

~~RESEARCH~~  
RESEARCH

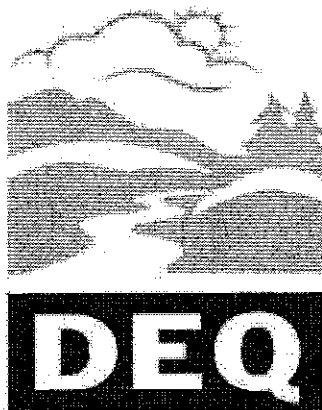
OFFICE OF THE  
SECRETARY OF AGRICULTURE  
WASHINGTON, D.C. 20250

ERCMEL 1115

10/15/1976

**10/15/1976**

**OREGON  
ENVIRONMENTAL QUALITY  
COMMISSION MEETING  
MATERIALS**



**State of Oregon  
Department of  
Environmental  
Quality**

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Environmental Quality Commission Meeting

October 15, 1976

The Dalles City Council Chambers

313 Court Street

The Dalles, Oregon

9:00 a.m.

- A. Minutes of July 30 and August 27, 1976 EQC Meetings
- B. Monthly Activity Report for August, 1976
- C. Tax Credit Applications
- D. Kraft Pulp Mills - Status Report on the Review of the Kraft Mill Regulations (Patterson)
- E. Request for Authorization for Public Hearing on Revisions to the Fee Schedule for Air Contaminant Discharge Permits and Review of Task Force Recommendations (Skirvin)

9:30 a.m.

- F. City of Maupin - Staff Report on Sewage Program (Shimek)

10:30 a.m.

- G. Martin Marietta - Consideration of Request to Substitute Dry Fluoride Control Systems for Existing Wet Fluoride Control Systems (Kowalczyk)
- H. Sewage Works Construction Grants - Consideration of Adoption of Priority List (Blankenship)
- I. Subsurface and Alternative Sewage Disposal - Consideration of Adoption of Amendments to OAR Chapter 340, Sections 71-005 through 74-020 (Osborne)
- J. ~~Veneer-Dryer-Emissions---Consideration-of-Adeoption-of-Amendments to-OAR-Chapter-340-Sections-25-305-through-25-325~~ (Deleted)
- K. Open Burning - Consideration of Adoption of Revised Rules, OAR, Chapter 340, Sections 23-025 through 23-050 (Johnson)

John Day Resolution

Standard Oil Co. Variance

Lahti & Son, Inc. v. DEQ

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Because of the uncertain time spans involved, the Commission reserves the right to deal with any item, except Items F & G, at any time in the meeting.

The Commission will breakfast at the Tapadera Inn, 112 W. Second Street, The Dalles at 7:30 a.m. and any of the items above may be discussed. Lunch will also be at the Tapadera Inn.

MINUTES OF THE SEVENTY-NINTH MEETING  
of the  
Oregon Environmental Quality Commission  
October 15, 1976

At 9:00 a.m. on Friday, October 15, 1976 the seventy-ninth meeting of the Oregon Environmental Quality Commission convened in The Dalles City Council Chambers, 313 Court Street, The Dalles, Oregon.

Present were all Commission members except (Mrs.) Jacklyn Hallock. Those present were Mr. Joe B. Richards, Chairman; Dr. Morris Crothers, Vice Chairman; Dr. Grace S. Phinney; and Mr. Ronald M. Somers. Present on behalf of the Department were its Director, Mr. Loren (Bud) Kramer and several members of the Department's staff.

MINUTES OF JULY 30 AND AUGUST 27, 1976 EQC MEETINGS

It was MOVED by Commissioner Somers, seconded by Commissioner Phinney, and unanimously carried that the Commission approve the Minutes of the July 30 and August 27, 1976 Environmental Quality Commission meetings.

PROGRAM ACTIVITY REPORTS AND TAX CREDIT APPLICATIONS

It was MOVED by Commissioner Somers, seconded by Commissioner Phinney, and carried with the unanimous support of the four commissioners present that the Director's recommendation be adopted with regard to both the Program Activity Report for August 1976 and the Tax Credit Applications.

KRAFT PULP MILLS - STATUS REPORT ON THE REVIEW OF THE KRAFT MILL REGULATIONS

It was MOVED by Commissioner Somers, seconded by Commissioner Phinney and carried with the unanimous support of the four commissioners present that the Director's recommendation be adopted that no action is required on this item by the Commission at this time.

REQUEST FOR AUTHORIZATION FOR PUBLIC HEARING ON REVISIONS TO THE FEE SCHEDULE FOR AIR CONTAMINANT DISCHARGE PERMITS AND REVIEW OF TASK FORCE RECOMMENDATIONS

It was MOVED by Commissioner Somers, seconded by Commissioner Phinney and unanimously carried that the Commission adopt the Director's recommendation that the Commission authorize a public hearing at a time and place to be established to take testimony on the proposed amendments.

NOTE: These minutes were extracted from a mechanical recording and from staff reports presented to the Commission regarding each agenda item. The recording and the reports are available under the provisions of Oregon Revised Statutes Chapter 192, and are hereby made a part of these minutes, incorporated by reference.

CITY OF MAUPIN REQUEST FOR TIME EXTENSION FOR UPGRADING OF SEWAGE COLLECTION AND TREATMENT FACILITIES

Mr. Robert Shimek from Central Region gave the staff report on the sewage program in Maupin.

Testimony was offered by the following people:

Stanley D. Heisler, City Attorney, Maupin  
Albert Troutman, Mayor, Maupin  
Val Toronto, Engineer from Pendleton for the City of Maupin

After much discussion by the Commission, staff and witnesses it was MOVED by Commissioner Somers, seconded by Commissioner Phinney and unanimously carried that the following order regarding City of Maupin's request for time extension to upgrade their sewage collection and treatment facilities be adopted:

Before the Environmental Quality Commission  
of the State of Oregon

In the matter of Request by the )  
City of Maupin to Amend Special )  
Condition S1 of NPDES Waste ) Order of the Commission  
Discharge Permit 1664-J )

WHEREAS the Commission finds as follows:

The City of Maupin holds NPDES Waste Discharge Permit Number 1664-J as issued July 22, 1974 and amended October 6, 1975. The City of Maupin has requested a delay in its compliance with the terms of Special Conditions S1, S4, S5, and S7 of said permit.

The City of Maupin has been required to show cause, if any there be, why strict compliance with the said conditions of said permit should not be required. On October 15, 1976, the Commission was fully advised on the issues by the City of Maupin. Insufficient reason was shown to allow the City of Maupin time beyond October 1, 1978 to fully comply with the said conditions of their permit.

THEREFORE IT IS HEREBY ORDERED:

That the City of Maupin shall eliminate all discharges to state waters or shall provide plant modification capable of achieving the effluent limitations in Condition S4 of NPDES Waste Discharge Permit 1664-J in accordance with the following time schedule:

1. Submission of final engineering plans to the Department shall occur no later than June 15, 1977.
2. Construction shall be commenced no later than November 15, 1977.
3. Construction shall be completed no later than September 1, 1978.

The Department of Environmental Quality is hereby authorized and instructed to initiate any enforcement action provided by law or regulation to obtain strict compliance to NPDES waste discharge permit 1664-J, or to punish non-compliance by civil penalty or otherwise, in the event it finds non-compliance by the City of Maupin with this Order.

SO ORDERED this 15th day of September, 1976.

ENVIRONMENTAL QUALITY COMMISSION

/s/ Joe B. Richards  
Joe B. Richards, Chairman

/s/ Morris K. Crothers  
Morris K. Crothers, Vice-Chairman

/s/ Grace S. Phinney  
Grace S. Phinney, Member

/s/ Ronald M. Somers  
Ronald M. Somers, Member

Jacklyn L. Hallock, Member

MARTIN MARIETTA - CONSIDERATION OF REQUEST TO SUBSTITUTE DRY FLUORIDE CONTROL SYSTEMS FOR EXISTING WET FLUORIDE CONTROL SYSTEMS

Mr. John F. Kowalczyk summarized the staff report.

Testimony was offered by the following people:

- Mr. Bud Gibson, Plant Manager for Martin Marietta
- Dr. George Edmunds, Jr., Consulting Biologist, Salt Lake City, Utah
- Mr. I.S. Shah, Shah Consultants, Inc., E. Brunswick, New Jersey
- Mr. Werner Furth, Representative of Martin Marietta Corporation  
Environmental Technical Center
- Mr. Joe Byrne, Environmental Engineer for Martin Marietta
- Mr. Douglas Ragen, Attorney for Martin Marietta
- Ms. Helen Lynch, Private Citizen
- Mr. Arden Shenker, Wasco County Fruit & Produce League Attorney
- Mr. Donald Bailey, Fruit Grower
- Mr. Walter Erickson, Fruit Grower
- Mr. John R. Thienes, Oregon State University Extension Agent in  
The Dalles
- Ms. Carolyn Wood, Mid-Columbia Environmental Council
- Mr. Carl Kaser, representing Wasco County Farm Bureau, The Dalles
- Ms. Phyllis K. Wright, Private Citizen
- Dr. Timothy J. Facteau, Mid-Columbia Experiment Station, OSU
- Mr. John Vlastelicia, Director, Oregon Operations, EPA

No action was taken at this time on Martin Marietta. The hearing will reconvene at the November 19, 1976 Environmental Quality Commission meeting.

SEWAGE WORKS CONSTRUCTION GRANTS - CONSIDERATION OF ADOPTION OF PRIORITY LIST

Mr. Tom Blankenship of the staff summarized the report on this agenda item.

After much discussion by the Commission, it was MOVED by Commissioner Somers, seconded by Commissioner Crothers and unanimously carried that the Director's recommendation be approved as follows:

1. Those projects ranked 1 through 95 which are scheduled prior to February be approved for funding out of the FY 1976 carryover monies.
2. Distribute funds carried over from FY 1976 as follows:

General Account	\$38,347,299.00
Reserve for Increases	1,173,753.00
Special Reserve for Step I and Step II Projects	281,752.00
3. Apply the 15% reserve requirement to any new FY 1977 grant allotment.
4. Approve the modified FY 1977 priority list.

SUBSURFACE AND ALTERNATIVE SEWAGE DISPOSAL - CONSIDERATION OF ADOPTION OF AMENDMENTS TO OAR CHAPTER 340, SECTIONS 71-005 THROUGH 74-020

Mr. Jack Osborne from the staff gave the staff report.

Testimony was given by Mr. Roy Burns, Lane County.

After much discussion by the Commission, it was MOVED by Commissioner Somers, seconded by Commissioner Crothers and unanimously carried that the Director's recommendation be adopted as follows:

1. Item 4 of the proposed amendments, after the word "building" add "or repair of a broken pressure sewer line."
2. That OAR Chapter 340, Division 7, sections 71, 72, 73 (Secretary of State's number 75) and 74 be amended, and that the adopted amendments, numbering 55, be filed immediately with the Secretary of State to become effective November 1, 1976, except item #55 (Proposed Geographic Region Rule B) shall become effective January 1, 1977.

OPEN BURNING - CONSIDERATION OF ADOPTION OF REVISED RULES, OAR, CHAPTER 340, SECTIONS 23-025 THROUGH 23-050

Mr. Ray Johnson of the staff reviewed briefly the staff report regarding revised rules for open burning.

After discussion by the Commission, it was MOVED by Commissioner Somers, seconded by Commissioner Phinney and unanimously carried that the Director's recommendation that the proposed Open Burning Rules, OAR 340-23-025 through 23-050 be amended as follows: (deleted wording bracketed, new wording underlined).

1. OAR 340-23-045(6) (b) In the Timber and Tri-City Rural Fire Protection Districts, and in areas outside Rural Fire Protection districts [of] in Washington County.
2. OAR 340-23-046(6) (c) (IX) In those portions of the Clackamas-Marion Rural Fire Protection District within Clackamas County.

That the proposed revisions to the Rules for Open Burning, OAR Chapter 340, Sections 23-025 through 23-050 be adopted by the Commission, and that the Oregon Clean Air Act Implementation Plan be amended in accordance with the provisions of these rules.

LAHTI & SON, INC. v. DEPARTMENT OF ENVIRONMENTAL QUALITY, BEFORE THE OREGON COURT OF APPEALS

The Director stated the staff had been in contact with Lahti & Son; that the staff had made a proposal to them for settlement of that case; and Lahti and Son in turn had made a counterproposal which has been accepted by the staff.

After discussion by the Commission it was MOVED by Commissioner Crothers, seconded by Commissioner Somers and unanimously carried that the proposal be accepted by the Commission. This can be accomplished by the Commission granting variances under ORS 454.657 with the following conditions:

1. Application be made for each parcel as proposed in Dr. William Doak's letter to Mr. Raymond Rask dated September 14, 1976.
2. Detailed plans for each system be submitted with each application.
3. That the statutory variance fee be paid for each variance granted.

RESOLUTION ADOPTED BY THE ENVIRONMENTAL QUALITY COMMISSION ON OCTOBER 15, 1976 REGARDING THE CITY OF JOHN DAY

It was MOVED by Commissioner Somers, seconded by Commissioner Phinney and unanimously carried that the following resolution regarding the City of John Day be adopted:

RESOLUTION

WHEREAS the City of John Day under the direction of Mayor John Moreau has undertaken the task of planning for the construction of new sewerage facilities to serve the cities of John Day and Canyon City; and

WHEREAS the City has completed facility planning and has approved bonds for local share financing of the needed design and construction; and

WHEREAS further timely progress is dependent on prompt processing of the City's applications for Environmental Protection Agency grant funds; and



WHEREAS federal grant award procedures are complex, time consuming, and contain many opportunities for delay, thus causing frustration to both applicant cities and DEQ, and causing escalation of construction costs:

THEREFORE BE IT RESOLVED

- (1) That the City of John Day and its Mayor, John Moreau, be commended for their efforts to achieve construction of needed and required sewerage facilities.
- (2) That the Environmental Protection Agency be strongly urged to simplify grant requirements, reduce paperwork, and accelerate the processing of grant awards to the City of John Day and all other cities in Oregon so that costs do not increase solely due to delays.

The above resolution was adopted by the Environmental Quality Commission on October 15, 1976.

STANDARD OIL COMPANY

Mr. Jack Weathersbee from the staff, reported he had a telephone call from the local representative of Standard Oil Company asking for an immediate variance to our sulphur content of fuels rule. Standard Oil Company wants to bring 60,000 barrels of Bunker C fuel into their Willbridge Station in Portland. They have 40,000 barrels of Bunker C oil on hand at their Willbridge facility now and would mix the 60,000 barrels of 2% with the 40,000 barrels of 1.7% sulphur. This would give a blended sulphur content of 1.9%, and would still be in excess of the staff's 1.75% sulphur content limit provided by rule.

Standard Oil is asking for a variance to OAR 340-22-010 to enable them to receive and distribute that fuel oil in this area. The company needs the consideration of this variance today and an answer, as the shipment would be done over the weekend if it is allowed.

It was MOVED by Commissioner Somers, seconded by Commissioner Phinney and unanimously carried that the variance be granted to Standard Oil Company.



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item B, October 15, 1976, EQC Meeting  
August 1976 Program Activity Report

### Discussion

Attached is the August 1976 Program Activity Report.

ORS 468.325 provides for approval or disapproval of Air Quality plans and specifications by the Environmental Quality Commission. 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.

The purposes of this report are to provide information to the Commission regarding status of the reported program activities, to provide a historical record of project plan and permit actions, and to obtain the confirming approval of the Commission of actions taken by the Department relative to air quality plans and specifications.

### Recommendation

It is the Director's recommendation that the Commission take notice of the reported program activities and give confirming approval to the Department's actions relative to air quality project plans and specifications as described on page 9 of the report.

LOREN KRAMER  
Director



Contains  
Recycled  
Materials

RLF:ee  
9/29/76

Department of Environmental Quality  
Technical Programs

Permit and Plan Actions

August 1976

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71 . . . . Plan Actions Completed - Summary	1
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70 . . . . Plan Actions Pending - Summary	1
38 . . . . Permit Actions Completed - Summary	4
Permit Actions Completed - Listing	5
189 . . . . Permit Actions Pending - Summary	4
 <u>Air Quality Division</u>	
11 . . . . Plan Actions Completed - Summary	1
Plan Actions Completed - Listing	9
22 . . . . Plan Actions Pending - Summary	1
43 . . . . Permit Actions Completed - Summary	10
Permit Actions Completed - Listing	11
114 . . . . Permit Actions Pending - Summary	10
 <u>Solid Waste Management Division</u>	
13 . . . . Plan Actions Completed - Summary	1
Plan Actions Completed - Listing	14
13 . . . . Plan Actions Pending - Summary	1
15 . . . . Permit Actions Completed - Summary	16
Permit Actions Completed - Listing	17
75 . . . . Permit Actions Pending - Summary	16

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Air, Water & Solid Waste Divisions (Reporting Unit)	August 1976 (Month and Year)
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SUMMARY OF PLAN ACTIONS

	Plans Received		Plans Approved		Plans Disapproved		Plans Pending
	<u>Month</u>	<u>Fis.Yr.</u>	<u>Month</u>	<u>Fis.Yr.</u>	<u>Month</u>	<u>Fis.Yr.</u>	
<u>Air</u>							
Direct Sources	11	23	11	23			22
Indirect Sources							
Total	11	23	11	23			22
<u>Water</u>							
Municipal	112	213	60	127			64
Industrial	10	16	11	18			6
Total	122	229	71	145			70
<u>Solid Waste</u>							
General Refuse	4	11	8	15			9
Demolition		2		2			1
Industrial	2	6	4	8			3
Sludge	1	2	1	2			
Total	7	21	13	27			13
<u>Hazardous Wastes</u>		2		2			
<u>GRAND TOTAL</u>	140	275	95	197			105

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Water Quality Division

August 1976

Plan Actions Completed - 71

County	Name of Source/Project/Site and Type of Same	Date Rec'd.	Date of Action	Action	Time to Complete Action
S 51-15	BUTTE FALLS BUTTE FALLS SS	080276	08/02/76	PROV APP	03
S 49 36	MCMINNVILLE SS BENNETT ADD	072376	08/02/76	PROV APP	10
S 00 21	NEWPORT NEWPORT SS ROSE & NOB HILL	080376	08/03/76	PROV APP	27
S 25 03	OREGON CITY SS BLINKHORN TERRACE SD	072776	08/04/76	PROV APP	24
S 26	TROUTDALE ARNDTS ADDN SS	070976	08/04/76	PROV APP	26
S 34	BEAVERTON SS HARTWOOD HYLANDS NO 2	080576	08/06/76	PROV APP	01
S 40 08	BROOKINGS MILL BEACH PRESSURE MAIN	080676	08/13/76	PROV APP	07
S 67 20	VENETA SEW LAGOON EXP CHNGES #1&2	071576	08/13/76	APPROVED	29
S 60 29	WHEELER SS WHEELER HEIGHTS	081076	08/13/76	PROV APP	03
S 61 20	FLORENCE SS TOM BURKE	081276	08/16/76	PROV APP	04
S 30	HERMISTON STARRETT ADD	071576	08/16/76	PROV APP	34
S 62 30	MILTON FWATER WASHINGTON PK APTS	070276	08/16/76	PROV APP	45
S 22	ALBANY COLLEGE GR SUP PLAT SS-76-17	072076	08/17/76	PROV APP	28
S 35 17	CAVE JUNCTION SHADOWBROOK SUBDN	070276	08/17/76	PROV APP	46
S 87 05	CLATSKANIE CHANGE ORD#1	081176	08/17/76	APPROVED	06
S 15	JACKSON CO SS EXT PROJ # 76-2	081176	08/17/76	PROV APP	35
S 62 27	MUNMOUTH SS BRIGHTWOOD ADD	073076	08/17/76	PROV APP	17
S 61 20	SPRINGFIELD SS DAYLITE PK PROJ-SP-204	081376	08/17/76	PROV APP	04
S 61 20	SPRINGFIELD SS BRAVADO PROJ-HSP-215-S&P	081376	08/17/76	PROV APP	04
S 61 20	SPRINGFIELD SS LAKSONEN PK-7TH ADD	081376	08/17/76	PROV APP	04
S 20	SPRINGFIELD SS NO. SP-203 S&P MEMEL	072976	08/17/76	PROV APP	18
S 61 20	SPRINGFIELD SS THURSTON PK-3RD ADD	081376	08/17/76	PROV APP	04
S 61 20	SPRINGFIELD SS RIDGE VIEW ESTATES 1STADD	072876	08/17/76	PROV APP	17
S 26	PORTLAND CHANGE ORD#3 SS NE GERTZ RD	081176	08/15/76	APPROVED	30
S 34	CORNELLIUS SS E.F.D. NO. 5	072976	08/20/76	PROV APP	22
S 49 02	PHILOMATH ASHBROOK MULTIFAM SEWER SYST	071276	08/20/76	PROV APP	39
S 09 24	SALEM SS IMP BOONE ESTATES SD	081676	08/23/76	PROV APP	04
S 62 24	SALEM SS WEDGEWOOD ESTATES	081176	08/23/76	PROV APP	09
S 24	SALEM SEW LINE IMPV TAYBIR RD NW	072776	08/20/76	PROV APP	23
S 20	SPRINGFIELD DAROLD HANNA SS HOORUP	070676	08/23/76	PROV APP	43
S 35 15	JACKSON CO SS BRITTSAN SD	081376	08/23/76	PROV APP	42
S 22	LEBANON SS BALDWIN ADD	081776	08/23/76	PROV APP	06
S 36	NEWBERG SS SPR MEADOW SD STG 1&2 IN	080276	08/24/76	PROV APP	22
S 36	NEWBERG SS IMPRVMTS SPR MEADOW SD	072976	08/24/76	PROV APP	24
S 26	GRESHAM SS SUNDERLUND HEIGHTS	081276	08/23/76	PROV APP	13
S 24	STAYTON SS REV SEW LOCATION FRERES A	080676	08/25/76	PROV APP	19
S 25 03	CLACKAMAS SS NANCY J TERRACE	072776	08/25/76	PROV APP	29
S 52 03	CLACKAMAS CO SS COVENTRY HILL #2 SD	081776	08/26/76	PROV APP	05
S 27	DALLAS SS PEGG ADDITION	072176	08/26/76	PROV APP	35
S 36	MCMINNVILLE SS BENDRIVER VILLAGE	080276	08/26/76	PROV APP	24
S 34	BEAVERTON SS IMP SW GRIFFITH-VILLARD	081776	08/27/76	PROV APP	10
S 34	BEAVERTON SS SCOTSBORO SD	080676	08/27/76	PROV APP	21
S 34	BEAVERTON SS FOREST GLENN #1-186	081076	08/27/76	PROV APP	17
S 40 06	DIAMOND LAKE SS IMP PROJ #2127-E-76	081676	08/27/76	PROV APP	11
S 03	LAKE OSWEGO LID179,180,181&W3559	081176	08/27/76	PROV APP	16
S 03	LAKE OSWEGO SS IMP CUMBERLAND PL LID 156	080476	08/27/76	PROV APP	23
S 49 02	CORVALLIS WEST HILLS TERR SEWER SYSTM	071276	08/30/76	PROV APP	38
S 34	ALOHA SS BONES SEWER EXT-192	081376	08/31/76	PROV APP	16
S 34	ALOHA SS RIDGECRUI SD-190	081276	08/31/76	PROV APP	19
S 34	ALOHA SS WINFORD ESTATES	081176	08/31/76	PROV APP	20
S 34	ALOHA SS WHEATFIELD SD-173E	081176	08/31/76	PROV APP	20
S 30	ATHENA ATHENA GRADE SCHOOL SEWER	080976	08/31/76	PROV APP	22
S 17	HARBECK-FRUIT PROP 6" SEW IN HARBECK-FRUIT	082076	08/31/76	PROV APP	11
S 17	JOSEPHINE CO PROP 811 SINS OUT FIB EX MAN	081676	08/31/76	PROV APP	12
S 03	LAKE OSWEGO SS PINE VALLEY RD EXT	081776	08/31/76	PROV APP	12
S 62 24	SALEM SS ARRO WHEAD	082476	08/31/76	PROV APP	07
S 34	TUALITA SS RUTLEY ADD-167	081276	08/31/76	PROV APP	17
S 34	TUALITA SS SPRUCE MEADOW SD	082476	08/31/76	PROV APP	07
S 34	USA/ALOHA SHALLOWBROOK NO 2	082576	08/31/76	PROV APP	06
S 21	WALDPONT SS EXT MAIN B	081976	08/31/76	PROV APP	12

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Water Quality Division  
(Reporting Unit)

August 1976

(Month and Year)

PLAN ACTIONS COMPLETED (con't - 71)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>INDUSTRIAL WASTE SOURCES - 11</u>			
Linn	Hub City Concrete - Albany Gravel Wash Water Treatment	8/16/76	Approved
Lane	Pacific Resin & Chemical - Eugene Waste Treatment, overland flow	8/17/76	Approved
Lane	Southern Pacific Transportation Eugene, upgrade waste treatment facilities	8/17/76	Approved
Multnomah	Rhodia, Inc. - Portland Second phase sewer connection project	8/9/76	Approved
Clatsop	Astoria Plywood Corporation Astoria, Waste Water Disposal Systems	8/11/76	Approved
Yamhill	Fisher Hog Farm - McMinnville Animal Waste	8/23/76	Approved
Washington	Lite Rock Co. - Timber Storm Runoff Treatment	8/24/76	Approved
Multnomah	Port of Portland, Ship Repair Yard, Swan Island, Diffuser for Treated Ballast Water	8/27/76	Approved
Klamath	U. S. Forest Service - Odell Lake Marina, Break Water Construction	8/31/76	Approved
Hood River	U. S. Plywood - Neal Creek Revised Plans for Circulation of Log Deck Water	8/31/76	Approved
Marion	De Jong - Scio, Animal Waste Disposal	8/30/76	Approved

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Water Quality  
(Reporting Unit)

August 1976  
(Month and Year)

SUMMARY OF WATER 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>Municipal</u>							
New	0   0	0   0	4   1	4   1	2   6		
Existing	0   0	0   0	0   1	0   1	4   5		
Renewals	2   0	6   0	7   1	7   1	47   0		
Modifications	4   0	9   0	4   0	4   0	24   0		
Total	6   0	15   0	15   3	15   3	77   11	294   54	300   65
<u>Industrial</u>							
New	0   1	1   3	0   1	0   1	4   4		
Existing	0   1	0   1	0   3	0   4	7   6		
Renewals	3   0	8   3	8   0	8   2	24   10		
Modifications	2   0	6   1	3   2	3   2	33   0		
Total	5   2	15   8	11   6	11   9	68   20	423   79	434   89
<u>Agricultural (Hatcheries, Dairies, etc.)</u>							
New	0   0	0   0	0   1	0   1	3   0		
Existing	0   0	0   0	0   1	0   1	0   0		
Renewals	0   0	0   0	0   0	0   0	0   0		
Modifications	9   0	9   0	1   0	1   0	10   0		
Total	9   0	9   0	1   2	1   2	13   0	61   8	64   8
<u>GRAND TOTALS</u>	20   2	39   8	27   11	29   14	158   31	778   41	798   162

\* NPDES Permits  
\*\* State Permits

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Water Quality  
(Reporting Unit)

August 1976  
(Month and Year)

PERMIT ACTIONS COMPLETED (38)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Municipal (18)</u>			
Lincoln	Department of Transportation Beverly Beach State Park	8/5/76	State Permit Issued
Deschutes	Richard Huff 8-Ball Restaurant	8/5/76	State Permit Issued
Clackamas	River Village Mobile Homes Domestic Sewage	8/6/76	NPDES Permit Modified
Marion	City of Stayton Domestic Sewage	8/6/76	NPDES Permit Modified
Washington	Unified Sewerage Agency Rock Creek Plant	8/6/76	NPDES Permit Issued
Washington	City of Hillsboro Rock Creek Plant	8/6/76	NPDES Permit Renewed
Marion	City of Hubbard Domestic Sewage	8/6/76	NPDES Permit Renewed
Marion	Union Oil Company Fargo Road Truck Stop	8/6/76	State Permit Renewed
Jackson	City of Butte Falls Domestic Sewage	8/26/76	NPDES Permit Issued
Douglas	Green Sanitary District Domestic Sewage	8/26/76	NPDES Permit Renewed
Union	City of Union Sewage Disposal	8/26/76	NPDES Permit Issued
Tillamook	Netarts-Oceanside S.D. Domestic Sewage	8/30/76	NPDES Permit Issued
Clatsop	Olney Elementary School Domestic Sewage	8/30/76	NPDES Permit Renewed



DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Water Quality  
(Reporting Unit)

August 1976  
(Month and Year)

PERMIT ACTIONS COMPLETED (Continued)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Yamhill	City of Dundee Domestic Sewage	8/30/76	NPDES Permit Renewed
Marion	Willamette Lutheran Homes Domestic Sewage	8/30/76	NPDES Permit Renewed
Douglas	City of Oakland Domestic Sewage	8/30/76	NPDES Permit Renewed
Jackson	City of Jacksonville Domestic Sewage	8/31/76	NPDES Permit Modified
Benton	City of Monroe Domestic Sewage	8/31/76	NPDES Permit Modified
<u>Industrial and Commercial (17)</u>			
Marion	Stuckart Lumber Company Idanha	8/5/76	State Permit Issued
Hood River	Luhr Jensen & Sons, Inc. Fishing Tackle Plant	8/5/76	State Permit Modified
Morrow	Portland General Electric Boardman Fossil Plant	8/5/76	State Permit Modified
Linn	Willamette Industries Fairview Division	8/6/76	NPDES Permit Modified
Lane	Barker Willamette Co. Lumber Mill	8/6/76	NPDES Permit Renewed
Lane	Cabax Mills Eugene	8/6/76	NPDES Permit Renewed
Douglas	U.S. Plywood Glide Log Pond	8/26/76	NPDES Permit Renewed
Jackson	Pacific Power and Light Co. Eagle Point Plant	8/26/76	NPDES Permit Renewed
Jackson	Pacific Power and Light Co. Prospect No. 1	8/26/76	NPDES Permit Renewed

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Water Quality  
(Reporting Unit)

August 1976  
(Month and Year)

PERMIT ACTIONS COMPLETED (Continued)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Industrial and Commercial (Cont.)</u>			
Jackson	Pacific Power and Light Co. Prospect No. 2	8/26/76	NPDES Permit Renewed
"	" " " " " " " " Prospect No. 3	"	" "
"	" " " " " " " " Prospect No. 4	"	" "
Lane	Berry Creek Construction Co. Gravel Operation	8/31/76	State Permit Issued
Marion	Shiny Rock Mining Corporation Gold Mine	8/31/76	State Permit Issued
Columbia	Steinfeld Products Pickle Packing waste	8/31/76	State Permit Issued
Lane	Southern Pacific Transportation Eugene Yard	8/31/76	NPDES Permit Modified
Linn	U.S. Plywood Lebanon Mill	8/31/76	NPDES Permit Modified
Lane	The Murphy Company Lumber Mill	8/76	Discharge Eliminated
Lane	Lou A. Surcamp Springfield Truck Stop	8/76	Discharge Eliminated
Washington	Empire Lite Rock Aggragate Plant	8/76	Discharge Eliminated
Lane	Bohemia, Inc Junction City Plywood	8/76	Discharge Eliminated

DEPARTMENT OF ENVIRONMENTAL QUALITY  
 TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Water Quality  
 (Reporting Unit)

August 1976  
 (Month and Year)

PERMIT ACTIONS COMPLETED (Continued)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Agricultural</u> (3)			
Marion	Western Pork Producers Hog Farm	8/5/76	State Permit Issued
Marion	Franz Neff Dairy	8/5/76	State Permit Issued
Jackson	Department of Fish and Wildlife Cole M. Rivers Hatchery	8/31/76	NPDES Permit Modified

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Air Quality  
(Reporting Unit)

August 1976  
(Month and Year)

PLAN ACTIONS COMPLETED (11)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>Direct Stationary Sources (11)</u>			
Douglas	International Paper Co., Alter #1 veneer dryer	8/2/76	Approved
Umatilla	Lamb-Weston New fryer with scrubber	8/3/76	Approved
Clackamas	Estacada Rock Products Baghouse with Cement silo	8/3/76	Approved
Douglas	Roseburg Lumber Co., Dillard 6 scrubbers for veneer dryers	8/4/76	Approved
Douglas	Roseburg Lumber Co., Riddle 6 scrubbers for veneer dryers	8/4/76	Approved
Douglas	Roseburg Lumber Co., Roseburg 1 scrubber for veneer dryer	8/4/76	Approved
Coos	Roseburg Lumber Co., Coquille 2 scrubbers for veneer dryers	8/4/76	Approved
Clackamas	Oregon Saw Chain Burnout furnace hoods	8/9/76	Approved
Douglas	Drain Plywood Tax credit for dryer change	8/10/76	Approved
Washington	Lite Rock Co. Scrubber for kiln	8/11/76	Approved
Lane	U.S. Plywood Tax Credit for dryer change	8/19/76	Approved

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Air Quality  
(Reporting Unit)

August 1976  
(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	7	3	6	12		
Existing	3	14	7	15	38		
Renewals	4	10	18	40	45		
Modifications	3	4	11	25	9		
Total	14	35	39	86	104*	2154	2204
<u>Indirect Sources</u>							
New	2	3	4	5	10		
Existing							
Renewals							
Modifications	0	1	0	1	0		
Total	2	4	4	6	10	40	
<u>GRAND TOTALS</u>	16	39	43	92	114	2194	2204

\* Public notices have been issued for 16 of these pending permit actions.

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Air Quality  
(Reporting Unit)

August 1976  
(Month and Year)

PERMIT ACTIONS COMPLETED (43)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Baker	Ellingson Timber Co. 01-0004, Veneer (Modification)	8/2/76	Addendum Issued
Benton	Hendrix Lumber 02-0004, Sawmill (Renewal)	8/11/76	Permit Issued
Benton	Good Samaritan Hospital 02-2094, Incinerator (Renewal)	8/11/76	Permit Issued
Benton	Brand S Plywood 02-2482, Plywood Mfg. (Renewal)	8/11/76	Permit Issued
Benton	Wildish Corvallis Sand & Gravel 02-2518, Asphalt Plant (New Owner)	8/25/76	Permit Issued
Benton	Wildish Corvallis Sand & Gravel 02-2557, Rock Crusher (New Owner)	8/25/76	Permit Issued
Benton	Wildish Corvallis Sand & Gravel 02-2558, Concrete (New Owner)	8/25/76	Permit Issued
Benton	L & T Crushing Co. 02-5004, Rock Crusher (Renewal)	8/11/76	Permit Issued
Benton	I. P. Miller Lumber Co. 02-6018, Sawmill (Renewal)	8/11/76	Permit Issued
Clackamas	Crown Zellerback Corp. 03-2145 (Modification)	8/24/76	Addendum Issued
Coos	Georgia-Pacific Corp. 06-0008, Plywood (Modification)	8/24/76	Addendum Issued
Coos	Westbrook Wood Products 06-0032, Veneer (Modification)	8/11/76	Permit Issued
Deschutes	Oregon Trail Wood Products, Inc. 09-0033, Sawmill (Modification)	8/20/76	Addendum Issued
Klamath	Weyerhaeuser Company 18-0013, Sawmill (Renewal)	8/11/76	Permit Issued
Lincoln	Northwest Natural Gas Co. 21-0042, Natural Gas Transmission (Modification)	8/19/76	Addendum Issued
Linn	Publishers Paper Co. 22-7137, Particleboard (Renewal)	8/11/76	Permit Issued

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Air Quality  
(Reporting Unit)

August 1976  
(Month and Year)

PERMIT ACTIONS COMPLETED (43 - con't)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Marion	Aumsville Pellet Mill 24-0004, Feed Mill (Renewal)	8/11/76	Permit Issued
Marion	Agripac, Inc. 24-4159, Boiler (Renewal)	8/11/76	Permit Issued
Marion	Oregon Dept. of General Services 24-5131, Boiler (Renewal)	8/11/76	Permit Issued
Marion	J. M. Smucker Company 24-9109, Incinerator (Renewal)	8/11/76	Permit Issued
Marion	MacLaren School 24-9167, Boiler (Renewal)	8/11/76	Permit Issued
Marion	Turner Sand & Gravel 24-9196, Rock Crusher (Renewal)	8/11/76	Permit Issued
Multnomah	Evelyn Apartments 26-1100, Boiler (Existing)	8/11/76	Permit Issued
Multnomah	Albers Milling 26-2008, Feed Mill (Renewal)	8/11/76	Permit Issued
Multnomah	Cargill, Inc. 26-2009, Grain Elevator (Renewal)	8/11/76	Permit Issued
Multnomah	Zidell Explorations, Inc. 26-2071, Secondary Lead Smelting (Renewal)	8/11/76	Permit Issued
Multnomah	Portland Memorial, Inc. 26-2949, Incinerator (Existing)	8/11/76	Permit Issued
Multnomah	The Amalgamated Sugar Co. 26-2950, Boiler (Existing)	8/11/76	Permit Issued
Multnomah	United States Bakery 26-2952, Boiler (Existing)	8/11/76	Permit Issued
Multnomah	Fred Conrey Electric Motor Repair 26-2963, Incinerator (New)	8/11/76	Permit Issued
Multnomah	Reed Electric Company 26-2964, Incinerator (New)	8/11/76	Permit Issued

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Air Quality  
(Reporting Unit)

August 1976  
(Month and Year)

PERMIT ACTIONS COMPLETED (43 - con't)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Multnomah	Time Oil Company 26-2966, Petroleum Bulk Storage (New)	8/25/76	Permit Issued
Multnomah	Portland Community College 26-2971, Boiler (Existing)	8/11/76	Permit Issued
Polk	Columbia West Materials & Constructors, Inc. 27-8004, Asphalt Paving (Renewal)	8/11/76	Permit Issued
Polk	Stuivenga Box Mill 27-8005, Sawmill (Existing)	8/25/76	Permit Issued
Tillamook	Erickson Lumber Co. 29-0011, Hardwood Mill (Existing)	8/11/76	Permit Issued
Yamhill	Crabtree Rock 36-3001, Rock Crusher (Renewal)	8/11/76	Permit Issued
Yamhill	Coast Range Plywood, Inc. 36-5296, Plywood (New Owner)	8/25/76	Permit Issued
Yamhill	Willamina Lumber Co. 36-8005, Sawmill (Modification)	8/20/76	Addendum Issued

Indirect Sources (4)

Mation	Hayesville K-Mart 609 space parking facility	8/30/76	Final permit issued
Multnomah	Providence Medical Center 375-450 space parking facility	8/30/76	Final permit issued
Multnomah	Education Admin. Services Cntr. 660 space parking facility	8/10/76	Withdrawn
Washington	Portland Community College 435 space parking facility	8/2/76	Final permit issued



DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Solid Waste  
(Reporting Unit)

August 1976  
(Month and Year)

PLAN ACTIONS COMPLETED (13)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Douglas	Camas Valley Disposal Site Existing Site Closure Plan	7/27/76	Provisional Approval
Wallowa	Wallowa Drop Box New Site Construction Plan	7/30/76	Approved
Lane	Cedar Lumber, Inc. Existing Site Operational Plan	8/2/76	Approved
Douglas	Yoncalla Disposal Site Existing Site Revised Closure Plan	8/3/76	Provisional Approval
Marion	Boise Cascade Sludge Site Existing Site Operational Plan	8/4/76	Approved
Marion	Stuckart Lumber Co. Existing Site Operational Plan	8/5/76	Approved
Lincoln	T & L Sludge Lagoon New Site Construction and Operational Plan	8/16/76	Provisional Approval
Douglas	Dillard Disposal Site Existing Site Operational Plan	8/19/76	Provisional Approval
Josephine	Kerby Landfill Leachate Holding Pond Existing Site Construction Plan	8/19/76	Provisional Approval
Douglas	Roseburg Central Landfill Existing Site Operational Plan	8/19/76	Provisional Approval

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Solid Waste  
(Reporting Unit)

August 1976  
(Month and Year)

PLAN ACTIONS COMPLETED (Continued)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
Douglas	Reedsport Disposal Site Existing Site Operational Plan	8/20/76	Provisional Approval
Josephine	City of Grants Pass Existing Site Operational Plan	8/25/76	Approved
Coos	Joe Ney Disposal Site New Site Operational Plan	8/25/76	Provisional Approval

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

Solid Waste Management  
(Reporting Unit)

August 1976  
(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	3	4		2	4		
Existing			1	3	48 (*)		
Renewals	2	2	2	4	5		
Modifications		1	1	1			
Total	5	7	4	10	57	194	198
<u>Demolition</u>							
New	1	2	1	3			
Existing				1			
Renewals					1		
Modifications							
Total	1	2	1	4	1	13	13
<u>Industrial</u>							
New	1	2		2	1		
Existing					14 (*11)		
Renewals	1	1			1		
Modifications				1			
Total	2	3	0	3	16	85	90
<u>Sludge Disposal</u>							
New		1			1		
Existing							
Renewals				2			
Modifications		1		1			
Total		2	0	3	1	8	9
<u>Hazardous Waste</u>							
New							
Authorizations	9	16	10	17			
Renewals							
Modifications							
Total	9	16	10	17	0	1	1
<u>GRAND TOTALS</u>	<u>17</u>	<u>30</u>	<u>15</u>	<u>37</u>	<u>75</u>	<u>301</u>	<u>311</u>

\*Sites operating under temporary permits until regular permits are issued.

