ground Water Quality, J. Env. Quality, Vol. 2, No. 4, p. 521-25.

Wells, F.G. and D.L. Peck, 1961, Geologic map of Oregon west of the 121st meridian:  
U.S. Geol. Survey Invest. Map I-325.

Winton, E.F., R.G. Tardiff and L.J. McCabe, 1971, Nitrate in drinking water: Jour.  
A.W.W.A., paper presented at the Annual Conference on June 23, 1970, Wash., D.C.,  
p. 95-98.

APPENDIX A

RIVER ROAD-SANTA CLARA WATER QUALITY DATA

From: Frank and Johnson (1970) and Frank (1973)  
Dickinson (1972)  
Lane County "208 Areawide Wastewater Management"  
Eugene Water and Electric Board Files

RIVER ROAD - SANTA CLARA GROUND WATER STUDY (6-14 & 6-15-76)

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *	pH	PO <sub>4</sub> mg/l P
1. J. Jennings	7.5			260			4	7.3	0.235
2. D. Newman	3.7			195			2	6.2	0.059
3. K. Hough	10			255			4	6.2	0.083
4. N. Eugene H S	11			265			6-7	7.0	0.056
5. K. Lewis	9.2			255			4-5	6.5	0.059
6. H. Hurley	8.5			255			5	6.6	0.049
7. K. Sayles	9.6			250			6	6.5	0.045
8. N. Lambert	6.1			260			10-11	6.3	0.052
9. R. Shick	3.1			230			3	6.3	0.066
10. S. Hills C C	3.1			210			3	7.2	0.134
11. H. Hostick	5.6			220			5	6.4	0.124
12. G. Frost	8.2			230			6	6.2	0.047

\*Hach

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SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Feca' #/100ml	Coliform Total #/100ml			
1	6-14-76					<2	<2			
2	↓					↓	<2			
3	↓					↓	11			
4	↓					↓	<2			
5	↓					↓	↓			
6	↓					↓	↓			
7	↓					↓	↓			
8	↓					↓	↓			
9	↓					10	63			
10	↓					<2	<2			
11	↓					↓	<2			
12	↓					↓	2			

RIVER ROAD - SANTA CLARA GROUND WATER STUDY (6-14 & 6-15-76)

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *	pH	PO <sub>4</sub> mg/l P
13. SG Fire Dept.	10			260			6	6.1	0.046
14. "	11			275			5	6.1	0.289
15. "	9.3			240			5	6.1	0.090
16. "	6.4			210			5	6.1	0.080
17. "	9.2			245			4	6.3	0.106
18. R. Lyon	4.0			220			4-5	6.6	0.160
19. Bachley Lane	2.8			220			2-3	7.0	0.191
20. W. Hinds	30			490			17-18	6.4	0.090
21. Triangle Veneer	*			620			11	7.1	0.079
22. Olson Mfg. Co.	*			580			4-5	6.8	0.147
23. Spring Crk. @ Crocker Rd.	11			265			7	6.2	0.224

\*Interference suspected.

\*Hach

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
13	6-14-76					< 2	22			
14	↓					↓	29			
15	↓					↓	38			
16	↓					↓	< 2			
17	↓					↓	↓			
18	6-15-76					↓	↓			
19	↓					↓	↓			
20	↓					↓	↓			
21	↓					< 4	315			
22	↓					< 2	< 2			
23	↓					1,600	4,200			



RIVER ROAD - SANTA CLARA GROUND WATER STUDY (7-26; 7-27 & 7-28-76)

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate		pH	PO <sub>4</sub> mg/l P
							mg/l N *			
1. J. Jennings		5.8		250			2.2	4	7.5	0.213
2. D. Newman		4.2		208			1.2	3	6.4	0.136
3. K. Hough		11		250			2.6	3	6.4	0.068
4. N. Eugene H S		11		310			6.2	8	7.3	0.018
5. K. Lewis		9.0		245			4.7	6	7.1	0.066
6. H. Hurley		7.2		240			4.4	6	7.0	0.047
7. K. Sayles		8.9		250			4.7	6	6.7	0.047
8. N. Lambert		5.1		255			6.2	11	7.0	0.046
9. R. Shick		3.4		242			2.8	5	6.8	0.070
10. S. Hills C C		2.3		204			1.4	3.5	7.7	0.117
11. H. Hostick		5.0		220			4.1	6	6.7	0.074
12. G. Frost		8.1		230			5.0	7	7.0	0.044

\* Left column B & L; Right column

Hacr

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
1	7-26-76					< 2	< 2			
2							< 4			
3							< 2			
4							< 2			
5							8			
6							< 2			
7							6			
8							166			
9							8			
10							< 2			
11							< 2			
12							14			

RIVER ROAD - SANTA CLARA GROUND WATER STUDY (7/27 and 7/28/76)

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *	pH	PO <sub>4</sub> mg/l P
13. SC Fire Dept.		11		270			5.3	6.4	0.050
14. "		12		280			3.9	6.6	0.266
15. "		9.1		237			5.4	6.5	0.097
16. "									
17. "		10		250			3.1	6.4	0.083
18. R. Lyon									
19. Bachley Lane		2.2		218			1.2 3	7.5	0.182
20. W. Hinds		25		382			15 14	6.6	0.102
21. Triangle Veneer		**		510			17 7	7.5	0.654
22. Olson Mfg. Co.		**		535			3-4	7.0	0.143
23. Spring Grk. @ Crocker Rd.									
20A. W. Hinds (#2 well)		40		493			7.4 13	6.3	0.070

\*\* Interference suspected \*Left column B & L; Right Column Hach

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
13	7-28-76					< 2	< 2			
14						≥ 2*	≥ 30*			
15						2	20			
16										
17	▼					< 2	< 2			
18										
19	7-27-76					< 2	< 2			
20										
21										
22										
23										
20A.	▼					▼	▼			

\*Turbid - Results approximate

SITE	Alk. mg/lCaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmhc/cm	Hard. mg/lCaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *		pH	PO <sub>4</sub> mg/l <sup>4</sup> P
1. J. Jennings		8.6		290			2.4	4	7.3	0.208
2. D. Newman		4.8		220			0.8	<1	6.9	0.142
3. K. Hough		12		263			2.5	3.5	6.5	0.086
4. N. Eugene H S		5.8		150			0.2	<1	7.2	0.025
5. K. Lewis		10		260			3.8	6	6.7	0.065
6. H. Hurley		8.4		260			3.0	5	6.9	0.048
7. K. Sayles		9.8		255			4.3	6	6.8	0.066
8. N. Lambert		5.9		250			6.0	11	6.8	0.087
9. R. Shick		4.6		248			2.6	3	6.7	0.089
10. S. Hills C C		3.2		210			1.5	2.5	7.5	0.128
11. H. Hostick		5.4		220			3.0	4	6.6	0.082
12. G. Frost										

\*Left column B & L; Right column Hach

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
1	9-13-76					0	0			
2						< 2	122			
3						0	3			
4						0	0			
5						1	115			
6						0	5			
7						0	1			
8						0	13			
9						3	58			
10						0	0			
11						0	0			
12	Unable to sample									

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate		pH	PO <sub>4</sub> mg/l P
							mg/l N *			
13. SC Fire Dept.		10		262			6.1	5	6.1	0.051
14. "		12		295			4.2	3.8	6.3	0.202
15. "		9.2		240			5.8	4.5	6.5	0.082
16. "		6.5		205			4.3	4.2	6.9	0.082
17. "		10		270			4.7	3.9	7.0	0.092
18. R. Lyon	Unable	to sample	→							
19. Bachley Lane		3.1		220			1.7	1.5	7.3	0.192
20. W. Hinds		23		370			76.8	8.0	6.7	0.106
21. Triangle Veneer		**0.52		570			6.8	4.8	7.1	0.571
22. Olson Mfg. Co.		0.18		580			3.3	3.0	6.9	0.147
23. Spring Crk. @ Crocker Rd.										

\*\*Interference indicated

\*Left Column B & L; Right Column Hach

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
13	9/20/76					0	2			
14						0	17			
15						0	36			
16						0	0			
17						0	1			
18	-----									
19						0	0			
20						0	0			
21	↓					7	~300			
22						0	0			
23										

RIVER ROAD - SANTA CLARA GROUND WATER STUDY (11/29/76 & 12/1/76)

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmhc/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *	pH	PO <sub>4</sub> mg/l P
1. J. Jennings		8.8		300			1.6	7.1	0.136
2. D. Newman		2.3		308			< 0.02	6.8	0.057
3. K. Hough	Unable	to sample							→
4. N. Eugene H S		4.6		118			0.02	6.6	0.023
5. K. Lewis	Unable	to sample							→
6. H. Hurley	Unable	to sample							→
7. K. Sayles		10		243			6.0	6.5	0.049
8. N. Lambert		5.7		231			8.2	6.5	0.058
9. R. Shick		4.6		250			4.9	6.6	0.070
10. S. Hills C C		2.7		208			1.3	7.2	0.132
11. H. Hostick		5.1		210			3.7	6.6	0.084
12. G. Frost	Unable	to sample							→

\*B & L

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
1	12/1/76					0	0			
2	11/29/76					< 2	< 4			
3										→
4	11/29/76					0	0			
5										→
6										→
7	11/29/76					0	1			
8						0	1			
9						0	26			
10						0	0			
11						0	0			
12										→



RIVER ROAD - SANTA CLARA GROUND WATER STUDY ( 3/7/77 )

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *	pH	PO <sub>4</sub> <sup>-3</sup> mg/l P
1. J. Jennings		9.4		290			3.5	6.9	0.251
2. D. Newman		~2.7		300			**	6.8	0.016
3. K. Hough	-----	UNABLE	TO SAMPLE	-----					
4. N. Eugene H S	-----	UNABLE	TO SAMPLE	-----					
5. K. Lewis	-----	UNABLE	TO SAMPLE	-----					
6. H. Hurley	-----	UNABLE	TO SAMPLE	-----					
7. K. Sayles		10		260			8	6.7	0.106
8. N. Lambert		7.0		248			8	6.7	0.114
9. R. Shick		2.8		235			4.5	6.7	0.114
10. S. Hills C G		2.7		205			2.5	7.3	0.165
11. H. Hostick		5.9		220			4.5	6.9	0.133
12. G. Frost	-----	UNABLE	TO SAMPLE	-----					

\*Hach      \*\*Interference suspected

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
1	3/7/77					0	0			
2	"					<2	<2			
3	-----									
4	-----									
5	-----									
6	-----									
7	3/7/77					0	0			
8	↓					0	0			
9	↓					19	23			
10	↓					0	0			
11	↓					0	0			
12	-----									

RIVER ROAD - SANTA CLARA GROUND WATER STUDY (3/7/77)

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *	pH	PO <sub>4</sub> mg/l P
13. SC Fire Dept.									
14. "									
15. "									
16. "									
17. "									
18. R. Lyon									
19. Bachley Lane		3.3		217			2.5	7.6	0.260
20. W. Hinds		18		297			12	7.1	0.171
21. Triangle Veneer		~11		510			4	7.3	0.735
22. Olson Mfg. Co.		~30		570			3.5	7.1	0.186
23. Spring Crk. @ Crocker Rd.									