DEPARTMENT OF ENVIRONMENTAL QUALITY  
TECHNICAL PROGRAMS

MONTHLY ACTIVITY REPORT

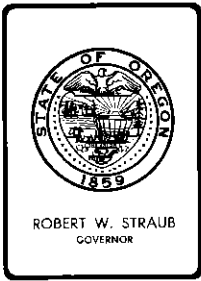
Solid Waste  
(Reporting Unit)

August 1976  
(Month and Year)

PERMIT ACTIONS COMPLETED (15)

County	Name of Source/Project/Site and Type of Same	Date of Action	Action
<u>General Refuse (Garbage) Facilities (4)</u>			
Hood River	Hood River Landfill Existing facility	8/11/76	Permit Issued (renewal)
Lake	Lakeview Disposal Site Existing facility	8/11/76	Permit Amended
Klamath	Crescent Landfill Existing facility	8/20/76	Permit issued (renewal)
Baker	Oxbow Disposal Site Existing facility	8/20/76	Permit issued
<u>Demolition Solid Waste Facilities (1)</u>			
Washington	Tobey's Excavators New facility	8/24/76	Letter authoriza- tion issued.
<u>Sludge Disposal Facilities (0)</u>			
<u>Industrial Waste Facilities (0)</u>			
<u>Hazardous Waste Facilities (10)</u>			
Gilliam	Chem-Nuclear, Inc. Existing facility	8/16/76	Disposal authoriza- tion approved.
Gilliam	Chem-Nuclear, Inc. Existing facility	8/17/76	Four (4) disposal authorizations approved.
Gilliam	Chem-Nuclear, Inc. Existing facility	8/18/76	Two (2) disposal authorizations approved.





## DEPARTMENT OF ENVIRONMENTAL QUALITY

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

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item C, October 15, 1976, EQC Meeting

### Tax Credit Applications

Attached are review reports on 14 requests for Tax Credit action. These reports and the recommendations of the Director are summarized on the attached table.

### Director's Recommendation

It is recommended that the Commission act on the 14 tax credit requests as follows:

1. Issue certificates for 14 applications (T-255, T-772, T-773, T-774, T-799, T-800, T-801R, T-806, T-807, T-810, T-811, T-812, T-813 and T-820).
2. Revoke certificate #656 in the amount of \$991,210.82 and reissue as requested above (T-255) in the amount of \$1,156,836.

LOREN KRAMER  
Director

### Attachments

Tax Credit Summary  
Tax Credit Review Reports



Contains  
Recycled  
Materials

<u>Applicant/Plant Location</u>	<u>Appl. No.</u>	<u>Facility</u>	<u>TAX CREDIT APPLICATIONS</u>		<u>Director's Recommendation</u>
			<u>Claimed Cost</u>	<u>% Allocable to Pollution Control</u>	
Georgia Pacific Corp. White City	T-255	Herreschoff furnace, duct work Wyatt Kipper Boiler	\$ 1,156,836.00	100%	Issue
Roseburg Lumber Co. Dillard	T-772	Two veneer dryer scrubbers for plywood plant	40,390.00	100%	Issue
Georgia Pacific Co. Albany	T-773	Lagoon, pumps, sumps, piping, valving and related controls	66,801.00	100%	Issue
Georgia Pacific Co. Toledo	T-774	Radar Pneumatics Rotary Disc Screen for integrated pulp and paper mill	53,139.00	100%	Issue
Hobin Lumber Co. Philomath	T-799	Hydraulic loading machine, debarker, chipper, conveyors & misc. controls	21,550.00	100%	Issue
Weyerhaeuser Co. Springfield	T-800	Conveyor system for plywood plant	122,015.00	100%	Issue
Weyerhaeuser Co. Springfield	T-801R	Baghouse for particleboard plant	91,402.00	100%	Issue
Weyerhaeuser Co. North Bend	T-806	Stack sampling platform, access ladder, sampling ports, etc.	17,358.00	100%	Issue
International Paper Gardiner	T-807	Dump tank, piping, drain and instrumentation	45,464.00	100%	Issue
Stayton Canning Co. Stayton	T-810	Pump and screen, intake and pump station, storage pond, piping, valves	174,831.38	100%	Issue
Weyerhaeuser Co. Springfield	T-811	Carter Day baghouse , air conveyor system	39,709.00	100%	Issue
Weyerhaeuser Co. Springfield	T-812	Settling pond, 2 pump stations and controls	56,032.00	100%	Issue
Weyerhaeuser Co. Cottage Grove	T-813	Cooling tower, pump, related controls	144,661.00	100%	Issue
Brooks Scanlon Bend	T-820	Log pond, pump station, conveyor, storage tanks. etc.	540,586.95	100%	Issue

Proposed September and October 1976 Totals:

Air Quality	\$ 1,467,710.00
Water Quality	1,025,183.33
Solid Waste	<u>21,550.00</u>
	\$ 2,514,443.33

Calendar Year Totals to date: (Excluding  
Sept. and Oct. totals)

Air Quality	\$ 12,592,164.58
Water Quality	5,657,914.82
Solid Waste	<u>835,144.56</u>
	\$ 18,230,079.40

Total Certificates Awarded (monetary values)  
since inception of program (excluding  
proposed Sept. and Oct. 1976 certificates)

Air Quality	\$ 110,859,198.80
Water Quality	90,467,184.45
Solid Waste	<u>20,288,177.47</u>
	\$ 221,614,560.72



Appl. T-255

Date 9/16/76

State of Oregon  
Department of Environmental Quality  
Tax Relief Application Review Report

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1. Applicant

Georgia Pacific Corporation  
900 S.W. Fifth Avenue  
Portland, Oregon 97204

The applicant owns and operates a charcoal manufacturing plant at 7890 Agate Road, White City, Oregon.

2. Description of Facility

The facility claimed in this application consists of a Nichols Herreschoff Multiple Hearth Furnace, a Wyatt and Kipper high pressure steam boiler, and bark and wood handling facilities.

a. Nichols Herreschoff Furnace	\$ 573,493
Related duct work	45,400
Wyatt Kipper Boiler	<u>372,327</u>
	991,210
Accounting Error reported by Georgia Pacific	<u>165,625</u>
	\$1,156,836

The facility (built in 1971 by Olson Lawyer Timber Co.) was purchased by Georgia Pacific Corporation on January 31, 1976 and is in continuous operation.

Certification is claimed under the statutes and the percentage claimed is 100%.

Facility Costs: \$1,156,836 (accountant's certification provided).

3. Evaluation of the Application (Requested Modification)

On June 8, 1972 Olson-Lawyer was issued Tax Credit Certificate #267 for \$1,307,513 to cover erection of a Herreschoff furnace and a hogged fuel boiler to utilize wood waste formerly burned in wigwam burners for the production of salable charcoal briquets. In January of 1976 Olson Lawyer sold out to Georgia-Pacific and Boise Cascade.

The EQC split up Tax Credit Certificate #267 at its April 30, 1976 meeting per requests from the two new owners: \$991,210.82 to Georgia Pacific (certificate #656), and \$150,677 to Boise Cascade (Certificate #657), totaling \$1,141,887.82. An amount of \$165,625.18 was left out because no one claimed it.

In a letter dated May 26, 1976, Georgia Pacific asked for the unclaimed \$165,625.18 and submitted equipment lists to validate their new claim on June 3. On September 3 a letter from Georgia Pacific made the statement that Georgia Pacific intended to continue operating this equipment in the manner described by Olson Lawyer in their applications for pollution control tax credit and for the purpose of eliminating air pollutants and enclosed a letter from the attorneys for Olson Lawyer Timber Co. confirming that Georgia Pacific was entitled to the remaining unclaimed \$165,625 tax credit.

4. Director's Recommendation

It is recommended that Certificate #656 be revoked and a new Pollution Control Certificate bearing the cost of \$1,156,836 with 100% allocated to pollution control be issued for the facility claimed in Tax Credit Application T-255.

LOREN KRAMER  
Director

EJW:lb

State of Oregon  
Department of Environmental Quality  
Tax Relief Application Review Report

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1. Applicant

Roseburg Lumber Company  
P. O. Box 1088  
Roseburg, Oregon 97470

The applicant owns and operates a lumber complex in Dillard, Oregon. It includes a plywood plant known as plant #2.

2. Description of Facility

The facility claimed in this application is two Burley veneer dryer scrubbers, used to capture the blue haze coming out of the two stacks of veneer dryer #3 of plywood plant #2. The facility consists of:

- a. Burley scrubber condensers, Model B-5, S/N 16 & 17.
- b. Pitch accumulation tank.
- c. Pumps and piping.

The facility was begun on February 26, 1976, completed and placed in operation on March 29, 1976. Roseburg Lumber submitted the project to the Department for approval on January 26, 1976 and received approval; the prior approval requirement of the law was fulfilled.

Certification is claimed under current statutes and the percentage claimed for pollution control is 100%.

Facility costs: \$40,390 (accountant's certification was provided).

3. Evaluation of Application

The Department required Roseburg Lumber Company to control the blue haze emissions from their veneer dryers per Section B, Condition 3 of their Air Contaminant Discharge Permit No. 10-0025. The Company tried to use a low temperature drying method so that the veneer never got hot enough to cook-off blue haze. This method was less than satisfactory from a production standpoint; it also caused excursions to out of compliance operation at times. Therefore, the applicant has started to install Burley scrubbers on all their veneer dryers. The facility claimed in this application is the first of their veneer dryers to be equipped with a wet scrubber.

The Department observations of the scrubbers have demonstrated consistent visual compliance. The visual component, following evaporation of the steam plume, is 5% opacity or less at most times, with excursions to 10% observed when dryer temperature was abnormally high.

The scrubber recovers about 144 lbs/day of pitch which is burned in the Company's hogged fuel boilers. Although the pitch has a fuel value close to Bunker C fuel oil, it is captured in such small quantities that the cost of capturing and handling it exceeds its worth as fuel. Therefore, it is concluded that 100% of the cost of the claimed facility can be allocated to air pollution control.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$40,390 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application T-772.

LOREN KRAMER  
Director

PBB:cs  
8/31/76

AUG 25 1976

Appl. T-773

Date 7/30/76

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

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1. Applicant

Georgia-Pacific Corporation  
Resin Operations  
900 S. W. 5th  
Portland, Oregon 97204

The applicant owns and operates a resin manufacturing plant in Albany, Oregon in Linn County.

The application was received July 8, 1976.

2. Description of Claimed Facility

The claimed facility consists of a 600,000 gallon lagoon, pumps, waste water collection sumps, piping, valving and related controls.

The claimed facility was completed and put into service in February, 1973.

Certification must be made under the 1969 Act and the percentage claimed for pollution control is 100%.

Facility costs: \$66,801.57 (Accountant's certification was provided).

3. Evaluation of Application

Had the claimed facilities not been included with the plant when it was constructed, storm runoff from the plant would have been discharged to Murder Creek without treatment or control. With the claimed facilities, the runoff is collected and reused to the maximum practicable extent. That portion of storm runoff which is discharged is treated to meet effluent limits of the Company's permit.

Plans were approved by letter dated March 28, 1973. Construction of the facilities was started prior to October, 1973, so the requirements of pre-notification (ORS 468.175) were not in effect.

Inspection of claimed facility shows that it works very well.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$66,801.57 with 80% or more of the cost allocated to pollution control be issued for the facilities claimed in Tax Application No. T-773.

AUG 25 1976

Appl. T-774

Date 8/13/74

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

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1. Applicant

Georgia Pacific Corporation  
Toledo Division  
P. O. Box 580  
Toledo, OR 97391

The applicant owns and operates a large integrated pulp and paper mill at Toledo, Oregon in Lincoln County.

The application was received July 8, 1976.

2. Description of Claimed Facility

The facility consists of a Radar Pneumatics Rotary Disc Screen which removes oversize chunks of wood from the wood chips. The chips are then conveyed across Depoe Slough (a part of Yaquina Bay) to the pulp mill.

The claimed facility was completed and placed in operation in May, 1975.

Certification must be made under the 1969 Act and the percentage claimed for pollution control is 100%.

Facility costs: \$53,139 (Accountant's certification was provided.)

3. Evaluation of Application

Prior to the installation of the claimed facility, on occasion, a large piece of wood (mixed in with the wood chips) would get caught in the chip conveyor belt. It would then block the passage of chips and knock them off the conveyor belt into Depoe Slough. With the claimed facility, all large chunks of wood are removed from the chips ahead of the conveyor belt and chip loss from the belt into the slough has been eliminated.

A notice of intent to construct and request for preliminary certification was submitted by letter dated March 19, 1975. Apparently, due to a lack of staff time, the Department did not request, review or approve the plans. The staff believes the Company has satisfied the pre-notification requirements stated in ORS 468.175.

Inspection of the facility shows that it works very well.

Though the claimed facility saves the Company money by reducing chip loss, the claimed estimated annual savings do not exceed the annual operating costs and no profit is claimed.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$53,139 with 80% or more of the cost allocated to pollution control be issued for the facility claimed in Tax Application No. T-774.

SEP 8 1976

Appl. T-799

Date 9/8/76

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

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1. Applicant

Hobin Lumber Company  
P.O. Box 709  
Philomath, Oregon 97370

The applicant owns and operates a sawmill at Philomath, Benton County.

2. Description of Claimed Facilities

The claimed facility consists of:

- a. One level hydraulic loading machine.
- b. One barrel debarker.
- c. One Ara Smith drum chipper.
- d. Two conveyors.
- e. Electrical and miscellaneous installations.

The claimed facility was constructed after May 1, 1973 and was placed in operation in August, 1973. Certification is claimed under ORS 468.165(1)(b) as a facility which obtains useful material or energy resources from material that would otherwise be solid waste.

Facility Cost: \$21,550.00 (Accountant's Certification was attached to application).

3. Evaluation of Application

Prior to the installation of the claimed facility, cut ends were stock piled on adjacent mill property, landfilled and some were given away as fire wood. All the cut ends are now processed in the claimed debarking and chipping facility. The claimed facility is recovering approximately twenty units of chips per week from cut ends.

The Department concludes that the claimed facility meets the requirements of ORS 468.165(1)(b) and is therefore eligible for certification.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued pursuant to ORS 468.165(1)(b) for the claimed facility in application T-799, such certificate to bear the actual cost of \$21,550.00.

State of Oregon  
Department of Environmental Quality

App# T-800

Date 9/10/76

Tax Relief Application Review Report

1. Applicant

Weyerhaeuser Co.  
P. O. Box 275  
Springfield, Oregon 97477

The applicant owns and operates a wood products complex including a planing mill and a particleboard plant in Springfield, Oregon.

2. Description of Facility

The facility claimed in this application is a conveyor system of belts and screws which replaces three cyclones and a pneumatic conveying system for transporting shavings from the planer mill to the particleboard plant.

It consists of:

a. Screw system	\$45,000
b. Tube belt to surge bin	25,000
c. Screw conveyor	14,500
d. Storage bin	14,015
e. Screen room building alterations	12,000
f. Head end fuel belt	11,500

The facility was begun on September 20, 1973 and completed and placed in operation on October 26, 1973. When the facility was begun, the prior approval requirement of the law was not yet effective (October 5, 1973), however LRAPA was notified 7/16/76 of construction.

Certification is claimed under the 1973 act as amended in 1974 and the percentage claimed for pollution control is 100%.

Facility costs: \$122,015 (accountant's certification was provided).

3. Evaluation of Application

Three cyclones handling planer shavings were emitting 49.6 pounds per hour of particulates into the air, or about 100 tons per year. On July 16, 1973, Weyerhaeuser submitted the project to replace the cyclones with conveyors to Lane Regional Air Pollution Authority. It was approved. The emissions were aggravated by surges. Therefore, a storage bin was built into the belt and screw conveyor system to even out the surges.

While the 100 tons of shavings captured per year may have a worth of \$1,000, this is more than offset by the \$12,600 annual operating expenses incurred by the claimed facility.

It is concluded that the claimed facility has reduced air pollution significantly and 100% of its cost can be allocated to air pollution control.



T-800  
9/10/76  
Page 2

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$122,015 with 80% or more allocated to pollution control be issued for the facility claimed in tax credit application No. T-800.

LOREN KRAMER  
Director

PBB:cs  
9/17/76

State of Oregon  
 Department of Environmental Quality  
 Tax Relief Application Review Report

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**1. Applicant**

Weyerhaeuser Company  
 P. O. Box 275  
 Springfield, Oregon 97477

The applicant owns and operates a wood products complex at Springfield, Oregon, which includes a particleboard plant.

**2. Description of Facility**

The facility claimed in this application is a baghouse which captures sander-dust generated from the #2 sander in the Joint Finishing area of the particleboard plant. It consists of:

a.	Carter-Day baghouse 144RJ120, S/N 321	\$40,279
b.	Explosion venting	44,020
c.	Sander Hood	5,384
d.	Electrical	6,035
e.	Installation costs of a leased fire detection system	1,068

The facility was begun on March 29, 1975, completed and placed in operation on September 29, 1975. The prior approval requirement of the Tax Credit law applies and was fulfilled by the applicant.

Certification is claimed under the 1973 act and the percentage claimed for pollution control is 100%.

Facility costs: \$96,786 (accountant's certification was provided.)

**3. Evaluation of Application**

To comply with Lane Regional Air Pollution Authority rules, the applicant had a baghouse controlling sanderdust emissions from the #2 sander. A tax credit had not been taken for that earlier facility. An explosion and fire on March 17, 1975 destroyed the baghouse and damaged the cyclones over the #2 sander. Weyerhaeuser resumed operation with only cyclone control on March 27, 1975. The measured emissions were 837 lbs/hr. Weyerhaeuser was given approval March 18, 1975 for this newer facility. This claimed facility is now in operation emitting at less than 10 lbs/hr and is in compliance with Lane Regional Air Pollution Authority rules.

The applicant has added in \$5,384 for repairing the hood which gathers sander-dust from the sander. This item is part of the wood by-product conveying system and is not part of the baghouse. Since the substantial purpose of the wood by-product conveying system is not air pollution control (it is actually the source of the air pollution), this item should be dis-allowed as a capitalized expense for pollution control. The repair cost from the fire is more a maintenance or repair cost and should not be allowed as a capital expense.

T-801R  
September 20, 1976  
Page 2

The baghouse captures \$6,963 worth of sanderdust annually which is used for fuel on the premises. The baghouse operating expenses run \$4,183 annually. Disallowing the hood cost, the return on investment becomes  $\$2,780/\$91,402 = 3.0\%$ . Using the Department's guidelines, the return on investment is so low that the claimed facility is still eligible for 80% or more tax credit.

In conclusion, the costs of operation are so close to the value of material reclaimed that the claimed facility can be said to be 100% for air pollution control. The repaired hood should be dis-allowed.

Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$91,402 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application Number T-801R.

LOREN KRAMER  
Director

PBB:ds

SEP 14 1976

Appl. T-806

Date 9/13/76

State of Oregon  
Department of Environmental Quality  
Tax Relief Application Review Report

1. Applicant

Weyerhaeuser Company  
P. O. Box 389  
North Bend, Oregon 97459

The applicant owns and operates a wood products complex in the city of North Bend, Oregon, which fronts on Coos Bay.

2. Description of Facility

The facility claimed in this application is a stack sampling platform on the main stack of the powerhouse. It consists of:

- |  |          |
|--|----------|
| a. Platform, access ladder, sampling ports,<br>equipment hoist, and electrical service | \$10,218 |
| b. Installation costs  | \$ 7,140 |

Construction was begun March 15, 1976, was completed April 9, 1976, and was first used on April 19, 1976. The applicant submitted the project for approval on December 11, 1975; it was approved December 26, 1975. Therefore the prior approval requirement was satisfied.

Certification is claimed under the 1969 act and the percentage claimed for pollution control is 100%.

Facility costs: \$17,358 (accountant's certification was provided).

3. Evaluation of Application

The Weyerhaeuser Company was required by the Department and the U. S. Environmental Protection Agency to measure the particulate emissions from their three large hogged fuel boilers at a sampling point in the stack. Weyerhaeuser had been measuring emissions in the breeching to the stack where turbulence made the measurements of questionable accuracy.

The claimed facility does not directly reduce, control, or prevent emissions but previous tax credits have been granted by the Commission for instruments and sampling platforms where emissions are measured. The facility gives no return on investment.

It is concluded that the claimed facility was installed solely to measure air pollution and 100% of its cost can be allocated to air pollution control.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$17,358 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application T-806.

LOREN KRAMER  
Director

## TAX RELIEF APPLICATION REVIEW REPORT

1. Applicant

International Paper Company  
Gardiner Paper Mill  
P. O. Box 854  
Gardiner, OR. 97441

The applicant owns and operates a Kraft Pulp & Paper Mill at Gardiner.

2. Description of Claimed Facility

The claimed facilities consist of:

- a. Pulp Mill Dump Tank (Collection tank). Steel, vertical 24 ft. O.D. x 26 ft. high on a concrete foundation.
- b. Piping from dump tank, return back to Kaymer blow tank and process; and piping from washer discharge tank, decker overflow and Pandia drain to dump tank.
- c. Instrumentation, electrical and other ancillary equipment.

Construction of the claimed facility was completed July, 1975 and placed in operation in August, 1975.

Certification is claimed under the 1969 Act, with 100% allocated to pollution control.

Facility cost: \$45,464.05 (Accountant's certification of cost was attached to the application.)

The facility is part of in-plant control system to meet 1977 limits as required by the NPDES permit.

3. Evaluation of the Application

By International Paper Company letter of September 3, 1974, the Department of Environmental Quality was notified of the status of the Company's Gardiner Paper Mill pollutant control system which stated, among other things, that the above facilities were being installed. The DEQ acknowledged the completion of them by letter August 15, 1975 after an inspection. Staff considers that prior notification of construction has been fulfilled. The Company claims they have no way of determining the fiber recovered but that 2,850 pounds of BOD is removed from the effluent each day. They claim no profit is derived from this facility.

BOD is reduced by containing and collecting spills in the pulping area and white water with minor amounts of spent chemicals, wood lignins and fibers. These wastes are returned to the process, instead of entering plant process sewers, by pumping from the collection tank to the Kaymer blow tank.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued for the claimed facility bearing the actual cost of \$45,464.05 with 80% or more allocable to pollution control.

WDL:ak  
August 26, 1976

SEP 16 1976

Date August 24, 1976

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

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1. Applicant

Stayton Canning Company, Cooperative, Inc.  
Stayton Plant #1  
P. O. Box 458  
Stayton, Oregon 97383

The applicant owns and operates a food processing plant at Stayton, Oregon in Marion County.

The application was received August 4, 1976.

2. Description of Claimed Facility

The claimed facility consists of the following basic components:

1. An additional pump and screen at the existing pump station.
2. A water intake and pump station to divert water from the North Santiam River into the waste water irrigation system.
3. An earthen waste water storage pond with floating aerators.
4. An irrigation pump station (3-75 h.p. pumps and 1-50 h.p. pump) for pumping waste water to irrigation site.
5. Piping, valves, and control for irrigating the waste water on about 300 acres of land which is leased from local farmers.

The facility was completed and placed in operation in June 1975.

Certification must be made under the 1969 Act and the percentage claimed for pollution control is 100%.

Facility costs: \$174,831.38 (Accountant's certification was provided).

3. Evaluation of Application

Prior to the installation of the claimed facility, the existing waste water irrigation system was inadequate for proper disposal of the waste water. This created ponding of the waste water and significant odors. With the facility, ponding and odors have been essentially eliminated.

Plans for the claimed facilities were submitted January 30, 1975, and were approved February 19, 1975. The staff believes the requirement of prenotification (ORS 468.175) has been fulfilled by the Company.

T-810

August 24, 1976

Page 2

The water intake from the North Santiam River is not directly a pollution control facility. However, the Company has submitted written, notarized affidavits from the owners of the leased, irrigation area stating that the lease agreement was conditioned on Stayton Canning providing water to the land during the entire irrigation season. Since the Company does not produce waste water during all times of the irrigation season, a fresh water intake was necessary. It is also believed the fresh water helps control odors by diluting the waste water. The cost of the water intake was about \$20,067.00, about 11% of the total cost of the project. The staff recommends that the fresh water intake be considered as a part of the pollution control facility.

Inspection of the claimed facility shows that it functions effectively.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$174,831.38 with 80% or more of the cost allocated to pollution control be issued for the facility claimed in Tax Application Number T-810.

RJN:em

9/15/76



State of Oregon  
Department of Environmental Quality  
Tax Relief Application Review Report

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1. Applicant

Weyerhaeuser Company  
P. O. Box 275  
Springfield, Oregon 97477

The applicant owns and operates a wood products complex in Springfield, Oregon, that includes a patching compound plant.

2. Description of Facility

The facility claimed in this application is a baghouse. It consists of:

- |                                     |          |
|-------------------------------------|----------|
| a. Carter Day model 24RJ96 baghouse | \$35,118 |
| b. Air conveyor system              | 4,591    |

The facility was begun in May 1974, completed on October 25, 1974, and placed into operation on October 28, 1974. Weyerhaeuser submitted the project to Lane Regional Air Pollution Authority on April 29, 1974 and was given a Notice to Proceed on April 30, 1974. The prior approval requirement was therefore fulfilled.

Certification is claimed under the statutes as amended in 1974 and the percentage claimed for pollution control is 100%.

Facility Costs: \$39,709 (accountant's certification was provided).

3. Evaluation of the Application

Weyerhaeuser was required to limit the particulate emissions from their plywood plant (including the patching compound plant) to 20 pounds per hour. The two cyclones handling the compound were emitting at over 10 pounds per hour, more than the 2.9 pounds per hour allowed these two cyclones individually; this weight rate also contributed to the plant's exceeding the 20 pound limit.

The baghouse was installed in 1974. It limits emissions to about .04 pounds per hour and has helped to bring the plywood plant into compliance.

The baghouse captures about 10 pounds per hour of compound. This aggregates to about 40,000 lbs. per year. The value is only about \$.0025 per pound, so that the cost recovered of \$100 per year is more than offset by the annual maintenance costs of \$4,600.

It is concluded that the claimed facility is operated 100% for air pollution control.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$39,709 with 80% or more allocated to pollution control be issued for the facility claimed in Tax Credit Application T-811.

LOREN KRAMER  
Director

SEP 21 1976

Appl. T-812

Date Sept. 13, 1976

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

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1. Applicant

Weyerhaeuser Company  
Wood Products Division  
P. O. Box 275  
Springfield, Oregon 97477

The applicant owns and operates a large wood products complex plant at Cottage Grove, Oregon in Lane County.

2. Description of Claimed Facility

The facility claimed in this application consists of a 100,000 gallon settling pond (covered with a timber structure to keep rainfall out), two pump stations with pumps and motors, and related piping, valves and controls. This facility collects and pumps the veneer dryer wash-down to the lagoon and returns it to the dryers for reuse as wash water.

The claimed facility was completed and put into service in November 1974.

Certification must be made under the 1969 Act and the percentage claimed for pollution control is 100%.

Facility costs: \$56,032 (Accountant's certification was provided).

3. Evaluation of Application

Prior to the installation of the facility, veneer dryer washdown was discharged to the log pond from which it went to the Coast Fork of the Willamette River. With the claimed facility, the discharge has been eliminated and the water is being recycled.

A notice of construction for the project was received June 13, 1974. Due to a lack of staff, the plans were not specifically reviewed or approved. The company has complied with the prenotification requirements specified in ORS 468.175.

Inspection of the facility shows that it works well and is meeting intended objectives.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$56,032 with more than 80% of the cost allocated to pollution control be issued for the facility claimed in Tax Application Number T-812.

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

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1. Applicant

Weyerhaeuser Company  
Wood Products Division  
P. O. Box 275  
Springfield, OR 97477

The Company owns and operates a large, multi-product wood products plant at Cottage Grove, Oregon in Lane County.

The application was received August 9, 1976.

2. Description of Claimed Facility

The claimed facility consists of a Marley cooling tower (Model 596-661, Serial 12-525-75), an Ingersoll Rand pump (Model 12X145DM, Serial 0575-655-043-30384) and related piping and controls.

The claimed facility was completed and put in operation in December, 1975.

Certification must be made under the 1969 Act and the percentage claimed for pollution control is 100%.

Facility costs: \$144,661 (Accountant's certification was provided.)

3. Evaluation of Claimed Facility

Prior to installation of the claimed facility, turbine condenser cooling water was discharged directly to the Coast Fork of the Willamette River. With the facility, the discharge of condenser cooling water (with the exception of a small amount of blowdown which is discharged into the log pond) has been eliminated and the thermal load on the Coast Fork has been significantly reduced.

Plans and a Notice of Intent to Apply for Tax Credit were submitted March 26, 1975. Plans were approved by letter dated April 9, 1975. The staff believes the requirements for prenotification (ORS 468.175) have been fulfilled.

Investigation of the claimed facility shows that it works effectively.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$144,661 with 80% or more of the costs allocated to pollution control be issued for the facility claimed in Tax Application T-813.

RJN:ak  
August 26, 1976

SEP 22 1976

Appl. T-820

Date 9/21/76

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

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1. Applicant

Brooks Scanlon, Inc.  
P. O. Box 1111  
Bend, Oregon 97701

The applicant owns and operates a lumber manufacturing plant currently producing approximately 137 MMBF per year of finished lumber. The manufacturing process includes debarking, sawmilling, resawing, kiln drying, planing, surfacing and packaging.

2. Description of Claimed Facility

The facilities for removal of log handling operations from the Deschutes River consist of:

- A. An 800 ft. by 24 ft. log pond apart from the river by rock riprap dike.
- B. Pumping station at log pond discharging through 1,300 ft. of 6 inch, schedule 40 pipe to an evaporation reservoir located 1,000 ft. west of the Deschutes River. Excess waste water from the log pond is disposed of in this manner so that there is no log pond overflow.
- C. Construction of new bark conveyor and modification of existing conveyor including power, required platforms, foundations, structures and controls.
- D. Expansion of log yard area to facilitate additional dry land storage and handling of logs. 2,300 ft. of 8 inch log deck sprinkler pipe and 1,200 ft. of CMP drain return collection pipe are included.
- E. Relocation of six fuel storage tanks, a truck wash facility, logging roads, parking lot and a storage building for additional dry land log storage.

Construction of the claimed facility was completed and placed in operation April 1976. Certification is claimed with 100% allocated to pollution control.

Facility cost: \$540,586.95 (Accountant's certification was attached to the application).

Facility was required originally by Permit No. 1395. Several proposals were presented by Brooks Scanlon, Inc. Final approval was granted by the Department on February 28, 1976.

Staff considers that prior notification has been fulfilled.

3. Evaluation of the Application

The result of the installation of the claimed facility is that the impact on the Deschutes River resulting from log handling and transportation operations as well as other liquid wastes from sawmill operations have been eliminated. Staff has inspected the completed facilities and verifies this. Brooks Scanlon claims no profit is derived from this facility.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate be issued for the claimed facility bearing the actual cost of \$540,586.95 with 80% or more allocable to pollution control.



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. D, October 15, 1976, EQC Meeting  
Status Report on the Review of the Kraft Mill Regulations

### Background

On January 22, 1976, the Department held a public hearing as was required by section 25-200 of the kraft mill regulation (Appendix A) to review current technology and the adequacy of regulation. At this hearing the kraft industry testified (see Appendix B) that the following changes should be made to the current regulation:

1. Define all undefined limits as monthly averages.
2. Make all limits on a mill site basis and not on each stack.
3. Apply highest and best technology only in cases where it is environmentally required.
4. Eliminate the July 1, 1983 Total Reduced Sulfur (TRS) 5 ppm individual recovery furnace limit.

After reviewing testimony of the January 22, 1976 public hearing the Department concluded that revision of the regulation was necessary. At the June 25, 1975 EQC meeting, the Department requested and received authorization to hold hearings for the purpose of receiving testimony relevant to revising the kraft mill regulation. On August 16, 17, 18 and 19, 1976 the Department held public hearings in areas where kraft mills are located to obtain public input concerning the acceptability of the present level of kraft mill emissions and the need of further reducing emissions as required by current rules. At these hearings and in subsequent correspondence only two people submitted testimony (Appendix C) stating that they would like to see odor levels reduced.



Contains  
Recycled  
Materials

### Preliminary Draft of Revisions to the Regulation

After considering the testimony of the five hearings, the Department prepared a preliminary draft of revisions to the regulation which is attached as Appendix D.

The draft proposed rule would make the following changes in the regulation:

1. Metric units would be substituted for English units.
2. All mill site emission limits would be removed.
3. All recovery furnace TRS emission cumulative time limits would be removed.
4. The July 1, 1978 individual recovery furnace limits would become effective on regulation adoption.
5. The July 1, 1983 recovery furnace TRS limits would be removed.
6. The lime kiln TRS and smelt dissolving tank particulate limits would be defined as monthly averages.
7. A lime kiln TRS limit of 20 ppm as a daily average effective July 1, 1983 would be added.
8. A limit of 0.1 kilograms of sulfur per metric ton of production effective July 1, 1978 would be added to the TRS requirements for other sources replacing a lowest practicable level requirement.
9. The recovery furnace and lime kiln particulate limits would be changed from pulp process weight limits to construction limits.
10. A section requiring the Department to establish mill site emission limits for TRS, sulfur dioxide and particulate would be added.
11. The continual particulate monitoring requirements would be modified to add a deadline date of July 1, 1977, add a continual recovery furnace opacity monitoring requirement and remove the lime kiln continual particulate monitoring requirement.
12. The draft regulation also includes housecleaning measures by removing requirements that have been completed, language that was inconsistent and to clarify certain provisions in the rules.

### Meeting with Kraft Industry

On September 30, 1976, the Department met with the kraft pulping industry to discuss the preliminary draft of the proposed kraft mill regulation. As a result of this meeting and the receipt of EPA's proposed New Source Performance Standards, the Department will reevaluate several provisions of the preliminary draft regulation including the following:

1. The proposal to establish a maximum plant site emission limitation for all mills by 1983 will be deleted as the Department may wish to proceed on a case-by-case basis in a different time sequence and authority for such action is provided for in the current rule, section 25-170.
2. The U.S. Environmental Protection Agency (EPA) proposed New Source Performance Standards, for all sources except recovery furnace TRS and opacity, would be deleted until their final adoption. There is reported to be substantial opposition to the New Source Performance Standards. Upon promulgation by EPA the Department would propose to adopt no less restrictive limits. The deletions would include sections 25-165(1)(b)(D), 25-165(1)(d)(C), 25-165(2)(a)(B), 25-165(2)(b)(B) and (C), 25-165(2)(c)(B), 25-180(6) and 25-185(8).
3. A further classification would be made to insure that where there is expanded production involving a new recovery furnace, that furnace must meet new furnace emission limits.
4. The section covering noncondensibles (25-165) would be reworded to become immediately effective and require continuous incineration of noncondensibles. Sections A and B would be combined to read as follows:
  - (A) Noncondensibles from digesters and multiple-effect evaporators shall be continuously treated to destroy TRS gases by thermal incineration in a lime kiln or incineration device capable of subjecting the noncondensibles to a temperature of not less than 650°C (1200°F.) for not less than 0.3 seconds.
5. The particulate emission limits for recovery furnace and lime kilns would retain the pulp process weight limits of four lb/ton and one lb/ton. The grain loading requirement may be amended to assure no less stringency than current limits.
6. The sulfur dioxide emission limits of section 25-165(3) would be reworded to establish a maximum emission limit as follows:
  - (3) Sulfur Dioxide (SO<sub>2</sub>). Emissions of sulfur dioxide from each recovery furnace stack shall not exceed 300 ppm on a dry-gas basis except during startup and shutdown periods.
7. The date for installation of continual monitoring of recovery furnace particulates would be extended to January 1, 1978 since the July 1, 1977 date does not allow sufficient time for installation and operation of monitoring equipment.
8. The Department is reviewing the requirement to install an opacity meter on the recovery furnace to take into consideration existing mills which may have water vapor present which would interfere with operation of an opacity meter.



9. The Department is reviewing the reporting requirements to insure that the Department's needs will be met.
10. The Department is reevaluating the upset condition section of the regulation to make sure that the Department has an adequate program for dealing with upset conditions and intends to explore an incentive program which would minimize upsets.

#### Summary

The Department has held five public hearings to receive testimony relevant to revising the kraft pulp mill regulation. After considering testimony at these hearings the Department prepared a preliminary draft regulation which deletes the 1983 recovery furnace TRS limits, adds 1983 lime kiln TRS limits, adds TRS limits for other sources and adds concentration limit for particulate. This draft regulation was discussed with industry and the Department is evaluating their comments. When this evaluation is complete, the Department will issue public notice to hold a public hearing under the authorization granted in the June 25, 1976 EQC meeting to consider a proposed kraft mill regulation.