\*Hach

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
13										
14										
15										
16										
17										
18										
19	3-7-77					0	0			
20	↓					0	0			
21	↓					10	106			
22	↓					0	0			
23										



SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmhc/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N*	pH	PO <sub>4</sub> mg/l P
1. J. Jennings		UNABLE TO	SAMPLE						→
2. D. Newman		4.8		295			0.02	7.0	0.022
3. K. Hough		UNABLE TO	SAMPLE						→
4. N. Eugene H S		5.4		140			0.26	6.6	0.031
5. K. Lewis		UNABLE TO	SAMPLE						→
6. H. Hurley		UNABLE TO	SAMPLE						
7. K. Sayles		11		265			4.3	6.7	0.100
8. N. Lambert		7.1		245			6.5	6.6	0.064
9. R. Shick		4.2		233			3.5	6.7	0.083
10. S. Hills G C		3.0		213			1.0	7.3	0.128
11. H. Hostick		6.6		228			3.1	6.7	0.163
12. G. Frost		UNABLE TO	SAMPLE						→

\*B & L

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
1										→
2	3-29-77					<2	<4			
3										→
4	3-29-77					0	0			
5										→
6										→
7	3-29-77					0	2			
8						0	0			
9						4	22			
10						0	0			
11						0	1			
12										→

RIVER ROAD - SANTA CLARA GROUND WATER STUDY (3/29/77 and 3/30/77)

(208 SPECIAL CONTRACT)

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmhc/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N *	pH	PO <sub>4</sub> mg/l P
13. SC Fire Dept.		10		258			6.0	6.4	
14. "		12		320			4.6	6.4	
15. "		7.8		225			5.8	6.4	
16. "	-----	UNABLE TO SAMPLE							
17. "	-----	UNABLE TO SAMPLE							
18. R. Lyon	-----	UNABLE TO SAMPLE							
19. Bachley Lane		4.0		235			0.94	7.2	0.199
20. W. Hinds		17		295			7.2	6.9	0.162
21. Triangle Veneer		~14		520			3.2	7.1	1.62
22. Olson Mfg. Co.		~13		610			2.2	7.0	0.148
23. Spring Crk. @ Crocker Rd.									

\* B & L

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
13	3-30-77					0	6			
14	↓					< 2	550			
15	↓					1	30			
16	-----									
17	-----									
18	-----									
19	3-29-77					0	0			
20	↓					0	0			
21	↓					TNTC	Overgrown			
22	↓					0	0			
23										

SITE	Alk. mg/l CaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/l CaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N	pH	PO <sub>4</sub> mg/l P
1. J. Jennings		7.6		267			1.3	7.3	0.278
2. D. Newman		~ 2.4		245			*	6.5	0.050
3. K. Hough		13		300			4.7	6.5	0.113
4. N. Eugene H S		7.4		232			2.6	6.3	0.016
5. K. Lewis		11		272			5.6	6.5	0.093
6. H. Hurley		7.6		261			3.7	6.6	0.077
7. K. Sayles		11		265			6.0	6.6	0.048
8. N. Lambert		6.6		254			8.1	6.6	0.060
9. R. Shick		3.0		271			3.2	6.7	0.073
10. S. Hills G G		2.2		212			1.5	7.3	0.134
11. H. Hostick		6.4		231			4.6	6.6	0.068
12. G. Frost	UNABLE TO SAMPLE								

\*Interference

SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Feca' #/100ml	Coliform Total #/100ml			
1	6-6-77					0	0			
2						<4	<4			
3						0	41			
4						0	0			
5						0	1			
6						0	1			
7						0	0			
8						0	0			
9						3	37			
10						0	0			
11						0	0			
12	UNABLE TO SAMPLE									

SITE	Alk. mg/lCaCO <sub>3</sub>	Chl. mg/l Cl	COD mg/l	Cond. µmho/cm	Hard. mg/lCaCO <sub>3</sub>	Iron mg/l Fe	Nitrate mg/l N	pH	PO <sub>4</sub> mg/l P
13. SC Fire Dept.	/	/	/	/	/	/	/	/	/
14. "	/	/	/	/	/	/	/	/	/
15. "	/	/	DID NOT SAMPLE		/	/	/	/	/
16. "	/	/	/	/	/	/	/	/	/
17. "	/	/	/	/	/	/	/	/	/
18. R. Lyon	UNABLE TO SAMPLE								
19. Bachley Lane		2.9		230			0.87	7.2	0.238
20. W. Hinds		19		305			10	6.8	0.162
21. Triangle Veneer		13		542			5.4	6.9	0.472
22. Olson Mfg. Co.		10		602			2.6	6.8	0.172
23. Spring Crk. @ Crocker Rd.									

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SITE	DATE COLLECTED	TSS mg/l	TS mg/l	Temp. °C	Turb. mg/l SiO <sub>2</sub>	Coliform Fecal #/100ml	Coliform Total #/100ml			
13		/	/	/	/	/	/	/	/	/
14		/	/	/	/	/	/	/	/	/
15		/	/	/	/	/	/	/	/	/
16		/	/	/	/	/	/	/	/	/
17		/	/	/	/	/	/	/	/	/
18		/	/	/	/	/	/	/	/	/
19	6-8-77					0	0			
20						0	0			
21						*	400			
22						0	0			
23										

\*Overgrown

Table 4.--Chemical analyses of water in the Eugene-Springfield area

[Analyses by the U.S. Geological Survey, Portland, Oreg., unless otherwise noted]

Well number	Water-bearing material	Date of collection	Temperature (°C) Temperature (°F)		Milligrams per liter																		Specific conductance (microhos at 25°C)	pH		
					Dissolved solids																Hardness					
					Silica (SiO <sub>2</sub> )	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Aluminum (Al)	Arsenic (As)	Calculated	Residue on evaporation at 180°C			As CaCO <sub>3</sub>	Noncarbonate
a/15S/4W-32cab4	Sand and gravel	8-27-68	--	--	25.5	0.10	--	35.3	10.2	64	2.0	105	0	0.0	114	0.12	0.01	--	0.1	--	--	382	130	--	--	8.0
16S/2W-23abd	Lava rock	8-2-69	13	55	41	.08	--	13	4.2	38	.8	161	0	.2	1.0	.2	.0	--	--	0.00	177	177	50	0	231	8.2
16S/2W-33add	do.	6-13-69	14	57	29	.00	--	4.2	.1	50	.4	124	8	1.2	4.0	.1	.1	0.29	--	.05	158	147	10	0	225	8.6
16S/2W-34cdc	Sand and gravel	8-20-69	13	55	43	.03	--	13	3.2	7.4	.4	73	0	.0	1.5	.1	.0	--	--	--	105	107	46	0	120	8.0
16S/3W-9aad	Shale	8-13-69	13	55	31	.02	--	4.8	.5	87	.2	147	16	9.2	33	.5	.0	--	--	.00	254	264	14	0	373	8.9
b/16S/4W-25ccd	Sand and gravel	7- -69	16	60	21.9	.12	0.15	--	--	--	--	--	--	2.5	--	.25	--	--	--	--	33	--	30	--	--	7.2
16S/4W-27cbd2	do.	9-25-69	13	55	--	--	--	24	13	--	--	--	99	0	--	--	26	--	--	--	--	--	114	32	265	7.5
b/16S/4W-36bbc	do.	7- -69	14	57	22.9	.10	.17	--	--	--	--	--	--	4.5	--	.22	--	--	--	--	--	24	20	--	--	7.0
b/16S/4W-36bbd	do.	7- -69	13	55	--	.09	.2	--	--	--	--	--	--	2.0	--	.13	--	--	--	--	--	162	20	--	--	6.8
16S/5W-10bdb2	do.	9-23-69	14	57	--	--	--	154	15	--	--	117	0	--	388	--	1.2	--	--	--	--	--	446	350	1,400	7.6
16S/6W-36c2d	Claystone and sandstone	9-24-69	--	--	--	--	--	.9	.5	--	--	10	0	--	--	--	.0	--	--	--	--	--	4	0	27	6.7
16S/6W-36cac	Sandstone	9-23-69	11	52	--	--	--	17	3	--	--	68	0	--	--	--	.0	--	--	--	--	--	55	0	125	7.1
b/17S/2W-26cca2	Gravel and sand	3- -69	--	--	9.5	0	0	--	--	--	--	--	--	--	--	--	--	--	--	.00	--	148	20	--	--	7.1
a/17S/2W-31bcc1	do.	2- -68	--	--	42	.22	<0.02	19	13.8	10	2.3	122	0	1.8	8.4	.22	.05	--	.15	--	--	171	104	--	--	7.2
17S/3W-5aaa	Sand and gravel	8-13-69	12	53	25	.65	--	11	4.6	11	1.0	73	0	5.2	1.5	.1	3.8	--	--	--	100	105	46	0	142	8.1
17S/4W-13ccd	do.	6-18-69	13	55	39	--	--	23	13	9.4	1.3	99	0	21	8.5	.1	22	--	--	.00	186	193	111	30	264	7.5
17S/5W-36adb	Shale	8-15-69	15	59	14	.06	--	6.4	.8	68	.5	142	4	12	24	.4	.0	--	--	.00	200	202	20	0	313	8.6
17S/6W-12ddc	Sandstone	6-12-69	13	55	35	.24	--	112	3.1	78	.5	150	0	.2	235	.2	.2	--	--	.00	538	536	292	170	979	7.4
17S/6W-24ddc	do.	6-12-69	14	57	27	.11	--	82	3.9	162	1.1	100	0	2.0	345	.0	1.2	--	--	.00	673	677	218	136	1,250	7.3
18S/2W-11dbc	do.	6-26-69	17	62	21	.15	--	4.1	.0	158	.1	28	16	15	187	3.3	12	--	--	.00	431	440	10	0	769	8.9
18S/4W-3cad	do.	3-27-63	14	57	25	.16	.0	12	5.0	136	1.6	281	0	67	36	.4	.8	1.3	.1	.09	424	--	50	0	672	8.1
18S/4W-7cdd	Claystone	6-12-69	14	57	17	.00	--	1.7	.0	66	.1	62	26	9.0	29	.1	.1	1.01	--	.00	181	168	4	0	293	9.3
18S/4W-14acb	Sandstone	6-12-69	13	55	17	.84	--	1.2	.3	215	1.0	379	53	11	43	.2	.3	1.64	--	.50	519	521	4	0	885	9.2

a/ Analysis by Charlton Laboratories.  
b/ Analysis by Cornell, Howland, Hayes & Merryfield.