#### Director's Recommendation

No action on this item is required by the Commission at this time.



LOREN KRAMER

CRC:cs  
10/1/76

#### Appendices

- A. Current Rule
- B. Kraft Industry Testimony
- C. August 16, 17, 18 and 19, 1976 Public Hearing Record
- D. Preliminary Draft of Proposed Regulation Showing Changes

APPENDIX A

## KRAFT PULP MILLS

[ED. NOTE: Unless otherwise specified, sections 25-150 through 25-200 of this chapter of the Oregon Administrative Rules Compilation were adopted by the Environmental Quality Commission January 26, 1973 and filed with the Secretary of State February 9, 1973 as DEQ 50. Effective 3-1-73. Repeals former sections 25-155 through 25-195 (SA 38).]

**25-150 DEFINITIONS.** As used in these regulations, unless otherwise required by context:

(1) "Continual Monitoring" means sampling and analysis, in a continuous or timed sequence, using techniques which will adequately reflect actual emission levels or concentrations on a continuous basis.

(2) "Department" means the Department of Environmental Quality.

(3) "Emission" means a release into the atmosphere of air contaminants.

(4) "Kraft Mill" or "Mill" means any industrial operation which uses for a cooking liquor an alkaline sulfide solution containing sodium hydroxide and sodium sulfide in its pulping process.

(5) "Lime Kiln" means any production device in which calcium carbonate is thermally converted to calcium oxide.

(6) "Non-condensibles" means gases and vapors, contaminated with TRS gases, from the digestion and multiple-effect evaporation processes of a mill that are not condensed with the equipment used in said processes.

(7) "Other Sources" means sources of TRS emissions in a kraft mill other than recovery furnaces and lime kilns, including but not limited to:

(a) vents from knotters, brown stock washing systems, evaporators, blow tanks, smelt tanks, blow heat accumulators, black liquor storage tanks, black liquor oxidation system, tall oil recovery operations;

(b) any operation connected with the treatment of condensate liquids within

the mill, and

(c) any vent which is shown to be a significant contributor of odorous gases.

(8) "Particulate Matter" means all solid material in an emission stream which may be removed on a glass fiber filter maintained during sampling at stack temperature or above the water vapor dew point of the stack gas, whichever is greater but not more than 400°F. The glass-fiber filter to be used shall be MSA 1106BH or equivalent.

(9) "Parts Per Million (ppm)" means parts of a contaminant per million parts of gas by volume on a dry-gas basis (1 ppm equals 0.0001% by volume).

(10) "Production" means tons of air-dried, unbleached kraft pulp, or equivalent, produced.

(11) "Recovery Furnace" means the combustion device in which pulping chemicals are converted to a molten smelt and wood solids are incinerated. For these regulations, and where present, this term shall include the direct contact evaporator.

(12) "Total Reduced Sulfur (TRS)" means the sulfur in hydrogen sulfide, mercaptans, dimethyl sulfide, dimethyl disulfide, and any other organic sulfides present in an oxidation state of minus two.

**25-155 STATEMENT OF POLICY.** Recent technological developments have enhanced the degree of malodorous emission control possible for the kraft pulping process. While recognizing that complete malodorous and particulate emission control is not presently possible, consistent with the meteorological and geographical conditions in Oregon, it is hereby declared to be the policy of the Department to:

(1) Require, in accordance with a specific program and time table for all sources at each operating mill, the highest and best practicable treatment and control of atmospheric emissions from kraft mills through the utilization of technically feasible equipment, devices and procedures. Consideration will be given to the economic life of equipment, which when installed complied with the highest and best practicable treatment requirement.

(2) Require degrees and methods of

treatment for major and minor emission points that will minimize emissions of odorous gases and eliminate ambient odor nuisances.

(3) Require effective monitoring and reporting of emissions and reporting of other data pertinent to air quality or emissions. The Department will use these data in conjunction with ambient air data and observation of conditions in the surrounding area to develop and revise emission and ambient air standards, and to determine compliance therewith.

(4) Encourage and assist the kraft pulping industry to conduct a research and technological development program designed to progressively reduce kraft mill emissions, in accordance with a definite program, including specified objectives and time schedules.

**25-160 HIGHEST AND BEST PRACTICABLE TREATMENT AND CONTROL REQUIRED.** Notwithstanding the specific emission limits set forth in Section 25-165 of these regulations, in order to maintain the lowest possible emission of air contaminants, the highest and best practicable treatment and control currently available shall in every case be provided, with consideration being given to the economic life of the existing equipment.

All installed process and control equipment shall be operated at full effectiveness and efficiency at all times, such that emissions of contaminants are kept at lowest practicable levels.

**25-165 EMISSION LIMITATIONS. (1) Emission of Total Reduced Sulfur (TRS).**

(a) Recovery Furnaces.

(A) As soon as practicable, but not later than July 1, 1975, the emissions of TRS from recovery furnaces shall not exceed:

(i) 10 ppm as a daily arithmetic average and 0.3 lb S/ton of production on a mill-site basis,

(ii) 40 ppm for more than 60 cumulative minutes in any one day from each recovery furnace stack,

(iii) 15 ppm as a daily arithmetic

average and 0.45 lb S/ton of production from each recovery furnace stack.

(B) As soon as practicable, but not later than July 1, 1978, the emission of TRS shall not exceed:

(i) 5 ppm as a daily arithmetic average and 0.15 lb S/ton of production on a mill-site basis.

(ii) 40 ppm for more than 60 cumulative minutes in any one day from each recovery furnace stack,

(iii) 10 ppm as a daily arithmetic average and 0.30 lb S/ton of production from each recovery furnace stack.

(C) As soon as practicable, but not later than July 1, 1983, the emission of TRS from each recovery furnace shall not exceed:

(i) 5 ppm as a daily arithmetic average and 0.15 lb S/ton of production,

(ii) 20 ppm for more than 60 cumulative minutes in any one day.

(D) TRS emissions from each recovery furnace placed in operation after the effective date of these regulations shall be controlled immediately such that the emissions of TRS shall not exceed:

(i) 5 ppm as a daily arithmetic average and 0.15 lb S/ton of production,

(ii) 20 ppm for more than 60 cumulative minutes in any one day.

(b) Lime Kilns. Lime kilns shall be operated and controlled such that emissions of TRS shall be kept to lowest practicable levels and shall not exceed:

(A) By not later than July 1, 1975, 40 ppm and 0.2 lb S/ton of production, as determined by a monitoring procedure approved by the Department.

(B) By not later than July 1, 1978, 20 ppm and 0.1 lb S/ton of production, as determined by a monitoring procedure approved by the Department.

(c) Compliance Programs. Recovery furnaces and lime kilns in operation on or before the effective date of these regulations shall be brought into compliance with subsections 25-165 (1) (a) and 25-165 (1) (b) above in accordance with specific programs and schedules to be established with each individual mill and approved by the Department by not later than May 1, 1973, taking into consideration the following:

(A) Age and condition of existing fac-

lities,

- (B) Geographical location,
  - (C) Overall control of emissions,
  - (D) Severity of problems related to emissions from the facility, and
  - (E) Ease of compliance.
- (d) Non-condensibles
- (A) Non-condensibles from digesters and multiple-effect evaporators shall be treated to destroy TRS gases by thermal incineration in a lime kiln or equivalent treatment.

(B) On mill sites where a lime kiln or combination of lime kilns is used for incinerating non-condensibles, as soon as practicable, but not later than July 1, 1975, the means shall be provided to immediately and automatically treat the non-condensibles in an incineration device capable of subjecting the non-condensibles to a temperature of not less than 1200°F for not less than 0.3 seconds whenever the kiln or combination of kilns is out of service or otherwise incapable of incinerating non-condensibles.

(C) When steam-or air-stripping of condensates or other contaminated streams is practiced, the stripped gases shall be subjected to treatment in the non-condensable system or otherwise given equivalent treatment.

(e) Other Sources.

(A) As soon as practicable, but not later than July 1, 1975, the emission of TRS from other sources, including but not limited to knotters and brown stock washer vents, brown stock washer filtrate tank vents, black liquor oxidation vents, and contaminated condensate stripping shall be limited, controlled or treated to lowest practicable levels in accordance with a specific program and time table submitted to and approved by the Department.

(B) Miscellaneous Sources and Practices. When it is determined that sewers, drains, and anaerobic lagoons significantly contribute to an odor problem, a program for control shall be required.

(C) Compliance programs required by these subsections shall be established by not later than May 1, 1973 with each individual mill and incorporated in the Air Contaminant Discharge Permit issued

for each mill.

(2) Particulate Matter.

(a) Recovery Furnaces. As soon as practicable, but not later than May 1, 1975, the emissions of particulate matter from recovery furnaces shall not exceed four (4) pounds per ton of production on a mill-site basis and from each recovery furnace stack.

(b) Lime Kilns. As soon as practicable, but not later than May 1, 1975, the emissions of particulate matter from lime kilns shall not exceed one (1) pound per ton of production on a mill-site basis and from each lime kiln stack.

(c) Smelt Dissolving Tanks. The emission of particulate matter from smelt dissolving tanks shall not exceed one-half (1/2) pound per ton of production on a mill-site basis and from each smelt dissolving tank.

(3) Sulfur Dioxide (SO<sub>2</sub>). As soon as practicable, but not later than July 1, 1975, emissions of sulfur dioxide from each recovery furnace stack shall not exceed a daily arithmetic average of 300 ppm on a dry-gas basis except during start-up and shut-down periods.

(4) New Facility Compliance. As soon as practicable, but not later than within 180 days of the start-up of a new kraft mill or of any new or modified facility having emissions limited by these regulations, that facility shall be operated, controlled, or limited to comply with the applicable provisions of these regulations and the mill shall conduct source sampling or monitoring as appropriate to demonstrate compliance.

(5) Compliance Schedules. As soon as practicable, but not later than May 1, 1973, each mill shall submit to the Department a proposed compliance program, including means and methods to the extent possible, and a schedule for complying with the emission limits of these regulations. The approved compliance program shall be incorporated in the Air Contaminant Discharge Permit issued to each mill.

25-170 MORE RESTRICTIVE EMISSION LIMITS. The Department may establish more restrictive emission limits and

compliance schedules after notice and hearing if applicable for different geographical areas of the state.

#### 25-175 PLANS AND SPECIFICATIONS.

Prior to construction of new kraft mills, or expansion of production or modification of facilities significantly affecting emissions at existing kraft mills, complete and detailed engineering plans and specifications for air pollution control devices and facilities and such other data as may be required to evaluate projected emissions and potential effects on air quality shall be submitted to and approved by the Department. All construction shall be in accordance with plans as approved in writing by the Department.

**25-180 MONITORING.** (1) Total Reduced sulfur (TRS). Each mill shall provide continual monitoring of TRS in accordance with the following:

(a) The monitoring equipment shall be capable of determining compliance with the emission limits established by these regulations, and shall be capable of continual sampling and recording of concentrations of TRS contaminants during a time interval not greater than 30 minutes.

(b) The sources monitored shall include, but are not limited to, the recovery furnace stacks and the lime kiln stacks.

(c) At least once per year, vents from other sources as required in 25-165 (1) (e), Other Sources, shall be sampled to demonstrate representative emissions of TRS and the results reported to the Department.

(2) Particulate Matter. Each mill shall sample the recovery furnace(s), lime kiln(s) and smelt dissolving tank(s) for particulate emissions with, (a) the sampling method and (b) the analytical method approved in writing by the Department. Each mill, after the adoption of this regulation, shall establish and have approved in writing by the Department, a regular sampling schedule. As soon as practicable, each mill shall provide con-

tinual monitoring of particulate matter from the recovery furnace(s) and lime kiln(s) in a manner approved in writing by the Department.

(3) Sulfur Dioxide (SO<sub>2</sub>). Representative sulfur dioxide emissions from the recovery furnace(s) shall be determined at least once each month.

**25-185 REPORTING.** Unless otherwise authorized or required by permit, data shall be reported by each mill for each calendar month by the fifteenth day of the subsequent calendar month as follows:

(1) Daily average emissions of TRS gases expressed in parts per million of H<sub>2</sub>S on a dry gas basis for each source included in the approved monitoring program.

(2) Unless excused in writing by the Department, the number of cumulative minutes each day the TRS gases from the recovery furnaces exceed 20 ppm and 40 ppm and the maximum concentration TRS measured each day, expressed as H<sub>2</sub>S on a dry gas basis.

(3) Emissions of TRS gases in pounds of sulfur per equivalent air-dried ton of pulp processed in the kraft cycle for each source included in the approved monitoring program.

(4) Emission of SO<sub>2</sub> from the recovery furnace(s), expressed as ppm, dry basis.

(5) Emission of particulates in pounds per equivalent air-dried ton of pulp produced in the kraft cycle based upon the sampling conducted in accordance with the approved monitoring program.

(6) Cumulative hours of operation of the lime kiln(s) used for non-condensable incineration and the number of cumulative hours of stand-by incinerator operations.

(7) Average daily equivalent kraft pulp production in air-dried tons.

(8) Each kraft mill shall furnish, upon request of the Department, such other pertinent data as the Department may require to evaluate the mill's emission control program. Each mill shall immediately report abnormal mill operations which result in increased emissions of air contaminants, in accordance with the provisions of the Oregon Administrative Rules, Chapter 340, "Upset Conditions."

25-190 SPECIAL STUDIES. (1) Where warranted by conditions at particular mills special studies of specific vents or air contaminant emissions may be required as a condition of issuing an Air Contaminant Discharge Permit.

(2) Each mill shall participate in special studies sufficient to identify at each mill:

(a) The amount and effects of sulfur oxides, including  $\text{SO}_2$ ,  $\text{SO}_3$ ,  $\text{SO}_4$  in recovery furnace stack gases.

(b) The extent of interference from the formation of sulfate ion from  $\text{SO}_2$  and  $\text{SO}_3$  in wet-collection devices used in particulate sampling trains, and

(c) The occurrence of acid mist ( $\text{H}_2\text{SO}_4$  in water droplets) in recovery furnace stack gases.

These studies are to be completed by January 1, 1975, and final reports submitted to the Department by July 1, 1975. Reports of progress concerning these studies shall be submitted to the Department by January 1 and July 1 of each year.

(3) Each mill shall for all furnaces,

allowing a reasonable start-up period for new furnaces, conduct a special study sufficient to evaluate the stability and efficiency of the electrostatic precipitators used on recovery furnace(s). All sampling and analytical procedures to be approved in writing by the Department.

25-195 OTHER ESTABLISHED AIR QUALITY LIMITATIONS. The emission limits established by these regulations are in addition to visible emissions and other ambient air standards, established or to be established by the Department, unless exempted therefrom by this regulation.

25-200 PUBLIC HEARING. A public hearing shall be held by the Department no later than January 1976, to review current technology and the adequacy of these regulations and to adopt any revisions or additional emission standards that are necessary.

APPENDIX B

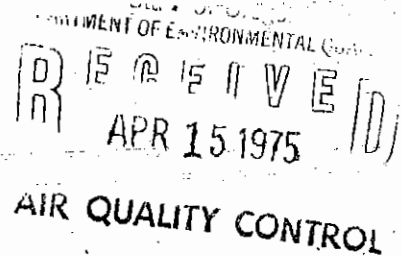


# NORTHWEST PULP AND PAPER ASSOCIATION

555 116th Avenue Northeast, Suite 266  
Bellevue, WA 98004 • (206) 455-1323

April 14, 1975

Mr. Harold M. Patterson  
Administrator  
Air Quality Control Division  
Department of Environmental Quality  
1234 W. Morrison  
Portland, Oregon 97205



Dear Sir:

As discussed in a recent meeting we had with you and your staff (January 1975), the Oregon Kraft Air Committee is concerned with the direction the Oregon Department of Environmental Quality (DEQ) is taking in regards to particulate emission monitoring as it relates to proposed air contaminant discharge permits presently under negotiation with a number of Oregon kraft mills. At your suggestion and request, this letter is intended to document our concerns, illustrate the industry's experience with particulate monitoring equipment and make recommendations for what we believe to be a more workable and meaningful monitoring and compliance program.

Particulate Emission Monitoring. Recognizing the necessity of monitoring atmospheric emissions, the pulp and paper industry has responded to that need. The information provided can be used effectively to study the processes involved, to identify operational parameters that influence the emission, and to thereby provide operating personnel with tools for more effective control of process emissions. This is demonstrated by the industry's development work to continually monitor TRS emission concentration in off-gases from the recovery furnace and lime kiln.

However, a number of factors have hindered the development of particulate monitoring equipment. Some of the technical difficulties involve particulate characteristics, flue gas properties, and sample collection and detection methods. The different methods used for stack particulate sampling also yield different results. No single method is universally accepted at this time.

Recent developments and field evaluations have shown that data generated by light transmissometers (operated in stack) and sodium ion measurements on a gas sample withdrawn from the stack and conditioned can be used as an operating tool to help control particulates in the emission. The equipment that is commercially available at this time can be used on kraft recovery furnace stacks to generate particulate emission values that are only reliable (95% Confidence Level) to within  $\pm 1.5$  lb/ton of air-dried pulp at the 4 lb/ton emission rate (reliability varies between mills).

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The above variances are dependent on the system used. For light transmissometry, such factors influencing the readings include particulate size variations, presence of condensable water, and temperature variations at the measurement site. Specific ion probe units require extractive gas handling systems. Probe location, minor variances in the chemical composition of the particulate, and mechanical difficulties in maintaining isokinetic conditions, gas and water flow measurement and control, and other items influence the values generated. Limitation in the continual measurement of stack flow is also an item that must not be overlooked.

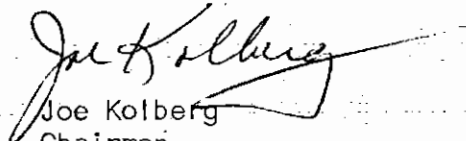
Despite these limitations, this equipment is being used by the industry initially as a process control tool, and as an indicator of compliance with existing particulate emission regulations. The use of this equipment and information generated is consistent with the objectives stated in Federal Register, Vol. 39, No. 177 which reads, "The data obtained from these monitoring systems can be used to detect deterioration of emission control systems and/or operating techniques and serve as a guide (underlined for emphasis) for determining when compliance testing or inspections should be conducted. Thus resources which would be required for periodic manual stack tests and/or inspection may be conserved without the loss of valuable surveillance information."

The industry is making significant advances on the development of systems capable of continually indicating the performance of high efficiency particulate control devices. Existing regulations and particulate emission limitation require the installation of these control devices and their consistent operation at peak efficiency. Considering the present state of the art, time averaging of the results over a monthly interval is considered necessary in order for compliance to be achieved on a consistent basis.

We hope this brief discussion has been helpful. We further hope to hear from the DEQ as soon as possible regarding our suggested monitoring compliance schedule.

If the Oregon Kraft Air Committee can provide any additional assistance or information, please do not hesitate to call.

Sincerely,

  
Joe Kolberg  
Chairman,  
Oregon Kraft Air Committee

JK/pd



Executive Secretary: LAWRENCE E. BIRKE, JR.

## NORTHWEST PULP AND PAPER ASSOCIATION

555 116th Avenue Northeast, Suite 266  
Bellevue, WA 98004 • (206) 455-1323

April 14, 1975

Mr. Harold M. Patterson  
Administrator  
Air Quality Control Division  
Department of Environmental Quality  
1234 S.W. Morrison  
Portland, Oregon 97205

Dear Sir:

The Oregon Kraft Pulp mill air emission regulations of the Oregon Administrative Rules (Chapter 340, Sections 25-150 through 25-200), require that a public hearing be held by the Department of Environmental Quality no later than January, 1976 to review current technology and adequacy of these regulations. Since a number of Oregon kraft pulp mills are presently applying for air contaminant discharge permits, which may be issued for a 5 year period, the Oregon Kraft Air Committee wishes the Department to review two aspects of the current regulations. These aspects are (1) lime kiln total reduced sulfur (TRS) reporting; and (2) reporting of particulate emissions. Each of these issues is discussed below.

(1) Lime Kiln TRS emissions Reporting. The pulp and paper industry has found that the lime kiln is one of the more difficult processes to study and control from the standpoint of TRS emissions. TRS emissions are affected by interrelationships between energy usage, particulate emissions, chemical balance, solid waste disposal, size and design of existing operating equipment. These variables make consistent optimization of this emission source very difficult. For example, improved washing will reduce the sulfide content of the lime mud; but this practice can result in kiln dusting, increased particulate emissions, increased energy input to the particulate control device, reduced kiln capacity, and necessitate the disposal of green liquor dregs by some other means.

Also, optimization of the process, from the standpoint of energy efficiency, requires the use of long kilns and their operation at low range cold end temperatures in order to save heat. In these high efficiency units, the sulfides in the lime mud can be more readily converted to TRS. Operation of these kilns at minimum TRS emission requires close control of the entire causticizing operation. The control of the causticizing process and the interrelationship between operation, energy, and emissions within the kraft mill (as related to the lime kiln) are easily identified by examples such as the preceding. Thus, these interrelationships make instantaneous control of TRS variations from the lime kiln impossible. In addition, the condition of existing facilities plus the limitations of operator control and process measurement equipment, make average daily TRS control, within the current limitations, impracticable.

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The industry has found that compliance with daily average TRS limitations is approximately twice as restrictive as compliance with monthly average limitations. (Similar relationships between daily and monthly effluent limitations have also been found in water discharges). To achieve TRS daily average compliance, it will be necessary to install additional equipment which would be twice the size required for present operations. This additional equipment will require large capital expenditures and continued costs in energy and resources, all with extremely low cost-benefit ratio.

When the present Oregon Kraft Air Regulations were adopted, the production to be used for reporting purposes was the monthly average production. Therefore, it was the understanding of the Oregon Kraft Air Committee that the emission limitations would also be based on monthly compliance requirements. In fact, many of the mills are presently reporting TRS emissions from the lime kiln on a monthly average basis for compliance purposes. For these reasons, we believe that the present regulations should be amended to require monthly average compliance with lime kilns TRS standards. By this amendment, vagueness within the regulation will be remedied, and each individual mill's performance will be more accurately presented on a reasonable, control-possible, consistent basis.

(2) Particulate Emission Reporting. To be consistent with the present procedures being used by the kraft pulp mills in the State of Oregon for reporting their particulate emissions, it is respectfully requested that Paragraph 25-165 (2) (a), (b), and (c) of the Department of Environmental Quality, Oregon Administrative Rules Ch. 340, be changed. This request is submitted on the basis that the present wording of the regulation would imply that each and every particulate emission measurement made would have to be below the specified limit to be in compliance, whereas no one test is an exact true representation of the emissions. For instance, in the operation of a recovery boiler and its emission control system, there are a number of variable which may influence the test results, even though all the operating parameters appear to be normal. One of the more important variables, which could effect the test reporting, is the black liquor composition being fired in the boiler at the time of the test. The organic to inorganic ratio within the liquor will vary from hour to hour, although on a monthly average basis, the ratio may be very uniform. This is also true of black liquor solids concentration, temperature, and density. Thus, the flow and composition of heavy black liquor to the recovery furnace can vary and may not necessarily be representative of the exact production at any one given time. As a result, the test results are essentially calculated on an average daily production derived from a monthly basis. Regardless of the number of particulate emission tests made, only the average of these tests for the month are truly representative of the operation of the emission control systems when based on the mill production. The same relationships hold true for lime kiln and dissolving tank particulate emissions.

Since the monthly average emission is the most representative number for proving compliance with the regulation, it was the understanding

Mr. Harold M. Patterson  
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by the kraft mills reporting to the DEQ that their particulate emissions were to be based on a monthly average and have considered this to be the correct reporting procedure. This request therefore, would merely clarify the reporting procedure in the regulation as follows:

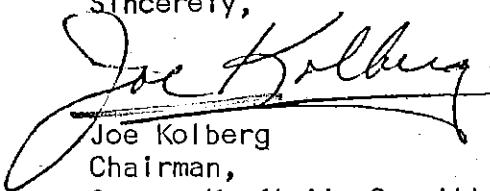
25-165 Emission Limitations.

- (2) Particulate Matter
  - (a) Recovery Furnaces. The emissions of particulate matter from recovery furnaces shall not exceed four (4) pounds per ton of production on a mill site basis and from each recovery furnace stack as a monthly average.
  - (b) Lime Kilns. The emissions of particulate matter from lime kilns shall not exceed one (1) pound per ton of production on a mill site basis and from each lime kiln stack as a monthly average.
  - (c) Smelt Dissolving Tanks. The emission of particulate matter from smelt dissolving tanks shall not exceed one-half (1/2) pound per ton of production on a mill site basis and from each smelt dissolving tank as a monthly average.

The Department of Environmental Quality with the cooperation of the pulp and paper industry, has made tremendous improvements in the quality of the Oregon environment. We believe that the above recommendations are consistent with this progress. It is only through the implementation of reasonable and practicable regulations that this progress will continue. There may be other recommendations forthcoming, which will improve the implementation of these regulations. Finally, in regards to the requirement for a public hearing on these regulations (mentioned in the first paragraph) the Oregon Kraft Air Committee requests that the DEQ-EQC schedule the hearing as soon as possible. We believe that an early hearing will aid in and clarify issues related to the development of new air discharge permits presently under negotiation.

If the Oregon Kraft Air Committee can provide any additional information or assistance, please do not hesitate to call.

Sincerely,

  
Joe Kolberg  
Chairman,  
Oregon Kraft Air Committee

JK/pd



State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: Director

Date: March 5, 1976

From: Hearing Officer

Subject: Public Hearing on Rules Governing Air Quality: Kraft Mills

Pursuant to public notice, a hearing convened at 10:00 a.m. on January 22, 1976 in Room 508 of the Department's offices at 1234 S.W. Morrison Street, Portland, Oregon. The subject of the hearing was to review the Department's air quality rules governing emissions standards for kraft pulp mills (OAR Chapter 340, Sections 25-150 through 25-200). The public hearing was required by the provisions of OAR Chapter 340, Section 25-200. The hearing was a preliminary hearing on the adequacy of the existing standards and it is contemplated that adoption of any differing standards would be preceded by yet another public hearing. This path was taken because of the possibility that present standards are adequate and need not be changed.

Present on behalf of the Department were Mr. Charles Clinton, Mr. Fredrick Skirvin, and your hearing officer.

Testimony was offered by the following: Mr. James C. Knudson of the Washington State Department of Ecology, Mr. Joe Kolberg of the Boise Cascade Paper Group, Mr. Darrell McLaughlin of the Georgia Pacific Corporation, and Mr. Lawrence E. Birke, Jr. of the Northwest Pulp and Paper Association.

The testimony was, in each case, accompanied by written copy. The testimony is somewhat technical and fairly brief. For this reason it is felt appropriate to merely attach the same without attempting to paraphrase it.

Your hearing officer has no recommendation in this matter.

dh

TESTIMONY  
BEFORE THE  
STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY

State of  
Washington  
Department  
of Ecology



PUBLIC HEARING ON KRAFT EMISSION STANDARDS

BY

JAMES C. KNUDSON, P.E.  
INDUSTRIAL SECTION  
DEPARTMENT OF ECOLOGY  
STATE OF WASHINGTON

I AM JAMES C. KNUDSON REPRESENTING THE DEPARTMENT OF ECOLOGY, STATE OF WASHINGTON. I HAVE BEEN INVOLVED IN AIR AND WATER POLLUTION CONTROL ACTIVITIES RELATED TO MAJOR INDUSTRIES IN THE STATE OF WASHINGTON, INCLUDING THE KRAFT PULPING INDUSTRIES. I PARTICIPATED IN THE ORIGINAL DEVELOPMENT OF THE KRAFT MILL EMISSION STANDARDS IN 1968-1969, WHEN OREGON AND WASHINGTON ADOPTED SIMILAR REGULATIONS.

MY COMMENTS AS TO THE ADEQUACY OF CONTROL TECHNOLOGY AND THE NEED FOR ADDITIONAL LIMITS ARE BRIEFLY SUMMARIZED AS FOLLOWS:

- (1) OPACITY LIMITS - WE BELIEVE THAT RECOVERY FURNACE LIME KILNS AND SMELT TANKS SHOULD BE COVERED BY AN OPACITY LIMIT TO INSURE THAT PARTICULATE CONTROLS ARE CONTINUOUSLY AND EFFECTIVELY OPERATED AND MAINTAINED. THE DEPARTMENT OF ECOLOGY HAS PROPOSED AND WILL SHORTLY ENACT OPACITY LIMITS FOR A LIMITED NUMBER OF MILLS IN THE STATE. IT IS OUR INTENT TO EVENTUALLY REQUIRE ALL MILLS KRAFT AND SULFITE

TO ACHIEVE AN OPACITY LIMIT, LIKE ALL OTHER LARGE AND SMALL SOURCES IN THE STATE.

I NEED NOT ELABORATE THE ADVANTAGES OF AN INDEPENDENT OFF-SITE CHECK OF PARTICULATE EMISSIONS TO CONTROL OFFICIALS SUCH AS YOURSELVES. WE DO RECOGNIZE THE PROBLEMS OF HIGH MOISTURE CONTENT STACKS AND THE DIFFICULTY IN READING RESIDUAL PLUMES. INITIALLY, WE HAVE ATTEMPTED TO CHOOSE LIMITS THAT REFLECT EXISTING CONTROLS INSTALLED IN 1975 TO MEET THE EXISTING LIMITS.

I AM ATTACHING OUR DRAFT REGULATION WHICH CONTAINS PROPOSED LIMITS AND UPON WHICH WE HEARD PUBLIC COMMENTS IN EARLY JANUARY, 1976. A COPY IS ATTACHED TO MY TESTIMONY.

- (2) NUISANCE CONTROL MEASURES - THE DEPARTMENT IS ALSO ADDING A NUMBER OF MORE GENERAL LIMITS COVERING SUCH AREAS AS PARTICLE FALLOUT, FUGITIVE DUST, MASKING AND CONCEALMENT. THESE REQUIREMENTS BRING THE KRAFT MILLS UNDER SOME OF THE SAME REQUIREMENTS AS SMALLER SOURCES GOVERNED BY OUR LOCAL AGENCIES AND MAKE THE REGULATIONS BROADER IN SCOPE. THESE ARE ALSO LISTED IN THE DRAFT REGULATION ATTACHED.

FINALLY, I WOULD LIKE TO INDICATE THAT THE DEPARTMENT OF ECOLOGY IS MOST WILLING TO PROVIDE ANY EMISSION DATA ON TRS AND/OR PARTICULATES FROM WASHINGTON'S 7 KRAFT MILLS. THE DEPARTMENT OF ECOLOGY IS PLANNING A SECOND PHASE OF TRS MODIFICATIONS THIS SUMMER AND SOME EMPHASIS WILL BE PLACED UPON STANDARDS THAT YOU HAVE ADOPTED FOR LIME KILNS AND OTHER SOURCES.



I WOULD SUGGEST THE THE TWO STATES MIGHT CONSIDER RE-ACTIVATING THE WORKING COMMITTEE THAT WAS USED IN THE DEVELOPMENT OF THE REGULATION IN 1969.

THANK YOU VERY MUCH FOR GIVING ME THE OPPORTUNITY TO EXPRESS THE STATE OF WASHINGTON'S PRESENT COURSE RELATING TO KRAFT MILLS AT THIS INFORMATIONAL HEARING.

STATEMENT REGARDING THE REVIEW  
OF KRAFT PULP MILL AIR QUALITY REGULATIONS  
OAR CHAPTER 340, SECTION 25-150 THROUGH 25-200  
DEPARTMENT OF EQUALITY PUBLIC HEARING OF JANUARY 22, 1976

My name is Joe Kolberg and I am the Manager of Environmental Control for the Boise Cascade Paper Group. Boise Cascade operates a kraft pulp and paper mill at St. Helens, Oregon.

Boise Cascade concurs with the statement made by Mr. Birke on behalf of all the kraft mills operating in the State of Oregon. We are particularly concerned with the omission in the existing regulations of the averaging period for TRS emissions from the lime kilns and particulate emissions from the recovery boilers, lime kilns and dissolving tank stacks. If the monthly averaging period is not specified for these limitations as it was originally specified in our air permit, we will not be able to remain in operation without being in conflict with the regulations.

Boise Cascade's St. Helens mill has just expended approximately \$15 million dollars to reduce and control its atmospheric emissions. This was done as part of our policy, as a responsible company, to cooperate with the DEQ in improving our environment. Our company has and will continue to expend capital on programs which will result in a significant or measurable improvement in the environment, where required, provided they do not create more serious environmental or social problems.

The atmospheric emissions at this mill have been reduced to the point where all complaints in this area have been eliminated. However, the imposition of a 5 ppm TRS limitation on our 1967 vintage recovery boiler, plus the limitation on each stack rather than each process would place a totally unwarranted

economic burden on this mill.

We, too, are highly concerned with regard to the waste of capital and natural resources plus the effect on inflation and employment within the nation which results from the reduction of emissions to their lowest practicable limit regardless of cost and environmental need. Since the wording "highest and best practicable treatment and control of atmospheric emissions" means different things to different people, we are suggesting that the policy as defined in these regulations be clarified so we all understand that treatment for treatment's sake can only be detrimental to the economic growth required to support our environmental improvement projects.

Thank you for the opportunity to be heard.



Executive Secretary: LAWRENCE E. BIRKE, JR.

## NORTHWEST PULP AND PAPER ASSOCIATION

555 116th Avenue Northeast, Suite 266  
Bellevue, WA 98004 • (206) 455-1323

TESTIMONY OF LAWRENCE E. BIRKE, JR.  
TO THE DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE OF OREGON

Regarding proposed changes to OAR Chapter 340, Sections 25-150 through 25-200 (air quality regulations governing Kraft Pulp Mills) January 22, 1976.

My name is Lawrence E. Birke, Jr., and I am Executive Director of the Northwest Pulp and Paper Association. The NWPPA is an environmental and information association representing the pulp and paper mills in the State of Oregon.

Based on the experiences under the present Kraft Pulp Mill Air Emission regulations (OAR Chapter 340, Section 25-150 through 25-200), the NWPPA Oregon Air Committee requests that the following corrections and additions, which were outlined in our letter of April 14, 1975 to the DEQ, be made to the regulations:

First, as detailed in the April 14, 1975 letter, we found a number of omissions in the regulations which significantly effect the industry's ability to meet compliance with the regulations. The present regulation omits the averaging period for the lime kiln Total Reduced Sulfide (TRS) limits. This emission limit was thought by the industry to be based on a monthly average and appeared in our Air Contaminant Discharge Permits in this manner. The permit language thus indicates the DEQ staff was originally also under the same impression. However, as the regulation turned out in print, the averaging period was omitted. This then leaves the limit as an instantaneous one, which is totally unattainable. Original Air Contaminant Discharge Permits were issued with monthly average limitations but subsequent correspondence from the DEQ changed these emissions to daily averages. These unilateral changes by the DEQ have resulted in a tightening of

the individual mill permits over and beyond the industry's understanding of the Oregon Kraft Mill regulations. The Oregon regulations should be changed to monthly average limitations and the industry's new permits should reflect this change!

The Committee is therefore not requesting a change in the emission limitations but we need to use the monthly average limitations agreed to by the industry as being attainable and practicable. We simply cannot live with the existing regulation!

Second, as also detailed in the letter of April 14, we requested that the regulations be amended to specify emissions from the recovery furnace, lime kiln and dissolving tank vents under Section 25-165 paragraphs (2) (a), (b) and (c). The addition of the wording "as a monthly average" after each of the paragraphs would correct the intent of this section without changing the actual emission numbers. Again, the normal method of using monthly average production and thus averaging the particulate emission data on a monthly basis was assumed to be the correct method of reporting the data. The current regulations are not clear and do not reflect the normal practice of utilizing monthly average production.

Third, to resolve the ambiguity of Section 25-165, paragraphs (2) (a), (b) and (c), it is proposed that the words "on a mill site basis" be retained and the words "and from each stack" be deleted. These two phrases are conflicting. As the atmospheric ambient air reflects the mass emission, the number of stacks will not be of consequence. If the wording "from each stack" remains, those mills without combined stacks will have a more stringent requirement than those mills which have combined mill or process stacks.

Fourth, in addition to the above proposals made to enhance the workability of the Oregon Kraft Regulations, we suggest that Section 25-155, (Statement of

Policy), paragraph (1) be amended so that the paragraph adds the words "environmentally required" as follows:

"[T]he highest and best practicable treatment and control of atmospheric emissions from kraft mills environmentally required through the utilization of technically feasible equipment, devices and procedures..." Also under Section 25-160 (Highest and Best Practicable Treatment and Control Required), we suggest the same words be added to the phrase "with consideration being given to the environmental need and the economic life of the existing equipment." These changes are needed to reflect current concerns of energy waste, environmental needs, and economic soundness of regulatory policy.

Fifth, based on the need for conserving energy and improving the environment, we suggest that under Section 25-165 (Emission Limitations) paragraph (1)(a), Subsections (B) and (C) be deleted and/or rewritten. We agree that there needs to be different standards for new and for existing recovery boilers, however these subsections require not only all new recovery boilers to meet a 5 ppm total reduced sulfide (TRS) limit, but also requires the same for boilers installed just previous to the regulation. Since there are recovery boilers which were installed in the 1960's which if properly maintained can meet all but the most restrictive limitations set for the newer generation low odor boiler, a reduction of 5 ppm of TRS does not warrant the investment of 20 million dollars for a new recovery boiler. This expenditure is even more wasteful as TRS has never been related to a health problem and no ambient standards have been proposed. The more restrictive emission clause of Section 25-170 will protect against an odor problem in more populated areas if the 10 ppm still creates a nuisance.

We thank the Hearing Board for the opportunity to present our comments. We hope you understand our deep concern with these regulations. We have attached a copy of our April 14, 1975 letter to the DEQ and respectfully request that it be entered into the record.

AIR QUALITY REGULATIONS GOVERNING  
KRAFT PULP MILLS

Statement by  
Darrell McLaughlin  
Georgia-Pacific Corporation  
Toledo, Oregon

Georgia-Pacific Corporation owns and operates a pulp and paper mill in the town of Toledo and County of Lincoln, State of Oregon. The mill produces Kraft pulp by several processes and Kraft bagpaper, linerboard and corrugating medium on three (3) paper machines. This presentation will address regulations and other subjects that are specific to the Toledo operations.

Georgia-Pacific Toledo participated in the preparation of the statement given by the Northwest Pulp and Paper Association (NWPPA) as testimony at this public hearing. We now wish to add our endorsement of this testimony for the public record.

There presently exists at Toledo three (3) recovery furnaces and three (3) lime kilns built in 1958, 1960 and 1964. The exhaust gases from each of these process units are ducted to a common 300-foot stack and are the only sources to this stack, with the exception of any emergency by-pass from the MKP vent gas combustion system. The gases were ducted to the main stack prior to adoption of Kraft mill regulations in order to improve existing ambient conditions and not in an attempt to avoid compliance with emission limitations by dilution of the contaminants.

MAIN STACK MONITORING

We believe that there is justification for monitoring of this single main stack for compliance with emission regulations, in lieu of monitoring each of the six (6) sources separately, for the following five reasons:

(1) The main stack represents the point of release of contaminants into the atmosphere. The 300-foot stack allows for better dispersion and more reliable monitoring of contaminants.

(2) From 1969 through 1975, at a cost of nearly \$3 million, the Toledo mill has installed new equipment and modified existing equipment to obtain the highest and best practicable treatment and control of the TRS and particulate emissions from an existing mill.

(3) The Toledo mill has one of the best and most extensive automatic monitoring systems for TRS and particulate emissions, supported by up-to-date grab sampling equipment, and requiring a high manpower commitment to maintain the integrity of this program.

(4) The configuration of the individual recovery and kiln ducts make measurement of the gas flow velocity unreliable, thus affecting accuracy of the measured values of particulate concentration, and the calculated values of mass emission rates of TRS and particulate.

(5) The elimination of interferences with TRS concentration measurements by gas-condensate contact in the recovery ducts and gas-particulate reactions in the lime kiln ducts as presented in the NCASI Technical Bulletin No. 81, October 1975, entitled "A Laboratory and Field Study of Reduced Sulfur Sampling and Monitoring Systems."



LIME KILN EMISSION LIMIT

We respectfully submit that an emission limit of 20 ppm of TRS on a monthly arithmetic average is too stringent for existing lime kilns, requiring replacement of these units before the end of their useful and economic life and going beyond the intent of highest and best practicable treatment and control required. We also submit that further analysis should be done in order to determine if a lime kiln TRS limit of 40 ppm monthly arithmetic average is attainable with highest and best practicable treatment and control.

RECOVERY FURNACES EMISSION LIMIT

We respectfully submit that an emission limitation of 5 ppm TRS on a monthly arithmetic average is too stringent for existing recovery furnaces, requiring replacement of these units before the end of their useful and economic life and going beyond the intent of highest and best practicable treatment and control required. We also submit that a limit of 10 ppm TRS monthly arithmetic average is attainable from existing recovery furnaces applying highest and best practicable treatment and control. Further we do not believe that an investment of \$50 million to achieve a reduction from 10 ppm TRS to 5 ppm TRS by replacement of the existing furnaces with low odor units will produce a significant reduction on the odor level surrounding the mill.

APPENDIX C

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## ENVIRONMENTAL QUALITY COMMISSION

DEPT. OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

To: Director

From: Hearing Officer

Hearing Report: Four Informal Hearings on Public Position Regarding  
TRS Standards for Kraft Mills

### HISTORY

During the week of August 16, 1976, four informal public hearings were held as summarized below. The hearings were preceded by mailing of notice and press releases to the local areas involved. The notice and press release are attached.

### TOLEDO HEARING

This hearing convened at 7:30 p.m. on August 16 in the Toledo Public Library. Of concern were the nearby Georgia Pacific Toledo Kraft Mill and the International Paper plant at Gardiner.

Present to represent the Department were Mr. Charles Clinton, Mr. Fredric Skirvin, and the undersigned.

Approximately eight persons attended. Of these, Mr. Glen MacKenroth reported that the present TRS emissions from the Toledo plant rarely prove bothersome. It was his concern that the plant should not have to pass on to consumers any substantial increases in the expense of meeting stricter standards for TRS.

Mrs. Jason Cadwallader noted that community sentiment was that the occasional odor was the "smell of paychecks."

Mr. Clinton is initiating Department action on noise complaints made by witnesses regarding the Toledo plant.

### ST. HELENS HEARING

This hearing convened at 7:30 p.m. on August 17 in the Columbia County Courthouse. Of concern were the Boise Cascade St. Helens kraft plant and the Crown Zellerbach plant at Wauna.



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Approximately twenty persons attended, some of whom were representatives of Boise Cascade. Mr. Ronald McGeorge of the Columbia Board of Realtors reported that recent improvements in the odor emissions of Boise Cascade had ameliorated a longstanding reticence on the part of the public to buy residences east of Highway Thirty. It was reported that the plant now rarely, if ever, results in objectionable odors. The hearing officer conceded to Mr. McGeorge that the hearing officer had not detected any odor from the plant upon his arrival in St. Helens.

Mr. Donald Olmsheid submitted written and oral testimony on the considerable emissions reduction history of Boise Cascade, citing water quality control strides as well. It was his observation that future controls should be applied only after consideration of their impact on (1) costs to the consumer, (2) energy consumption, (3) potentially energy-consuming transportation costs related to encouraging the diffusion of sources throughout greater geographic areas and (4) encouragement of industry to locate in Oregon. Mr. Olmsheid complimented the Department and Boise Cascade for accomplishments to date.

Mr. John Wolfenbarger and Mr. Tom Easham, neighbors of the Crown Zellerbach Plant at Wauna, attested to non-bothersome odor levels now experienced near the Wauna plant.

Mr. Clinton and the undersigned then adjourned the hearing.

#### EUGENE HEARING

This hearing convened at 7:30 p.m. on August 18, 1976 in Harris Hall. Of concern was Weyerhaeuser's Springfield plant.

Of eight persons present, two testified. Mr. Bob Smith and Mr. Lee Dillon (Springfield residents not employed by Weyerhaeuser) testified that they live near the Weyerhaeuser kraft mill and suffer little if any inconvenience from odor. Both praised the improvements made by Weyerhaeuser in odor control and other areas of community concern.

Prior to the hearing a letter was received from Mr. Jerry Bolens informing that Weyerhaeuser's views on the subject of kraft mill air emissions regulations would be those expressed by Weyerhaeuser as a member of the Kraft Mill Air Committee currently working with the Department.

Present to represent the Department were Mr. Charles Clinton, Mr. Fredric Skirvin, and the undersigned.

#### ALBANY HEARING

This hearing convened at 7:30 p.m. in the Albany Public Library. Present to represent the Department were Mr. Charles Clinton, Mr. Fredric Skirvin, and the undersigned. Of concern were the plants at Halsey (American Can) and Millersburg (Western Kraft).

Of ten persons in attendance, one offered testimony. Mr. Bill Stanley of 618 Bain Street reported himself to have been one of the chief complainers about Western Kraft odors in former years. He stressed that he was satisfied that the mill was no longer an odor problem to him.

Mr. Marv Evans of the Albany Chamber of Commerce withheld testimony in approval of the Western Kraft performance on the basis that no one offered adverse testimony.

GENERAL COMMENT

The St. Helens hearing was preceded by a front page article in the Sunday edition of the St. Helens Chronicle. A copy is being sent us so that staff may assess the degree to which the article should have aroused any dissatisfied citizens. It does not appear to what degree other local media gave notice of the hearings. The Oregonian and some radio stations gave notice of the hearings. The notice was mailed to the Department's Air and Alpha lists which include public interest groups such as OEC and the League of Women Voters.

It is difficult to assess the lack of participation as other than a lack of interest. In Toledo, intimidation is not the answer because those testifying to satisfaction with the odor were outspoken and adamant in complaining of the mill's noise. Intimidation must be ruled out in Albany and Eugene where many other industries and businesses contribute to area economy.

While a small turnout might be laid to lack of notice rather than lack of complaints, two considerations weigh against this: 1) The notice was as extensive or more so than the Department routinely uses. This routine often results in large turnouts at hearings, depending on the subject matter. 2) Of those who were in attendance, there is still to be explained the relative unanimity with which they endorsed present performance of the mills.

A letter was received after the Toledo hearing from one who had read of the result of the hearing in the paper. That letter was strongly in disapproval of current odor levels in Toledo, comparing Toledo with Los Angeles in time of smog.

August 19, 1976

Peter McSwain  
DEQ Hearings Officer  
Portland, Oregon 97205

RECEIVED  
AUG 20 1976

DEPT. OF ENVIRONMENTAL QUALITY

Dear Sir:

I want to submit the following statements for filing with the DEQ Hearing held in Toledo August 16, 1976 which charted complaints by Toledo residents regarding pollution. I was unable to attend the meeting at the Library Monday evening.

Noise pollution is as much of a concern as smell from GP Mills in Toledo:

1. The telephone horns sounding at night (11 p.m.; 2 a.m.; etc.) prevent us from sleeping soundly. They seem to have excessive noise in the night (loudness seems to be increased over day sound.) I feel the sound can be controlled, but have not known who to complain to about this before.
2. The venting of steam at various times during day and night especially early morning hours, is unsettling and again keeps us from sleeping. The startling sound (even though it is heard often) wakes us out of sleep.

Smell pollution is a factor which increases from the Mill in the winter time, with prevailing southwest winds carrying the smoke from the high stack across much of Toledo and our own house.

The stink, even after clouds are gone permeates the house, leaving a smell of rotting there. The smell stays in clothing, and rugs and upholstery in our house.

The downtown Toledo area, getting smoke exhaust from the lumber/plywood mills is impossible during times in summer. With the smoke hanging in there, I compare it to smog in Los Angeles, where I lived before coming here. It is hard to breathe and is obnoxious in smell.

It was reported in the Lincoln Leader, that DEQ plans to monitor noise level from some houses. I would like our residence, which is in a different part of town from those listed, to be included. I live at 203 N.E. 4th and N. Beech Streets in Toledo.

Sincerely,

*Steven Belzman*

Steven Belzman  
Box 202  
Toledo, Oregon 97391  
336-3672

D.E.G.  
Tillamook, Oregon

Toldeo, Oregon  
Sept. 3, 1976

Dear Sirs:

Having missed the hearing of D.E.G.  
Aug. 16<sup>th</sup> re' the mill, due to not seeing  
or hearing any notice of such meeting  
taking place, I must protest the  
statement that odor is no problem. There  
are many nights we cannot even open our  
windows and even so the odor comes  
right into the house. I was amazed at the  
apathy of citizens here at not turning out  
for the meeting to make themselves heard.  
As were they as ignorant of such meeting  
taking place as I? In talking with  
many people around here, I find they  
complain bitterly re' the odor, some having  
been forced to move out of the area -  
but there seems to be a fear factor of  
losing jobs if they complain.

Please call this to the attention of Georgia

Pacific  
670 - 6<sup>th</sup> S.E.  
Toldeo, Oregon  
47391

Yours truly,  
Fletcher E. Gardner

ONE TEMP PERM

APPENDIX D



PRELIMINARY DRAFT

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY CONTROL DIVISION

PROPOSED ADDITIONS AND DELETIONS TO THE KRAFT PULP MILLS RULES\*

25-150 DEFINITIONS

As used in these regulations, unless otherwise required by context:

- (1) "Continual Monitoring" means sampling and analysis, in a continuous or timed sequence, using techniques which will adequately reflect actual emission levels or concentrations on a continuous basis.
- (2) "Department" means the Department of Environmental Quality.
- (3) "Emission" means a release into the atmosphere of air contaminants.
- (4) "Kraft Mill" or "Mill" means any industrial operation which uses for a cooking liquor an alkaline sulfide solution containing sodium hydroxide and sodium sulfide in its pulping process.
- (5) "Lime Kiln" means any production device in which calcium carbonate is thermally converted to calcium oxide.
- (6) "Non-condensibles" means gases and vapors, contaminated with TRS gases, from the digestion and multiple-effect evaporation processes of a mill that are not condensed with the equipment used in said processes.
- (7) "Other Sources" means sources of TRS emissions in a kraft mill other than recovery furnaces and lime kilns, including but not limited to:
  - (a) vents from knotters, brown stock washing systems, evaporators, blow tanks, smelt tanks, blow heat accumulators, black liquor storage tanks, black liquor oxidation system, pre-steaming vessels, tall oil recovery operations;
  - (b) any operation connected with the treatment of condensate liquids within the mill, and

\*Additions are underlined and deletions are lined out.

- (c) any vent which is shown to be a significant contributor of odorous gases.
- (8) "Particulate Matter" means all solid material in an emission stream which may be removed on a glass fiber filter maintained during sampling at stack temperature or above the water vapor dew point of the stack gas, whichever is greater but not more than 202°C (400°F). The glass-fiber filter to be used shall be MSA 1106BH or equivalent.
- (9) "Parts Per Million (ppm)" means parts of a contaminant per million parts of gas by volume on a dry-gas basis (1 ppm equals 0.0001% by volume).
- (10) "Production" means the daily average amount [tons] of air-dried unbleached Kraft pulp or equivalent produced as determined by dividing the monthly total production by the number of days specific production equipment operates and expressed in air-dried metric tons (admt) per day. The corresponding English unit is air-dried tons (adt) per day.
- (11) "Recovery Furnace" means the combustion device in which pulping chemicals are converted to a molten smelt and wood solids are incinerated. For these regulations, and where present, this term shall include the direct contact evaporator.
- (12) "Total Reduced Sulfur (TRS)" means the sulfur in hydrogen sulfide, mercaptans, dimethyl sulfide, dimethyl disulfide, and any other organic sulfides present in an oxidation state of minus two.
- (13) "Kg S/metric ton" means kilograms of Total Reduced Sulfur per metric ton of production. The corresponding English unit is "lb S/ton".
- (14) "Standard dry cubic meter" means the amount of gas that would occupy a volume of one cubic meter, if the gas were free of uncombined water, at a temperature of 20°C (68°F) and a pressure of 760 mm of Mercury

29.92 inches of Mercury). The corresponding English unit is standard dry cubic foot. When applied to recovery furnace gases "standard dry cubic meter" requires adjustment of the gas volume to that which would result in a concentration of 8% oxygen if the oxygen concentration exceeds 8%. When applied to lime kiln gases "standard dry cubic meter" requires adjustment of the gas volume to that which would result in a concentration of 10 percent oxygen if the oxygen concentration exceeds 10%.

25-155 STATEMENT OF POLICY

Recent technological developments have enhanced the degree of malodorous emission control possible for the kraft pulping process. While recognizing that complete malodorous and particulate emission control is not presently possible, consistent with the meteorological and geographical conditions in Oregon, it is hereby declared to be the policy of the Department to:

- (1) Require, in accordance with a specific program and time table for all sources at each operating mill, the highest and best practicable treatment and control of atmospheric emissions from kraft mills through the utilization of technically feasible equipment, devices and procedures. Consideration will be given to the economic life of equipment, which when installed complied with the highest and best practicable treatment requirement.
- (2) Require degrees and methods of treatment for major and minor emission points that will minimize emissions of odorous gases and eliminate ambient odor nuisances.
- (3) Require effective monitoring and reporting of emissions and reporting of other data pertinent to air quality or emissions. The Department will use these data in conjunction with ambient air data and observation of conditions in the surrounding area to develop and revise

emission and ambient air standards, and to determine compliance therewith.

- (4) Encourage and assist the kraft pulping industry to conduct a research and technological development program designed to progressively reduce kraft mill emissions, in accordance with a definite program, including specified objectives and time schedules.
- (5) Establish by no later than July 1, 1983, maximum allowable daily mill site emission limits (Kg/day) for total TRS, particulate and SO<sub>2</sub> for each mill by applying the limits and other considerations as set forth in Sections 25-160, 25-165, 25-170, and 25-195 of this regulation.

#### 25-160 HIGHEST AND BEST PRACTICABLE TREATMENT AND CONTROL REQUIRED

Notwithstanding the specific emission limits set forth in Section 25-165 of these regulations, in order to maintain the lowest possible emission of air contaminants, the highest and best practicable treatment and control currently available shall in every case be provided, with consideration being given to the economic life of the existing equipment.

All installed process and control equipment shall be operated at full effectiveness and efficiency at all times, such that emissions of contaminants are kept at lowest practicable levels.

#### 25-165 EMISSION LIMITATIONS

- (1) Emission of Total Reduced Sulfur (TRS).
  - (a) Recovery Furnaces.
    - (A) [~~As soon as practicable but not later than July 1, 1975~~] The emissions of TRS from each recovery furnace[s] stack shall not exceed [~~±(±)~~] 10 ppm as a daily arithmetic average and 0.15 Kg S/metric ton (0.30 lb S/ton) of production as a monthly arithmetic average [on-a-mill-site-basis].

~~{ii}~~ 40-ppm-for-more-than-60-cumulative-minutes-in-any-one day-from-each-recovery-furnace,

~~{iii}~~ 15-ppm-as-a-daily-arithmetic-average-and-0.45-lb-S/ton of-production-from-each-recovery-furnace-stack.

~~(B)~~ As-soon-as-practicable,-but-not-later-than-July-1,-1978,-the emission-of-TRS-shall-not-exceed:

~~{i}~~ 5-ppm-as-a-daily-arithmetic-average-and-0.15-lb-S/ton of-production-on-a-mill-site-basis.

~~{ii}~~ 40-ppm-for-more-than-60-cumulative-minutes-in-any-one day-from-each-recovery-furnace-stack.

~~{iii}~~ 10-ppm-as-a-daily-arithmetic-average-and-0.20-lb-S/ton of-production-from-each-recovery-furnace-stack.

~~(C)~~ As-soon-as-practicable,-but-not-later-than-July-1,-1983,-the emission-of-TRS-from-each-recovery-furnace-shall-not-exceed:

~~{i}~~ 5-ppm-as-a-daily-arithmetic-average-and-0.15-lb-S/ton of-production,

~~{ii}~~ 20-ppm-for-more-than-60-cumulative-minutes-in-any-one day.]

~~[(D)]~~ (B) TRS emissions from each recovery furnace installed, modified or used for expanded production [placed-in-operation] after [the-effective-date-of-this-regulation] January 1, 1969 shall be controlled [immediately] such that the emissions of TRS shall not exceed [i-]{i}] 5 ppm as a daily arithmetic average and 0.08 Kg S/metric ton (0.15 lb S/ton) of production as a monthly arithmetic average[.].

~~[(ii) 20-ppm-for-more-than-60-cumulative-minutes-in-any-one day.]~~

(b) Lime Kilns. Lime Kilns shall be operated and controlled such that emission of TRS shall ~~[be-kept-to-lowest-practicable-levels and]~~ not exceed:

(A) ~~[By-no-later-than-July-1,-1975,]~~ 40 ppm and 0.1 Kg S/metric ton (0.2 lb S/ton) of production as monthly arithmetic averages ~~[determined-by-a-monitoring-procedure-approved-by the-Department].~~

(B) As soon as practicable, but not later than July 1, 1978, 20 ppm and 0.1 Kg S/metric ton (0.2 lb S/ton) of production as a monthly arithmetic average ~~[determined-by-a-monitoring procedure-approved-by-the-Department].~~

(C) As soon as practicable, but not later than July 1, 1983, 20 ppm as a daily arithmetic average and 0.05 Kg S/metric ton (0.1 lb S/ton) of production as a monthly arithmetic average.

(D) 5 ppm as a daily arithmetic average and 0.05 Kg S/metric ton (0.1 lb S/ton) of production as a monthly arithmetic average from all lime kilns placed in operation after the effective date of this regulation.

~~[(e) Compliance-Programs.--Recovery-furnaces-and-lime-kilns-in-operation on-or-before-the-effective-date-of-these-regulations-shall-be brought-into-compliance-with-subsections-25-165-(1)-(a)-and-25-165-(1)-(b)-above-in-accordance-with-specific-programs-and-schedules to-be-established-with-each-individual-mill-and-approved-by-the Department-by-not-later-than-May-1,-1973,-taking-into-consideration the-following:~~

- ~~(A)~~ Age-and-condition-of-existing-facilities,
- ~~(B)~~ Geographical-locations,
- ~~(C)~~ Overall-control-of-emissions,
- ~~(D)~~ Severity-of-problems-related-to-emissions-from-the-facility,  
and,
- ~~(E)~~ Ease-of-compliance.]

~~[(d)]~~ (c) Non-condensibles

- (A) Non-condensibles from digesters and multiple-effect evaporators shall be treated to destroy TRS gases by thermal incineration in a lime kiln or equivalent treatment.
- (B) On mill sites where a lime kiln or combination of lime kilns is used for incinerating non-condensibles, [~~as soon as possible-but-not-later-than-July-1,-1975~~] the means shall be provided to immediately and automatically treat the non-condensibles in an incineration device capable of subjecting the non-condensibles to a temperature of not less than 650°C (1200°F) for not less than 0.3 seconds whenever the kiln or combination of kilns is out of service or otherwise incapable of incinerating non-condensibles.
- (C) When steam-or air-stripping of condensates or other contaminated streams is practiced, the stripped gases shall be subjected to treatment in the non-condensable system or otherwise given equivalent treatment.

~~[(e)]~~ (d) Other Sources.

- (A) As soon as practicable, but not later than July 1, [~~1975~~] 1978, the emission of TRS from other sources, including but not limited to knotters and brown stock washer vents, brown

stock washer filtrate tank vents, black liquor oxidation vents, and contaminated condensate stripping shall not exceed 0.1 Kg S/metric ton (0.2 lbs/ton) of production [~~be limited, controlled or treated to the lowest practicable levels in accordance with a specific program and time table submitted to and approved by the Department~~].

(B) Miscellaneous Sources and Practices. When it is determined that sewers, drains, and anaerobic lagoons significantly contribute to an odor problem, a program for control shall be required.

~~[(C) Compliance programs required by these subsections shall be established by not later than May 1, 1973 with each individual mill and incorporated in the Air Contaminant Discharge Permit issued for each mill.]~~

(C) TRS emissions from any of the other sources, listed above, placed in operation after the effective date of this regulation shall not exceed 5 ppm.

(e) Compliance Programs. Lime kilns and other sources not in compliance with either the 1978 or 1983 emission limits shall submit a program and schedule for achieving compliance to the Department for approval by no later than April 1, 1977.

(2) Particulate Matter.

(a) Recovery Furnaces. [~~As soon as practicable but not later than May 1, 1975~~] The emissions of particulate matter from each recovery furnace[s] stack shall not exceed a monthly arithmetic average of: [~~four (4) pounds per ton of production on a mill-site basis and from each recovery furnace stack.~~]



- (A) 0.23 grams per standard cubic meter (0.10 grains per standard cubic foot).
- (B) 0.10 grams per standard cubic meter (0.044 grains per standard cubic foot) from all recovery furnaces placed in operation after the effective date of this regulation.
- (b) Lime Kilns. [~~As soon as practicable, but not later than May 1, 1975~~] The emissions of particulate matter from each lime kiln[s] stack shall not exceed a monthly arithmetic average of: [~~one (1) pound per ton of production on a mill-site basis and from each lime kiln stack.~~]
- (A) 0.46 grams per standard cubic meter (0.20 grains per standard cubic foot).
- (B) 0.15 grams per standard cubic meter (0.067 grains per standard cubic foot) from all lime kilns placed in operation after the effective date of this regulation when gaseous fuel is fired.
- (C) 0.30 grams per standard cubic meter (0.13 grains per standard cubic foot) from all lime kilns placed in operation after the effective date of this regulation when liquid or solid fuel is fired.
- (c) Smelt Dissolving Tanks. The emission of particulate matter from each smelt dissolving tank[s] stack shall not exceed a monthly arithmetic average of:
- (A) 0.25 Kg/metric ton (One-half (1/2) pound per ton of production) [on a mill-site basis and from each smelt dissolving tank].
- (B) 0.15 Kg/metric ton (0.3 pound per ton of production) from all smelt dissolving tanks installed after the effective date of this regulation.

- (3) Sulfur Dioxide (SO<sub>2</sub>). [~~As soon as practicable, but not later than July 1, 1975~~] Emissions of sulfur dioxide from each recovery furnace stack shall not exceed a monthly [daily] arithmetic average of 300 ppm on a dry-gas basis [~~except during start-up and shut-down periods~~].
- (4) Opacity. The exhaust gases from any recovery furnace installed after the effective date of this regulation shall not exhibit an opacity greater than thirty-five percent (35%).
- [~~4~~](5) New Facility Compliance. As soon as practicable, but not later than within 180 days of the start-up of a new kraft mill or of any new or modified facility having emissions limited by these regulations, that facility shall be operated, controlled, or limited to comply with the applicable provisions of these regulations and the mill shall conduct source sampling or monitoring as appropriate to demonstrate compliance.
- [~~5~~] Compliance Schedules. --As soon as practicable, but not later than May 1, 1973, each mill shall submit to the Department a proposed compliance program, including means and methods to the extent possible, and a schedule for complying with the emission limits of these regulations. The approved compliance program shall be incorporated in the Air Contaminant Discharge Permit issued to each mill.

#### 25-170 MORE RESTRICTIVE EMISSION LIMITS

The Department may establish more restrictive emission limits than the numerical emission standards contained in Section 25-165 for an individual mill upon a finding by the Commission that the individual plant is located or is proposed to be located in a special problem area or an area where ambient air standards are not being maintained [~~and compliance schedules after notice and hearing if applicable for different geographical areas of the state~~].

25-175 PLANS AND SPECIFICATIONS

Prior to construction of new kraft mills, or expansion of production or modification of facilities significantly affecting emissions at existing kraft mills, complete and detailed engineering plans and specifications for air pollution control devices and facilities and such other data as may be required to evaluate projected emissions and potential effects on air quality shall be submitted to and approved by the Department. All construction shall be in accordance with plans as approved in writing by the Department.

25-180 MONITORING

(1) General.

- (a) The details of the monitoring program for each mill shall be submitted to and approved by the Department. This submittal shall include diagrams and descriptions of all monitoring systems, monitoring frequencies, blanking and/or calibration schedules and descriptions of all sampling sites. Any changes that are subsequently made in the approved monitoring program shall be submitted to the Department for review and approval.
- (b) All records associated with the monitoring program including but not limited to original data sheets, charts, calculations, calibration data, and final reports shall be maintained for a minimal period of one calendar year and be furnished to the Department upon request.

~~[(1)]~~ (2) Total Reduced Sulfur (TRS). Each mill shall provide continual monitoring of TRS in accordance with the following:

- (a) The monitoring equipment shall be capable of determining compliance with the emission limits established by these regulations, and shall be capable of continual sampling and recording of concentrations of TRS contaminants during a time interval not greater than 30 minutes.

(b) The sources monitored shall include, but are not limited to, the recovery furnace stacks and the lime kiln stacks.

(c) At least once per year, vents from other sources as required in 25-165 (1) (e) Other Sources, shall be sampled to demonstrate representative emissions of TRS and the results reported to the Department.

~~[(2)]~~(3) Particulate Matter. Each mill shall sample the recovery furnace(s), lime kiln(s) and smelt dissolving tank(s) for particulate emissions with, (a) the sampling method and (b) the analytical method approved in writing by the Department. ~~[Each mill, after the adoption of this regulation shall establish and have approved in writing by the Department a regular sampling schedule.]~~ As soon as practicable, but no later than July 1, 1977 each mill shall provide continual monitoring of opacity and particulate matter from the recovery furnace(s) ~~[and lime kiln(s)]~~ in a manner approved in writing by the Department.

(4) Sulfur Dioxide (SO<sub>2</sub>). Representative sulfur dioxide emissions from the recovery furnace(s) shall be determined at least once each month.

(5) Combined Monitoring. The Department shall allow the monitoring of a combination of more than one emission stream if each individual emission stream has been demonstrated to be in compliance with all the emission limits of Section 25-165. The emission limits for the combined emission stream shall be established by the Department.

(6) Each source installed after the effective date of this regulation shall be monitored according to U. S. Environmental Protection Agency methods.

#### 25-185 REPORTING

Unless otherwise authorized or required by permit, data shall be reported

by each mill for each calendar month by the fifteenth day of the subsequent calendar month as follows:

- (1) Daily average emissions of TRS gases expressed in parts per million of H<sub>2</sub>S on a dry gas basis for each source included in the approved monitoring program.
- ~~[(2) Unless excused in writing by the Department, the number of cumulative minutes each day the TRS gases from the recovery furnaces exceed 20 ppm and 40 ppm and the maximum concentration TRS measured each day, expressed as H<sub>2</sub>S on a dry gas basis.]~~
- ~~[(3)]~~ (2) Monthly average emissions of TRS gases in kilograms [pounds] of sulfur per equivalent air-dried metric ton of pulp processed in the kraft cycle for each source included in the approved monitoring program.
- ~~[(4)]~~ (3) Monthly average emission of SO<sub>2</sub> from the recovery furnace(s), expressed as ppm, dry basis.
- ~~[(5)]~~ (4) Monthly average emission of particulates in grams per standard cubic meter [pounds per equivalent air-dried ten of pulp produced in the draft cycle] based upon the sampling conducted in accordance with the approved monitoring program.
- ~~[(6)]~~ (5) Cumulative hours of operation of the lime kiln(s) used for non-condensable incineration and the number of cumulative hours of stand-by incinerator operations.
- ~~[(7)]~~ (6) Average monthly [daily] equivalent kraft pulp production in air-dried metric tons.
- ~~[(8)]~~ (7) Each kraft mill shall furnish, upon request of the Department, such other pertinent data as the Department may require to evaluate the mill's emission control program.

- (8) Each source installed after the effective date of this regulation shall report emissions in accordance with U. S. Environmental Protection Agency requirements.
- (9) The duration, date and total hours that each source of air contaminants operates at higher than normal emission levels due to scheduled or unscheduled maintenance, startup, shutdown or upsets.

25-190 UPSET CONDITIONS

Each mill shall immediately report abnormal mill operations including control and process equipment modifications, facilities or breakdowns which result in increased emissions of any air contaminants, in accordance with the provisions of the Oregon Administrative Rules, Chapter 340, "Upset Conditions."

[25-190-SPECIAL-STUDIES

- (1) ~~Where warranted by conditions at particular mills special studies of specific vents or air contaminant emissions may be required as a condition of issuing an Air Contaminant Discharge Permit.~~
- (2) ~~Each mill shall participate in special studies sufficient to identify at each mill:~~
- ~~(a) The amount and effects of sulfur oxides, including SO<sub>2</sub>, SO<sub>3</sub>, SO<sub>4</sub> in recovery furnace stack gases.~~
  - ~~(b) The extent of interference from the formation of sulfate ion from SO<sub>2</sub> and SO<sub>3</sub> in wet collection devices used in particulate sampling trains, and~~
  - ~~(c) The occurrence of acid mist (H<sub>2</sub>SO<sub>4</sub> in water droplets) in recovery furnace stack gases.~~
- ~~These studies are to be completed by January 1, 1975, and final reports submitted to the Department by July 1, 1975. Reports of progress concerning these studies shall be submitted to the Department by January 1 and July 1 of each year.~~

(3) Each mill shall for all furnaces, allowing a reasonable start-up period for new furnaces, conduct a special study sufficient to evaluate the stability and efficiency of the electrostatic precipitators used on recovery furnace(s). All sampling and analytical procedures to be approved in writing by the Department.

25-195-OTHER-ESTABLISHED-AIR-QUALITY-LIMITATIONS

The emission limits established by these regulations are in addition to visible emissions and other ambient air standards, established or to be established by the Department, unless exempted therefrom by this regulation.

25-200-PUBLIC-HEARING

A public hearing shall be held by the Department no later than January 1976, to review current technology and the adequacy of these regulations and to adopt any revisions or additional emission standards that are necessary.]



Boise Cascade

October 7, 1976

**Paper Group**

St. Helens, Oregon 97051  
(503) 397-2900

Mr. E. J. Weathersbee, Admin.  
Department of Environmental Quality  
1234 S.W. Morrison Street  
Portland, Oregon 97205

Dear Mr. Weathersbee:

After reviewing the proposed Oregon Kraft Mill Standards, we would like to take this opportunity to comment on them.

We do not feel that it is appropriate at this time to include the proposed EPA guidelines within the structure of the Oregon Kraft Mill Regulations. It is entirely possible that the proposed EPA regulations could change as a result of public comment and review by EPA.

We strongly object to the advancing of the 1978 recovery furnace TRS limits for conventional furnaces to become effective upon the adaption of these proposed regulations. The Hearing Report of the four informal meetings held during the week of August 16th reinforces our objection. It is apparent, as a result of these hearings, that objectionable odor levels in the vicinity of Oregon mills simply do not exist. The hearing report contains written testimony adverse to one Oregon mill and excludes the favorable testimony also submitted. The Department should submit all the information regarding the hearings for public review and not just those items that support the Department's conviction that additional restrictive controls are necessary.

Section 25-165 (1) (a) (B) concerning the requirement for meeting a 5ppm TRS daily arithmetic average is ambiguous, subject to misinterpretation and should be deleted. If the industry can expand production without increasing emissions, it should not be penalized for its inventiveness. We do not believe that the cost benefit ratio in going from 10 ppm to 5 ppm would even be detected by the citizens in this community.

In regards to the lime kiln TRS limitations, the Department in one instance agrees with the statistical study in using a monthly average for determining compliance. Yet, the Department proposes for July 1, 1978 a TRS limitation from the kilns to a 40 ppm daily average further reducing it to a 20 ppm daily average by July 1, 1983. This was done to obtain improvements in odor levels in the vicinity of the mills. Again referring to the total testimony given in the public hearings, and not just the two adverse comments, there appears to be no justification in lowering the TRS limits for this source. The statistical study also states that no mill in the state can consistently meet the 1983 proposed standards. The 1983 limitations should be deleted and the 40 ppm limitation as a monthly average should be retained.



Mr. E. J. Weathersbee

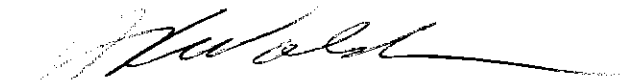
October 7, 1976

Page 2

We completely agree with the Department's view on more restrictive emission limits in Section 25-170. If a mill is located in a special problem area and the ambient conditions dictate that additional controls are necessary, then by all means they should be imposed. If, on the other hand, the conditions indicate that no additional restrictions are required and public opinion indicates for this mill that they are not, then they should not be imposed for the sake of treatment only. However, any proposed change or modification in the discharge conditions for any mill should be subject to public hearing and review in the same manner as these regulations.

We hope that these comments will be taken under consideration in the review of the proposed Kraft Mill Regulations.

Yours very truly,



John F. Walsh  
Resident Manager

JFW/st

OCT 11 1976

Copy given EJW 10/11/76



**Weyerhaeuser Company**

P.O. Box 275  
Springfield, Oregon 97477  
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October 7, 1976

Department of Environmental Quality  
1234 S.W. Morrison Street  
Portland, Oregon 97205

Attention: Mr. E. J. Weathersbee

Gentlemen:

After a detailed review of the proposed revision to Oregon's Kraft Air Regulations received at the Salem meeting September 30, 1976, we find several items of particular concern. You have indicated that some of the items will be amended or deleted. Since the extent of your changes are not known, the following comments may be more inclusive than necessary.

Page 4(5). This provision is superfluous because Section 25-170 already provides for more restrictive limits to be established where the need exists. It appears that this item could be deleted.

Page 5(a)(B). The 5 ppm limit is apparently intended to apply to new production facilities, or those being modified for increased production. Therefore, it seems unreasonable to risk imposition of a 5 ppm limit for other reasons, for example: an improvement to meet other emission limits, safety needs, or improved efficiency at the existing production rate. A suggested rewording is: "modified to increase production rate."

Page 6(b)(C). We can show that a current mill emission of 20 to 30 ppm does not cause odor complaints or public nuisance in our community. We intend to actively continue work toward a lowering of kiln TRS emissions, but know that a major cost would be needed for the Springfield mill (and many similar kraft mills) to meet a limit lower than 20 ppm. Meeting a 20 ppm daily limit may require additional liquor making or kiln capacity. The benefits do not appear to justify the cost of a limit more restrictive than 20 ppm on a monthly average basis.

Page 6(b)(D). It is understood that this "new source" limit will be made no more severe than EPA guidelines. However, we believe a limit in the 5-10 ppm range will be extremely difficult if not impossible to meet regardless of cost.



Page 8(d)(C). This limit appears unnecessary since the situation would be covered by item (d)(A) or (B).

Page 8(e). April 1, 1977, is too early to be locked into a program to meet a 1983 limit. During the six-year period many changes in technology are possible, which could mean plan updating, confusion, and cost. Since the 20 ppm emission level at present has corrected the nuisance problem, further improvement does not justify such a high priority of action.

Page 9(a)(A). This is acceptable providing it is no more restrictive than the existing 4#/ton rule.

Page 9(a)(B). This is assumed to be equivalent to a 2#/ton limit, or one no more restrictive than EPA guidelines.

Page 9(b)(B). This rule (0.15 gram per standard cubic meter) is overly restrictive.

Page 9(b)(C). This rule (0.3 gram per cubic meter) appears overly restrictive, and would penalize attempts to use solid fuel for energy conservation.

Page 9(c)(B). This limit is overly restrictive in that it leaves no reserve for operating variability in recently installed high energy scrubbers. These scrubbers are "best available technology." They meet the 0.5#/ADT limit, but it is questionable whether they can meet a more restrictive limit.

Page 10(4). It is not clear whether the opacity limit is intended for "in stack" monitoring or visual measurements of the plume. In addition, this provision as currently worded is more restrictive than the proposed EPA standard.

This limit appears superfluous considering the 0.23 gram per standard cubic meter, of mass emission limit on page 9. Our industry has spent huge sums of money aiming at mass emission targets that have been engraved in permit limits over the past six years. The goal of minimum plume has not been a requirement. It is our belief that the primary concern for the environment is best controlled by mass emission of particulate, adequately defined by the Department several years ago.

The visual measurement of plume opacity is an unacceptable control tool in that it depends on the assumption of all observers being trained to equal unprejudiced uniform results.

It is recommended that the single particulate mass emission limit be retained and that the means of monitoring and control be restricted only to a method "approved by the Department."

Department of Environmental Quality  
October 6, 1976  
Page 3

Since the opacity limit is likely to create confusion and we believe unlikely to improve the environment, it is requested that item 4 be deleted.


Page 12(3). It is requested that the statement "opacity and particulate matter" be amended to opacity OR particulate matter, or the "opacity and" be deleted. Particulate mass emission, by whatever monitoring system approved by the Department, is considered the best measure of true emissions. Furthermore, the Springfield mill has spent over \$100,000 and several man years in the development of a "continuous" monitor. It is an unrealistic imposition to be required to duplicate this effort in development and maintenance of a double monitoring system.

Page 12(6). The danger in this statement is that adequate monitoring systems developed at great cost by Oregon mills might be rendered unacceptable merely because they were not listed by EPA.

Page 14(10). The action that would be required by this rule is not clear. This type of detail could best be handled in the individual permits as indicated on page 11(1)(a). It is suggested that item (10) be deleted.

We appreciate your consideration of our comments. We will be happy to discuss them in detail at your convenience.

Respectfully,

  
A. A. Coleman  
Technical Director

AAC:ls

cc: Mr. H. M. Patterson  
Mr. C. R. Clinton  
Mr. Verner Adkison - Eugene



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. E, October 15, 1976 EQC Meeting

Request for Authorization for Public Hearing on Revisions  
to the Fee Schedule for Air Contaminant Discharge Permits  
and Review of Task Force Recommendations

### Background

At the December 12, 1975 meeting, the EQC approved the current air permit fee schedule to be in effect through December 31, 1976. As a condition of approval, a Task Force was to be set up to review the operation and costs of the permit system.