SAMPLING NUMBER	OWNERS NAME	pH	EC	FECAL COLIFORM	TOTAL COLIFORM	FECAL STREP.	PHOSPHATES	MBAS	CHLORIDES	NITRATES
		±0.1	mho/cm ±20	no./100 ml ±25%	no./100 ml ±25%	no. per 100 ml ±25%	ppm ±10%	ppm ±0.01	ppm ±1	ppm ±15%
1	G. C. SNELLSTROM	7.5	395	0	0	0	0.21	0.03	10	-
2	D. NEWMAN	7.7	140	0	0	0	0.04	0.06	4	-
3	J. MAJOR	6.9	185	0	0	0	0.05	-	22	-
4	NORTE EUGENE HIGH SCHOOL	6.7	275	0	0	0	0.09	-	10	-
5	C. H. IASSNER	7.0	300	0	0	0	0.35	0.09	13	16.8
6	H. B. HURLEY	7.0	270	0	0	0	0.17	0.05	8	22.1
7	M. THOMPSON	-	-	-	-	-	-	-	-	-
8	N. LAMBERT	6.8	320	0	0	0	0.12	0.04	10	70.0
9	R. D. SCHICK	6.9	275	0	8	0	0.14	0.02	6	-
10	H. HOSTICK	6.5	235	0	0	0	0.13	0.14	6	20.4
11	G. C. FROTT	6.7	295	0	0	0	0.16	0.01	5	45.2
12	SHADOW HILLS GOLF COURSE	7.3	200	0	0	0	0.40	0.01	3	-
13	R. M. LYON	7.6	135	0	0	0	0.50	0.01	3	1.3
14	BLANCHLEY LANE COOP.	7.2	205	0	0	0	0.64	0.01	3	5.3
15	TRIANGLE VENDOR	6.8	340	0	4	0	0.96	0.05	7	7.5
16	F. L. BERRY	6.9	375	0	0	0	0.47	-	19	15.5
17	CANAC VENDOR	-	-	-	-	-	-	-	-	-
18	OLSEN MFG. CO.	6.9	530	0	0	0	0.25	-	9	21.7
19-24	SANTA CLARA FIRE DEPARTMENT	-	-	-	-	-	-	-	-	(-)
25	EMPIRE DOWLING	6.8	260	0	0	0	0.11	0.02	5	11.5
26	WILLAMETTE RIVER	-	-	-	-	-	-	-	-	-

TABLE 1 Chemical and biological analysis at the ground-water, May 19, 1971

(from Dickinson, 1972)

SAMPLING NUMBER	OWNERS NAME	pH	EC	FECAL COLIFORM	TOTAL COLIFORM	FECAL STREP.	PHOSPHATES	MBAS	CHLORIDES	NITRATES
		±0.1	mho/cm ±20	no./100 ml ±25%	no./100 ml ±25%	no. per 100 ml ±25%	ppm ±10%	ppm ±0.005	ppm ±1	ppm ±15%
1	G. C. SNELLSTROM	7.4	310	0	0	0	0.69	0.015	9	11.5
2	D. NEWMAN	6.6	125	15	0	0	0.11	0.050	3	0.9
3	J. MAJOR	6.6	330	2	0	0	0.22	0.030	15	18.2
4	NORTH EUGENE HIGH SCHOOL	6.7	280	0	0	0	0.16	0.018	11	30.6
5	C. H. MAESNER	-	-	-	-	-	-	-	-	-
6	H. B. HURLEY	7.0	275	0	0	0	0.15	0.018	8	22.6
7	M. THOMSON	6.9	300	1	0	0	0.23	0.014	11	24.8
8	N. LANERT	6.9	310	0	0	0	0.15	0.008	10	10.6
9	R. D. SCHICK	6.8	280	6	20	100	0.22	0.008	7	21.7
10	H. HOSTICK	7.0	255	2	0	0	0.19	0.010	7	22.6
11	G. G. FROST	6.9	290	0	0	0	0.17	0.010	6	31.4
12	SHADOW HILL GOLF COARSE	7.6	205	0	0	0	0.36	0.008	7	5.8
13	R. M. LYON	7.8	130	0	0	0	0.48	0.005	3	3.1
14	BLACHLEY LANE COOP.	7.6	205	0	0	0	0.59	0.003	3	3.5
15	TRIANGLE VENEER	7.3	345	1	0	0	0.32	0.015	7	6.2
16	F. L. TERRY	6.9	190	0	0	4	0.21	0.005	7	8.9
17	CAMAC VENEER	6.9	390	0	0	0	0.51	0.026	6	0.9
18	OLSEN MFG. CO.	6.9	510	0	0	0	0.35	0.026	14	18.2
19-24	SANTA CLARA FIRE DEPARTMENT	-	-	-	-	-	-	-	-	-
25	EMPIRE BOWLING	-	-	-	-	-	-	-	-	-
26	WILLAMETTE RIVER	-	-	-	-	-	-	-	-	-

TABLE 2 Chemical and biological analysis at the ground-water, July 26, 1971

SAMPLING NUMBER	OWNERS NAME	pH	EC	FECAL COLIFORM	TOTAL COLIFORM	FECAL STR. P.	PHOSPHATES	MBAS	CHLORIDES	NITRATES
		±0.1	mho/cm ±20	no./100 ml ±25%	no./100 ml ±25%	no. per 100 ml ±25%	ppm ±10%	ppm ±0.005	ppm ±1	ppm ±15%
1	G. C. SNELLSTROM	-	-	-	-	-	-	-	-	-
2	D. NEWMAN	6.3	120	0	0	0	0.24	0.050	3	2.2
3	J. MAJOR	-	-	-	-	-	-	-	-	-
4	NORTH EUGENE HIGH SCHOOL	6.1	275	0	0	0	0.14	0.010	10	31.9
5	C. H. MAESNER	-	-	-	-	-	-	-	-	-
6	H. B. HURLEY	6.6	290	0	0	0	0.09	0.010	8	19.9
7	M. THOMSON	6.6	300	0	0	0	0.17	-	11	24.8
8	H. LANERT	6.6	310	28	20	2	0.15	0.010	9	62.0
9	R. D. SCHICK	6.6	270	2	18	0	0.21	0.010	6	31.0
10	H. HOSTICK	6.5	270	0	0	0	0.22	-	7	22.1
11	C. G. PROST	6.7	265	0	0	0	0.17	-	6	33.2
12	SHADOW HILL GOLF COURSE	7.2	200	0	0	0	0.32	-	3	5.2
13	R. H. LYON	7.6	135	0	0	0	0.48	-	2	0.9
14	BLACHLEY LANE COOP.	7.2	210	0	0	2	0.58	-	2	3.5
15	TRIANGLE VENEER	6.7	360	0	1	0	0.29	-	7	6.2
16	F. L. TERRY	6.9	215	0	0	0	0.33	-	8	8.9
17	CAMAC VENEER	-	-	-	-	-	-	-	-	-
18	OLSEN MFG. CO.	6.8	510	0	0	0	0.43	0.010	9	19.9
19	SANTA CLARA FIRE DEPARTMENT	6.5	284	0	2	0	0.30	0.005	10	6.0
20	"	6.6	327	0	4	0	0.60	0.010	12	-
21	"	6.4	189	0	0	0	0.18	0.005	5	-
22	"	6.5	135	0	0	0	0.08	0.010	3	-
23-24	"	-	-	-	-	-	-	-	-	-
25	EMPIRE BOWLING	-	-	-	-	-	-	-	-	-
26	WILLANETTE RIVER	-	-	-	-	-	-	-	-	-

TABLE 3 Chemical and biological analysis at the ground-water, September 27, 1971



SAMPLING NUMBER	OWNERS NAME	pH	EC	FECAL COLIFORM	TOTAL COLIFORM	FECAL STREP.	PROSPHATES	MEAS	CHLORIDES	NITRATES
		±0.1	mho/cm ±20	no./100 ml ± 25%	no./100 ml ± 25%	no. per 100 ml ± 25%	ppm ±10%	ppm ±0.005	ppm ±1	ppm ±15%
1	G. C. SMELLSTROM	-	-	-	-	-	-	-	-	-
2	D. NEWMAN	-	-	-	-	-	-	-	-	-
3	J. MAJOR	6.3	379	0	0	2	0.23	0.020	16	34.5
4	NORTH EUGENE HIGH SCHOOL	6.3	285	0	0	0	0.17	-	-	67.3
5	C. H. MAEDNER	-	-	-	-	-	-	-	-	-
6	H. E. HURLEY	-	-	-	-	-	-	-	-	-
7	M. THOMSON	6.4	311	0	0	0	0.17	0.010	12	54.0
8	N. LAURET	6.5	312	0	15	0	0.14	0.010	10	106.3
9	H. D. SCHICK	6.4	298	0	16	11	0.19	0.010	8	70.9
10	H. HOSTICE	6.5	277	0	0	0	0.19	-	7	51.8
11	G. C. PROST	6.5	268	0	0	0	0.20	-	6	24.9
12	SHADOW HILL GOLF COURSE	7.3	202	0	6	0	0.38	0.010	3	10.8
13	R. M. LYON	7.7	132	0	0	0	0.51	0.010	3	1.3
14	BLACHLEY LAKE COOP.	6.8	208	0	0	0	0.66	0.010	3	4.4
15	TRIANGLE VENDOR	6.9	362	0	0	0	0.39	0.010	7	5.8
16	P. L. TERRY	7.1	205	0	0	0	0.46	0.010	8	7.5
17	CANAC VENDOR	7.1	460	0	0	0	0.14	0.030	7	4.4
18	OLSEN MFG. CO.	7.0	508	0	0	0	0.46	0.013	9	16.8
19	SANTA CLARA FIRE DEPARTMENT	6.5	285	0	0	0	0.19	0.010	11	70.0
20	"	6.5	345	10	0	3	0.67	0.030	13	39.7
21	"	-	-	-	-	-	-	-	-	-
22	"	6.5	130	0	0	0	0.11	0.130	3	14.2
23	"	6.5	110	0	0	0	0.15	0.010	3	24.4
24	"	6.7	305	15	0	0	0.35	0.010	12	61.1
25	EMPIRE BOWLING	-	-	-	-	-	-	-	-	-
26	WILLANETTE RIVER	7.3	95	1000	0	0	0.05	0.010	2	12.0

TABLE 4 Chemical and biological analysis (at) the ground-water, November 14, 1971

ysis of:  
 Water Wells  
 Swimming Pools  
 Waste Water  
 Water Supplies



**Water Analysis & Consulting, Inc.**

304 BLAIR BLVD  
 EUGENE, OREGON 97402  
 TELEPHONE: 503 342-7044

Lab Report No: 003273

Inv. No: 3567 Date: 6-24-76

PO Number: \_\_\_\_\_

**WATER TESTING - COMMUNITY CLASS I & II and PUBLIC WATER SUPPLY SYSTEMS**

NAME: E.W.E.B. LOCATION: Hayden Bridge SOURCE: Finished  
 ADDRESS: 500 E. 4th St. DATE COLLECTED: 6-22-76 BY: DBT  
Eugene, Or. 97401 DATE ANALYZED: 6-22-76