After seven months of review and investigation, the Task Force submitted its final report and recommendations on July 20, 1976 (Attachment 1).

As a result of the Task Force recommendations, a new fee schedule and rule changes have been proposed by the Department (Attachment 2). The Department will hear testimony at the hearing and meet with any interested persons concerning the proposed regulation revisions. The Department may modify its proposal based upon the testimony or other information received.

### Discussion

The following discussion includes a staff analysis and recommendations for each of the Task Force's recommendations.

#### Section 1: Minimal Sources

##### TASK FORCE RECOMMENDATION

The Task Force recommended that sources emitting 10 TPY or less be classified as minimal and minimal sources be inspected and invoiced once every five years. If there would be a problem with a minimal source, a regular permit would be issued.



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## ANALYSIS

The Task Force recommendation on minimal sources is intended to cut the manpower requirements of the permit system without reducing its effectiveness. The Task Force defined "minimal source" as one emitting less than 10 tons per year. It is the Department's opinion that the 10 ton per year limit would include too many point sources and too complex sources.

The Department's proposal for guidelines to determine "minimal source" will put more restrictions on the candidates for that classification. "Minimal sources" should meet the following criteria:

- a. Actual particulate emissions which are generally less than 5 tons per year and 10 pounds per hour.
- b. Operation and emissions are expected to be steady state, allowing for seasonal changes, over a 5 year period.
- c. The facility is in compliance with all Department regulations and free from malodorous emissions or any other nuisance condition.
- d. There is no compliance schedule in effect and none required.
- e. The Department determines that one inspection in 5 years is adequate.

Any source which meets the above criteria would be inspected and invoiced for the Compliance Determination Fee once every 5 years. Any regulation regarding "minimal sources" should give the Department the final decision on the applicability of "minimal source" criteria.

Using the above guidelines, the number of minimal sources might be as high as 1,000, the majority of which would be space heating boilers. Sources which could be considered as minimal sources are as follows:

- |                            |                           |
|----------------------------|---------------------------|
| a. Small boilers (675)     | i. Incinerators (40)      |
| b. Smokehouses (4)         | j. Millwork (25)          |
| c. Electroplating (5)      | k. Shake & Shingle (20)   |
| d. Battery mfg. (5)        | l. Hardwood mills (4)     |
| e. Seed cleaning (20)      | m. Veneer mfg. (10)       |
| f. Ready mix concrete (70) | n. Small Sawmills (75)    |
| g. Rock Crushers (30)      | o. Small grain mills (20) |

Not all sources in the above categories could be considered minimal. The numbers are estimates of the "minimal sources" in each category.

The guidelines suggested above are proposed to be applied statewide. However, when the results of the Air Quality Maintenance Area studies are available, they may indicate some necessary changes in the permit regulations.

## RECOMMENDATION

The Department should designate some sources as minimal and these sources not be inspected or billed annually, but rather every 5 years. An effort should be made to include as many sources as possible under "minimal sources." The above guidelines should be used by the Department to designate "minimal sources."

### Section 2 - Proposed Revision of OAR 14-015

#### TASK FORCE RECOMMENDATION

The Task Force has recommended that OAR 14-015(2), dealing with duration of permits, be revised. The minimum duration of any permit would be 5 years. The maximum duration would be at least 10 years and possibly indefinite for minimal sources.

Also, the Task Force has recommended that OAR 14-015(3), dealing with reasons for termination of permits, be revised to include "repetition or substantial violations" as a reason for termination of a permit.

#### ANALYSIS

Ray Underwood of the Attorney General's Office, has interpreted ORS 468.065(1) to require a definite expiration date. It was also suggested that the addition of "repetition or substantial violations" as a cause for termination of a permit is not desirable as termination should be based upon a single, easily definable event. These decisions have ruled out two of the Task Force recommendations.

On several occasions, the Department has issued permits of less than 5 years duration because sources were to cease operation in less than 5 years. For this reason, a minimum duration for permits would hinder the Department's flexibility in dealing with some sources.

Extending the duration of minimal source permits to at least 10 years would not reduce the effectiveness of the Department's permit program. It would reduce manpower requirements by reducing the number of renewals but this saving will not occur until all existing minimal permits have been renewed. This could be 5 years if the Department waits for the expiration of current permits before going to a 10 year permit. For more complex sources or sources which modify their operation frequently, a 10 year permit will not keep up with the actual status of the source.

#### RECOMMENDATION

The Department should increase the allowable duration for permits to 10 years. However, as an internal guideline, the Department should retain the 5 year limit for major sources. The Department should not adopt a minimum duration for its permits.

### Section 3 - Proposal for Permit Program Administration

#### TASK FORCE RECOMMENDATION

The Task Force made recommendations on general and specific parts of the permit system program as follows:

- a. Now that the majority of the permits have been reviewed and issued for at least the first time, the Department should review the manpower needs of the central office and the regional offices due to the shift in workload.
- b. The present procedure for processing all applications and renewals through the central office should be continued.
- c. Permit forms should have space for date received, fees enclosed and other processing steps to be initiated.
- d. Applications for renewals should be processed by the central office and the renewal permit automatically issued unless the regional office indicates a change is necessary within a 30 day notice period.
- e. A list showing the sources to be handled by each regional office and the central office should be prepared. The list should be based on each office's ability to handle the specific sources in their area. Regional offices should be responsible for as much of the permit process as possible.
- f. Comprehensive guidelines should be prepared for use by the regional offices in processing permit applications.
- g. Regional office personnel should be adequately trained so central office review of draft permits is not necessary.
- h. Effort should be made to reduce the quantity and volume of quarterly and semi-annual reports to EPA.

#### ANALYSIS AND RECOMMENDATION

- a. The Department is on a program of decentralization and will continue assigning processing steps and sources to the regional offices as each office acquires the ability to handle them.
- b. The Department agrees that the centralized recordkeeping and fee accounting systems are necessary for all of the permit reports that the Department is required to make. If the records are centralized, the reports are easier to compile.
- c. By recording the date received, fees and other processing steps on the application, the application becomes a complete record of the permit actions for that source. The Department should initiate this procedure as soon as possible.



- d. Automatic renewals should be considered by the Department. However, the permit format is still evolving and many renewals are of permits issued by CWAPA and MWVAPA. The Department is considering a tabular format for its permits. When most permits are converted to this format, renewals will be essentially automatic and will reduce the manpower necessary to renew permits. Presently, many renewals are being drafted by the regions in less than the suggested 30 day notice period.
- e. A list of sources to be handled by each regional office is advantageous because it defines responsibility for each source. The Department should develop these lists in the near future.
- f. The Department is currently using generalized permit formats to assist the regional office in preparing permits. Additional guidelines are being drafted to provide the regions with a written Department policy for various parts of the regulations and permit procedures.
- g. Draft permits are currently reviewed by the central office to insure statewide uniformity of policies, procedures and formats. Additional training will be provided the regional offices. The training combined with the written guidelines should allow the gradual phase-out of the review of draft permits by the central office.
- h. The Department as well as the Task Force is concerned over the quantity of information, volume of paper and time consumed in preparing quarterly and semi-annual reports to EPA. The Department should continue to negotiate with EPA to reduce reporting requirements.

#### Section 4 - Replacement of SIC

##### TASK FORCE RECOMMENDATION

The Task Force has recommended that SIC's no longer be used as a means of determining permit fees. SIC's should be replaced by a system based on the hours required for an average source in each source category.

##### ANALYSIS

The present schedule is based upon the relative number of hours spent on an average source in each source category. Several categories have different fees based upon the size of the sources in that category. However, SIC's are used only as a definition of the types of sources which fall into each category. The fee schedule proposed by the Task Force uses the same SIC categories, but simply omits the corresponding SIC number. If the SIC is deleted from the regulations, detailed definitions of each category, now provided by SIC's, will have to be written.

The main point the Task Force wishes to make is that there should be more breakdowns by size and complexity. This is possible while retaining SIC classifications. In addition, much of the Department's records and computer programs are based upon SIC's.

#### RECOMMENDATION

The Department feels that the Task Force misunderstood the purpose of SIC's and recommends that the SIC's be retained, possibly with less emphasis. However, the suggestion of more size differentiations should be pursued.

#### Section 5 - Proposed Fee Method

##### TASK FORCE RECOMMENDATION

The Task Force has recommended a fee schedule based upon the average hours spent per source, times the Department cost per hour (an actual cost type of schedule). Also, the Task Force has recommended that the Director have the ability to reduce or waive fees for hardship cases and that the fee schedule be reviewed every two years.

##### ANALYSIS

The Attorney General's Office has ruled that it would be improper classification or unlawful delegation to give the Director the power to waive or reduce fees in hardship cases.

The Task Force fee schedule recommendation has merit. In order to make a schedule like this work, accurate records must be kept of the time spent on each source. This sort of recordkeeping can be very time consuming. The number of hours in each category given by the Department to the Task Force were estimated based on experience and may need to be adjusted somewhat. This method will hopefully be accurate enough to be accepted in place of more recordkeeping by the Department.

The hours used by the Task Force for determining the fee amounts are based on a definition of "permit system" which is more narrow than the definition presented by the Department in its December 12, 1975 staff report to the EQC. Using the Task Force definition, the Task Force has proposed a fee schedule to recover 100% of the cost of the permit system. The 1975 Legislature directed the Department to recover 50% of the cost of the air program which, according to them, would be approximately \$538,000 for this biennium. The schedule proposed by the Task Force will raise approximately the same amount.

The fee schedule proposed by the Task Force is based upon the actual average cost of the annual compliance determination inspection and associated paperwork and overhead for each type of source. This system will allow the Department to take inflation or other added costs into account without reviewing the entire fee schedule each biennium by changing the cost per hour factor.

The fee schedule proposed by the Department will raise approximately \$246,080 annually. This does not include any fees from minimal sources. The minimal source category and some fee changes in individual categories have placed the cost of the permit system on the sources where the Department spends the majority of its manpower. The Department has used the method proposed by the Task Force to develop the proposed fee schedule.

#### RECOMMENDATION

The Department should adopt the fee method proposed by the Task Force to develop a fee schedule. However, the Department should not be required to justify each individual fee.

#### Summary of Recommendations

The following are recommended actions by the Department as a result of the Task Force Report.

1. Adopt a minimal source category. These sources to be inspected and invoiced once every 5 years.
2. Increase the allowed duration of permits to ten years.
3. Avoid adoption of minimum duration for permits.
4. Continue decentralization and training of personnel.
5. Make more divisions in the fee schedule based upon size.
6. Use direct cost method of arriving at fees as proposed by the Task Force.

The Department has proposed regulation changes to institute the recommendations of the Task Force.

#### DIRECTOR'S RECOMMENDATION

It is the recommendation of the Director that the Commission authorize a public hearing at a time and place to be established to take testimony on the proposed amendments.



LOREN KRAMER

EGW:cs  
9/29/76

Attachments

July 20, 1976

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

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JUL 22 1976

OFFICE OF THE DIRECTOR

Mr. Loren Kramer, Director  
Department of Environmental Quality  
1234 S. W. Morrison Street  
Portland, Oregon 97205

Dear Mr. Kramer:

The Task Force on Air Quality Permits, after extensive meetings both as a full committee and in subcommittee meetings, is now ready to report its recommendations and findings. This report is divided into the following sections:

1. Minimal sources.
2. Proposed revisions of OAR 14-015 relating to type, duration and termination of permits.
3. Proposed program for administration of the permit program.
4. Replacement of the standard industrial classifications (SIC) as a basis for determining fees.
5. Proposed fee method and justification therefore.

The following are the recommendations of the Task Force:

1. Minimal Sources. These sources in normal operation do not emit major amounts of air contaminants. They would be characterized as low pressure heating boilers, small high pressure boilers, and other facilities which have low emission rates and limited types and kinds of control equipment. These sources would be generally characterized as being less than 10 ton per year sources.

It is recommended that for these minimal sources that they only be inspected at the time that they are installed and then not more than once every five years thereafter. The compliance fee would be charged in the year in which the compliance check is made. In case of a valid complaint or observed violation of a source classified as minimal, more frequent inspections may be required by the DEQ Director.

This recommendation is made because the number of such minimal sources subject to an annual compliance check create for the agency a costly administrative and a manpower requirement that does not yield corresponding air quality benefit or improvement.

Most minimal sources use the same fuel as residences for which detailed emission data and consumption data is unavailable. Thus annual compliance checks of commercial or industrial sources provide little information that could not be obtained from an annual written report of the type and amount of fuel consumed. Such a written report would provide the emission inventory data needed.

We believe the above recommendation will be more cost effective both for the agency and for the source.

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It should be emphasized that while the annual compliance checks are being extended to a five-year basis for these minimal sources, this does not in any way impair enforcement powers when a violation occurs.

2. The Proposed Revision of OAR 14-015. The Committee recommends that OAR 14-015 relating to type, duration and termination of permits be reviewed. We further recommend that all permits be written for a five-year period and those for minimal sources should be rewritten for an indefinite period of time. We believe this will substantially reduce the administrative workload both in the central office and on the field staff.

Accordingly, we would recommend that OAR 14-015(2) be amended to read:

(2) The duration of permits will be variable, but shall not exceed be less than five (5) years. The expiration date will be recorded on each permit issued. If no expiration date is shown it will be subject to renewal at the request of the Director. A new application must be filed with the Department to obtain a renewal or modification of a permit.

Those permits subject to extension beyond five years, as proposed in the above paragraph, should be granted primarily to minimal sources and such other sources that do not have a significant impact on the ambient air quality. Further, such an extension is subject to review by the Director in any situation requiring DEQ to re-evaluate all permits in a given airshed.

ORS 468.065(1) states: "Any permit issued by the Department shall specify its duration...". We believe that this language does not require a specific term of years be shown on the permit. We conclude that for these minimal sources you could issue a "permanent" permit. However, if your counsel requires an ending date it should not be less than 10 years.

The conditions contained in Subsection 3 of OAR 14-015 provide for automatic termination under the circumstances listed under Subsection a, b, c and d. In order to provide some additional authority which would require automatic termination of permits, we would suggest that a new Subsection "E" be added which would read: "(e) Repetition or substantial violations."

In addition to the recommendation that sources less than 10 tons/year be issued indefinite permits. The Committee suggests reviewing the program in attainment areas as to whether or not sources under 25 tons/year should also be issued an indefinite permit.

It is the belief of the Committee that not over 300 sources in the State of Oregon are major sources which would be subject to the five-year permits as well as some smaller sources in nonattainment areas. We believe this recommendation will provide DEQ staff the opportunity to more effectively concentrate on major emission sources.

3. Proposed Program for Administration. The DEQ permit program staff and the Task Force reviewed the work of both the central office operations under the Air Quality Division and the field office operation under the Enforcement Division. Obviously, substantial complications were introduced by the demise of the Columbia Willamette and Mid-Willamette Valley Air Pollution Authorities and the process of absorbing their personnel and responsibilities under the statewide implementation plan. These regional agency permit programs were operated differently from those of DEQ and, thus, assimilation by DEQ was made even more difficult. Your staff has made commendable progress in effecting required changes in the DEQ program, both in the central office and in field offices, that were necessitated by the revised operational structure.

We foresee, however, that if our recommendation for sources under 10 tons is adopted, this will substantially reduce the amount of work needed currently on renewals in both your central office and field offices. If the 10 ton/year program is adopted, the DEQ will need to rearrange the times for compliance checks on these sources so that they are staggered over a 5-year period. Such a readjustment of the inspection schedule will help even out the biennial revenue as well as the manpower requirements of the program.

Permit application review has occupied a substantial portion of the activities of the program to date. This activity should now diminish as substantially all outstanding permits have gone through initial plan review. The manpower assigned to this portion of the program should now be reviewed in light of this reduced workload. With the completion of the permit issuing phase of the air permit program substantially completed, the dominate role of the agency becomes one of program maintenance. Very few new permits and a small percentage of modifications are all that can be expected from here on in. This makes the timing opportune for an overall review of the qualifications and staffing requirements in both central and district offices to insure that permit program needs are optimized.

The Task Force members made a number of observations on the present program administration that should be helpful.

(a) The present procedure in processing all permit applications and renewals through Portland central office should be continued. This provides a single bookkeeping channel for handling of monies.

(b) Permit forms should be revised or stamped with a block providing a record of date of receipt and amount of fee enclosed; space for initialing and dating each succeeding step prior to final issue.

(c) Notification of permit renewals should be sent out by computer in central office with a copy to the appropriate regional office. The regional office should be given a limited period (not more than 30 days) to intervene in the renewal process. If notice of intervention is not received by central office from the region within this period, the computer will proceed to automatically complete the permit issuing process; including transmitting a copy to the regional office files.

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Where the regional office requests intervention for cause in a renewal, the proposed permit shall be sent to the regional office and the renewal will be completed in the field with a copy of issued permit to central office records.

(d) To expedite application for new or modified air permits the DEQ Director should predesignate by category and subcategory each emission source for the purpose of automatic routing for processing purposes. It is felt that most new and modified permits should be prepared in the appropriate regional office and only predesignated major emission sources be handled by central office.

(e) There is a compelling need for comprehensive guidelines to be prepared for use by regional offices in processing permit applications.

(f) If regional office personnel are experienced and properly trained, there should be no need of central office review before final permit issuance.

The above recommendations (a thru f) are based on the conclusion that the permit program is best administered by regional DEQ staff familiar with the locations and nature of each emission source. It is recognized that not all regions may have the expertise for a particular plan review. However, by drawing a distinction between designated major regional offices as qualified for this purpose and suboffices which are not, the DEQ Director can ensure speedy and efficient permit processing. If the regional administration concept is to function, the maximum of authority must be delegated to the decentralized unit, otherwise a reversion to centralized control is inevitable. The central office function in the air permit program should be limited to handling nonroutine permits and keeping an overview of regional office activity to assure that the regions are complying with overall program guidelines.

The quarterly and semi annual reports to EPA are in fact overwhelming. Much of the information submitted which is supposed to cover only sources 25 tons or over in a nonattainment area and 100 tons or over in attainment areas, does not show any change in status from the prior report. Reporting to EPA only on those sources which show a change from previous emissions would substantially reduce the size of the EPA report and ease the burden of the staff in its preparation. If EPA requires more data on specific sources, they should direct the inquiry to DEQ central office. We believe every effort should be exerted with EPA to reduce the quantity and nature of the reporting, much of which appears to be nonessential, so that they are provided only with that information which they must have to carry out their responsibilities.

4. Replacement of SIC. We recommend that the use of the Standard Industrial Classification (SIC) be replaced because it is no longer an effective or equitable means of determining permit fees. At the inception of the program the SIC classifications were a useful tool in structuring a permit fee program when those permit fees were at much lower rates. Now that the program has become a substantial portion of the revenue base for the DEQ it appears that the use of the SIC classifications is not an equitable means of distributing the permit fee costs among the 2100 permit holders. Major problems are created by the lack of classification by size of source as well as the complexity of the source and the existence of multiple sources at some locations.

It is our recommendation that a new fee schedule should be instituted which is based upon the average number of actual hours required per category of sources to accomplish the compliance and routine surveillance inspection, plus prorated allocation of administrative services and overhead.

We believe that such a new schedule would provide the DEQ with a more fundamental method of determination and utilization of its manpower needs in the implementation of the permit program.

5. Proposed Fee Method. The Task Force and its subcommittees have spent a considerable amount of time and effort in determining an equitable basis for a fee schedule. Essential elements in the deliberations were to provide a sound basis for a fair distribution of permit costs to all sources and to insure that the DEQ can reliably estimate program revenue.

The Task Force has endeavored to meet these responsibilities.

As suggested in Recommendation No. 4, the proposed fee schedule is based on the average number of actual hours required per category of source. In order to support such a fee schedule, it became necessary to ascertain what activities of the DEQ are chargeable under the permit system established by ORS 468.065(2). The Task Force reviewed all aspects of the permit program of the DEQ.

The following short review of the statute and agency activity will indicate the extent to which fees should be, and are being, charged:

ORS 468.065(2) reads as follows: "The permit fees contained in this schedule shall be based upon the anticipated cost of

filing and investigating the application, and issuing or denying the requested permit, and an inspection program to determine compliance or non-compliance with the permit."

The statute clearly states what activities of the Department relating to permits should be charged to sources as permit fees. The Department, in carrying out this activity is utilizing its police powers and generally, then, there must be a rational relationship between the regulated activity



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and the fees charged for such regulation. Under existing permit procedures, the practical application of the statutory directive is as follows:

(a) New permits are issued.

(b) Modified permits are issued. Where a modification is initiated by the permittee, a fee is charged. If the DEQ is the initiator, no fee should be charged.

(c) Renewals. All permits are now issued to known sources. A flat charge of \$25 for each permit period (normally 5 years) is made to cover the cost of processing a permit renewal.

(d) An inspection program to determine compliance. This program consists of on-site inspection and surveillance and is where the majority of the time and effort of the Department is spent to meet the statutory requirements of the permit program.

The Task Force believes that the items outlined in (a) through (d) above are the activities for which fees may be legitimately charged under the statute for permit-related activities.

The attached Exhibit A indicates the schedule format which the Task Force would recommend and is based upon the average time requirements for each class of source as determined by the Department and which the Task Force believes is chargeable under the statutorily mandated permit program. It must be understood that the number of hours derived in time analysis (from DEQ records) for each category are average values and are not intended to specify the number of hours that are actually spent on any given source. The last page of Exhibit A contains the information and assumptions used in arriving at the dollar figures.

Income from the proposed fees for the renewal program and the inspection program to determine compliance are predictable for budgeting purposes. Revenue from the issuance of new permits or modified permits is unpredictable because it relates solely to future decisions on new or existing sources. No "hard" revenue dollars can be predicted from this activity for budget purposes. Thus, Exhibit A contains no income from this activity.

Recommendation No. 1 of this report deals with minimal sources. These sources should be inspected only at the time they are being installed and then only once each 5 years thereafter. This concept is reflected in the proposed fee schedule.

The Task Force would like to make these further recommendations regarding the permit fee program.

(a) There needs to be included a provision for waiving or reducing fees, at the discretion of the DEQ Director, to any applicant for a permit that could demonstrate that a hardship would result. Any individual actions by the Director under this proposal should not materially affect revenue.

(b) In each category, the permit fee schedule should be reviewed every two years. This would provide the flexibility to meet the changing needs and emphasis in the air quality program.

The study has provided all who have been concerned with the permit program new insight into its operations and cost. The Task Force has identified those activities of the agency which are an integral part of the existing permit program which are logically related to the statutory requirements for determining permit fees. The statutory mandates impose manpower time utilization requirements on the agency. These criteria are incorporated in Exhibit A and we recommend that permittees reimburse that portion of the permit program thus identified. The amount of revenue indicated represents 100% of the fees to be raised annually under the statute. Such a fee system would provide a more precise method by which needed modifications in fees can be accomplished to meet, for example, changes in the permit program, changes in operating conditions, such as salary increases, or to accommodate added revenues from the issuance of new or modified permits.

The Task Force still believes that the Legislature was misled by the erroneous figures provided by the DEQ to the Ways & Means Committee of the Oregon Legislature. Nevertheless, if our recommendations are implemented, there does not now seem to be any basis on which to make a request of the Emergency Board for the return of funds to alleviate the permittees payments to the DEQ.

In conclusion we ask your favorable consideration of the proposed method of establishing permit fees.

Your staff has at all times been fully cooperative in providing us information and other assistance without which this report could not have been written. Your staff is to be commended for the spirit of cooperation which they have exhibited in the work of the Task Force.

Respectfully submitted,

AIR QUALITY PERMIT PROGRAM EVALUATION  
TASK FORCE



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AIR CONTAMINANT SOURCES

TIME SPENT FOR ANNUAL COMPLIANCE DETERMINATION

Source	No. in State	Permit Renewal Fee (1)	New or Modified Permit Fee (2)	Average Hours per Source	Total Hours Statewide	Annual Compliance Determination Fee Existing/Adjusted		Total Fees/Category Existing/Adjusted	
1) Pulp and Paper Mills	12	\$25.00		111	1,332	\$2,000.00	\$1,693.00	\$24,000.00	\$20,316.00
2) Primary Metal Smelting									
A) Aluminum	2	\$25.00		99	198	\$2,000.00	\$1,510.00	\$4,000.00	\$3,020.00
B) Other	4	\$25.00		110	440	\$350.00	\$1,678.00	\$1,400.00	\$6,712.00
C) Other small	--			--	--	\$150.00	--	--	--
3) Petroleum Refining									
A) Refining from Crude	0					\$2,000.00			
B) Re-refining, blending, compounding	2	\$25.00		12	24	\$150.00	\$183.00	\$300.00	\$366.00
4) Electric Power Generation									
A) Large-Greater than 25 MW	3	\$25.00		33	99	\$1,000.00	\$504.00	\$3,000.00	\$1,512.00
B) Small-Less than 25 MW						\$500.00			
5) Board Products									
A) Particleboard	14	\$25.00		34	476	\$500.00	\$519.00	\$7,000.00	\$7,266.00
B) Hardboard	10	\$25.00		24	240	\$500.00	\$366.00	\$5,000.00	\$3,660.00
C) Plywood Large	50	\$25.00		30	1,500	\$500.00	\$458.00	\$25,000.00	\$22,900.00
D) Plywood Small	29	\$25.00		15	435	\$350.00	\$229.00	\$10,150.00	\$6,641.00

AIR CONTAMINANT SOURCES

## TIME SPENT FOR ANNUAL COMPLIANCE DETERMINATION

Source	No. in State	Permit Renewal Fee <sup>(1)</sup>	New or Modified Permit Fee <sup>(2)</sup>	Average Hours per Source	Total Hours Statewide	Annual Compliance Determination Fee Existing/Adjusted		Total Fees/Category Existing/Adjusted	
6) Cement Manufacturers	2	\$25.00		99	198	\$ 625.00	\$ 1,510.00	\$ 1,250.00	\$ 3,020.00
7) Steel, Ferrous and Nonferrous Foundries									
A) Large	13	\$25.00		25	325	\$ 400.00	\$ 382.00	\$ 5,200.00	\$ 4,966.00
B) Small	31	\$25.00		13	403	\$ 200.00	\$ 199.00	\$ 6,200.00	\$ 6,169.00
8) Grain Handling and Storage									
A) Large	4	\$25.00		20	80	\$ 400.00	\$ 305.00	\$ 1,600.00	\$ 1,220.00
B) Small	15	\$25.00		10	150	\$ 125.00	\$ 153.00	\$ 1,875.00	\$ 2,295.00
C) Minimal	15	\$25.00		10/5	30	\$ 125.00	\$ 153/5	\$ 1,875.00	\$ 459.00
9) Grain Mill Products									
A) Large (flour-feeds-cereal) over 10,000 tons	13	\$25.00		13	169	\$ 300.00	\$ 199.00	\$ 3,900.00	\$ 2,587.00
B) Small	21	\$25.00		6	126	\$ 100.00	\$ 92.00	\$ 1,260.00	\$ 1,932.00
C) Minimal	21	\$25.00		6/5	25	\$ 100.00	\$ 92/5	\$ 2,100.00	\$ 386.00
10) Beet Sugar Mfg.	1	\$25.00		78	78	\$ 500.00	\$ 1,190.00	\$ 500.00	\$ 1,190.00

AIR CONTAMINANT SOURCES

## TIME SPENT FOR ANNUAL COMPLIANCE DETERMINATION

Source	No. in State	Permit Renewal Fee <sup>(1)</sup>	New or Modified Permit Fee <sup>(2)</sup>	Average Hours per Source	Total Hours Statewide	Annual Compliance Determination Fee Existing/Adjusted		Total Fees/Category Existing/Adjusted	
11) Chemical Mfg.									
A) Herbicide	1	\$25.00		117	117	\$ 500.00	\$1,785.00	\$ 500.00	\$ 1,785.00
B) Calcium Carbide	1	\$25.00		40	40	\$ 400.00	\$ 610.00	\$ 400.00	\$ 610.00
C) Inorganic	4	\$25.00		30	120	\$ 300.00	\$ 458.00	\$ 1,200.00	\$ 1,832.00
D) Synthetic Resin	4	\$25.00		8	32	\$ 175.00	\$ 122.00	\$ 700.00	\$ 488.00
12) Wood Products									
A) Large Sawmill (Includes large furniture plants) (over 100 employees)	196	\$25.00		15	2,940	\$ 200.00	\$ 229.00	\$39,200.00	\$44,884.00
B) Small Sawmill (Includes veneers)	80	\$25.00		12	960	\$ 100.00	\$ 183.00	\$ 8,000.00	\$14,640.00
C) Minimal	30	\$25.00		12/5	72	\$ 100.00	\$ 183/5	\$ 3,000.00	\$ 1,098.00
13) Rendering Plants									
A) Large	8	\$25.00		20	160	\$ 250.00	\$ 305.00	\$ 2,000.00	\$ 2,440.00
B) Small	7	\$25.00		15	105	\$ 250.00	\$ 229.00	\$ 1,750.00	\$ 1,603.00
14) Asphalt Products									
A) Portable Asphaltic Concrete Paving Plant	34	\$25.00		18	612	\$ 275.00	\$ 275.00	\$ 9,350.00	\$ 9,350.00
B) Stationary AC Paving Plant	63	\$25.00		12	756	\$ 225.00	\$ 183.00	\$14,175.00	\$11,529.00
C) Asphalt Blowing and Distillation	4	\$25.00		20	80	\$ 200.00	\$ 305.00	\$ 800.00	\$ 1,220.00

AIR CONTAMINANT SOURCES

## TIME SPENT FOR ANNUAL COMPLIANCE DETERMINATION

Source	No. in State	Permit (1) Renewal Fee	New or (2) Modified Permit Fee	Average Hours per Sources	Total Hours Statewide	Annual Compliance Determination Fee Existing/Adjusted		Total Fees/Category Existing/Adjusted	
14) Asphalt Products (continued)									
D) Asphalt Felts and Coatings	6	\$25.00		24	144	\$ 200.00	\$ 366.00	\$ 1,200.00	\$ 2,196.00
15) Rock Crushing									
A) Portable	36	\$25.00		18	648	\$ 250.00	\$ 275.00	\$ 9,000.00	\$ 9,900.00
B) Stationary	115	\$25.00		15	1,725	\$ 200.00	\$ 229.00	\$23,000.00	\$26,335.00
16) Rock Products									
A) Gypsum and Lime Mfg.	1	\$25.00		12	12	\$ 150.00	\$ 183.00	\$ 150.00	\$ 183.00
B) Ready Mix Concrete									
1) Large Facilities	20	\$25.00		13	260	\$ 100.00	\$ 199.00	\$ 2,000.00	\$ 3,980.00
2) Small Facilities	57	\$25.00		5	285	\$ 100.00	\$ 77.00	\$ 5,700.00	\$ 4,389.00
3) Minimal	39	\$25.00		5/5	39	\$ 100.00	\$ 77/5	\$ 3,900.00	\$ 601.00
17) Incinerators									
A) Large - 1,000 lbs/hr or more	3	\$25.00		10	30	\$ 200.00	\$ 153.00	\$ 600.00	\$ 459.00
B) Small	59	\$25.00		5	295	\$ 50.00	\$ 77.00	\$ 2,950.00	\$ 4,543.00
18) Glass Mfg.	1	\$25.00		18	18	\$ 200.00	\$ 275.00	\$ 200.00	\$ 275.00
19) Boilers									
A) Inside AQMA's									
1) Large	5	\$25.00		9	45	\$ 100.00	\$ 138.00	\$ 500.00	\$ 690.00
2) Medium	76	\$25.00		5	380	\$ 50.00	\$ 77.00	\$ 3,800.00	\$ 5,852.00
3) Minimal	318	\$25.00		5/5	318	\$ 25.00	\$ 77/5	\$ 7,950.00	\$ 4,897.00

AIR CONTAMINANT SOURCES

TIME SPENT FOR ANNUAL COMPLIANCE DETERMINATION

Source	No. in State	Permit Renewal Fee <sup>(1)</sup>	New or Modified Permit Fee <sup>(2)</sup>	Average Hours per Sources	Total Hours Statewide	Annual Compliance Determination Fee Existing/Adjusted		Total Fees/Category Existing/Adjusted	
2) Boilers (continued)									
B) Outside AQMA	96	\$25.00		5	480	\$ 50.00	\$ 77.00	\$ 4,800.00	\$ 7,392.00
3) Seed Cleaning in Special Control Areas									
	50	\$25.00		5	250	\$ 150.00	\$ 77.00	\$ 7,500.00	\$ 3,850.00
4) Building Paper and Building Board Mills									
	2	\$25.00		9	18	\$ 150.00	\$ 138.00	\$ 300.00	\$ 276.00
5) Charcoal Mfg.									
A) Major (Lane Regional)	0	\$25.00		85	--	\$ 200.00	\$ 1,297.00	\$ --	\$ --
B) Minor	1	\$25.00		18	18	\$ 200.00	\$ 275.00	\$ 200.00	\$ 275.00
6) Gas Production									
						\$ 225.00			
7) Minor Sources									
A) Smoke Houses - Minimal	5	\$25.00		10/5	10	\$ 100.00	\$ 153/5	\$ 500.00	\$ 153.00
B) Coffee Roasting	3	\$25.00		10	30	\$ 100.00	\$ 153.00	\$ 300.00	\$ 459.00
C) Wood Preserving	3	\$25.00		14	42	\$ 100.00	\$ 214.00	\$ 300.00	\$ 642.00
D) Electroplating - Minimal	7	\$25.00		10/5	14	\$ 100.00	\$ 153/5	\$ 700.00	\$ 214.00
E) Galvanizing	6	\$25.00		12	72	\$ 150.00	\$ 183.00	\$ 900.00	\$ 1,098.00
F) Battery Mfg. - Minimal	7	\$25.00		12/5	17	\$ 150.00	\$ 183/5	\$ 1,050.00	\$ 256.00
					<u>17,462</u>			<u>\$264,185.00</u>	<u>\$268,521.00</u>
(See Note 3 )									

PROCEDURES FOR ISSUANCE, DENIAL MODIFICATION AND  
REVOCATION OF PERMITS RULE WITH CHANGES NOTED

14-015 TYPE, DURATION AND TERMINATION OF PERMITS

- (1) Permits issued by the Department will specify those activities, operations, emissions and discharges which are permitted as well as the requirements, limitations and conditions which must be met.
- (2) The duration of permits will be variable, but shall not exceed ten ~~(10)~~ [~~five-(5)~~] years. The expiration date will be recorded on each permit issued. A new application must be filed with the Department to obtain renewal or modification of a permit.
- (3) Permits are issued to the official applicant of record for the activities, operations, emissions or discharges of record and shall be automatically terminated:
  - (a) Within 60 days after sale or exchange of the activity or facility which requires a permit.
  - (b) Upon change in the nature of activities, operations, emissions or discharges from those of record in the last application.
  - (c) Upon issuance of a new, renewal or modified permit for the same operation.
  - (d) Upon written request of the permittee.



AIR CONTAMINANT DISCHARGE PERMIT RULE WITH CHANGES NOTED

340-20-155 PERMIT REQUIRED

- (1) No person shall construct, install, establish, develop or operate any air contaminant source which is referred to in Table A, appended hereto and incorporated herein by reference, without first obtaining a permit from the Department or Regional Authority.
- (2) No person shall modify any source covered by a permit under these rules such that the emissions are significantly increased without first applying for and obtaining a modified permit.
- (3) No person shall modify any source covered by a permit under these rules such that,
  - (a) the process equipment is substantially changed or added to or
  - (b) the emissions are significantly changed without first notifying the Department.
- (4) Any source may apply to the Department or Regional Authority for a special letter permit if operating a facility with no, or insignificant, air contaminant discharges. The determination of applicability of this special permit shall be made solely by the Department or Regional Authority having jurisdiction. If issued a special permit, the application processing fee and/or annual compliance determination fee, provided by OAR 340-19-030, may be waived by the Department or Regional Authority.
- (5) The Department may designate any source as a "Minimal Source" based upon the following criteria:
  - (a) Quantity and quality of emissions,
  - (b) Type of operation,

(c) Compliance with Department regulations, and

(d) Minimal impact on the air quality of the surrounding region.

If a source is designated as a minimal source, the annual compliance determination fee, provided by Section 20-033(6), will be collected in conjunction with plant site compliance inspections which will occur no less frequently than every five (5) years.

340-20-165 FEES

- (1) All persons required to obtain a permit shall be subject to a three part fee consisting of a uniform non-refundable filing fee of \$25.00, an application processing fee, and an annual compliance determination fee which are determined by applying Table A [~~which shall be applicable during the period of January 1 through December 31, 1976~~]. The amount equal to the filing fee, application processing fee, and the annual compliance determination fee shall be submitted as a required part of any application for a new permit. The amount equal to the filing fee and the application processing fee shall be submitted with any application for modification of a permit. The amount equal to the filing fee and the annual compliance determination fee shall be submitted with any application for a renewed permit.
- (2) The fee schedule contained in the listing of air contaminant sources in Table A shall be applied to determine the permit fees, on a Standard Industrial Classification (SIC) plant site basis.
- (3) Modifications of existing, unexpired permits which are instituted by the Department or Regional Authority due to changing conditions or standards, receipts of additional information, or any other reason pursuant to applicable statutes and do not require re-filing or review of an application or plans and specifications shall not require submission of the filing fee or the application processing fee.
- (4) Applications for multiple-source permits received pursuant to OAR 340-19-025 shall be subject to a single \$25.00 filing fee. The application processing fee and annual compliance determination fee for multiple-source permits shall be equal to the total amounts required by the individual sources involved, as listed in Table A.

- (5) The annual compliance determination fee shall be paid at least 30 days prior to the start of each subsequent permit year. Failure to timely remit the annual compliance determination fee in accordance with the above shall be considered grounds for not issuing a permit or revoking an existing permit.
- (6) If a permit is issued for a period less than one (1) year, the applicable annual compliance determination fee shall be equal to the full annual fee. If a permit is issued for a period greater than 12 months, the applicable annual compliance determination fee shall be pro-rated by multiplying the annual compliance determination fee by the number of months covered by the permit and dividing by twelve (12).
- (7) In no case shall a permit be issued for more than five (5) years.
- (8) Upon accepting an application for filing, the filing fee shall be non-refundable.
- (9) When an air contaminant source which is in compliance with the rules of a permit issuing agency relocates or proposes to relocate its operation to a site in the jurisdiction of another permit issuing agency having comparable control requirements, application may be made and approval may given for an exemption of the application processing fee. The permit application and the request for such fee reduction shall be accompanied by
  - (a) a copy of the permit issued for the previous location, and
  - (b) certification that the permittee proposes to operate with the same equipment, at the same production rate, and under similar conditions at the new or proposed location. Certification by the agency previously having jurisdiction that the source was operated

in compliance with all rules and regulations will be acceptable should the previous permit not indicate such compliance.

- (10) If a temporary or conditional permit is issued in accordance with adopted procedures, fees submitted with the application for an air contaminant discharge permit shall be retained and be applicable to the regular permit when it is granted or denied.
- (11) All fees shall be made payable to the permit issuing agency.

TABLE A - AIR CONTAMINANT SOURCES AND  
ASSOCIATED FEE SCHEDULE FOR 1976 CALENDAR YEAR

NOTE: Persons who operate boilers shall include fees as indicated in items #57 or 58 in addition to fees for any other applicable category.

Air Contaminant Source	Standard Industrial Classification Number	Filing Fee	Application Processing Fee	Annual Compliance Determination Fee	Fees to be Submitted with New Application	Fees to be Submitted with Renewal Application	Fees to be Submitted with Application to Modify Permit
1. Seed cleaning located in Special Control Areas, Commercial Operations (not elsewhere included)	0723	25	75	<del>150</del> (85)	(185)250	(110)175	100
2. Smoke houses with 5 or more employees	2013	25	75	100	200	125	100
3. Flour and other grain mill products in Special Control Areas	2041						
a) 10,000 or more T/y		25	250	<del>300</del> (275)	(550)575	(300)325	275
b) Less than 10,000 T/y		25	200	150(110)	(335)375	(135)175	225
4. Cereal preparations in Special Control Areas	2043	25	250	200	475	225	275
5. Blended and prepared flour in Special Control Areas	2045						
a) 10,000 or more T/y		25	250	<del>200</del>	475	225	275
b) Less than 10,000 T/y		25	200	100	325	125	225
6. Prepared feeds for animals and fowls in Special Control Areas	2048						
a) 10,000 or more T/y		25	250	<del>300</del> (275)	(550)575	(300)325	275
b) Less than 10,000 T/y		25	150	150(110)	(285)325	(135)175	175
7. Beet sugar manufacturing	2063	25	300	500(1325)	(1650)825	(1350)525	325
8. Rendering plants	2077	25	200	<del>250</del> (325) (225)	(550)475 (450)	(350)275 (250)	225 (225)
9. Coffee roasting	2095	25	150	<del>100</del> (175)	(350)275	(200)125	175

NOTE: Amounts in brackets ( ) are proposed fee changes.

NOTE: Persons who operate boilers shall include fees as indicated in items #57 or 58 in addition to fees for any other applicable category.

Air Contaminant Source	Standard Industrial Classification Number	Filing Fee	Application Processing Fee	Annual Compliance Determination Fee	Fees to be Submitted with New Application	Fees to be Submitted with Renewal Application	Fees to be Submitted with Application to Modify Permit
10. Sawmill and/or planing	2421						
a) 25,000 or more bd.ft./shift		25	150	200 (275)	(450) 575	(300) 225	175
b) Less than 25,000 bd.ft./shift		25	50	100 (175)	(250) 175	(200) 125	75
11. Hardwood mills	2426	25	50	100 (175)	(250) 175	(200) 125	75
12. Shake and shingle mills	2429	25	50	100 (175)	(250) 175	(200) 125	75
13. Mill work with 10 employees or more	2431	25	125	100 (225)	(375) 250	(250) 125	150
14. Plywood manufacturing	2435 & 2436						
a) Greater than 25,000 sq.ft./hr, 3/8" basis		25	500	500 (550)	(1075) 1025	(575) 525	525
b) Less than 25,000 sq/ft./hr, 3/8" basis		25	350	350 (325)	(700) 725	(350) 375	375
15. Veneer manufacturing only (not elsewhere included)	2435 & 2436	25	75	125 (175)	(275) 225	(200) 150	100
16. Wood preserving	2491	25	125	100 (175)	(325) 250	(200) 125	150
17. Particleboard manufacturing	2492	25	500	500 (550)	(1075) 1025	(575) 525	525
18. Hardboard manufacturing	2499	25	500	500 (550)	(1075) 1025	(575) 525	525
19. Battery separator manufacturing	2499	25	75	100	200	125	100
20. Furniture and fixtures	2511						
a) 100 or more employees		25	150	125 (275)	(450) 300	(300) 150	175
b) 10 employees or more but less than 100 employees		25	100	100 (175)	(300) 225	(200) 125	125

NOTE: Persons who operate boilers shall include fees as indicated in items #57 or 58 in addition to fees for any other applicable category.

Air Contaminant Source	Standard Industrial Classification Number	Filing Fee	Application Processing Fee	Annual Compliance Determination Fee	Fees to be Submitted with New Application	Fees to be Submitted with Renewal Application	Fees to be Submitted with Application to Modify Permit
21. Pulp mills, paper mills, and paper board mills	2611 2621 2631	25	1000	2000(2200)	(325)3025	(225)2025	1025
22. Building paper and building board mills	2661	25	150	150(175)	(350)325	(200)175	175
23. Alkalies and chlorine manufacturing	2812	25	275	200(450)	(750)500	(475)225	300
24. Calcium carbide manufacturing	2819	25	300	400(550)	(875)725	(575)425	325
25. Nitric acid manufacturing	2819	25	200	200(225)	(450)425	(250)225	225
26. Ammonia manufacturing	2819	25	200	250(275)	(500)475	(300)275	225
27. Industrial inorganic and organic chemicals manufacturing (not elsewhere included)	2819	25	250	300(350)	(625)575	(375)325	275
28. Synthetic resin manufacturing	2821	25	200	175(200)	(425)400	(225)200	225
29. Charcoal manufacturing	2861	25	275	200(550)	(850)500	(575)225	300
30. Herbicide manufacturing	2879	25	500	500(2200)	(275)1025	(225)525	525
31. Petroleum refining	2911	25	1000	2000(2200)	(325)3025	(225)2025	1025
32. Asphalt production by distillation	2951	25	200	200(275)	(500)425	(300)225	225
33. Asphalt blowing plants	2951	25	200	200(350)	(575)425	(375)225	225



NOTE: Persons who operate boilers shall include fees as indicated in items #57 or 58 in addition to fees for any other applicable category.

Air Contaminant Source	Standard Industrial Classification Number	Filing Fee	Application Processing Fee	Annual Compliance Determination Fee	Fees to be Submitted with New Application	Fees to be Submitted with Renewal Application	Fees to be Submitted with Application to Modify Permit
34. Asphaltic concrete paving plants	2951						
a) Stationary		25	200	225	450	250	225
b) Portable		25	200	275 (300)	(525) 500 (325) 300		225
35. Asphalt felts and coating	2952	25	200	200 (450)	(675) 425 (475) 225		225
36. Blending, compounding or re-refining of lubricating oils and greases	2992	25	175	150 (225)	(425) 350 (250) 175		200
37. Glass container manufacturing	3221	25	200	200 (350)	(575) 425 (375) 225		225
38. Cement manufacturing	3241	25	625	625 (650)	(2300) 1275 (1675) 650		650
39. Redimix concrete	3273	25	75	100 (110)	(210) 200 (135) 125		100
40. Lime manufacturing	3274	25	300	125 (175)	(500) 450 (200) 150		325
41. Gypsum products	3275	25	150	150 (175)	(350) 325 (200) 175		175
42. Rock Crusher	3295						
a) Stationary		25	175	200 (225)	(425) 400 (250) 225		200
b) Portable		25	175	250 (300)	(500) 450 (325) 275		200
43. Steel works, rolling and finishing mills	3312	25	500	350 (400)	(925) 875 (425) 375		525
44. Incinerators							
a) 1,000 lbs/hr. and greater capacity		25	300	200 (175)	(500) 525 (200) 225		325
b) 40 lbs/hr. to 1,000 lbs/hr. capacity		25	100	50 (85)	(210) 175 (110) 75		125

NOTE: Persons who operate boilers shall include fees as indicated in items #57 or 58 in addition to fees for any other applicable category.

Air Contaminant Source	Standard Industrial Classification Number	Filing Fee	Application Processing Fee	Annual Compliance Determination Fee	Fees to be Submitted with New Application	Fees to be Submitted with Renewal Application	Fees to be Submitted with Application to Modify Permit
45. Gray iron and steel foundries	3321						
Malleable iron foundries	3322						
Steel investment foundries	3324						
Steel foundries not elsewhere classified	3325						
a) 3,500 or more T/y production		25	500	400 (450)	(975)925	(475)425	525
b) Less than 3,500 T/y production		25	125	200 (225)	(375)350	(250)225	150
46. Primary aluminum production	3334	25	1000	2000 (2200)	(3225)3025	(2225)2025	1025
47. Primary smelting and refining of ferrous and nonferrous metals not elsewhere classified	3339						
a) 2,000 or more T/y production		25	500	350 (1100)	(1425) 875	(1125)375	525
b) Less than 2,000 T/y production		25	100	75 (275)	(400) 200 (300)100		125
48. Secondary lead smelting	3341	25	225	250 (275)	(525) 500 (300)275		250
49. Non Ferrous Metals Foundries	3361 3362	25	125	200 (225)	(375)350	(250)225	150
50. Electroplating, polishing and anodizing with 5 or more employees	3471	25	100	100 (175)	(300)225	(200)175	125
51. Galvanizing and pipe coating--exclude all other activities	3479	25	100	150 (175)	(300)275	(200)175	125
52. Battery manufacturing	3691	25	125	150 (225)	(375)300	(250)175	150
53. Grain elevators - intermediate storage only, located in Special Control Areas	4221						
a) 20,000 or more T/y		25	175	400 (350)	(550)600	(375)425	200
b) Less than 20,000 T/y		25	100	125 (175)	(300)250	(200)150	125

NOTE: Persons who operate boilers shall include fees as indicated in items #57 or 58 in addition to fees for any other applicable category.

Air Contaminant Source	Standard Industrial Classification Number	Filing Fee	Application Processing Fee	Annual Compliance Determination Fee	Fees to be Submitted with New Application	Fees to be Submitted with Renewal Application	Fees to be Submitted with Application to Modify Permit
54. Electric power generation	4911*						
a) Greater than 25MW		25	1000	1000(1100)	(2125) 2025	(1125) 1025	1025
b) Less than 25MW		25	350	500(550)	(925) 875	(675) 525	375
55. Gas production and/or manufacturing	4925	25	375	225(275)	(675) 625	(300) 250	400
56. Grain elevators - Terminal elevators primarily engaged in buying and/or marketing grain--in Special Control Areas	5153						
a) 20,000 or more T/y		25	500	400(450)	(975) 925	(475) 425	525
b) Less than 20,000 T/yr		25	150	125(175)	(350) 300	(200) 150	175
57. Fuel burning equipment within the boundaries of the Portland, Eugene-Springfield, and Medford-Ashland Air Quality Maintenance Areas and the Salem Urban Growth Area***	4961**						
(Fees will be based on the total aggregate heat input of all boilers at the site.)							
a) Residual oil fired, wood fired or coal fired							
1) 250 million or more btu/hr (heat input )		25	150	100(175)	(350) 275	(200) 125	175
2) 5 million or more but less than 250 million btu/hr. (heat input )		25	100	50(100)	(225) 175	(125) 75	125
3) Less than 5 million btu/hr (heat input )		25	25	25(75)	(125) 75	(100) 50	50
b) Distillate oil fired							
1) 250 million or more btu/hr (heat input )		25	150	100(175)	(350) 275	(200) 125	175
2) 5 million or more but less than 250 million btu/hr. (heat input )		25	25	25(75)	(125) 75	(100) 50	50

\* Excluding hydroelectric and nuclear generating projects, and limited to utilities.

\*\* Including fuel burning equipment generating steam for process or for sale but excluding power generation (SIC 4911).

\*\*\* Maps of these areas are attached. Legal descriptions are on file in the Department.

**NOTE:** Persons who operate boilers shall include fees as indicated in items #57 or 58 in addition to fees for any other applicable category.

Air Contaminant Source	Standard Industrial Classification Number	Filing Fee	Application Processing Fee	Annual Compliance Determination Fee	Fees to be Submitted with New Application	Fees to be Submitted with Renewal Application	Fees to be Submitted with Application to Modify Permit
58. Fuel burning equipment outside the boundaries of the Portland, Eugene-Springfield and Medford-Ashland Air Quality Maintenance Areas and the Salem Urban Growth Area.	4961**		(Fees will be based on the total aggregate heat input of all boilers at the site.)				
All wood, coal and oil fired greater than 30 x 10 <sup>6</sup> BTU/hr (heat input)		25	100	50 (75)	(200) 175	(100) 75	125
59. New sources not listed above which would emit 10 or more tons per year of any air contaminants including but not limited to particulates, SO <sub>x</sub> , NO <sub>x</sub> or hydrocarbons, if the source were to operate uncontrolled.		****	****	****	****		****
60. New sources not listed above which would emit significant malodorous emissions, as determined by Departmental or Regional Authority review of sources which are known to have similar air contaminant emissions.		****	****	****	****		****
61. Existing sources not listed above for which an air quality problem is identified by the Department or Regional Authority.		****	****	****	****		****

\*\*\*\* Sources required to obtain a permit under items 59, 60 & 61 will be subject to the following fee schedule to be applied by Department based upon the anticipated cost of processing and compliance determination.

<u>Estimated Permit Cost</u>	<u>Application Processing Fee</u>	<u>Annual Compliance Determination Fee</u>
Low cost	\$50.00 - \$200.00	\$50.00 - \$150.00
Medium cost	\$200.00 - \$500.00	\$150.00 - \$400.00
High cost	\$500.00 - \$1,000.00	\$400.00 - \$750.00

As nearly as possible, applicable fees shall be consistent with sources of similar complexity as listed in Table A.



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. F October 15, 1976 EQC Meeting

City of Maupin Request for Time Extension for  
Upgrading of Sewage Collection and Treatment Facilities.

Since 1969 the City of Maupin has been requested by the Department of Environmental Quality to upgrade the city's sewage treatment facilities. For one reason or another, the improvements have not been made and presently the city is again asking for additional time for construction of these needed facilities.

### Background

1. The City of Maupin operates an activated sludge sewage treatment plant (0.07 MGD - design capacity 700 persons) which discharges treated wastewater to the Deschutes River. The plant presently serves 450 people.
2. It has been demonstrated by field documentation by the Department over the past 10 years that the existing facility is not capable of continuous operation in compliance with State and Federal effluent discharge limits.
3. There is a need for sewerage collection in the East Maupin area, which currently utilizes individual disposal systems.
4. An upgraded collection and treatment system would produce high quality effluent and provide service to East Maupin area.
5. The City has received five waste discharge permits since 1968. Four of the permits have required BOD and Suspended Solid concentration of 20 mg/l (20/20) effluent capability.



Contains  
Recycled  
Materials

6. A permit #522 issued in July 1969 required facility upgrading by January 1, 1970. Subsequent to that date several time extensions have been requested by the City. (See Exhibit A and Exhibit B for pertinent events and dates).
7. The Department has granted time extensions as necessary and has endeavored to pursue a cooperative rather than punitive approach to the City's problems since 1966 (Exhibit A).
8. The last two (2) time extensions requested by the City would complete construction after Federally mandated July 1, 1977 date for achieving secondary treatment (Exhibit C and Exhibit E).
9. No final engineering plans for construction have been submitted to the Department for review and approval.

#### Evaluation

1. The existing facility is creating a potential public health problem due to recreation activities in the river downstream and the facilities' inability to adequately treat additional loads.
2. Continued discharge of effluent from the existing facility after July 1, 1977 will be in violation of Public Law 92-500 as well as Oregon Water Quality Standards.
3. No improvements have been implemented or brought to final planning and construction stages.
4. The existing facility has never consistently met the 20/20 effluent discharge standard.

#### Conclusion

1. The City has had ample time to plan and implement the required improvements.
2. The City has not provided a satisfactory explanation for the continued time delays to the Department.

Director's Recommendations

1. Unless the city can show cause otherwise, they should be ordered by the Commission to design, construct and place into operation approved sewage treatment facilities by July 1, 1977.
2. If the Commission determines that there are sufficient reasons for the delays in providing these needed improvements, it should instruct the staff of the Department to develop an order containing a time schedule which would be beyond the July 1, 1977 deadline. This order would require the city to upgrade their sewage treatment plant as soon as practicable.
3. That the City's waste discharge permit be modified to provide that no new connections be added to the sewerage system without written approval of the Department. Approvals would be based on the progress the city is making to provide the needed facilities.
4. That the staff of the Department enforce, by all legal remedies, including civil penalties, the order as approved by the Commission.



LOREN KRAMER  
Director

FMB:bw

Attachments:

1. Exhibit A. Summary of Correspondence and Events.
2. Exhibit B. Permit Requirements and Compliance Dates.
3. Exhibit C. Letter from Stanley D. Heisler requesting time extension to October, 1977.
4. Exhibit D. DEQ response to Exhibit C.
5. Exhibit E. Letter from J. Van Toronto informing of possible delay until Spring, 1978.
6. Exhibit F. Current city's NPDES Permit.  
Issued July 22, 1974.  
Addendum October 6, 1975.

EXHIBIT A

Summary of Major Relevant Correspondence and Events

<u>Event</u>	<u>Initiator</u>	<u>Recipient</u>	<u>Date</u>	<u>Subject</u>
1	OSSA	Maupin	11/28/66	Survey shows effluent violations.
2	OSSA	Maupin	5/16/67	Survey shows effluent violations.
3	OSSA	Maupin	1/18/68	Request for permit application.
4	OSSA	Maupin	1/26/68	Temporary permit TP-518 issued.
5	OSSA	Maupin	10/21/68	Survey shows effluent violations.
6	OSSA	Maupin	10/25/68	Permit #302 issued.
7	OSSA	Maupin	4/07/69	Plant upgrade and expansion.
8	OSSA	Maupin	7/25/69	Permit #422 issued requiring upgrading. by 1/1/70 to 20/20 standard.
9	DEQ	Maupin	9/22/69	Survey shows effluent violations.
10	DEQ	Maupin	1/20/70	Survey shows effluent violations.
11	DEQ	EQC	3/08/71	Poor plant performance.
12	DEQ	Maupin	4/26/71	Permit #987 issued.
13	J. Val Toronto (City's Consulting Engineer).	Maupin	5/ /72	Preliminary facilities report.
14	DEQ	J. Val Toronto	7/21/72	Provisional approval for item #13 above.
15	DEQ	Maupin	9/27/72	EPA grant application acknowledged and additional information requested.
16	DEQ	Maupin	3/02/73	Incomplete grant application.
17	DEQ	Maupin	3/13/73	Project status request.
*18	DEQ	Maupin	5/24/73	Advised that new permit would call for upgrading by September 1, 1974.
19	Maupin	Maupin	1/24/74	City Council Meeting. a. Engineer authorized to proceed with final plans.  b. Bond Election.  c. Land Acquisition.



EXHIBIT A  
Page 2

<u>Event</u>	<u>Initiator</u>	<u>Recipient</u>	<u>Date</u>	<u>Subject</u>
20	J. Val Toronto	Maupin	2/22/74	Cost estimates for upgrading.
*21	DEQ	Maupin	7/22/74	NPDES #1664-J issued requiring upgrading by 7/1/75.
22	DEQ	Maupin	5/04/74	Survey shows effluent violations.
23	DEQ	Maupin	11/21/74	Notice of non-compliance with compliance schedule.
24	DEQ	Maupin	12/12/74	1. Informed city they were behind in compliance schedule. 2. Encouraged land disposal.
25	J. Val Toronto	Maupin	2/17/75	Cost update.
26	J. Val Toronto	DEQ	4/07/75	New proposed construction timetable.
*27	Maupin	DEQ	4/08/75	Time extension request.
28	Maupin	Maupin	5/29/75	City passed bond election.
29	DEQ	Maupin & J.Val Toronto	8/25/75	Step I grant procedures (meeting in Bend).
30	DEQ	Maupin	10/06/75	Addendum #1 issued extending compliance schedule.
31	DEQ	EPA	10/30/75	Step I grant application.
*32	DEQ	J. Val Toronto	12/02/75	Acknowledged verbal time extension requests and pointed out need to meet 7/1/77 date.
33	DEQ	Maupin	1/07/76	Compliance schedule reminder.
34	DEQ	Maupin	3/08/76	Survey shows effluent violations. Compliance schedule reminder.
35	Maupin	DEQ	4/29/76	Confusion over compliance dates and grant application.

<u>Event</u>	<u>Initiator</u>	<u>Recipient</u>	<u>Date</u>	<u>Subject</u>
36	DEQ	J. Val Toronto	5/05/76	Compliance schedule dates overdue.
37	DEQ	Maupin	5/05/76	Explanation of #35 above.
38	Stanley Heisler	DEQ (City Attorney)	5/25/76	Time extension request to 10/77.
39	DEQ	Stanley Heisler	5/28/76	Notified of conflict of EPA Regulations.
40	DEQ	Maupin	7/28/76	Request explanation of delays to EQC.
41	J. Val Toronto	DEQ	8/02/76	Request time extension to Spring 1978.

EXHIBIT B

Permit Requirements and Compliance Dates

<u>Permit #</u>	<u>Issued</u>	<u>Expired</u>	<u>Required</u>
TP-518 (temporary permit)	2/29/68	12/31/68	Operate Facilities at maximum efficiency
302	10/25/68	6/30/69	20/20 effluent capability
522	7/25/69	3/31/70	Submittal of program and time schedule to meet 20/20 standard by January 1, 1970
987	4/26/71	3/31/73	20/20 effluent capability
1664-J	7/22/74	3/31/79	Compliance schedule to eliminate discharge to water or upgrade to 20/20 capability in accordance with the following schedule:  Arrange for financing 6-1-74 Submit final engineering plans 6-1-74 Start construction 9-1-74 Progress report 1-1-75 Complete construction 7-1-75
Addendum #1 to 1664-J	10/6/75	3/31/79	New compliance schedule:  Arrange financing 11-1-75 Submit final engineering plans 3-1-76 Start construction 10-1-76 Complete construction 5-1-77

Heisler & Van Valkenburgh

ATTORNEYS AT LAW

214 EAST FIFTH STREET

THE DALLES, OREGON 97058

DONALD E. HEISLER  
M. D. VAN VALKENBURGH  
STANLEY D. HEISLER

TELEPHONE : (503) 296-4654

May 25, 1976

Mr. John E. Borden  
Reginal Administrator  
Department of Environmental Quality  
2150 N. E. Studio Road  
Bend, Oregon 97701

Wasco Co.  
↑  
S ↓  
Re: City of Maupin Sewerage Project

Dear Mr. Borden:

Please be advised that we represent the City of Maupin. The City of Maupin is concerned about the consequences of not incorporating sprinkler irrigation in the project referred to above. If it isn't required to put in sprinkler irrigation, the City of Maupin wants an assurance from the Department of Environmental Quality of a year-round discharge permit for the foreseeable future. The City of Maupin does not want to commit itself to a treatment alternative which will produce a year-round effluent discharge quality of 20 milligrams per liter of BOD and 20 milligrams per liter of suspended solids. The City of Maupin wants to be assured that the Department of Environmental Quality is not going to reverse itself and not allow summer discharge at some date in the future.

With regard to the July 1, 1977 deadline by which municipalities are apparently to meet secondary treatment standards, referred to in previous correspondence with the City of Maupin; as you are aware, the City has shown its good intent by making a massive commitment toward this project. You have seen the results of City efforts in this regard. Our latest engineering estimate is that construction will be under way by May, 1977. Our most recent estimate is for project completion in October, 1977. Accordingly, we would request a permit modification to allow the City of Maupin this time extension.

May I please hear from you with regard to these matters.

Very truly yours,

*SDH*  
Stanley D. Heisler

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED  
MAY 26 1976

SDH:ct  
cc: City of Maupin  
cc: Mr. Tom Blankenship

RECORD MANAGEMENT OFFICE



ROBERT W. STRAUB  
GOVERNOR

DEPARTMENT OF  
ENVIRONMENTAL QUALITY

Exhibit D

CENTRAL REGION

2150 N.E. STUDIO ROAD • BEND, OREGON • 97701 • Phone (503) 382-6446

July 28, 1976

City of Maupin  
P.O. Box 301  
Maupin, OR 97742

S - Maupin, Wasco County  
ENF-WQ-CRO 77-10

Gentlemen:

Pursuant to Mr. Bob Shimek's telephone conversation on July 15, 1976 with Mr. Stanley Heisler, Attorney at Law regarding the Maupin sewage treatment improvement project the Department has the following comments regarding your specific questions:

1. Question - What guarantee does the City of Maupin have that discharge to the river will be prohibited and land disposal of effluent required in the future?

Answer - Section 303(e) of Public Law 92-500 requires a plan be developed and adopted for the purpose of preserving and enhancing water quality in river basins throughout the state. The draft Deschutes Basin Plan calls for 20-20 treatment (20 mg/l BOD and Suspended Solids monthly average concentration) during periods of low flow and warm weather in that reach of the Deschutes River next to Maupin. When this plan is adopted it will be as good guarantee as the Department can give that land disposal will not be required provided of course that Maupin meets the 20-20 effluent limit. It is expected that the basin plan will be adopted during summer 1976.

2. Question - Can the existing permit be modified to allow for completion of the new facilities after the July 1, 1977 Federal deadling?

Answer - When a commitment to the Step III grant is accomplished allowances may be considered for a revised completion date agreeable with the City, EPA and DEQ. Prior to the Step III commitment, however such consideration will not be made.

The city of Maupin has submitted several time extension requests for this sewerage project to the Department during the last three years. The Department has made every possible effort to favorably evaluate the requests; however, to date an approved facilities plan has not yet been

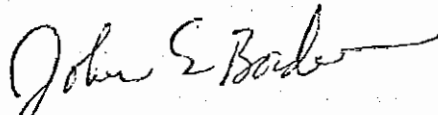
developed (although a July 21, 1976 submittal from J. Val Toronto is currently under review), and the City has additionally requested a time extension beyond the July 1, 1977 completion date stipulated in PL-92-500.

In light of the above, the Department hereby requests that the City of Maupin present a history of their efforts, a sewerage construction improvement status report, and justification of your time extensions request to the Environmental Quality Commission at their September, 1976 meeting in The Dalles, Oregon. You may wish to have your consulting engineer and legal consul available to assist in the presentation. The Department will contact you with details concerning time and location of the meeting.

Please do not hesitate to contact either Bob Shimek or me if you have questions or comments.

Sincerely,

LOREN KRAMER  
Director



John E. Borden  
Regional Manager

JEB:sm

cc: J. Val Toronto  
Water Quality  
Fred Bolton  
Mr. Stanley Hersler, Attorney at Law  
Environmental Protection Agency

CONSULTING  
*Engineers*

J. VAL TORONTO & ASSOCIATES, INC.

STATE OF OREGON  
LICENSE #3802  
STATE OF WASHINGTON  
LICENSE #11765  
STATE OF ALASKA  
LICENSE #1413

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED  
AUG - 9 1976

TELEPHONE (503) 276-7402  
219 S. E. 2ND  
PENDLETON, OREGON 97801

BEND DISTRICT OFFICE

August 2, 1976

John Borden  
DEQ  
P.O. Box 1243  
Bend, OR 97701

Dear Mr. Borden:

Enclosed is a copy of a tentative time schedule for the Maupin Sewage Project that was presented to the Maupin City Council, July 14, 1976. The schedule sets out, what we feel are, minimum time requirements to perform the items 1 through 14.

As of this writing, all dates on this tentative need to be set ahead at least by 2 weeks, and if the construction of the project falls into the month of November, then project completion will be delayed until the Spring of 1977

Sincerely yours,



J. Val Toronto

JVT/dar

cc: City of Maupin

*should read 1978*

CIVIL - HYDRAULICS - STRUCTURES

HIGHWAY DESIGN  
ACCIDENT INVESTIGATION

WATER AND SEWER DESIGN, PLANTS AND FACILITIES

COMMUNITY PLANNING  
PARKS AND SWIMMING POOLS

SITE DEVELOPMENT INVESTIGATION

SUBDIVISION PLANNING AND SURVEYS

MAUPIN - TENTATIVE TIME SCHEDULE

1. Commence Engineering July 15, 1976
2. Complete Engineering Nov. 1976
3. Submit Plans to DEQ Nov. 1976
4. DEQ Plan Review Dec. 1, 1976
5. EPA Plan Review Jan. 1, 1977
6. EPA Approval Feb. 1977
7. Advertise Bids Feb. 1977
8. Bid Opening March 1977
9. Bid Approval (DEQ & EPA) April 1977
10. Award of Contract April 1977
11. Contractors Notice To Proceed May 1977
12. Start Up of Construction (based on Commencing Engineering July 15, 1976) May 1977
13. Complete Project (5 months) Oct. 1976

→ should read 1977.



Permit Number: 1664-J  
Expiration Date: 3-31-79  
Page 1 of 1

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
**WASTE DISCHARGE PERMIT**

Department of Environmental Quality  
1234 S. W. Morrison Street  
Portland, Oregon 97205  
Telephone: (503) 229-5696

Issued in accordance with the provisions of  
ORS 449.083 (Recodified as 468.740)  
and  
Federal Water Pollution Control Act Amendments of 1972,  
P.L. 92-503, Oct. 18, 1972 (33 U.S.C. § 1251 et seq.)

ISSUED TO:	REFERENCE INFORMATION
City of Maupin Post Office Box 301 Maupin, Oregon 97037	File Number: <u>53633</u> Appl. No. <u>CR-002260-B</u> Received: _____ Major Bn: <u>Deschutes</u> Minor Bn: _____ Receiving Stream: <u>Deschutes River</u> River Mile: <u>51.2</u> County: <u>Wasco</u>

**ADDENDUM NO. 1**

Waste Discharge Permit No. 1664-J is modified by making the following changes:

Change the dates in Condition S1 as follows:

- Arrange financing by November 1, 1975.
- Submit final engineering plans by March 1, 1976.
- Start construction by October 1, 1976.
- Complete construction by May 1, 1977.

Change the date in Condition S4 from July 1, 1975 to July 1, 1977.

Change the date in Condition S5 from July 1, 1975 to July 1, 1977.

Change the dates in Condition S7 from July 1, 1975 to May 1, 1977.

This addendum shall be attached to and made part of Waste Discharge Permit number 1664-J.

DEPARTMENT OF ENVIRONMENTAL QUALITY

By: \_\_\_\_\_  
Title: Director  
Date: OCT 6 1975

EXHIBIT F

Permit Number: 1654-J  
 Expiration Date: 3-31-79  
 Page 1 of 9

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
**WASTE DISCHARGE PERMIT**

Department of Environmental Quality  
 1234 S. W. Morrison Street  
 Portland, Oregon 97205  
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Issued in accordance with the provisions of  
 CRS 449.083 (Recodified as 468.740)  
 and

Federal Water Pollution Control Act Amendments of 1972,  
 P.L. 92-500, Oct. 18, 1972 (33 U.S.C. § 1251 et. seq.)  
 (Hereinafter referred to as the "Federal Act").

## ISSUED TO:

City of Maupin  
 Post Office Box 301  
 Maupin, Oregon 97037

## REFERENCE INFORMATION

File Number: 53633  
 Appl. No.: 1932 Received 2-20-73  
 OR-002260-8  
 Major Basin: Deschutes  
 Minor Basin:  
 Receiving Stream: Deschutes River  
 River Mile: 51.2  
 County: Wasco

## PLANT SITE:

Maupin

ISSUED BY THE DEPARTMENT OF  
ENVIRONMENTAL QUALITY

*Kessie R. Cannon*  
 Kessie R. Cannon  
 Director

JUL 22 1974

Date

PERMITTED ACTIVITIES

Until such time as this permit expires or is modified or revoked, the City of Maupin is herewith permitted to:

- Operate its sewerage system and sewage treatment works.
- Discharge treated wastes to the Deschutes River.
- Construct extensions to its sewerage system.
- Construct modifications to its sewage treatment works.

All of the above activities must be carried out in conformance with the requirements, limitations and conditions which follow.

The word "waste," as used in this permit, refers to "sewage" as defined in CRS 449.073 (recodified as 468.700).

State of Oregon  
 Department of Environmental Quality  
**PERMIT CONDITIONS**

Permit Number: 1654-J  
 Expiration Date: 3-31-79  
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SPECIAL CONDITIONS

- S1. The permittee shall eliminate all discharges to state waters or shall provide plant modification capable of achieving the effluent limitations in Condition S4 of this permit in accordance with the following time schedule:

Arrange for financing	June 1, 1974
Submit final engineering plans	June 1, 1974
Start construction	September 1, 1974
Report of progress	January 1, 1975
Complete construction	July 1, 1975

- S2. The permittee is expected to meet the compliance schedule and interim dates which have been established in Condition S1 of this permit. Either prior to or no later than 14 days following any lapse of compliance, the permittee shall submit to the Department a notice of compliance or non-compliance with the established schedule.
- S3. Prior to constructing or modifying any waste water control facilities, detailed plans and specifications shall be approved in writing by the Department.
- S4. After July 1, 1975 the quantity and quality of effluent discharged directly or indirectly to the Deschutes River shall be limited as follows:
- During the period between April 1 and October 31:
    - The monthly average quantity of effluent discharged shall not exceed 0.070 million gallons per day (MGD).
    - The monthly average 5-day 20° C. Biochemical Oxygen Demand (BOD) shall not exceed a concentration of 20 mg/l or 12 pounds per day with a weekly average not to exceed 30 mg/l or 17.5 pounds per day and with a daily maximum of 40 mg/l or 23 pounds.
    - The monthly average Suspended Solids shall not exceed a concentration of 20 mg/l or 12 pounds per day with a weekly average not to exceed 30 mg/l or 17.5 pounds per day and with a daily maximum of 40 mg/l or 23 pounds.
    - The effluent shall receive disinfection sufficient to reduce fecal coliform bacteria to a monthly average of no more than 200 per 100 ml or a weekly average of no more than 400 per 100 ml. (Usually this can be obtained with a chlorine residual of 1.0 mg/l after 60 minutes of contact time.)
    - The effluent pH shall not be outside the range 6.0 - 9.0.
  - During the period between November 1 and March 31:
    - The monthly average quantity of effluent discharged shall not exceed 0.07 million gallons per day (MGD).

- 2) The monthly average BOD shall not exceed a concentration of 30 mg/l or 17.5 pounds per day with a weekly average not to exceed 45 mg/l or 26 pounds per day and with a daily maximum of 35 pounds.
- 3) The monthly average Suspended Solids shall not exceed a concentration of 30 mg/l or 17.5 pounds per day with a weekly average not to exceed 45 mg/l or 26 pounds per day and with a daily maximum of 35 pounds.
- 4) The effluent shall receive disinfection sufficient to reduce fecal coliform bacteria to a monthly average of no more than 200 per 100 ml or a weekly average of no more than 400 per 100 ml. (Usually this can be obtained with a chlorine residual of 1.0 mg/l after 60 minutes of contact time.)
- 5) The effluent pH shall not be outside the range 6.0 - 9.0.

NOTE: The monthly and weekly averages for BOD and Suspended Solids are based on the arithmetic mean of the samples taken. The averages for fecal coliform are based on the geometric mean of the samples taken.

55. During the period between the date of issuance of this permit and the completion of the improvements required by Condition 51 but not later than July 1, 1975, the quality of effluent discharged directly or indirectly to the Deschutes River shall be as follows:

a. During the period between April 1 and October 31:

- 1) The monthly average quantity of effluent discharged shall not exceed 0.050 million gallons per day (MGD).
- 2) The monthly average 5-day 20° C. Biochemical Oxygen Demand (BOD) shall not exceed a concentration of 40 mg/l or 17 pounds per day with a weekly average not to exceed 50 mg/l or 21 pounds per day and with a daily maximum of 25 pounds.
- 3) The monthly average Suspended Solids shall not exceed a concentration of 40 mg/l or 17 pounds per day with a weekly average not to exceed 50 mg/l or 21 pounds per day and with a daily maximum of 25 pounds.
- 4) The effluent shall receive disinfection sufficient to reduce fecal coliform bacteria to a monthly average of no more than 200 per 100 ml or a weekly average of no more than 400 per 100 ml. (Usually this can be obtained with a chlorine residual of 1.0 mg/l after 60 minutes of contact time.)
- 5) The effluent pH shall not be outside the range 6.0 - 9.0.

b. During the period between November 1 and March 31:

- 1) The monthly average quantity of effluent discharged shall be kept as low as practicable.

- 2) The monthly average BOD shall not exceed a concentration of 40 mg/l or 17 pounds per day with a weekly average not to exceed 50 mg/l or 21 pounds per day and with a daily maximum of 25 pounds.
- 3) The monthly average Suspended Solids shall not exceed a concentration of 40 mg/l or 17 pounds per day with a weekly average not to exceed 50 mg/l or 21 pounds per day and with a daily maximum of 25 pounds.
- 4) The effluent shall receive disinfection sufficient to reduce fecal coliform bacteria to a monthly average of no more than 200 per 100 ml or a weekly average of no more than 400 per 100 ml. (Usually this can be obtained with a chlorine residual of 1.0 mg/l after 60 minutes of contact time.)
- 5) The effluent pH shall not be outside the range 6.0 - 9.0.

NOTE: The monthly and weekly averages for BOD and Suspended Solids are based on the arithmetic mean of the samples taken. The averages for fecal coliform are based on the geometric mean of the samples taken.

56. 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 ORR 340-41-105 except in the following defined mixing zone:

The allowable mixing zone shall not exceed that portion of the Deschutes River within a radius of 100 feet from the point of discharge.

57. The permittee shall monitor the operation and efficiency of all treatment and control facilities and the quantity and quality of the waste discharged. A record of all such data shall be maintained and submitted to the Department of Environmental Quality on prescribed forms at the end of each calendar month. Unless otherwise agreed to by the Department of Environmental Quality, data collected and submitted shall include, but not necessarily be limited to, the following parameters and minimum frequencies:

Parameter	Minimum Frequency
Total Flow	Daily
Pounds Chlorine Used	Daily
Chlorine Residual (effluent)	Daily grab sample
BOD (influent and effluent)	Quarterly grab sample; monthly composite after July 1, 1975
Suspended Solids (influent and effluent)	Quarterly grab sample; monthly composite after July 1, 1975
pH (influent and effluent)	3 grab samples per week
Sludge Volume	Daily
Fecal Coliform	Quarterly grab sample

Monthly reports shall also include a record of the location and method of disposal of all sludge and a record of all equipment breakdowns and bypassing.