**CRITERIA**

<u>Physical &amp; Chemical</u>	<u>Test Results</u>	<u>Permissible</u>	<u>Desirable</u>
Color	<u>0</u> CU	15 Color Units	
Turbidity	<u>.15</u> FTU	5 FTU	0 FTU
Total Solids	<u>39</u> mg/l	1000 mg/l	500 mg/l
Total Dissolved Solids	<u>22</u> mg/l		
Volatile Solids	<u>1.9</u> mg/l		
pH	<u>6.9</u>	6.0 to 8.5	7.0
Specific Conductance	<u>51</u> Micromhos/cm		
Hardness (as CaCO <sub>3</sub> )	<u>42</u> mg/l <i>1 1/2 - 2 grains</i>		
Calcium	<u>4.0</u> mg/l		
Magnesium	<u>7.04</u> mg/l		
Sodium	<u>3.1</u> mg/l		
Chlorides	<u>2.1</u> mg/l	250 mg/l	25 mg/l
Sulfates	<u>0.0</u> mg/l	250 mg/l	25 mg/l
Nitrate	<u>.4</u> mg/l	45 mg/l	0 mg/l
Nitrite	<u>.002</u> mg/l		
Iron	<u>0.07</u> mg/l	0.3 mg/l	0 mg/l
Manganese	<u>.00</u> mg/l	0.05 mg/l	0 mg/l
Arsenic	<u>.002</u> mg/l	0.05 mg/l	0 mg/l
Fluoride	<u>.00</u> mg/l	Max. Concentrate	2.4 mg/l
Silica	<u>13.2</u> mg/l		
Total Alkalinity	<u>25</u> mg/l	<u>B. Carbonate</u>	

**THE FOLLOWING ARE REQUIRED ON INITIAL TESTS (or as irregularities are noted).**

( ) Barium	_____ mg/l	1.0 mg/l	
( ) Cadmium	_____ mg/l	0.01 mg/l	
( ) Chromium (Cr <sub>6</sub> )	_____ mg/l	0.05 mg/l	
(X) Copper	<u>0.00</u> mg/l	1.0 mg/l	
( ) Carbon Chloroform Extract	_____ mg/l		0.2 mg/l
( ) Cyanide	_____ mg/l	0.2 mg/l	0.01 mg/l
( ) Lead	_____ mg/l	0.05 mg/l	
( ) Mercury	_____ mg/l	0.005 mg/l	
( ) Selenium	_____ mg/l	0.01 mg/l	
( ) Silver	_____ mg/l	0.05 mg/l	
(X) Zinc	<u>0.0</u> mg/l	5.0 mg/l	
( ) Alkyl Benzene Sulfonate	_____ mg/l		
( ) Phosphorus	_____ mg/l		
( ) Potassium	_____ mg/l		
(X) Aluminum	<u>.045</u> mg/l		

Schedule SDH (8/74)

BY: *[Signature]*



# CHARLTON LABORATORIES

unit of METALLURGICAL ENGINEERS, INC.  
testing and analyses

2340 S.W. CANYON ROAD  
P.O. BOX 1048  
PORTLAND, OREGON 97207  
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

CLIENT NO:

TO: Eugene Water & Electric Board  
P. O. Box 1112  
Eugene, Oregon 97401  
Attention: Kimber G. Johnson

REFERENCE NO: 601249

DATE: 8-6-70

SUBJECT: ANALYSIS OF WATER FOR PUBLIC USE  
PER STANDARD METHOD FOR EXAMINATION  
OF WATER AND WASTE WATER (APHA)

Sample Identification:	Raw Water McKenzie River	Hayden Bridge Filtration Plant Treated Water	Criteria	
			Permissible	Desirable
pH Value	7.55	7.31	6.0 - 8.5	
<u>Inorganic chemicals</u>	<u>parts per million</u>			
Total Solids	58	62	500 max.	200 max.
Alkalinity as CaCO <sub>3</sub> , Total	24.0	22.5		30 to 500
Carbonate	0.0	0.0		
Bicarbonate	24.0	22.5		
Hardness as CaCO <sub>3</sub>	20.9	22.2	500 max.	60 max.
Silica	21.3	18.5		
Calcium	4.6	5.7		
Magnesium	2.3	1.9		
Iron	0.19	0.13	0.3 max.	nil
Aluminum	0.6	0.5		
Manganese	0.02	0.02	0.05 max.	nil
Sodium	2.9	2.9		
Potassium	0.3	0.1		
Arsenic	0.001	0.001	0.05 max.	nil
Chloride	3.7	5.1	250 max.	25 max.
Sulfate	6.3	5.6	250 max.	50 max.
Nitrate, as N	0.01	0.01	10 max.	nil
Fluoride	0.08	0.04	0.8	
Phosphate	0.08	0.03		
Zinc	0.02	0.02	5 max.	nil

This analysis is limited to the constituents or characteristics noted, as recommended as a first-order indicator for public use. This does not certify that all possible undesirables are absent. Criteria are taken from Federal Water Pollution Control Administration Publication dated April 1, 1968, "Report of the Committee on Water Quality Criteria".

CHARLTON LABORATORIES DIVISION

Metallurgical Engineers, Inc.

*Harry Czyzewski*  
Harry Czyzewski, P.E.  
Project Director

HC:mj

3 CC

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8/3/601



# CHARLTON LABORATORIES

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2340 S.W. CANYON ROAD  
P.O. BOX 1048  
PORTLAND, OREGON 97207  
503/228-9663

working with MATERIALS ECOLOGY INDUSTRIAL PRODUCTS AND PROCESSES

TO: Eugene Water & Electric Board  
Attention: Mr. Kimber G. Johnson  
P. O. Box 1112  
Eugene, Oregon 97401

CLIENT NO.

REFERENCE NO. 612227  
(607052)

DATE: 6-15-71

SUBJECT: ANALYSIS OF WATER FOR INDUSTRIAL USE PER STANDARD  
METHOD FOR EXAMINATION OF WATER AND WASTE WATER (APHA)

		Raw Water McKenzie River	Hayden Br. Filtration Plant			Raw Water McKenzie River	Hayden Br. Filtration Plant
PHYSICAL	SPECIFIED MAXIMUM			MISCELLANEOUS	SPECIFIED MAXIMUM		
TOTAL SOLIDS	800	48	53	pH VALUE		7.3	7.5
DISSOLVED		47	53	ACIDITY as CaCO <sub>3</sub>		—	—
SUSPENDED		1	0	ALKALINITY as CaCO <sub>3</sub>		22	22
VOLATILE SOLIDS		16	16	HYDROXIDE		0	0
DISSOLVED		16	16	CARBONATE		0	0
SUSPENDED		0	0	BICARBONATE		22	22
HARDNESS AS CaCO <sub>3</sub>		14.8	21.9	CHLORINE (Cl), Residue)			
TURBIDITY, JACKSON UNITS	5	—	—				
COLOR	15	—	—				
THRESHOLD ODOR	3						
CONDUCTANCE, MICROMHOS/CM							
CHEMICAL - METALLIC				CHEMICAL - NON-METALLIC			
SODIUM (Na)		1.7	1.6	SILICA (SiO <sub>2</sub> )		22	19
POTASSIUM (K)		0.82	0.82	CHLORIDE (Cl)	250	2	5
CALCIUM (Ca)		3.3	6.1	SULFATE (SO <sub>4</sub> )	250	5.0	5.9
MAGNESIUM (Mg)		1.6	1.5	FLUORIDE (F)		—	—
ALUMINUM (Al)		0.02	0.02	NITRATE NITROGEN (N)	10	* < 1	* < 1
IRON (Fe)	0.3	0.05	0.02	NITRITE NITROGEN (N)		—	—
MANGANESE (Mn)	0.05	0.007	0.002	AMMONIA NITROGEN (N)		0.17	0.005
ARSENIC (As)	0.05	* < 0.001	* < 0.001	ORGANIC NITROGEN (N)		—	—
BARIUM (Ba)	1.0			KJELDHAL NITROGEN (N)		—	—
CADMIUM (Cd)	0.01			PHOSPHORUS, TOTAL (P)			
CHROMIUM, TOTAL (Cr)				PHOSPHORUS, HYDROLYZABLE (P)			
CHROMIUM, HEXAVALENT (Cr)	0.05			ORTHOPHOSPHATE (P)			
COPPER (Cu)	1.0			SULFIDE (S)			
LEAD (Pb)	0.05			SULFITE (SO <sub>3</sub> )			
MERCURY (Hg)				BERYLLIUM (Be)			
NICKEL (Ni)				BORON (B)			
SILVER (Ag)	0.05			BROMIDE (Br)			
STRONTIUM (Sr)				CYANIDE (CN)	0.2		
THIUM (Sn)				IODIDE (I)			
ZINC (Zn)	5	0.01	0.01	SELENIUM (Se)	0.01		

QUANTITIES ARE REPORTED AS MILLIGRAMS PER LITER, UNLESS OTHERWISE INDICATED.

SPECIFICATIONS ARE TAKEN FROM UNITED STATES PUBLIC HEALTH SERVICE DRINKING WATER STANDARDS UNLESS OTHERWISE STATED.

APPENDIX B

FIELD DATA ON SELECTED RIVER ROAD-SANTA CLARA WELLS

OWNER: Benjamin A. Masengil

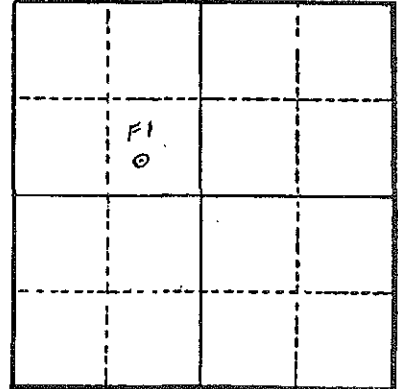
MAILING ADDRESS: 439 Victory Drive

LOCATION OF WELL: Owner's No. 1

CITY AND STATE: Junction City, Oregon

SE 1/4 NW 1/4 Sec. 27 T. 16 S., R. 4 W., W.M.

Bearing and distance from section or subdivision corner 1835.9 ft. E. of SW cor. DLC 46



Section 27

Altitude at well 355 ft. Interpolated

TYPE OF WELL: drilled Date Constructed July 1953

Depth drilled 21 ft. Depth cased

CASING RECORD:

FINISH:

AQUIFERS:

WATER LEVEL:

PUMPING EQUIPMENT: Type H.P.  
Capacity G.P.M.

WELL TESTS:

Drawdown ft. after hours G.P.M.  
Drawdown ft. after hours G.P.M.

USE OF WATER Temp. °F., 19

SOURCE OF INFORMATION

DRILLER or DIGGER

ADDITIONAL DATA:

Log Water Level Measurements Chemical Analysis Aquifer Test

REMARKS:

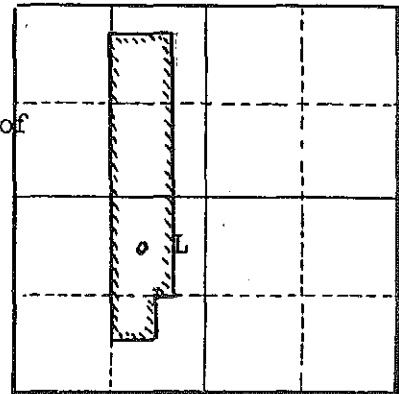
# Well Record

OWNER: Gordon W. Elliott  
MAILING ADDRESS: 938 Jefferson Street

LOCATION OF WELL: Owner's No. 1  
CITY AND STATE: Eugene, Oregon

NE 1/4 SW 1/4 Sec. 3 T. 17 N. S., R. 4 E. W.M.