State of Oregon  
Department of Environmental Quality  
PERMIT CONDITIONS

Permit Number: \_\_\_\_\_  
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58. Construction of sewer extensions and connections thereto is permitted, after construction of the facilities required by Condition S1, as long as the added waste load will not cause any of the limitations of this permit to be exceeded and provided that plans and specifications are submitted to and approved by the Department of Environmental Quality prior to construction, as required by ORS 449.395 (recodified as 454.415). No additional connections to the sewerage system are permitted until the new treatment facility is in operation.
59. Within 90 days of receipt of this permit the permittee shall submit for review and approval a detailed program for sludge handling and disposal. It shall contain at least the following information:
- Description of current sludge handling and disposal practices including but not limited to: (1) volume and frequency, (2) method and location and (3) contractual arrangements or leases if any.
  - Evaluation of sludge handling practices including but not limited to: (1) problems experienced, (2) problems anticipated, (3) projected life of current program and (4) potential hazards involved.
  - Proposed sludge handling procedures for the next 5-year period and 10-year period.
- S10. Condition G7 of the attached General Conditions does not apply to this permit.
- S11. Condition G2c of the attached General Conditions is changed as follows for the duration of this permit:
- Monitoring reports shall be submitted at the required intervals on forms to be provided by the Department. In addition, an annual summary of the monitoring data shall be submitted each January on EPA approved NPDES report forms.

State of Oregon  
Department of Environmental Quality  
PERMIT CONDITIONS

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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 procedures:
- Monitoring shall begin on the first day of the month following issuance of this permit unless specified otherwise by a special condition.
  - Monitoring reports shall be submitted by the 15th day of each following month.
  - Monitoring reports shall be submitted on approved NPDES report forms.
  - 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 pollutant 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 operated in a manner consistent with the following:

State of Oregon  
Department of Environmental Quality  
PERMIT CONDITIONS

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Expiration Date: 3-31-79  
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- a. 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.
- b. 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.
- c. 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:
- a. 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.
- b. 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.
- c. 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.
- G7. Within 90 days of the issuance of this permit the permittee shall submit the following information to the Department:
- a. A list of all industrial users of the municipal sewerage system along with an appropriate description of the wastes discharged;
- b. A description of pretreatment facilities provided by each industrial user;
- c. Any system of charges or rates which the permittee has to assure that each recipient of treatment works services will pay its proportionate share of the costs of operation, maintenance and replacement of treatment works facilities or services;

State of Oregon  
Department of Environmental Quality  
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- d. A copy of any toxic waste and pretreatment requirements which the permittee may have in force.
- G8. 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.
- G9. 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.
- G10. 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.
- G11. The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

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Department of Environmental Quality  
PERMIT CONDITIONS

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G12. 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.

G13. 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.

G14. 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.

G15. If a toxic effluent standard or prohibition (including any schedule of 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.



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

To: Environmental Quality Commission

From: Director

Subject: Addendum to Agenda Item No. G, October 15, 1976, EQC Meeting  
Martin Marietta -- Amendment to Director's Conclusions  
And Recommendations

The Department's Public Informational Hearing report to the EQC regarding Martin Marietta indicated that further information on vegetation effects in The Dalles was expected from the EPA Corvallis Lab and further documentation of cost for SO<sub>2</sub> control was expected from Martin Marietta.

As of October 14, 1976, the EPA Lab has not completed vegetation analysis. EPA has indicated that fluoride analysis of vegetation has shown levels below 35 ppm. These levels, according to Dr. Hindawi of EPA are well below any levels that would be expected to cause damage. Sulfur analysis of vegetation has not been completed as of this time. It is expected to be completed in several weeks. Dr. Hindawi does not anticipate finding sulfur levels high enough to cause damage.

Based on this information and the preponderance of expert opinion that the risk is small to nonexistent that adverse effects would occur in the orchards from even the highest SO<sub>2</sub> levels projected in the orchards, it would appear the issue narrows to determination of what level of SO<sub>2</sub> control could satisfy the Department's requirements for Highest and Best Practicable Treatment and Control (H&BPT&C).

Martin Marietta's proposed dry primary control system would not reduce present collection efficiency for particulates and fluorides but would reduce the SO<sub>2</sub> collection efficiency of the present primary system from 70% to 0%. The Department's tentative position is that, at a minimum, H&BPT&C would dictate that any change in the company's air pollution control system should not cause a decrease in overall collection efficiency of any significant air contaminant.



Contains  
Recycled  
Materials

On October 11, 1976 Martin Marietta submitted a cost estimate of about \$2 million for a system to achieve 70% SO<sub>2</sub> collection efficiency. This cost is in great contrast to a \$440,000 estimate previously made by EPA.

Upon closer examination of the system for which costs were estimated, it appears that Martin Marietta may have obtained a cost estimate on the most elaborate and complex (and costly) system available. This system would employ a 95% efficient SO<sub>2</sub> scrubber to treat only a portion of the gas stream necessary to reach an overall 70% collection efficiency. The 95% SO<sub>2</sub> scrubber would include elaborate chemical treatment and handling.

EPA cost estimates are based on a simple wet scrubber with once-through water. EPA believes this system may not require any treatment of water discharge for fluorides or suspended solids since these would be essentially removed in the dry primary scrubber.

A third alternative of using the present wet ESP system which is achieving a 70% SO<sub>2</sub> collection efficiency after the new dry primary scrubber should also be explored.

There are some concerns that a once-through wet scrubber or the existing wet ESP may not reach 70% collection efficiency if used after a primary dry scrubber (which removes particulates and fluorides). There does not appear to be any technically sound data to fully support this concern and further investigation appears warranted.

The Department believes a 70% efficient SO<sub>2</sub> scrubber would significantly reduce (up to 62%) the maximum projected SO<sub>2</sub> increase in the local orchards compared to using the dry scrubber. (See Table 3 of staff report.) These projections are based on the Department's estimates of air quality impact which are based on rationing actual air quality measurement data. The Department believes this technique is far more accurate than conventional mathematic modeling considering the complex wind flow and inversion conditions in the area and the likelihood of the small air volume from the primary system (~ 100,000 CFM) intermingling and behaving like the large (~ 2,000,000 CFM) secondary scrubber exhausts.

It should be pointed out again that present SO<sub>2</sub> concentrations in the orchards are essentially below measureable levels. With the proposed change to a dry scrubber, SO<sub>2</sub> concentration are projected to increase to measureable levels in the orchards. These levels would be well below state air quality standards and Federal Significant Deterioration increments.

For informational purposes, the Department has required other aluminum reduction plants in Oregon to apply special SO<sub>2</sub> treatment in conjunction with dry primary scrubbers to minimize SO<sub>2</sub> air quality impact. Alumax was restricted to use of 2.0% sulfur coke while Reynolds Metals has to install a \$1 million tall stack. The Department is also aware of at least one other aluminum plant in the world that wet scrubs its primary dry system exhaust.



### Conclusions

1. Present SO<sub>2</sub> air quality in The Dalles orchards is generally at or below measurable levels.
2. Martin Marietta's proposal to change its primary air pollution control system from a wet ESP to a dry scrubber would decrease primary SO<sub>2</sub> collection efficiency from 70% to 0%.
3. Maximum projected increases in SO<sub>2</sub> levels in The Dalles orchards would be measurable but well below State air quality standards and Federal Significant Deterioration Increments.
4. Projected maximum SO<sub>2</sub> levels in The Dalles orchards are generally considered to present little risk of adverse effects.
5. In keeping with the policy of requiring H&BPT&C and in consideration of requirements for other aluminum plants and the imminent rise in sulfur content of coke, it is the Department's tentative position that Martin Marietta should not be allowed to decrease its SO<sub>2</sub> collection efficiency as a result of their proposed change in the primary air pollution control system.
6. The Department believes that significant lower SO<sub>2</sub> concentration increases can be attained in the orchards by installation of the dry primary system and keeping overall SO<sub>2</sub> collection efficiency of the primary system at the same present level (70%).
7. Cost estimates range from \$440,000 (EPA) to \$2,000,000 (Martin Marietta) for a 70% efficient SO<sub>2</sub> scrubber. The Department believes that further cost estimates are needed on alternative means such as use of the present wet ESP system in order to determine the practicality of installing a 70% efficient SO<sub>2</sub> scrubber.

### Director's Recommendation

It is the Director's recommendation to consider testimony received at this hearing, seek additional information on costs for alternative SO<sub>2</sub> control system. A recommendation on H&BPT&C and permit modification would be proposed no later than October 29. A public hearing on the proposed permit modification would be held at the November 19, 1976 EQC meeting. The hearing record would be left open for ten (10) days and a permit modification issued, if warranted, no later than November 29, 1976.



LOREN KRAMER



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. G, October 15, 1976, EQC Meeting

Public Informational Hearing -- Martin Marietta Aluminum:  
Proposed Change in Air Pollution Control System

### Summary

Martin Marietta (MM) has proposed to modify its air pollution control system in order to recover and recycle valuable fluorides and to reduce water discharge to the Columbia River. MM's proposal would not fully meet Environmental Protection Agency (EPA) wastewater limits and would require a variance. The Department supports such a variance. The Company's proposal in combination with an expected rise in sulfur content of coke (a raw material in the process) would result in a potential increase of 240% in sulfur dioxide emissions over present levels.

Air quality analysis by the Department, EPA and MM has indicated that MM's proposal would not cause state or federal sulfur dioxide air quality standards to be exceeded. The proposal would use 36% of the Federal Prevention of Significant Air Quality Deterioration increment for sulfur dioxide.

The major issues regarding this proposal have been identified as: (1) what level of SO<sub>2</sub> control is needed to provide reasonable assurance that no adverse effects will occur in nearby orchards, and (2) what level of SO<sub>2</sub> control is needed to comply with Department and EPA requirements for application of best available and practicable sulfur dioxide control.

In regard to the orchards, some experts and local orchardists claim that localized reductions in cherry crop yields and damage to pine tree needles are still occurring in areas that are suspected of receiving most exposure from MM's air emissions.



Contains  
Recycled  
Materials

Most experts feel that no adverse affects on orchards should occur due to the increased sulfur dioxide levels, but some experts are uncertain as to the possible synergistic effects to the orchards from the higher SO<sub>2</sub> concentration in combination with existing levels of fluorides and ozone. Data to conclusively assess air quality impact on cherries is in fact lacking.

In regard to best available and practicable control, the proposed change in MM's air pollution control system will cost approximately \$6 million and recover fluorides valued at approximately \$50,000 per month. Sulfur dioxide emission control equipment for the primary system appears to be available ranging in an efficiency from 70% at a cost of approximately \$400,000 up to 95% efficient at a cost of about \$4 million. A 70% efficient scrubber would reduce possible SO<sub>2</sub> emission increases from the projected 240% increase to a 60% to 90% increase. A 95% efficient SO<sub>2</sub> scrubber could prevent any increase in sulfur dioxide emissions over present levels.

The Department is awaiting further documentation by MM of economics for possible sulfur dioxide controls and also awaiting an analysis of vegetation samples collected by EPA earlier this year in The Dalles area. Upon review of this information and testimony from this hearing, the Department will determine the degree of sulfur dioxide controls necessary to meet Department rules and provide reasonable protection to the orchards. The Department will then propose action on MM's pending permit application to modify its air pollution control system.

### Background

Martin Marietta operates a relatively small 90,000 ton per year aluminum reduction plant at The Dalles. The plant has operated since 1958 and has had a long history of alleged fluorides damage to local orchards. In 1972 the best available air pollution control systems were installed and since that time particulate and fluoride air emissions have been maintained at levels considered among the lowest of any aluminum reduction plant in the World.

MM's primary (pot) and secondary (roof vents) air pollution control systems rely on water scrubbing which results in a wastewater discharge to the Columbia River. This discharge exceeds 1977 EPA limits for fluorides and suspended solids discharges by 500% and 300% respectively. Figure 1 presents a summary of MM's present air, water and solid waste discharges.

### MM's Proposal

MM has proposed to replace its primary wet precipitator air pollution control system with a dry air pollution control system. Both systems are considered state of the art for the aluminum industry. This change would allow the company to recover and recycle valuable fluorides valued at about \$50,000 per month. The proposal would also reduce wastewater discharge to the Columbia River and allow MM to meet EPA's suspended solids limits. Wastewater fluoride limits would still be exceeded by 240%. Landfill of 9,700 cubic yards per year of sludge would be eliminated.

MM has not proposed to treat secondary wastewater discharges as they feel it is impractical, of questionable environmental benefit to the river, and a threat to increasing particulate and fluoride air emissions. The Department has supported a variance request to EPA in light of the fact that the Columbia River has over 60 times more natural fluorides in it than are discharged by the Martin Marietta plant.

Besides recovering and recycling fluorides, the Company's proposal would result in a substantial increase in sulfur dioxide air emissions from the primary air pollution control system. Coupled with a projected rise in sulfur content of coke from 2 to 3%, SO<sub>2</sub> emissions could increase up to 240% over present levels. Plant-wide particulate and fluoride air emissions would not change. Figure 2 presents air, water and solid waste discharges from the plant as they would occur under MM's proposal.

### Air Quality Concerns and Analysis

Because of the significant increase in sulfur dioxide emissions, there is concern as to the air quality impact of MM's proposal.

MM and the Department have projected air quality impact of the SO<sub>2</sub> emission increase. Table 1 presents a summary of this analysis. The analysis indicates that the Company's proposal would not cause state or federal sulfur dioxide air quality standards to be exceeded. The proposal would use 36% of the EPA Prevention of Significant Deterioration SO<sub>2</sub> air quality increment. Existing SO<sub>2</sub> air quality levels in The Dalles are essentially attributable to MM as MM's SO<sub>2</sub> emission represent the majority of area SO<sub>2</sub> emissions.

### Critical Issues

Orchardists have raised considerable concern that the sulfur dioxide increases would cause damage to their crops. The Department and EPA have indicated they must determine what degree of SO<sub>2</sub> control meets best available and practicable control requirements of their respective regulations. These are the two critical issues that must be resolved in order to determine if, and what SO<sub>2</sub> emission increase can be allowed from the MM proposed air pollution control system change.

### Orchard Impact

Some orchardists claim that the 1976 cherry crop yields were reduced in localized areas suspected to have received significant exposure to air emissions from the Martin Marietta plant. Pine tree damage was also claimed. The Department has solicited comments of existing conditions from experts. A summary of this information is as follows:

Summary of Present Vegetation and  
Fruit Conditions at The Dalles

1. Very little soft suture of peaches has been observed in The Dalles orchards in the last two years.(1)
2. Cherry fruit set in 1976 exhibited similar past patterns. Areas believed to receive most exposure to Martin Marietta plant emissions had less fruit set.(1)
3. Ambient fluoride levels have been reduced to levels thought low enough to protect against fruit set damage. However, this data is based on 24 hour average samples and does not reflect short term peak exposure levels.(1)
4. Pine tree damage is reported to be presently the worst since 1967.(1) One expert who analyzed vegetation samples claims fluoride and SO<sub>2</sub> are causing the problem (2) while another has claimed it is winter damage<sup>2</sup> and application of insecticides.(3)
5. There is some feeling that if air pollution is presently harming orchards, it is air pollution being trapped by unique atmospheric conditions which confine and concentrate pollution in a very localized area.

- 
- (1) Dr. T. J. Facticeau, Mid-Columbia Experiment Station, Oregon State University (Attachment A).  
(2) Dr. C. Gordon, University of Montana. (Attachment B)  
(3) Dr. G. F. Edmunds, Jr., Consulting Biologist (Attachment C)

The Department has researched literature to determine the information available on effects of sulfur dioxide on vegetation. Following is a summary of these findings:

Summary of Information on SO<sub>2</sub> Impacts on Vegetation

1. Relatively few studies have been conducted to document visible SO<sub>2</sub> damage to cherry trees.
2. Highest projected SO<sub>2</sub> concentrations in the orchards are well below documented visible damage levels to cherry trees.
3. There have been no studies to document SO<sub>2</sub> effects to cherry blossoms, fruit set, or fruit.
4. Studies indicate adverse synergistic effects from low levels of SO<sub>2</sub> in combination with HF or ozone can occur to various vegetation species. Other studies of different vegetation show no adverse effects. However, no synergistic studies have been conducted on cherry trees.
5. Some studies have documented visible damage due to additive or synergistic effects to certain vegetation (barley, corn) at levels as low as about twice maximum projected for SO<sub>2</sub> and fluoride or SO<sub>2</sub> and ozone levels in The Dalles orchards. However, damage levels were for exposures over several weeks compared to projected peak levels averaged over a few hours.

The Department has also solicited expert opinions on the projected SO<sub>2</sub> impact in The Dalles orchards and has found the following:

Summary of Opinions on SO<sub>2</sub> Impacts in Orchards

1. Most experts contacted feel that no adverse effects on orchards would occur from highest projected SO<sub>2</sub> levels.(1)
2. Some experts contacted are uncertain as to possible synergistic effects of projected SO<sub>2</sub> levels in combination with HF or ozone on cherries. They indicate that evidence is insufficient to make conclusive predictions but generally feel further SO<sub>2</sub> control is not justified.(2)
3. One expert contacted feels the risk is small that undesirable synergistic effects will occur in the orchards.(3)
4. Based on recent analysis of area vegetation one expert believes that present levels of SO<sub>2</sub> and fluoride in The Dalles area is significantly harming vegetation and that increases in Martin Marietta air emissions would aggravate conditions.(4)

(1) Dr. Hill (Attachment D) and Dr. Treshow (Attachment E), University of Utah; Dr. O. C. Taylor (Attachment F), University of California; Dr. Weinstein (Attachment G), Boyce Thompson Institute.

(2) Dr. O. C. Taylor (Attachment H), University of California; Dr. I. Hindawi (Attachment I), EPA Corvallis.

(3) Dr. O. C. Taylor (Attachment H), University of California.

(4) Dr. C. Gordon (Attachment B), University of Montana.

### Highest and Best Practicable Treatment and Control

Department rules require application of highest and best practicable treatment and control. EPA's Prevention of Significant Deterioration (PSD) rules require application of best available control technology regardless of the increment of PSD used. Both rules require consideration of economics in determining the degree of control necessary.

SO<sub>2</sub> control technology has made advancements in this Country over the last several<sup>2</sup> years, primarily because of the need for such control on coal-fired power plants. SO<sub>2</sub> collection efficiencies of up to 70% have been reached with the existing Martin Marietta primary wet scrubber system. State of the art SO<sub>2</sub> control technology appears to indicate that up to 95% SO<sub>2</sub> control can be obtained (but at great expense).

A new 70% efficient scrubber, after the proposed dry scrubber, would cost approximately \$440,000, according to EPA estimates. It would reduce potential SO<sub>2</sub> emission increases from 240% to 60% to 90% over present levels. A 95% efficient SO<sub>2</sub> scrubber could keep SO<sub>2</sub> emissions from increasing over present levels even if coke sulfur content increased to 3%. Costs of such a system have been estimated by the Department at \$4 million.

Martin Marietta has been requested to provide actual cost figures for a 70% and 95% efficient SO<sub>2</sub> scrubber. Until this information is received and evaluated and considered<sup>2</sup> in light of cost of the proposed dry system (\$5.8 million), cost savings from fluoride recovery estimated at \$50,000 per month, and available state pollution control tax credits, it is not possible to make a firm determination of what represents best available and practicable control.

### Alternatives

The Department has identified at least five alternatives which should be considered in determining what action should be taken on Martin Marietta's proposal. These alternatives are as follows:

1. No change in the present air pollution control system.
2. Replace the wet primary scrubber with a dry scrubber (company proposal).
3. Company's proposal with a 70% efficient SO<sub>2</sub> scrubber.
4. Company's proposal with a 95% efficient SO<sub>2</sub> scrubber.
5. Company's proposal with a 95% efficient SO<sub>2</sub> scrubber and treatment or recycle of secondary scrubber water.

Table 2 presents a summary of the projected SO<sub>2</sub> emissions associated with each alternative. A range in emissions is shown because of the different projection assumptions made by the Department and MM.

Table 3 presents a projection of air quality levels that would occur under the Company's proposal and with a 70% or 95% efficient SO<sub>2</sub> scrubber.

A listing of advantages and disadvantages of each of these alternatives is found in Tables 4 through 8. Figures 2 through 6 present air, water and solid waste discharges projected under the five alternatives.

Protection of The Dalles air quality in light of the sensitivity of local orchards is of utmost importance to the Department. Alternative 4 would provide the best protection possible by allowing no increase in plant site air emissions. Whether this is a viable economic alternative has yet to be determined. Alternative 5 would meet EPA wastewater requirements, but would pose an unacceptable risk of increased fluoride air emissions. Alternative 1 does not appear feasible since the Company has advised that they must convert to a dry scrubber in order to maintain competitiveness. Alternative 3 would appear economically feasible and offer a relatively small increase in SO<sub>2</sub> concentrations in the area. Further cost analysis, however, is needed for this alternative. Alternative 3 would use up more of the PSD increments than the Company's proposal, however this might be mitigated by a taller stack. Even with the increment usage projected, this would not appear to pose any great restraint to future industrial growth in the area.

### Conclusions

Martin Marietta's proposal would increase SO<sub>2</sub> emissions, but would not exceed state or federal ambient air or Prevention<sup>2</sup> of Significant Deterioration increments or standards.

While experts believe the risk is small that the sulfur dioxide emission increase would cause adverse effects in orchards, it appears prudent to minimize the SO<sub>2</sub> increase to the greatest extent practicable in light of: (1) information that suggests air fluorides even in levels thought to be safe, may still be adversely affecting vegetation in The Dalles, (2) the possible synergistic affects of increased SO<sub>2</sub> levels in combination with existing fluoride and ozone levels, and (3) the lack of research information to conclusively evaluate whether air pollution is or will pose a significant threat to local orchards.

Application of highest and best treatment for sulfur dioxide air emissions from Martin Marietta would appear to require application of a SO<sub>2</sub> scrubber in the range of 70% to 95% efficiency. The specific SO<sub>2</sub> control that is practicable from an economic standpoint must be determined through further analysis of cost data to be submitted by Martin Marietta. Either one of these control systems would appear to keep SO<sub>2</sub> levels in the orchards from significantly increasing over present levels which are relatively low.

Analysis of area vegetation collected by the EPA this year should be reviewed to determine if it can shed any more light on the roll air pollution plays relative to claimed existing vegetation damage in The Dalles area. This information may provide a better perspective on the risks associated with allowing an increase in sulfur dioxide emissions from the Martin Marietta plant.



Director's Recommendation

It is the Director's recommendation to consider cost data to be submitted by Martin Marietta on sulfur dioxide emission control and the analysis of area vegetation to be submitted by the EPA Corvallis Lab as well as testimony submitted at this hearing before determining the degree of SO<sub>2</sub> control, if any, that should be imposed on Martin Marietta as part of acting on the Company's proposal to modify air pollution control systems. In order to insure coordinated action on SO<sub>2</sub> control requirements of MM, a recommendation should be made no later than October 26, 1976 so that the Department can provide comments on best available control technology to EPA during their 30 day public comment period on their PSD review.

A handwritten signature in black ink, appearing to read 'Loren Kramer', with a long horizontal stroke extending to the right.

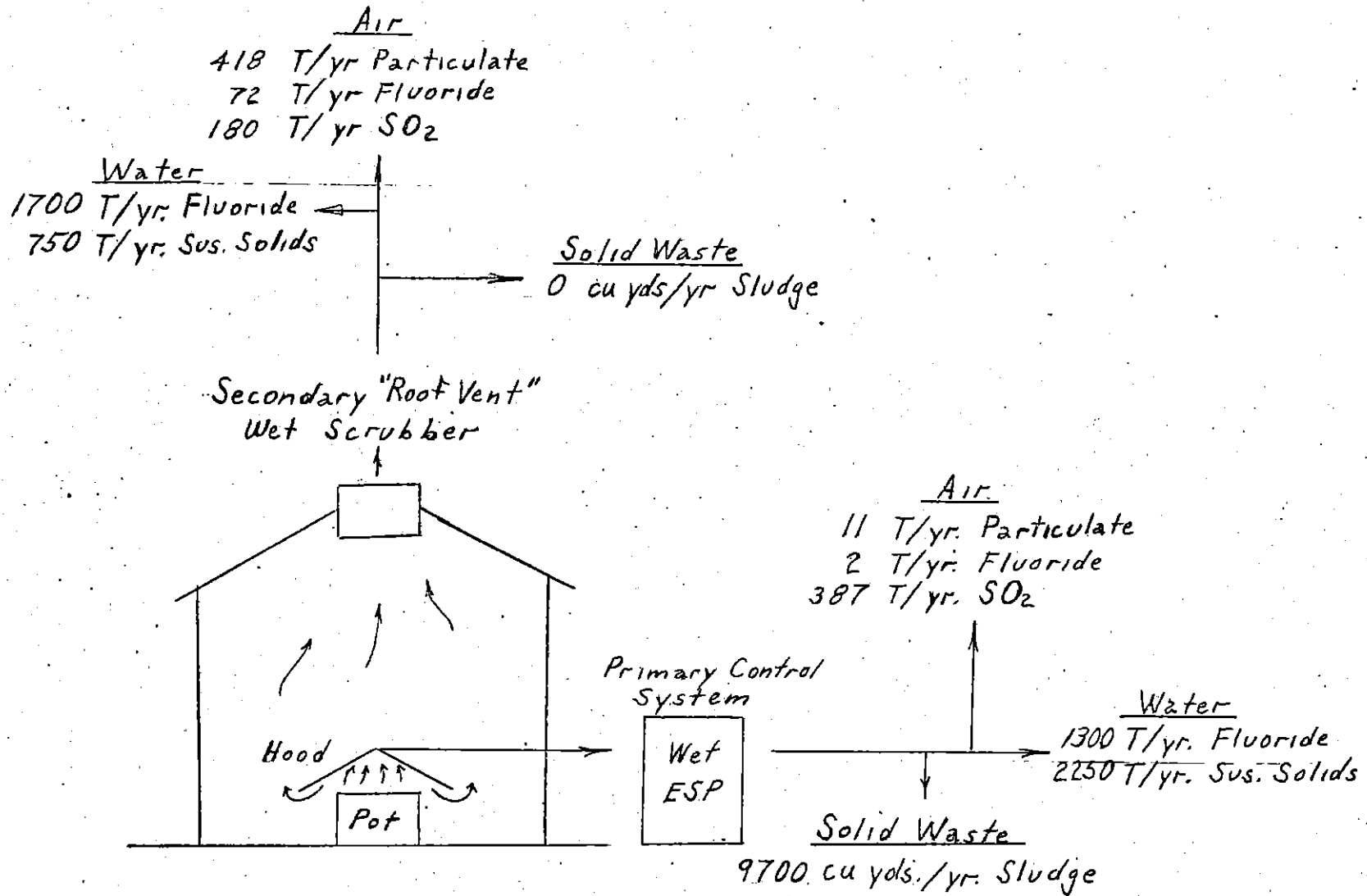
LOREN KRAMER

JFK:cs

Attachments

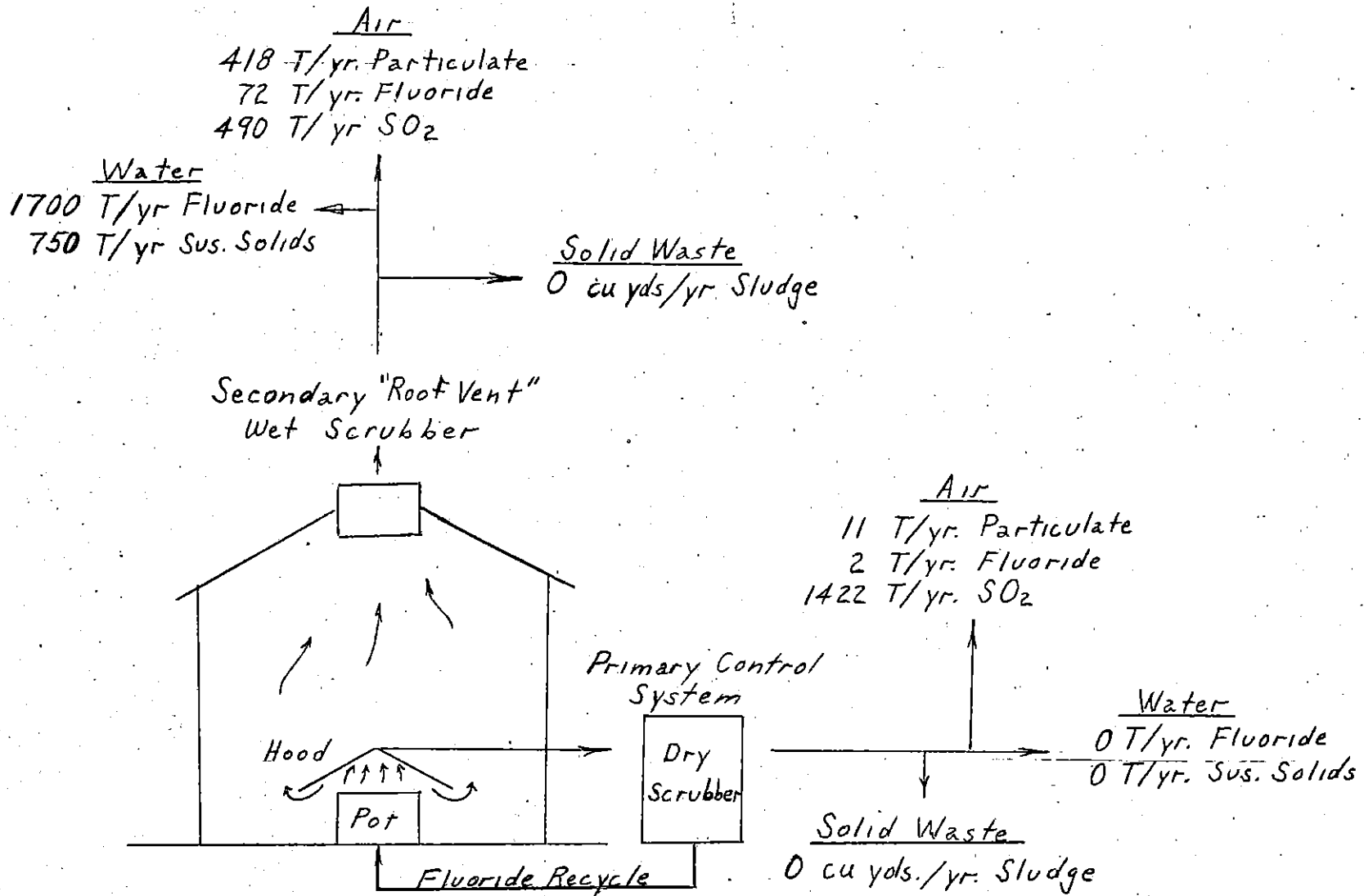
Current Emissions

2% Coke



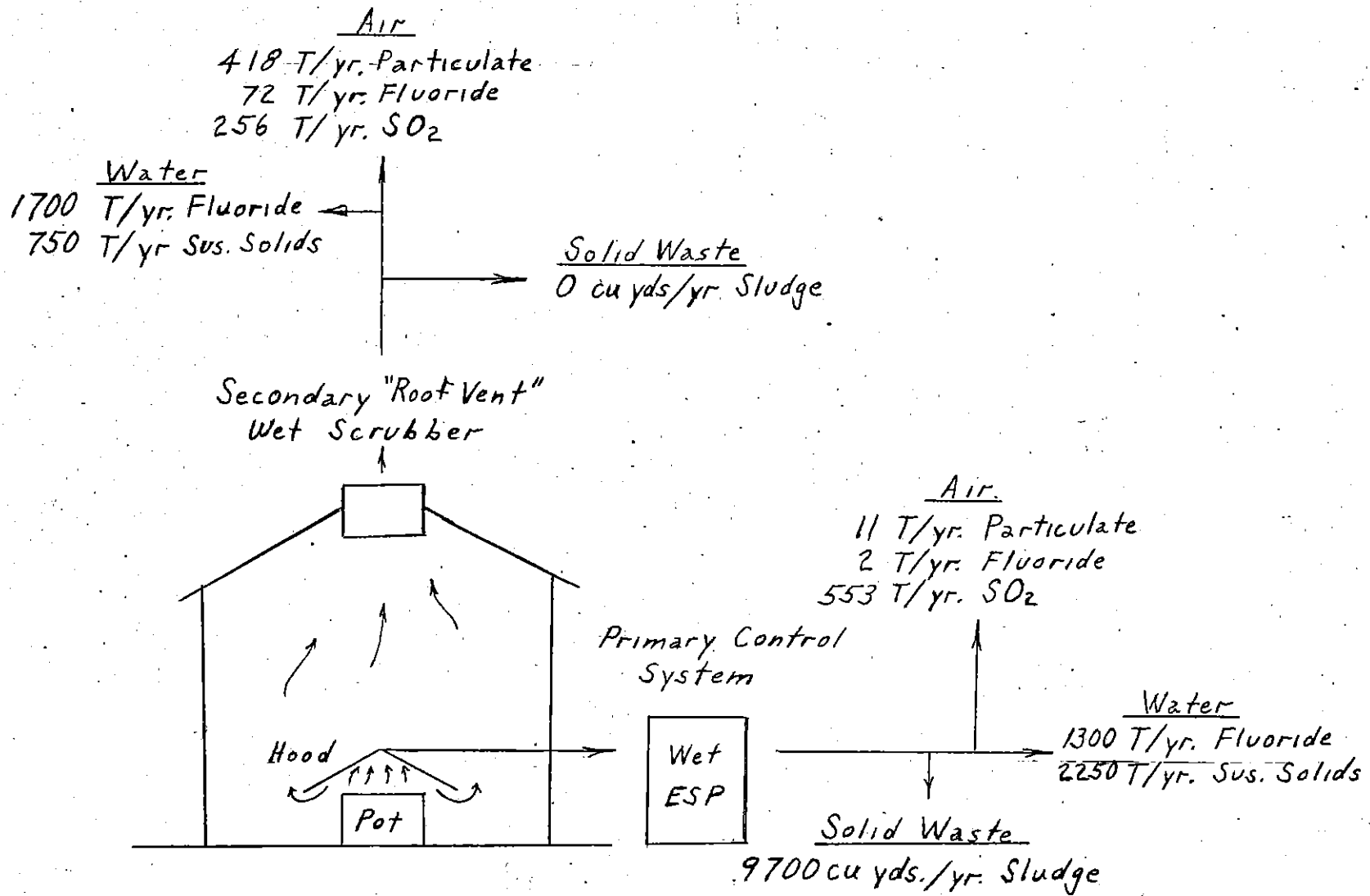
ALTERNATIVE No. 2  
Dry Primary Scrubber

FIGURE 2



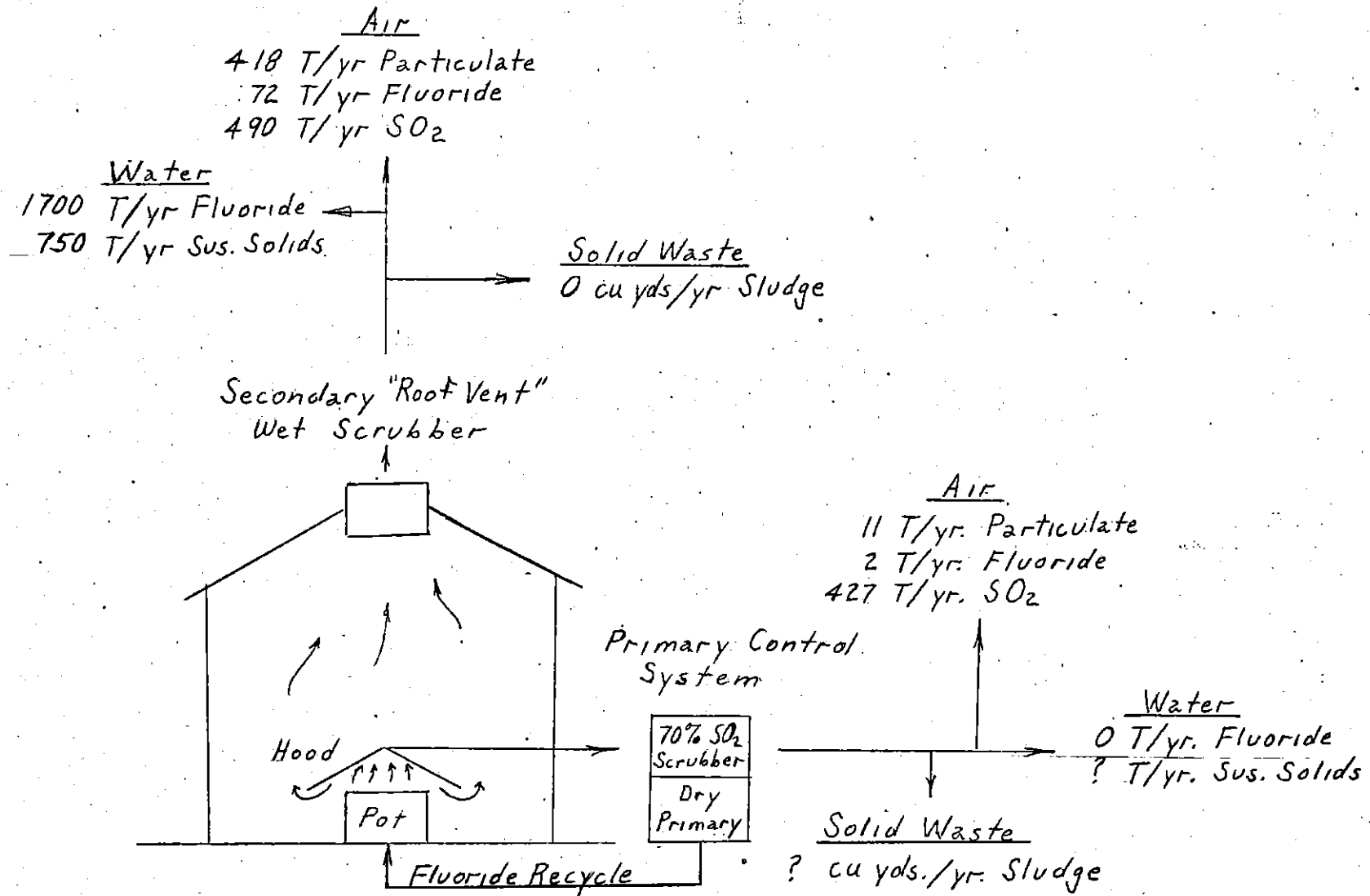
ALTERNATIVE No. 1

No Change, 3% Coke



ALTERNATIVE No. 3

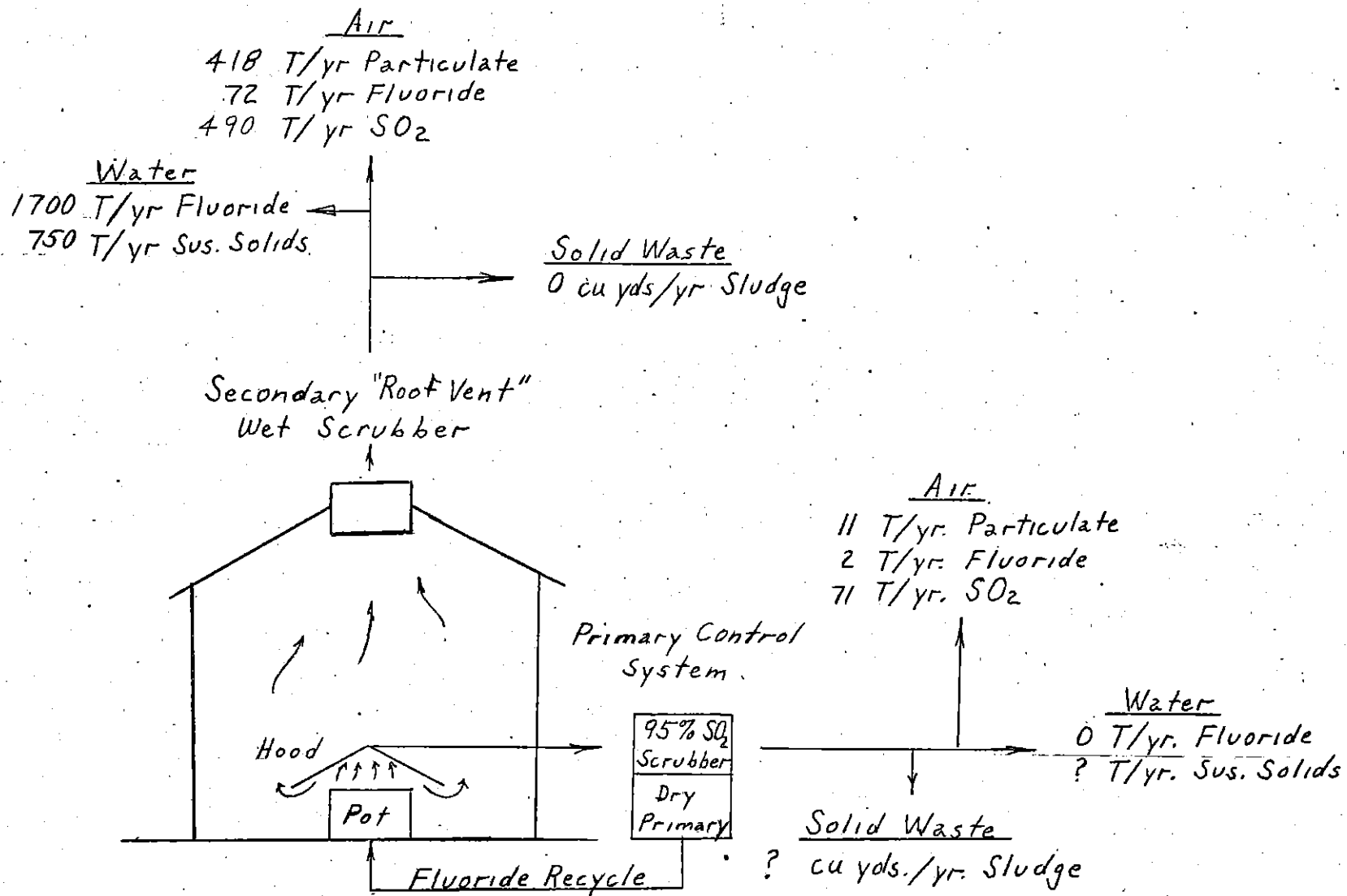
Dry Primary Scrubber with 70% Efficient SO<sub>2</sub> Scrubber