Bearing and distance from section or subdivision  
corner 825 feet West and 690 feet South from center of  
Section 3.



Altitude at well 365 feet

TYPE OF WELL: Drilled Date Constructed April 1952

Depth drilled 114 feet Depth cased 110 feet

Section 3

### CASING RECORD:

8-inch steel casing set from 0 to 110 feet

### FINISH:

110' of 8" perforated casing

### AQUIFERS:

### WATER LEVEL:

12 feet

PUMPING EQUIPMENT: Type Jacuzzi Lineshaft Turbine H.P.  
Capacity 390 G.P.M.

### WELL TESTS:

Drawdown 92 ft. after 440 hours G.P.M.

Drawdown ft. after hours G.P.M.

USE OF WATER Irrigation Temp. °F., 19

SOURCE OF INFORMATION GR-4116

DRILLER or DIGGER

### ADDITIONAL DATA:

Log (NA) Water Level Measurements Chemical Analysis Aquifer Test

### REMARKS:

STATE ENGINEER  
Salem, Oregon

# Well Record

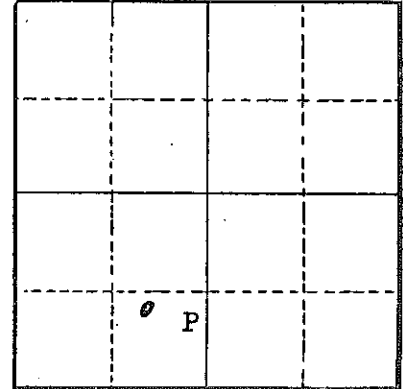
STATE WELL NO. 17/4W-3P  
COUNTY Lane  
APPLICATION NO. GR-4266

OWNER: Gordon W. Elliott  
MAILING ADDRESS: 938 Jefferson Street

LOCATION OF WELL: Owner's No. 2  
CITY AND STATE: Eugene, Oregon

SE 1/4 SW 1/4 Sec. 3 T. 17 N. S., R. 4 E. W., W.M.

Bearing and distance from section or subdivision  
corner 660 feet West and 1730 feet South of  
center of Section 3.



Section 3

Altitude at well 365 feet

TYPE OF WELL: Drilled Date Constructed 1944

Depth drilled 40 feet Depth cased

### CASING RECORD:

### FINISH:

### AQUIFERS:

### WATER LEVEL:

PUMPING EQUIPMENT: Type Myers Ejecto H.P.  
Capacity 15 G.P.M.

### WELL TESTS:

Drawdown ft. after hours G.P.M.

Drawdown ft. after hours G.P.M.

USE OF WATER Irrigation Temp. °F., 19

SOURCE OF INFORMATION GR-4117

DRILLER or DIGGER

### ADDITIONAL DATA:

Log (NA) Water Level Measurements Chemical Analysis Aquifer Test

### REMARKS:



NOTICE TO WATER WELL CONTRACTOR

The original and first copy of this report are to be filed with the

STATE ENGINEER, SALEM 10, OREGON within 30 days from the date of well completion.

WATER WELL REPORT

STATE OF OREGON (Please type or print)

State Well No. 17/4w-29

State Permit No.

(1) OWNER:

Name Fred Terry (now B. Kuukle owner) Address 700 Terry Lane Eugene, Oregon

(2) LOCATION OF WELL:

County Lane Driller's well number 1/4 Section 27 T. 17 R. 45 W.M. Bearing and distance from section or subdivision corner

(3) TYPE OF WORK (check):

Well [ ] Deepening [x] Reconditioning [ ] Abandon [ ] abandonment, describe material and procedure in Item 12.

(4) PROPOSED USE (check):

Domestic [x] Industrial [ ] Municipal [ ] Irrigation [ ] Test Well [ ] Other [ ]

(5) TYPE OF WELL:

Rotary [x] Driven [ ] Cable [x] Jetted [ ] Dug [ ] Bored [ ]

(6) CASING INSTALLED:

Threaded [ ] Welded [x] 0" Diam. from 0 ft. to 28 ft. Gage .250

(7) PERFORATIONS:

Perforated? [ ] Yes [x] No Type of perforator used Size of perforations in. by in. perforations from ft. to ft.

(8) SCREENS:

Well screen installed? [ ] Yes [x] No Manufacturer's Name Model No. Slot size Set from ft. to ft.

(9) CONSTRUCTION:

Well seal-Material used in seal Cement & Puddled Clay Depth of seal 21 ft. Was a packer used? Diameter of well bore to bottom of seal 10 in. Were any loose strata cemented off? [ ] Yes [x] No Depth Was a drive shoe used? [ ] Yes [x] No Was well gravel packed? [ ] Yes [x] No Size of gravel: Gravel placed from ft. to ft. Did any strata contain unusable water? [ ] Yes [x] No No Type of water? Depth of strata Method of sealing strata off

(10) WATER LEVELS:

Static level 7 ft. below land surface Date 3-12-63 Artesian pressure lbs. per square inch Date

(11) WELL TESTS:

Drawdown is amount water level is lowered below static level Was a pump test made? [ ] Yes [x] No If yes, by whom? Yield: gal./min. with ft. drawdown after hrs. Bailer test 50 gal./min. with 25 ft. drawdown after 1 hrs. Artesian flow g.p.m. Date Temperature of water Was a chemical analysis made? [ ] Yes [x] No

(12) WELL LOG:

Diameter of well below casing 6" Depth drilled 28 ft. Depth of completed well 49 ft. Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

Table with columns MATERIAL, FROM, TO. Row 1: Sand & Gravel, 21, 49. Below is a large empty table grid.

(13) PUMP:

Manufacturer's Name Type: H.P.

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Casey Jones Well Drilling Co. (Person, firm or corporation) (Type or print) Address Rt. 2 Box 695, Creswell, Oregon Drilling Machine Operator's License No. 160 [Signed] Delbert S. Jones (Water Well Contractor) Contractor's License No. 103 Date 3/14, 1963

**NOTICE TO WATER WELL CONTRACTOR**

The original and first copy of this report are to be filed with the

STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED

SEP 13 1966

**WATER WELL REPORT**

STATE ENGINEER, SALEM, OREGON (Please type or print)

State Well No. 174w-27

State Permit No. \_\_\_\_\_

**(1) OWNER:**

Name Comac, Vernon  
Address 199 N. Benton Rd. Eugene, Oregon

**(2) LOCATION OF WELL:**

County Lane Driller's well number \_\_\_\_\_  
1/4 Section 27 T. 17S R. 4W W.M.  
Bearing and distance from section or subdivision corner \_\_\_\_\_

**(3) TYPE OF WORK (check):**

New Well  Deepening  Reconditioning  Abandon   
(Abandonment, describe material and procedure in Item 12.)

**(4) PROPOSED USE (check):**

Domestic  Industrial  Municipal   
Irrigation  Test Well  Other

**(5) TYPE OF WELL:**

Rotary  Driven   
Cable  Jetted   
Dug  Bored

**(6) CASING INSTALLED:**

Threaded  Welded   
" Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_  
12" Diam. from 12 ft. to 128 ft. Gage 250  
" Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_

**(7) PERFORATIONS:**

Perforated?  Yes  No  
Type of perforator used MILLS KNIFE  
Size of perforations in. by \_\_\_\_\_ in.  
\_\_\_\_\_ perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
176 perforations from 18 ft. to 30 ft.  
112 perforations from 30 ft. to 70 ft.  
900 perforations from 70 ft. to 128 ft.  
\_\_\_\_\_ perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

**(8) SCREENS:**

Well screen installed?  Yes  No  
Manufacturer's Name \_\_\_\_\_ Model No. \_\_\_\_\_  
\_\_\_\_\_ Slot size \_\_\_\_\_ Set from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Diam. \_\_\_\_\_ Slot size \_\_\_\_\_ Set from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

**(9) CONSTRUCTION:**

Well seal—Material used in seal Bentonite  
Depth of seal 20 ft. Was a packer used? \_\_\_\_\_  
Diameter of well bore to bottom of seal 16 in.  
Were any loose strata cemented off?  Yes  No Depth \_\_\_\_\_  
Was a drive shoe used?  Yes  No  
Was well gravel packed?  Yes  No Size of gravel: \_\_\_\_\_  
Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Did any strata contain unusable water?  Yes  No  
Type of water? \_\_\_\_\_ depth of strata \_\_\_\_\_  
Method of sealing strata off \_\_\_\_\_

**(10) WATER LEVELS:**

Static level 10 ft. below land surface Date \_\_\_\_\_  
Artesian pressure \_\_\_\_\_ lbs. per square inch Date \_\_\_\_\_

**(11) WELL TESTS:**

Drawdown is amount water level is lowered below static level

Was a pump test made?  Yes  No If yes, by whom?  
Yield: 400 gal./min. with 37 ft. drawdown after 2 hrs.  
" " " " " "  
" " " " " "  
" " " " " "  
Bailer test \_\_\_\_\_ gal./min. with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.  
Artesian flow \_\_\_\_\_ g.p.m. Date \_\_\_\_\_  
Temperature of water \_\_\_\_\_ Was a chemical analysis made?  Yes  No

**(12) WELL LOG:**

Diameter of well below casing 12

Depth drilled 130 ft. Depth of completed well 130 ft.

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
gravel - fairly loose	0	30
gravel - tight	30	45
sandy clay	45	50
gravel - tight	50	52
sandy clay	52	53
gravel - tight w/ clay	53	71
sand & clay & some small gravel	71	77
sand & clay w/ brown rock	77	82
brown sand & gravel	82	85
clay & fine gravel	85	92
brown clay	92	96
blue clay	96	111
coarse sand & gravel - loose	111	120
fine sand w/ small gravel	120	126
blue clay	126	128

Work started 6-14 1966 Completed 7-22 1966  
Date well drilling machine moved off of well 7-22 1966

**(13) PUMP:**

Manufacturer's Name \_\_\_\_\_ Type: \_\_\_\_\_ H.P. \_\_\_\_\_

**Water Well Contractor's Certification:**

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

**CHRISTENSEN DRILLING & IRRIGATION**

NAME 3550 West 18th Pl 344-4205 (Type or print)

Address Eugene, Oregon 97402

Drilling Machine Operator's License No. 9

[Signed] Mark A. Christensen (Water Well Contractor)

Contractor's License No. 97 Date 8-1 1966



**NOTICE TO WATER WELL CONTRACTOR**

The original and first copy of this report are to be filed with the

**WATER WELL REPORT**

STATE ENGINEER, SALEM, OREGON 97310  
within 30 days from the date of well completion.

*Job # 6* STATE OF OREGON  
(Please type or print) **G-3630**

State Well No. **17/4W-3C**  
State Permit No. \_\_\_\_\_

**(1) OWNER:**

Name *Arson Elliott*  
Address *1287 Swington Drive*  
*Edgemoor*

**(2) LOCATION OF WELL:**

County *Lane* Driller's well number \_\_\_\_\_  
1/4 Section *3* T. *17S* R. *4W* W.M.  
Bearing and distance from section or subdivision corner

*Well # 1*  
*220' E and 400' S of NW corner Sec 3*

**(3) TYPE OF WORK (check):**

New Well  Deepening  Reconditioning  Abandon   
If abandonment, describe material and procedure in Item 12.

**(4) PROPOSED USE (check):**

Domestic  Industrial  Municipal  Rotary  Driven   
Irrigation  Test Well  Other  Cable  Jetted   
Dug  Bored

**(5) TYPE OF WELL:**

**(6) CASING INSTALLED:**

Threaded  Welded   
*10"* Diam. from *1'2"* ft. to *159'* ft. Gage *25'*  
" Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_  
" Diam. from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Gage \_\_\_\_\_

**(7) PERFORATION 3:**

Perforated?  Yes  No  
Type of perforator used *Tricks Knife*  
Size of perforations *10 in* *Tricks Knife*  
\_\_\_\_\_ perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
*1950* perforations from *30* ft. to *160* ft.  
\_\_\_\_\_ perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
\_\_\_\_\_ perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
\_\_\_\_\_ perforations from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

**(8) SCREENS:**

Well screen installed?  Yes  No  
Manufacturer's Name \_\_\_\_\_  
Type \_\_\_\_\_ Model No. \_\_\_\_\_  
Diam. Slot size \_\_\_\_\_ Set from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Diam. Slot size \_\_\_\_\_ Set from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

**(9) CONSTRUCTION:**

Well seal—Material used in seal *Clay & Cement*  
Depth of seal *18* ft. Was a packer used? *no*  
Diameter of well bore to bottom of seal *13* in.  
Were any loose strata cemented off?  Yes  No Depth \_\_\_\_\_  
Was a drive shoe used?  Yes  No  
Was well gravel packed?  Yes  No Size of gravel: \_\_\_\_\_  
Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Did any strata contain unusable water?  Yes  No  
Type of water? \_\_\_\_\_ depth of strata \_\_\_\_\_  
Method of sealing strata off \_\_\_\_\_

**(10) WATER LEVELS:**

Static level *7' 4"* ft. below land surface Date \_\_\_\_\_  
Artesian pressure \_\_\_\_\_ lbs. per square inch Date \_\_\_\_\_

**(11) WELL TESTS:**

Drawdown is amount water level is lowered below static level

Was a pump test made?  Yes  No If yes, by whom? *406*  
Yield: *470* gal./min. with *107* ft. drawdown after *1 1/2* hrs.  
" *470* " *70* " *1* "  
" " " " "  
Bailer test gal./min. with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.  
Artesian flow g.p.m. Date \_\_\_\_\_  
Temperature of water \_\_\_\_\_ Was a chemical analysis made?  Yes  No

**(12) WELL LOG:**

Diameter of well below casing *10*

Depth drilled *165* ft. Depth of completed well *165* ft.  
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
<i>sandy Topsoil</i>	<i>0</i>	<i>4</i>
<i>silt &amp; med gravel</i>	<i>4</i>	<i>30</i>
<i>sand &amp; med. gravel/w</i>	<i>30</i>	<i>35</i>
<i>loose sand &amp; med. gravel/w</i>	<i>35</i>	<i>46</i>
<i>large &amp; med. gravel - loose</i>	<i>46</i>	<i>63</i>
<i>large cemented gravel</i>	<i>63</i>	<i>78</i>
<i>Clay &amp; med. gravel</i>	<i>78</i>	<i>104</i>
<i>small gravel &amp; sand</i>	<i>104</i>	<i>116</i>
<i>med. gravel - sand - Clay (cemented)</i>	<i>116</i>	<i>165</i>

Work started *2-21* 19 *66* Completed *3-11* 19 *66*  
Date well drilling machine moved off of well *3-11* 19 *66*

**(13) PUMP:**

Manufacturer's Name \_\_\_\_\_  
Type: \_\_\_\_\_ H.P. \_\_\_\_\_

**Water Well Contractor's Certification:**

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

**WILSTADEN DRILLING & IRRIGATION**  
NAME *550 West 18th* Ph. *374-4255* (Type or print)  
Address *Eugene, Oregon 97432*  
Drilling Machine Operator's License No. *406*  
[Signed] *Mark W. Christensen*  
(Water Well Contractor)  
Contractor's License No. *97* Date *4-8*, 19 *66*

# ENVIRONMENTAL GEOLOGY & GROUND WATER WELL DATA

Project River Rd. - Santa Clara

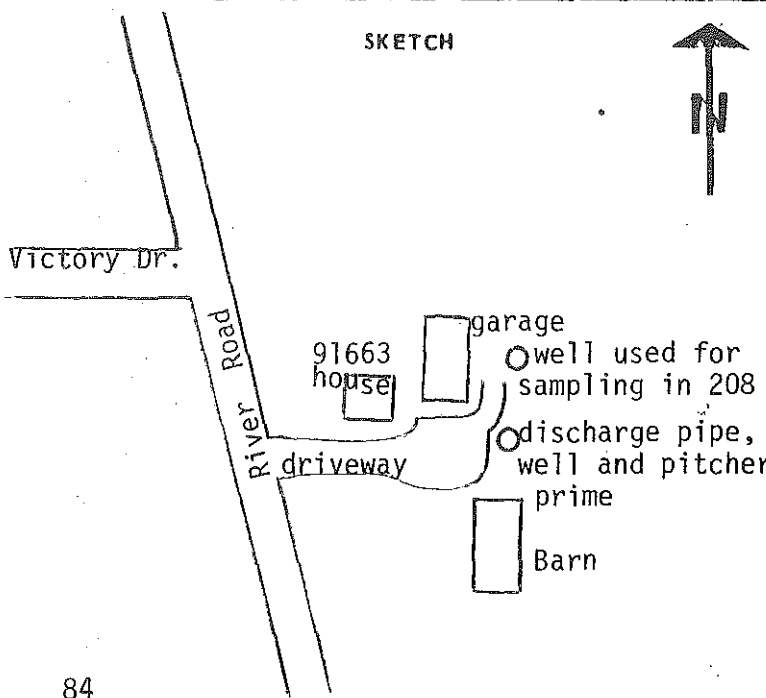
Owner H. Hostick State No. 16S/04W-27 aca  
 Address 91663 River Road Other No. Dickinson #10;208 #11 & A-B  
 Tenant \_\_\_\_\_  
 Address \_\_\_\_\_  
 Type of Well: Hydrograph  Key  Index  Semiannual  Quality   
 Location: County Lane Basin Willamette No. \_\_\_\_\_  
 U.S.G.S. Quad, Junction City Quad. No. N4407.5-W12307.5/7.5  
SW 1/4 NE 1/4 Section 27, Twp. 165, Rgn. 04W Will. Meridian  
 Description 16-04-27 203

Reference Point description lower lip of discharge pipe hooked to irrigation hose.

which is 1 1/2 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.  
 Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_  
 Well: Use irrigation Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.  
 Casing, size 2 1/2 in., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other   
 Chief Aquifer: Name older alluvium Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Type of Material gravels Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_  
 Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_  
 Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Driller \_\_\_\_\_  
 Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_  
 Equipment: Pump, type \_\_\_\_\_ make \_\_\_\_\_  
 Serial No. \_\_\_\_\_ Size of discharge pipe 2 1/2 in.  
 Power, Kind electric Make General Electric  
 H. P. 2 Motor Serial No. TC-10161  
 Elec. Meter No. \_\_\_\_\_ Transformer No. \_\_\_\_\_  
 Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft.

Water Analysis: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_  
 Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_  
 Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_  
 Collecting Agency: \_\_\_\_\_  
 Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_



REMARKS

-motor model no.5KC204H26

-there are several discharge outlets associated with this well

-two separate wells are located on this property- one was used for sampling in the 208 study; the other was used for measurement in the 208 study. I took data on the well that was used for measurements.

Recorded by: \_\_\_\_\_  
 Date \_\_\_\_\_

ENVIRONMENTAL GEOLOGY & GROUND WATER  
WELL DATA

No. \_\_\_\_\_

Project River Rd. - Santa Clara

Owner N. Lamert State No. 16S/04W-34 dac  
 Address 30412 Beacon Dr. W. Other No. Dickinson #8; 208 #8 & A-5  
 Tenant \_\_\_\_\_  
 Address \_\_\_\_\_  
 Type of Well: Hydrograph  Key  Index  Semiannual  Quality   
 Location: County Lane Basin Willamette No. \_\_\_\_\_  
 U.S.G.S. Quad. Junction City Quad. No. N4407.5-W12307.5/7.5  
NW  $\frac{1}{4}$  SE  $\frac{1}{4}$  Section 34, Twp. 16S, Rge. 04W Will. Meridian  
 Description 16-04-34 1200.

Reference Point description lower lip of "T."

which is 1 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.

Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_

Well: Use drinking water Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.

Casing, size 4 in., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other

Chief Aquifer: Name older alluvium Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_

Type of Material gravels Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_

Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_

Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_

Driller \_\_\_\_\_

Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_

Equipment: Pump, type NA-pump is buried make NA

Serial No. NA Size of discharge pipe 2 in. Water Analysts: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_

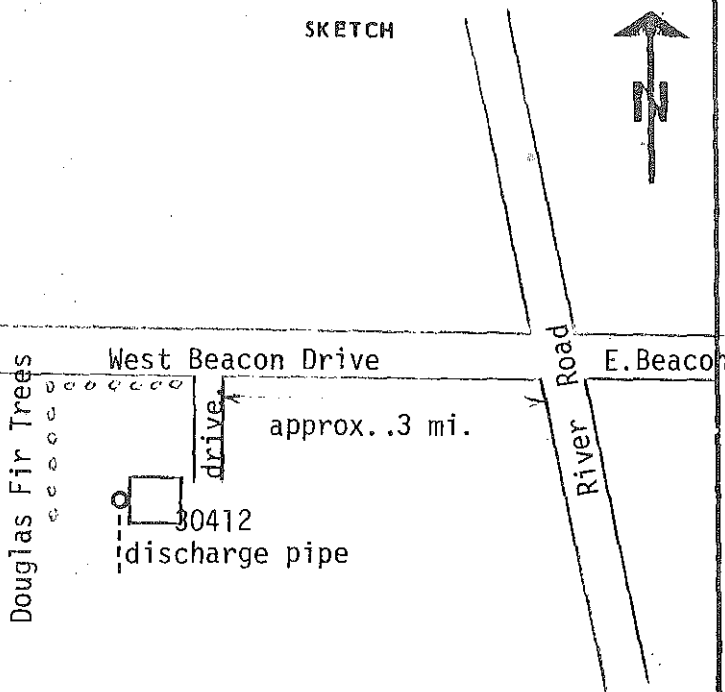
Power, Kind: NA Make NA Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_

H. P. NA Motor Serial No. NA Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_

Elec. Meter No. NA Transformer No. NA Collecting Agency: \_\_\_\_\_

Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft. Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_

SKETCH



REMARKS

-discharge pipe is adjacent to the house on the west side

-well pump and casing is buried just to the west (approx. 5') of the discharge pipe

Recorded by: \_\_\_\_\_  
Date \_\_\_\_\_

# ENVIRONMENTAL GEOLOGY & GROUND WATER WELL DATA

Project River Rd.-Santa Clara

Owner <u>Santa Clara Fire District</u>	State No. <u>16S/04W-35 ccd</u>
Address <u>4495 River Road</u>	Other No. <u>Dickinson #23;208 #17 &amp; A-14</u>
Tenant _____	_____
Address _____	_____

Type of Well: Hydrograph  Key  Index  Semiannual  Quality

Location: County Lane Basin Willamette No. \_\_\_\_\_

U.S.G.S. Quad. Junction City Quad. No. N4407.5-W12307.5/7.5

SW 1/4 SW 1/4 Section 35, Twp. 16S, Rge. 04W Will. Meridian

Description \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Reference Point description Lower tip of elbow

which is 1.5 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.

Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_

Well: Use fire protection Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.

Casing, size 3 1/2 in., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other

Chief Aquifer: Name older alluvium Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_

Type of Material gravels Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_

Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_

Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_

Driller \_\_\_\_\_

Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_

Equipment: Pump, type NA-no pump make NA

serial No. NA Size of discharge pipe 3 1/2 in.

Power, Kind NA Make NA

H. P. NA Motor Serial No. NA

Elec. Meter No. NA Transformer No. NA

Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft.

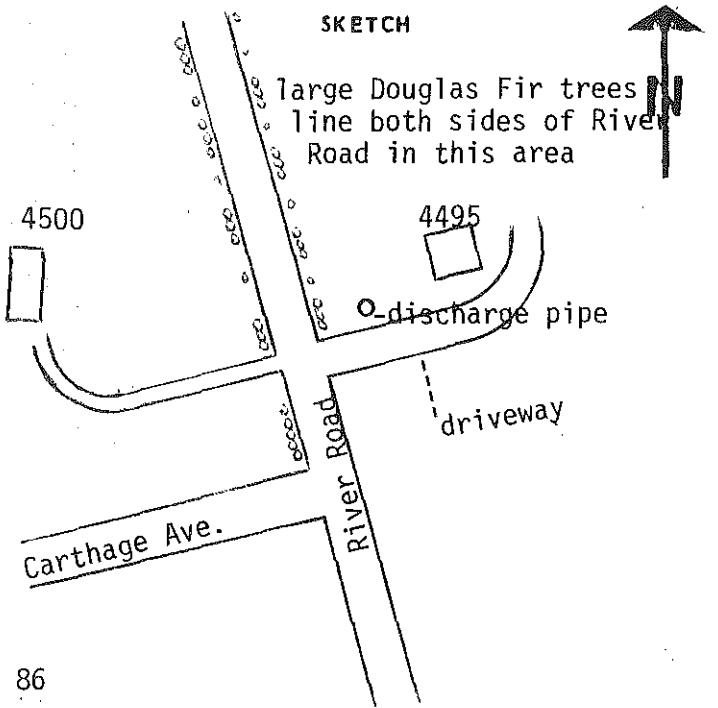
Water Analysis: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_

Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_

Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_

Collecting Agency: \_\_\_\_\_

Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_



REMARKS

-need a spanner wrench for access

-no pump; discharge pipe only

-discharge pipe is located approx. 20' east of edge of payment just N of the driveway to 4495 River Road and right behind a large Doug Fir

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

Recorded by: \_\_\_\_\_

Date \_\_\_\_\_

# ENVIRONMENTAL GEOLOGY & GROUND WATER WELL DATA

No. \_\_\_\_\_

Project River Rd. - Santa Clara

Owner Santa Clara Fire District State No. 17S/04W-01 cba  
 Address River Loop II, between Andover & Kristen Other No. Dickinson #22; 208 # 16 & A-13  
 Tenant \_\_\_\_\_  
 Address \_\_\_\_\_  
 Type of Well: Hydrograph  Key  Index  Semiannual  Quality   
 Location: County Lane Basin Willamette No. \_\_\_\_\_  
 U.S.G.S. Quad. Eugene East Quad. No. N4400-W123/7.5  
 Description NW 1/4 SW 1/4 Section 01, Twp. 175, Rge. 04W Will. Meridian  
17-04-01.32 300

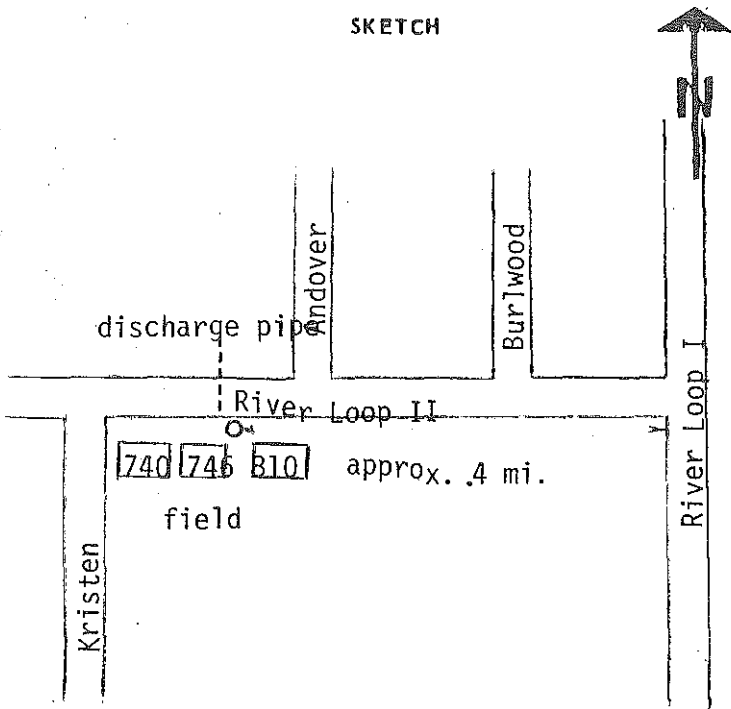
Reference Point description lower lip of elbow.

which is 1 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.  
 Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_  
 Well: Use fire protection Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.  
 Casing, size 3 1/2 In., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other   
 Chief Aquifer: Name older alluvium Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Type of Material gravels Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_  
 Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_  
 Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Driller \_\_\_\_\_  
 Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_  
 Equipment: Pump, type NA-no pump make \_\_\_\_\_ NA  
 Serial No. NA Size of discharge pipe NA in. \_\_\_\_\_  
 Power, Kind NA Make NA \_\_\_\_\_  
 H. P. NA Motor Serial No. NA \_\_\_\_\_  
 Elec. Meter No. NA Transformer No. NA \_\_\_\_\_  
 Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft.

Water Analysis: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_  
 Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_  
 Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_  
 Collecting Agency: \_\_\_\_\_  
 Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_

### SKETCH



### REMARKS

- no pump; discharge pipe only  
 - need spanner wrench for access  
 - located 6 1/2' S. of the pavement in a field between 746 River Loop II and 810 River Loop II

Recorded by: \_\_\_\_\_  
 Date \_\_\_\_\_



# ENVIRONMENTAL GEOLOGY & GROUND WATER WELL DATA

No. \_\_\_\_\_

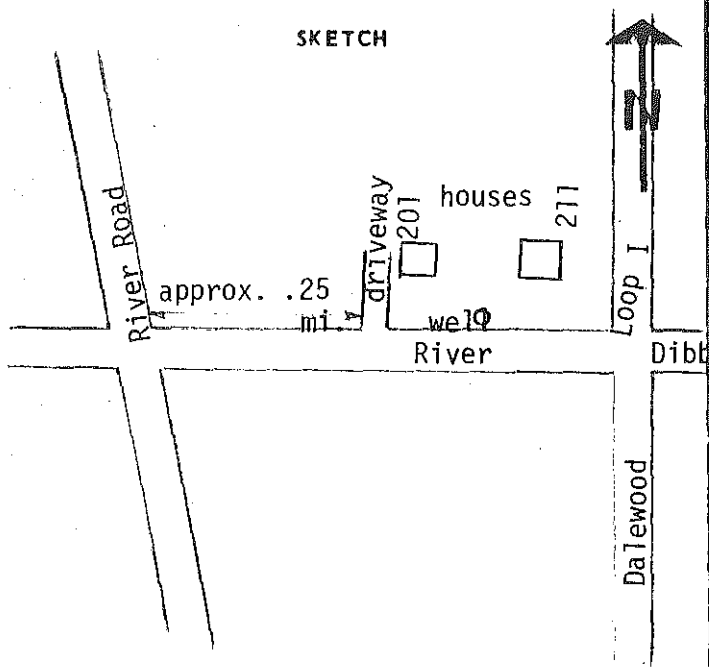
Project River Rd.-Santa Clara

Owner Santa Clara Fire District State No. 17S/04W-11 ada  
 Address 201 River Loop I Other No. Dickinson #21; 208 # 15 8A-12  
 Tenant \_\_\_\_\_  
 Address \_\_\_\_\_  
 Type of Well: Hydrograph  Key  Index  Semiannual  Quality   
 Location: County Lane Basin Willamette No. \_\_\_\_\_  
 U.S.G.S. Quad. Eugene West Quad. No. N4400-W12307.5/7.5  
SE  $\frac{1}{4}$  NE  $\frac{1}{4}$  Section 11, Twp. 17S, Rgn. 04W Will. Meridian  
 Description 17-04-11.1.4 400

Reference Point description lower lip of elbow

which is 1 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.  
 Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_  
 Well: Use fire protection Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.  
 Casing, size 3 1/2 in., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other   
 Chief Aquifer: Name older alluvium Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Type of Material gravels Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_  
 Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_  
 Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Driller \_\_\_\_\_  
 Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_  
 Equipment: Pump, type NA- no pump make NA  
 Serial No. NA Size of discharge pipe 3 1/2 in. Water Analysis: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_  
 Power, Kind: NA Make NA Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_  
 H. P. NA Motor Serial No. NA Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_  
 Elec. Meter No. NA Transformer No. NA Collecting Agency: \_\_\_\_\_  
 Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft. Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_



**REMARKS**

-spanner wrench needed for access

-well is located 3'N of pavement edge on the property line between 201 River Loop I and 211 River Loop I

-no pump; discharge pipe alone

Recorded by: \_\_\_\_\_  
 Date \_\_\_\_\_

# ENVIRONMENTAL GEOLOGY & GROUND WATER WELL DATA

Project River Rd- Santa Clara

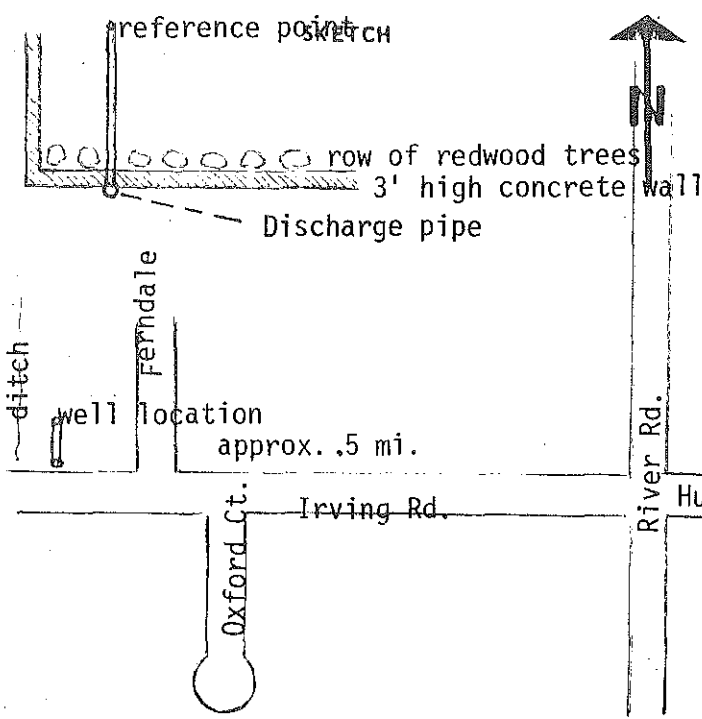
Owner Santa Clara Fire District State No. 17S/04W-11 cad  
 Address 412 Irving Rd. (across street) Other No. Dickinson #20; 208 #14 & A-11  
 Tenant \_\_\_\_\_  
 Address \_\_\_\_\_  
 Type of Well: Hydrograph  Key  Index  Semiannual  Quality   
 Location: County Lane Basin Willamette No. \_\_\_\_\_  
 U.S.G.S. Quad. Eugene West Quad. No. n4400-W12307.5/7.5  
 Description NE 1/4 SW 1/4 Section 11, Twp. 17S, Rge. 04W Will. Meridian  
17-04-11.3 1900

Reference Point description at "T" ten feet to N of discharge pipe which is imbedded in a concrete wall.

which is 1 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.  
 Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_  
 Well: Use Santa Clara Fire Dist. Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.  
 Casing, size 3 1/2 in., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other   
 Chief Aquifer: Name older alluvium Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Type of Material gravel Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_  
 Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_  
 Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Driller \_\_\_\_\_  
 Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_  
 Equipment: Pump, type NA make \_\_\_\_\_  
 serial No. NA Size of discharge pipe 3 1/2 in.  
 Power, Kind NA Make NA  
 H. P. NA Motor Serial No. NA  
 Elec. Meter No. NA Transformer No. NA  
 Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft.

Water Analysis: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_  
 Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_  
 Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_  
 Collecting Agency: \_\_\_\_\_  
 Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_



### REMARKS

- adjacent to old drainage ditch
- pipe wrench required
- NW corner of intersection between Irving Rd. and Ferndale
- discharge pipe is located immediately south of a row of Giant Redwood trees (Sequoia Gigantium)

Recorded by: \_\_\_\_\_  
 Date \_\_\_\_\_

# ENVIRONMENTAL GEOLOGY & GROUND WATER WELL DATA

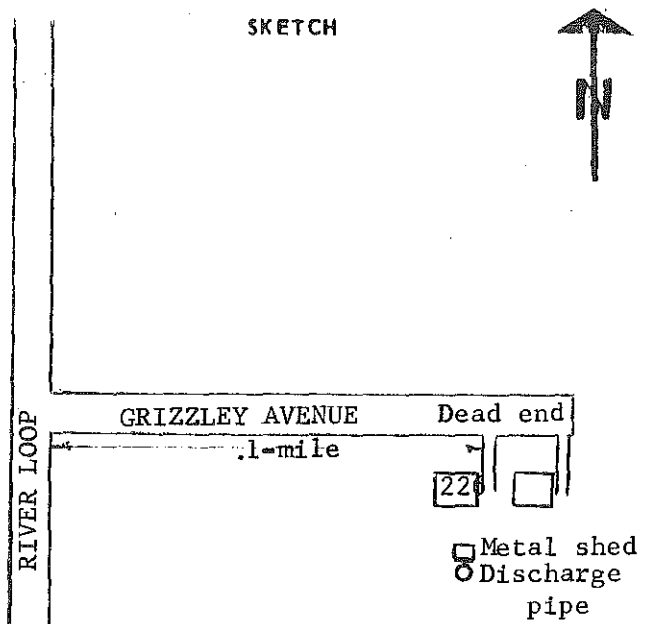
Project River Rd.-Santa Clara

Owner G. Frost State No. 17s-04w12bbc  
 Address 226 Grizzley Other No. Dickinson #11; 208 #12 A-9 (?)  
 Tenant \_\_\_\_\_  
 Address \_\_\_\_\_  
 Type of Well: Hydrograph  Key  Index  Semiannual  Quality   
 Location: County Lane Basin Willamette No. \_\_\_\_\_  
 U.S.G.S. Quad. Eugene West Quad. No. n4400-w12307-5/7-5  
NW  $\frac{1}{4}$  of the NW Section 12, Twp. 17S, Rgn. 04W Will. Meridian  
 Description 17-04-12-2 3005

Reference Point description Lower lip of elbow

which is 1 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.  
 Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_  
 Well: Use \_\_\_\_\_ Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.  
 Casing, size 2-1/4 in., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other   
 Chief Aquifer: Name Older Alluvium Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Type of Material Gravels Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_  
 Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_  
 Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Driller \_\_\_\_\_  
 Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_  
 Equipment Pump, type \_\_\_\_\_ make \_\_\_\_\_  
 serial No. \_\_\_\_\_ Size of discharge pipe 2-1/4 in. Water Analysis: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_  
 Power, Kind \_\_\_\_\_ Make \_\_\_\_\_ Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_  
 H. P. \_\_\_\_\_ Motor Serial No. \_\_\_\_\_ Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_  
 Elec. Meter No. \_\_\_\_\_ Transformer No. \_\_\_\_\_ Collecting Agency: \_\_\_\_\_  
 Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft. Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_



REMARKS

-on S side of sheet metal shed in  
in owner's backyard

-must contact owner for access

-second from last house on the S.  
side of Grizzley

Recorded by: \_\_\_\_\_  
 Date \_\_\_\_\_

# ENVIRONMENTAL GEOLOGY & GROUND WATER WELL DATA

Project River Rd.-Santa Clara

Owner <u>Santa Clara Fire District</u> Address <u>199 Santa Clara</u> Tenant _____ Address _____	State No. <u>17S/04W-IIDGD</u> Other No. <u>Dickinson #19;208#13 &amp; A-10</u>
Type of Well: Hydrograph <input type="checkbox"/> Key <input type="checkbox"/> Index <input type="checkbox"/> Semiannual <input type="checkbox"/> Quality <input type="checkbox"/>	
Location: County <u>Lane</u> Basin <u>Willamette</u> No. _____	
U.S.G.S. Quad. <u>Eugene West</u> Quad. No. <u>N4400-W12307.5/7.5</u> <u>SW</u> $\frac{1}{4}$ of the <u>SE</u> Section <u>11</u> , Twp. <u>17S</u> , Rgn. <u>04W</u> Will. Meridian	
Description _____ _____ _____	

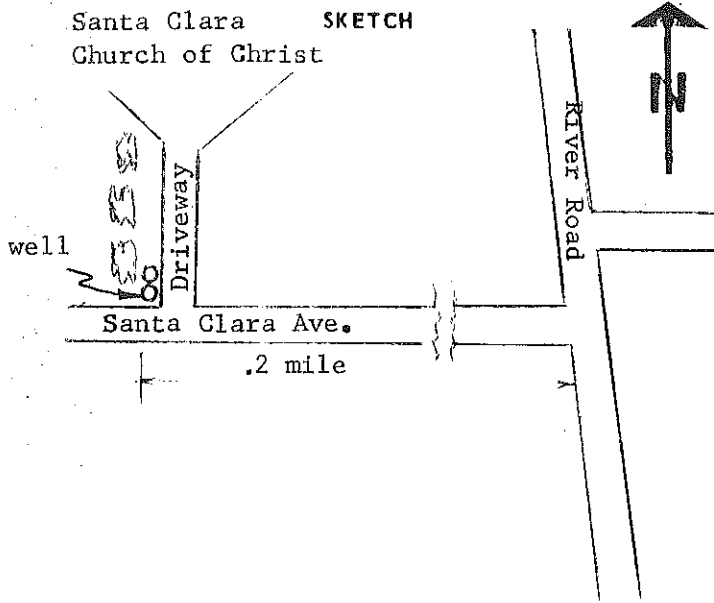
Reference Point description Lower Lip of elbow

which is 2.5 ft. <sup>above</sup>/<sub>below</sub> land surface. Ground Elevation \_\_\_\_\_ ft.  
 Reference Point Elev. \_\_\_\_\_ ft. Determined from \_\_\_\_\_  
 Well: Use Fire Protection Condition \_\_\_\_\_ Depth \_\_\_\_\_ ft.  
 Casing, size Gravels in., perforations \_\_\_\_\_

Measurements By: DWR  USGS  USBR  County  Irr. Dist.  Water Dist.  Cons. Dist.  Other   
 Chief Aquifer: Name \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Type of Material \_\_\_\_\_ Perm. Rating \_\_\_\_\_ Thickness \_\_\_\_\_  
 Gravel Packed? Yes  No  Depth to Top Gr. \_\_\_\_\_ Depth to Bot. Gr. \_\_\_\_\_  
 Supp. Aquifer \_\_\_\_\_ Depth to Top Aq. \_\_\_\_\_ Depth to Bot. Aq. \_\_\_\_\_  
 Driller \_\_\_\_\_

Date drilled \_\_\_\_\_ Log, filed \_\_\_\_\_ open (1) \_\_\_\_\_ confidential (2) \_\_\_\_\_  
 Equipment: Pump, type Centrifugial make Allis-Chalmers  
 Serial No. u-4357-22 Size of discharge pipe \_\_\_\_\_ in.  
 Power, Kind Elec. Make \_\_\_\_\_  
 H. P. 1X3/4 Motor Serial No. \_\_\_\_\_  
 Elec. Meter No. \_\_\_\_\_ Transformer No. \_\_\_\_\_  
 Yield \_\_\_\_\_ G.P.M. Pumping level \_\_\_\_\_ ft.

Water Analysis: Min. (1) \_\_\_\_\_ San. (2) \_\_\_\_\_ H.M. (3) \_\_\_\_\_  
 Water Levels available: Yes (1) \_\_\_\_\_ No \_\_\_\_\_  
 Period of Record: Begin \_\_\_\_\_ End \_\_\_\_\_  
 Collecting Agency: \_\_\_\_\_  
 Prod. Rec. (1) \_\_\_\_\_ Pump Test (2) \_\_\_\_\_ Yield (3) \_\_\_\_\_



### REMARKS

At Sth end of row of cedar trees, 6 ft. N. & 4 ft. W of intersection

Pump w/ pitcher prime may be separate from SGFD drive pt.

Hydrant wrench required for access.

Recorded by: \_\_\_\_\_  
 Date \_\_\_\_\_