ALTERNATIVE No. 4

FIGURE 5

Dry Primary Scrubber with 95% Efficient SO<sub>2</sub> Scrubber



ALTERNATIVE No. 5

Dry Primary Scrubber with 95% Efficient SO<sub>2</sub> Scrubber, Recycled Secondary Scrubber Water

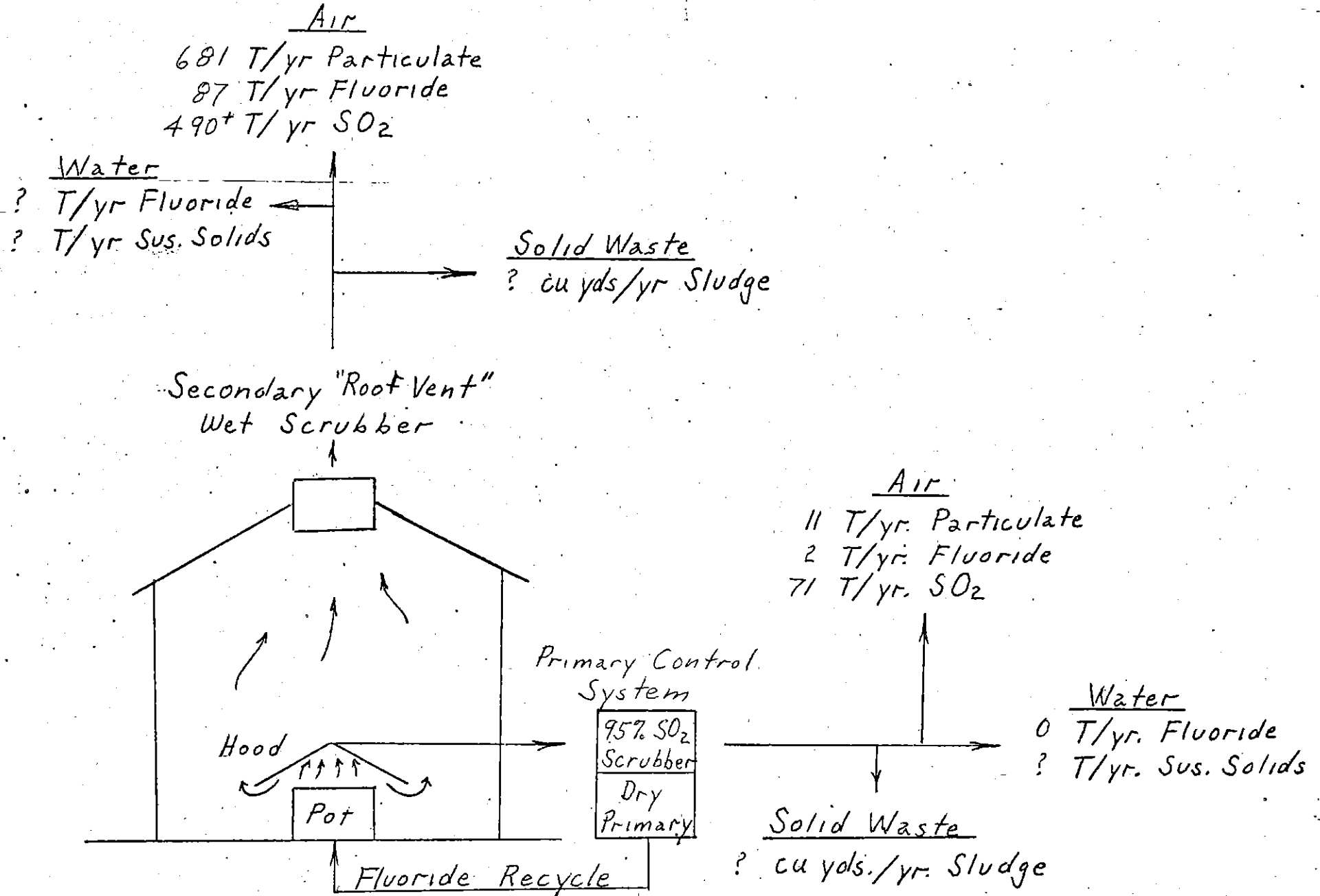


Table 1

SO<sub>2</sub> Air Quality Impact<sup>(1)</sup>  
(ug/m<sup>3</sup>)

(Martin Marietta Proposal at 3% Coke)

	Maximum Impact Point (2)		Maximum Orchard Impact		Air Quality Standards		EPA Significant Deterioration Increment	
	Pres.	Proj.(3)	Pres.	Proj.	State	EPA	Allowed	Used(3)
3 hr.avg.	59	110	23	93	1300	1300	700	51
24 hr.avg.	41	77	10	39	260	365	100	36
Annual Avg.	12	15	2	7	60	80	15	3

(1) Based on Department Projection using

(2) Less than 1.5 km from plant site.

(3) EPA Projections at 2.8% S coke.



TABLE 2

# SO<sub>2</sub> EMISSIONS

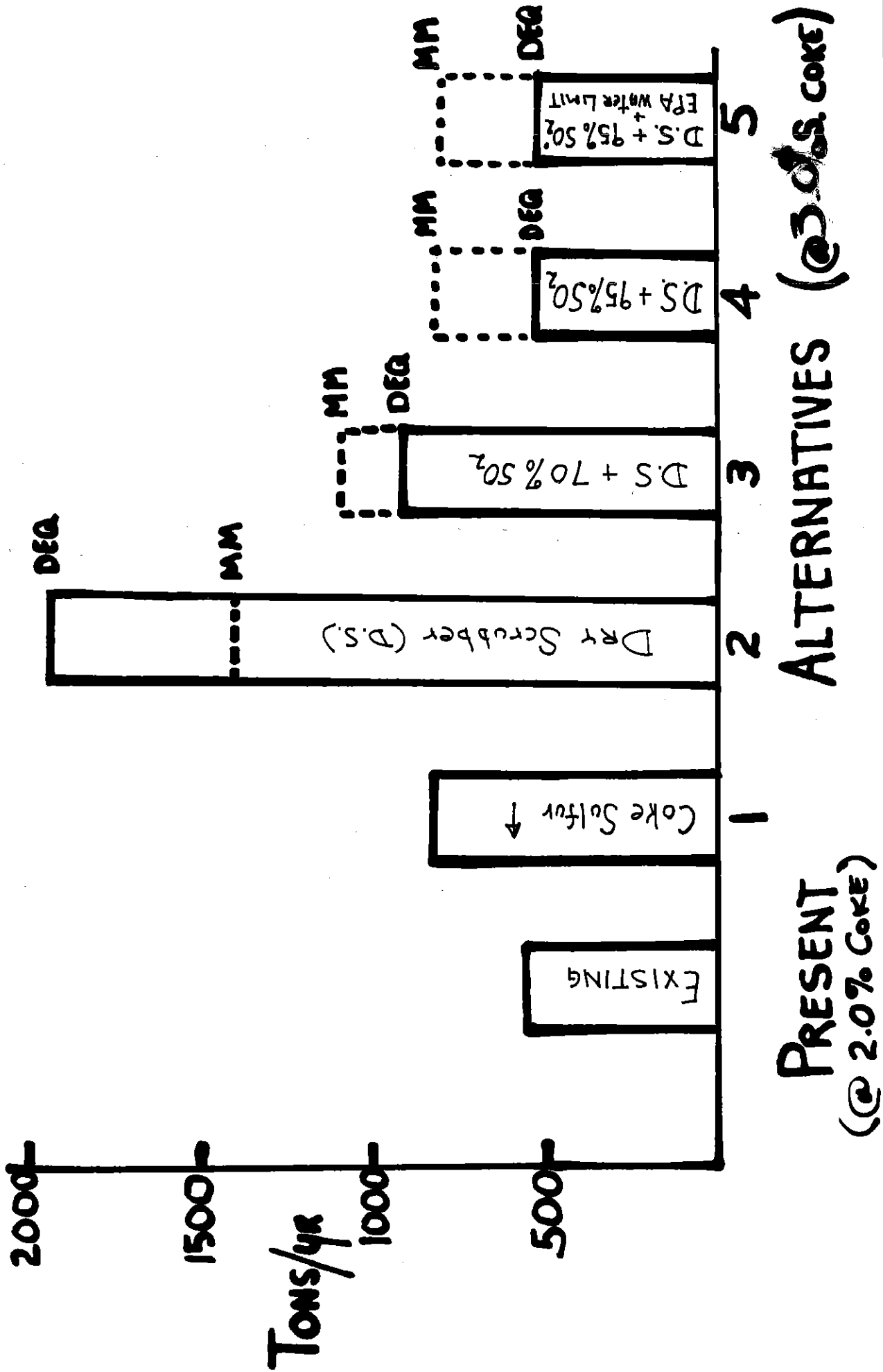


Table 3  
 SO<sub>2</sub> Air Quality Impact Alternatives  
 (ug/m<sup>3</sup>)

Alternatives	Max. 3 hr. Avg.		Max. 24 hr. Avg.		Annual	
	Max. Impact Point(1)	Max. Orchard Impact	Max. Impact Point(1)	Max. Orchard Impact	Max. Impact Point(1)	Max. Orchard Impact
1. Present	59	23	41	10	12	2
2. Dry Scrubber (D.S.)	110	93	77	39	15	7
3. D.S. to 70% SO <sub>2</sub> control	143	37	100	16	15	3
4. & 5. D.S. and 95% SO <sub>2</sub> Control	73	23	51	10	12	2

(1) Less than 1.5 km from plant site based on EPA projection at 2.8% S Coke.

TABLE 4

ALTERNATIVE 1

NO CHANGE

ADVANTAGES

1. NO INCREASE IN PARTICULATE OR FLUORIDE AIR EMISSIONS.

DISADVANTAGES

1. POTENTIAL 50% INCREASE IN  $SO_2$  AIR EMISSIONS AND AIR QUALITY LEVELS BECAUSE OF INCREASING SULFUR CONTENT OF COKE.
2. RAISES CONCERN AS TO ADVERSE EFFECTS OF  $SO_2$  INCREASE ON ORCHARDS.
3. EXCEEDS FEDERAL WASTEWATER DISCHARGE GUIDELINES FOR FLUORIDE AND SUSPENDED SOLIDS TO COLUMBIA RIVER BY 500% AND 300% RESPECTIVELY.
4. CONTINUE LAND DISPOSAL OF 720 CU. FT/DAY OF WASTEWATER TREATMENT SLUDGE.
5. CONTINUE TO WASTE COSTLY FLUORIDE TO THE RIVER WHICH COULD BE RECYCLED.

TABLE 5

ALTERNATIVE 2

DRY PRIMARY SCRUBBER  
(COMPANY PROPOSAL)

ADVANTAGES

1. REDUCE DISCHARGE OF FLUORIDE AND SUSPENDED SOLIDS TO RIVER BY 43% AND 75% BY ELIMINATING PRIMARY WET SCRUBBER.
2. NO INCREASE IN PARTICULATE OR FLUORIDE AIR EMISSIONS.
3. ELIMINATE LAND DISPOSAL OF 720 CU. FT/DAY OF WASTEWATER TREATMENT SLUDGE.
4. SIGNIFICANTLY REDUCE MARTIN MARIETTA OPERATING COST BY CAPTURE AND RECYCLE OF FLUORIDES. (APPROXIMATELY \$50,000 PER MONTH)

DISADVANTAGES

1. POTENTIAL 180-240% INCREASE IN  $SO_2$  AIR EMISSIONS AND AIR QUALITY LEVELS OVER PRESENT LEVELS.
2. USE 36% OF FEDERAL PREVENTION OF SIGNIFICANT AIR QUALITY DETERIORATION (PSD) INCREMENT NEAR PLANT SITE.
3. RAISE CONCERN AS TO ADVERSE EFFECTS OF  $SO_2$  INCREASE ON ORCHARDS.
4. DOES NOT FULLY MEET EPA WASTEWATER TREATMENT DISCHARGE GUIDELINES BECAUSE OF SECONDARY WET SCRUBBER DISCHARGE OF FLUORIDES (DISCHARGE 1,700 LB/DAY VERSUS 500 ALLOWED) (REQUIRES VARIANCE).

TABLE 6

ALTERNATIVE 3

DRY PRIMARY SCRUBBER WITH  
70% EFFICIENT SO<sub>2</sub> SCRUBBER

ADVANTAGES

1. REDUCE DISCHARGE OF FLUORIDE AND SUSPENDED SOLIDS TO RIVER BY 43% AND 75% BY ELIMINATING PRIMARY WET SCRUBBER.
2. NO INCREASE IN PARTICULATE OR FLUORIDE AIR EMISSIONS.
3. ELIMINATE LAND DISPOSAL OF 720 CU. FT/DAY OF WASTEWATER TREATMENT SLUDGE.
4. SIGNIFICANTLY REDUCE MARTIN MARIETTA OPERATING COST BY CAPTURE AND RECYCLE OF FLUORIDES. (APPROXIMATELY \$50,000 PER MONTH)
5. REDUCE POTENTIAL INCREASE IN SO<sub>2</sub> AND AIR QUALITY LEVELS TO 60-90% OVER PRESENT LEVELS (COMPARED TO ALTERNATIVE 2).

DISADVANTAGES

1. USE 59% OF PSD INCREMENT BECAUSE OF INCREASED AIR QUALITY IMPACT NEAR PLANT SITE.
2. RAISE CONCERN AS TO ADVERSE EFFECTS OF SO<sub>2</sub> INCREASE ON ORCHARDS.
3. DOES NOT FULLY MEET EPA WASTEWATER TREATMENT DISCHARGE GUIDELINES BECAUSE OF SECONDARY WET SCRUBBER DISCHARGE OF FLUORIDES (DISCHARGE 1,700 LB/DAY VERSUS 500 ALLOWED) (REQUIRES VARIANCE).
4. INCREASED COST FOR SO<sub>2</sub> SCRUBBER. (EPA ESTIMATED \$400,000)

ALTERNATIVE 4DRY PRIMARY SCRUBBER WITH  
95% EFFICIENT SO<sub>2</sub> SCRUBBERADVANTAGES

1. REDUCE DISCHARGE OF FLUORIDE AND SUSPENDED SOLIDS TO RIVER BY 43% AND 75% BY ELIMINATING PRIMARY WET SCRUBBER.
2. NO INCREASE IN PARTICULATE OR FLUORIDE AIR EMISSIONS.
3. ELIMINATE LAND DISPOSAL OF 720 CU. FT/DAY OF WASTEWATER TREATMENT SLUDGE.
4. SIGNIFICANTLY REDUCE MARTIN MARIETTA OPERATING COST BY CAPTURE AND RECYCLE OF FLUORIDES.
5. REDUCE POTENTIAL SO<sub>2</sub> INCREASE IN EMISSIONS AND AIR QUALITY LEVELS TO NEAR 0% (MAXIMUM 59% INCREASE) (COMPARED TO ALTERNATIVE 1, 2, AND 3).
6. USES ONLY 10% OF PSD INCREMENT.
7. MINIMIZE CONCERN FOR ADVERSE EFFECTS OF SO<sub>2</sub> ON ORCHARDS TO GREATEST EXTENT POSSIBLE.

DISADVANTAGES

1. DOES NOT FULLY MEET EPA WASTEWATER TREATMENT DISCHARGE GUIDELINES BECAUSE OF SECONDARY WET SCRUBBER DISCHARGE OF FLUORIDES (DISCHARGE 1,700 LB/DAY VERSUS 500 ALLOWED) (REQUIRES VARIANCE).
2. RELATIVELY HIGH COST FOR 95% EFFICIENT SO<sub>2</sub> SCRUBBER (DEQ ESTIMATED \$3 TO \$5 MILLION).
3. MAY CREATE SOME NEW SLUDGE AND WASTEWATER STREAM DISCHARGES FROM SO<sub>2</sub> SCRUBBER.

TABLE 8

ALTERNATIVE 5

DRY PRIMARY SCRUBBER WITH  
95% EFFICIENT SO<sub>2</sub> SCRUBBER AND  
RECYCLED SECONDARY SCRUBBER WATER

ADVANTAGES

1. ELIMINATE LAND DISPOSAL OF 720 CU. FT/DAY OF WASTEWATER TREATMENT SLUDGE.
2. SIGNIFICANTLY REDUCE MARTIN MARIETTA OPERATING COST BY CAPTURE AND RECYCLE OF FLUORIDES.
3. REDUCE POTENTIAL SO<sub>2</sub> INCREASE IN EMISSIONS AND AIR QUALITY LEVELS TO NEAR 0% (MAXIMUM 59% INCREASE) COMPARED TO ALTERNATIVE 1, 2, AND 3.
4. USES ONLY 10% OF PSD INCREMENT.
5. MINIMIZE CONCERN FOR ADVERSE EFFECTS OF SO<sub>2</sub> ON ORCHARDS TO GREATEST EXTENT POSSIBLE.
6. MEETS EPA WASTEWATER DISCHARGE LIMITS (NO WATER DISCHARGE TO COLUMBIA RIVER).

DISADVANTAGES

1. RELATIVELY HIGH COST FOR 95% EFFICIENT SO<sub>2</sub> SCRUBBER (DEQ ESTIMATED \$3 TO \$5 MILLION).
2. RELATIVE HIGH COST FOR TREATING SECONDARY SCRUBBER WASTEWATER WITH NO MEASURABLE ENVIRONMENTAL BENEFIT.
3. POSSIBLE INCREASE IN PARTICULATE AND FLUORIDE AIR EMISSIONS FROM SECONDARY (ROOF VENT) SCRUBBERS.
4. RAISES CONCERN AS TO ADVERSE EFFECTS OF POSSIBLE PARTICULATE AND FLUORIDE AIR EMISSION INCREASE ON ORCHARDS.
5. MAY CREATE SOME NEW SLUDGE AND WASTEWATER STREAM DISCHARGE FROM SO<sub>2</sub> SCRUBBER AND SECONDARY WASTEWATER TREATMENT.

Mid-Columbia  
Experiment Station



Route 5, Box 240  
Hood River, Oregon 97031 (503) 386-2030  
August 13, 1976

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

**R E C E I V E D**

AUG 16 1976

Mr. L. Kramer  
Director, Department of Environmental  
Quality  
1234 S. W. Morrison St.  
Portland, OR 97205

**OFFICE OF THE DIRECTOR**

Dear Mr. Kramer:

Your department has requested a response to the situation existing in The Dalles in reference to vegetation damage attributed to emissions from Martin Marietta's aluminum reduction plant plus any potential problem with SO<sub>2</sub>.

There have been continued problems of soft suture on peaches to some degree since the aluminum plant has been in operation. I saw little soft suture in 1975 and, to date, little in 1976, but in 1974 W. M. Mellenthin and I examined a box of 'Improved Elberta' peaches taken at random from approximately 20 boxes at Albert Francois' orchard in The Dalles and found 56% soft suture. We have data indicating that peaches exposed to F will have shortened "shelf life" because of increased respiratory activity of the suture tissue even where no obvious symptoms of soft suture exist.

Pine trees also continue to show symptoms. This year I have seen the worst symptoms on pine needles since I started work in 1967 on this project. I have seen needle scorch on both 1975 and 1976 needles. I was under the impression that HF would only mark new tissue but Dr. A. Hindawi from the E.P.A. laboratory in Corvallis has seen these symptoms (visitation to The Dalles Aug. 11, 1976) and has told me that HF does affect older needles. These symptoms also may be caused by ozone, SO<sub>2</sub> and HF, according to Dr. Hindawi.

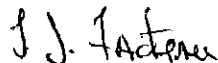
Sweet cherry fruit set exhibited a pattern similar to that seen in the past. Areas on exposed ridges (exposed both to wind and to fumes from the aluminum reduction plant) had less set than areas that were not exposed to fumes. In these areas where I would not expect exposure to fumes from the aluminum plant, windy exposures generally had good fruit set. These areas of lowered fruit set included parts of Cherry Heights, and both upper sides of Mill Creek Canyon. Our air sampling sites, did not show air F levels high enough, I believe, to affect fruit set. However, we are sampling for 24 hour periods and will not pick up shorter term elevated levels. Also, the inversion layer build-up that can exist in The Dalles during cherry bloom does not necessarily pass by our air sampling sites. I have seen this build-up of



"fumes" from the aluminum plant and, from airplane sampling that we have conducted in the past, know that elevated F levels can exist in this "cloud". I saw at least one inversion situation in 1976 along with photographs shown to me by Mr. D. Bailey of The Dalles, of that or a similar episode during spring, 1976.

With these problems existing now in The Dalles area, I wonder what increased levels of SO<sub>2</sub> might do. I recognize that most of the researchers contacted by DEQ indicate that the SO<sub>2</sub> levels are and would be low but also recognize that no one has any data relating to sweet cherry. While it may be of no problem to DEQ I also am concerned with potential emissions from the proposed Zirconium plant across the Columbia River from The Dalles and what this could do to the mixture of pollutants already present in that basin.

Sincerely yours,



T. J. Facticeau  
Associate Professor

TJF/jk

cc: D. Bailey  
Dr. Moore  
W. M. Mellenthin

**TOOZE KERR PETERSON MARSHALL & SHENKER**

ROBERT M. KERR  
LAMAR TOOZE  
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1895-1971

August 4, 1976

Department of Environmental  
Quality  
1234 S.W. Morrison Street  
Portland, Oregon 97205

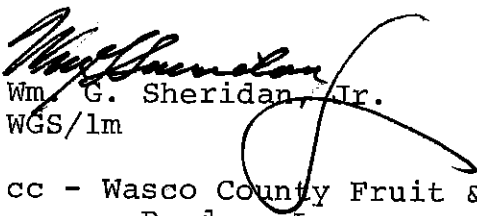
Attention Mr. Jack A. Payne

Re: Martin Marietta - AQ File 33-0001  
Our File: 2288-d

Enclosed is a copy of Dr. Clarence C. Gordon's report following his most recent visitation to The Dalles, Oregon, for the purpose of making an assessment of present damage and the threat that additional pollutants would pose to the orchard industry in The Dalles, Oregon.

We request Dr. Gordon's report be made a part of any record you are developing regarding the most recent Martin Marietta proposal.

Very truly yours,

  
Wm. G. Sheridan, Jr.  
WGS/lm

cc - Wasco County Fruit &  
Produce League  
Attention Donald Evans

Enclosure

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
**RECEIVED**  
AUG 5 1976  
AIR QUALITY CONTROL

TESTIMONY TO THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY  
ON THE POTENTIAL INCREASE OF PLANT DAMAGE IN THE DALLES, OREGON, AREA  
DUE TO HF + SO<sub>2</sub> FUMIGATION WHEN AND IF THE MARTIN MARIETTA ALUMINUM PLANT  
CHANGES ITS WET SCRUBBING SYSTEM FOR A DRY SCRUBBING SYSTEM

by

C. C. Gordon\*

My name is C. C. Gordon, and I reside at 1650 Madeline Avenue, Missoula, Montana. Since 1969 I have, on numerous occasions, visited The Dalles, Oregon, area for the purpose of collecting damaged vegetation samples (primarily ponderosa pine samples) which were brought back to the University of Montana Environmental Studies Laboratory for chemical and histological analysis. From the data obtained from the analysis of this vegetation, as well as from my field examination of the vegetation of The Dalles, Oregon, area, I have presented testimony in litigation cases against the Martin Marietta Aluminum Plant brought by the orchard growers of that area. My past testimony at these court trials has primarily dealt with the fluoride-caused damage to the ponderosa pine foliage and trees and how this damage to the foliage occurs from HF fumigation and the acid precipitation (HF·H<sub>2</sub>O) which was occurring in The Dalles, Oregon, area.

My testimony today to the Oregon DEQ relates to some of my past findings but primarily will dwell on a current field and laboratory study carried out during June and July of this year (1976) on foliage collected in The Dalles, Oregon, area. Also, my testimony will cover the potentially serious increase in damage to vegetation of the Dalles area if and/or when Martin Marietta is allowed to emit an additional amount of SO<sub>2</sub> into the already polluted atmosphere of The Dalles, Oregon, area. I utilize the word "additional" SO<sub>2</sub> since the sulfur data obtained from our analyses of foliage collected in June

\*Professor of Botany and Director of the University of Montana Environmental Studies Graduate Program

of this year adequately demonstrate that excessive atmospheric sulfur concentrations are present in the area of The Dalles, Oregon, and are accumulating in foliage of various species of plants located in some of the areas of The Dalles where fluoride is already causing most of the damage to foliage. The addition of  $1\frac{1}{2}$  more tons of  $SO_2$  emitted into the atmosphere of this area each day, if and/or when the Martin Marietta Aluminum Plant is allowed to install a dry scrubbing system vs. their current wet scrubbing system, is potentially a very serious situation which should be given considerable thought by the DEQ personnel. While I have not in the past believed, nor do I currently believe, that Martin Marietta Aluminum's fluoride-containing effluents being dumped into the Columbia River are either beneficial nor non-harmful to the aquatic flora and fauna of that river, it is my belief from past and current studies on seven other primary aluminum plants operating in the United States and West Germany that the installation of adequate settling ponds for the current effluents at the Martin Marietta Aluminum plant site would be biologically preferable to allowing additional phytotoxic air pollutants to occur in the The Dalles, Oregon, area.

Just how serious the additional  $1\frac{1}{2}$  tons per day of  $SO_2$  emissions from the Martin Marietta plant would be to the damage of the vegetation in the area is not totally understood, since the effect could be just an added phytotoxic gas impact upon the vegetation, or it could very possibly cause a synergistic effect which would and could have a much greater phytotoxic effect on vegetation than just the added effect of increased  $SO_2$  fumigation to the current HF fumigations.

In the current scientific literature there is a great dearth of information on the probability and/or possibility of synergistic effects of  $SO_2$  and HF fumigation, and thus far from the data available, a somewhat conflicting story

is found between and even within investigators' writings. For instance, Mandl and Weinstein (1973), fumigating species of bean, barley, and sweet corn with 0.30-3.3 ppm SO<sub>2</sub> and 0.67-0.56 ppb HF caused no more damaging effects to foliage than when fumigating the same species with 0.30 ppm SO<sub>2</sub> by itself. Thus, the HF dosage had no synergistic or added effect. However, these same investigators (Mandl and Weinstein), when fumigating bean, barley, and sweet corn with 0.02-0.07 ppm SO<sub>2</sub> and 0.7-0.6 ppb HF, for 27 days, found that there was indeed a synergistic damaging effect to the foliage of barley at these lower (3-4 times) SO<sub>2</sub> fumigation levels.

A fumigation study by Matsushima and Brewer (1972), where HF and SO<sub>2</sub> were used in combination on Koethen sweet orange, showed that the damage to the orange plants was not synergistic but additive. Field studies by Bohne (1970) in Germany, while not considering the potential of synergistic effects of SO<sub>2</sub> and HF damaged plants, does demonstrate that severe plant damage can and does occur when these two phytotoxic gases are present in the ambient air. A copy of each of the above-mentioned scientific articles is presented for the reader's convenience in Appendix I of this testimony.

#### The Dalles, Oregon, Study--June, 1976

A list of the vegetation samples and the location where collected in June, 1976, during my trip to The Dalles, Oregon, is presented in Table 1. These samples were all analyzed for their fluoride concentrations, and many of them were analyzed for their sulfur content. While the foliage of the plant species collected in June were manifesting visible leaf or needle necrosis, several species (i.e., cherry, boysenberry, Scotch pine, and some ponderosa pine samples) were free of visible necrosis on foliage parts. At several sites the amount of pine needle tip necrosis was extreme ( $\frac{1}{4}$  to  $\frac{1}{2}$  the

TABLE 1

F# and Location	Foliage
F-36B -- Klindt's place, facing plant, down over bank	Ginko
F-37B -- Same, facing away from plant	Ginko
F-38B -- Klindt's place, top of tree by bank	Lombardi poplar
F-39B -- Don Bailey's home orchard, collection #2, facing plant	Cherry
F-40B -- Klindt's place, down on the river, going to aluminum plant	Holly
F-41B -- Klindt's place, top of hill by octagon building	Iris (tops) Iris (bases)
F-42B -- Klindt's place, top of hill by octagon building	Boysenberry
F-43B -- Klindt's place, bottom of tree protected by bank	Lombardi poplar
F-44B -- Don Bailey's place, side away from aluminum plant	Royal Ann cherry
F-45B -- Frank Toda's place, Dallesport, Washington	Cucumber Corn
F-46B -- Frank Toda's place, Dallesport, Washington	Peppers
F-47B -- University of Montana control	Ginko
F-48B -- R. W. Hughes' residence and Lincoln Street, on drive to Sorosis Park	Ponderosa pine
F-49B -- 2 miles from aluminum plant, Cherry Heights Road, ridge east of Joe Fleck's house	Ponderosa pine #1
F-50B -- Same location as F-49B	Ponderosa pine #2

TABLE 1  
(continued)

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F# and Location	Foliage
F-51B -- Frank Toda's place, Dallesport, Washington	Scotch pine
F-52B -- Martin Marietta Plant, side toward plant	Scotch pine
F-53B -- Frank Toda's property, next to pepper gardens, looking across at aluminum plant, Dallesport, Wash.	Ponderosa pine
F-54B -- Dallesport, Wash., n.e. set to elementary school	Scotch pine
F-55B -- Martin Marietta Plant site, facing away from plant	Scotch pine
F-56B -- Pumping plant C water tower, Mill Creek orchard, Cherry Heights	Ponderosa pine #1
F-57B -- At cemetery by Catholic church, 1 1/2 miles from aluminum plant	Ponderosa pine
F-58B -- Frank Toda's place, Dallesport, Washington	Scotch pine #1
F-59B -- Sorosis Park, east side	Ponderosa pine #2
F-60B -- 3/4 miles west of aluminum plant on their property, close to chipper, treetop	Ponderosa pine
F-61B -- Don Bailey's home, shed, side away from aluminum plant	Ponderosa pine
F-62B -- Sorosis Park, west side	Ponderosa pine
F-63B -- 3/4 mile west of aluminum plant, lower part of tree	Ponderosa pine
F-64B -- Don Bailey's home, shed, facing aluminum plant	Ponderosa pine #1
F-65B -- Don Bailey's loading shed	Ponderosa pine #3
F-66B -- Pumping plant C, water tower, Cherry Heights, Mill Creek orchard (mistletoe)	Ponderosa pine #2

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needle surface) on the older foliage (1973-74) in trees still holding these years' foliage. Because of the severe premature casting of needles (loss of normal needle retention) of these older pine needles (1973-75), a study of basal needle necrosis was carried out to ascertain what percentage of The Dalles, Oregon, pine was manifesting this disease pathology. A bar graph is presented in Figure 1 which depicts the percent basal needle necrosis at various sites in The Dalles. In similar studies (1972-present) of needle pathology supported by EPA, ERDA (Energy Research and Development Administration), U.S. Forest Service (Region I), and private landowners in West Virginia, Maryland, and Arkansas, we have found that basal needle necrosis is correlated with needle retention and premature needle casting of the conifers growing in polluted and non-polluted areas.

Basal needle necrosis occurs beneath the fascicular sheaths of the needles (thus, nonvisible until the fascicular sheath is removed) and is a disease which was not studied by any air pollution investigators until 1969. Since that time, tens of thousands of different aged pine needles collected from pristine and polluted areas have been examined and histological studies have been carried out on selected samples of these diseased needles. To better explain this disease, photographic plates depicting the basal needle necrosis of The Dalles, Oregon, pine is presented in Appendix II. One notes from these photographs that needles manifesting this disease beneath the fascicular sheath can be and often are totally green (no tip burn) and would appear healthy to an untrained observer.

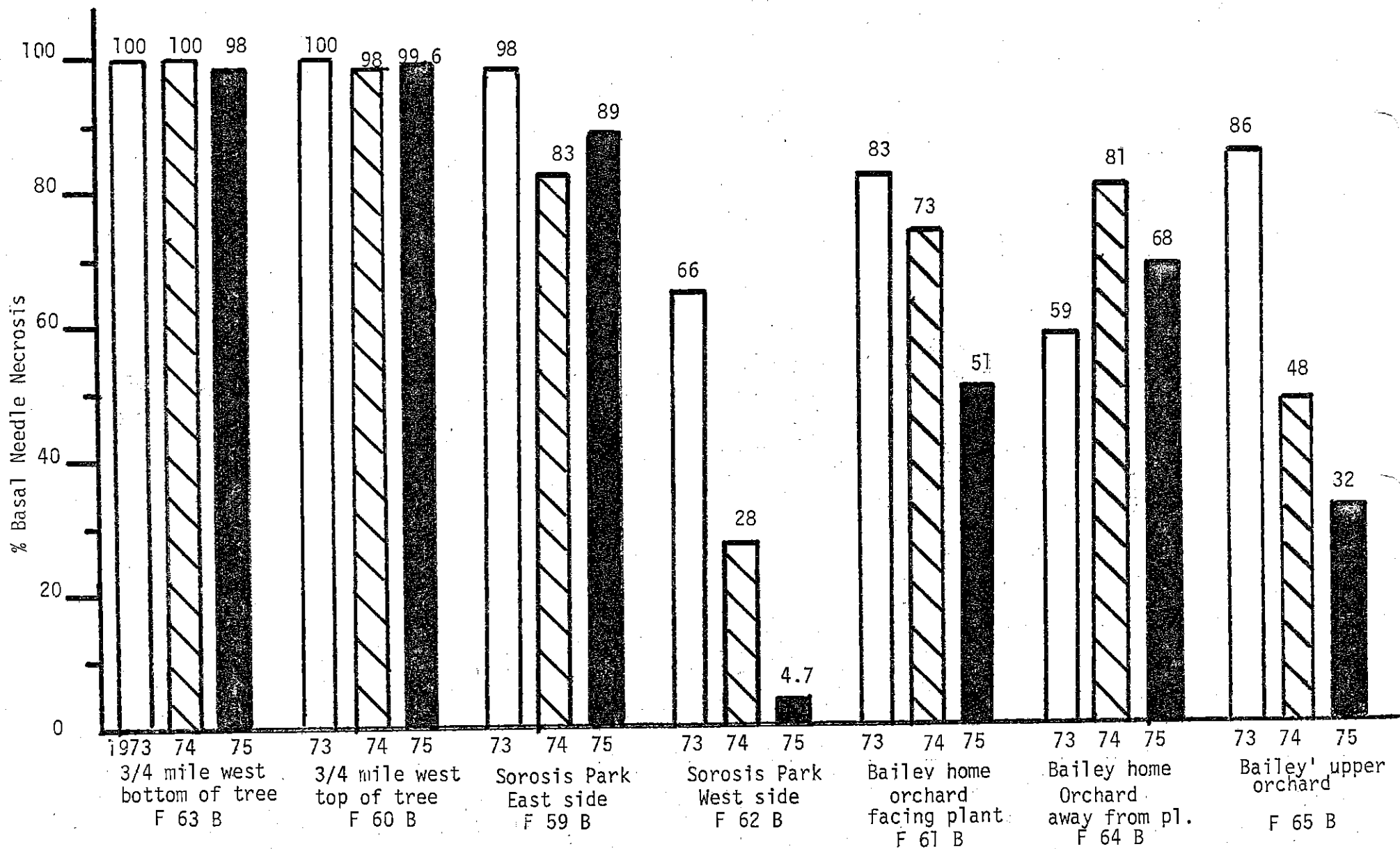
Foliage samples of pine trees were prepared in two different manners for fluoride analysis (see Figure 2). The foliage of one series of samples F48B-F53B, F56B-F57B, and F66B were separated into four different portions so



Figure 1

Basal Needle Necrosis of Pine Foliage

Collected June 1976, Dalles, Oregon



SEPARATION OF VARIOUS NEEDLE PORTIONS FOR CHEMICAL ANALYSIS

A = fascicular sheath separated from basal needle tissue; B = basal needle tissue which was previously covered by fascicular sheath; C = middle needle portion; D = needle tip portion--sometimes necrotic, sometimes healthy; E = fascicular sheath and needle base--analyzed separately to compare with analytical results of A & B above; F = whole needles analyzed for comparisons of A, B, C, D, and E.

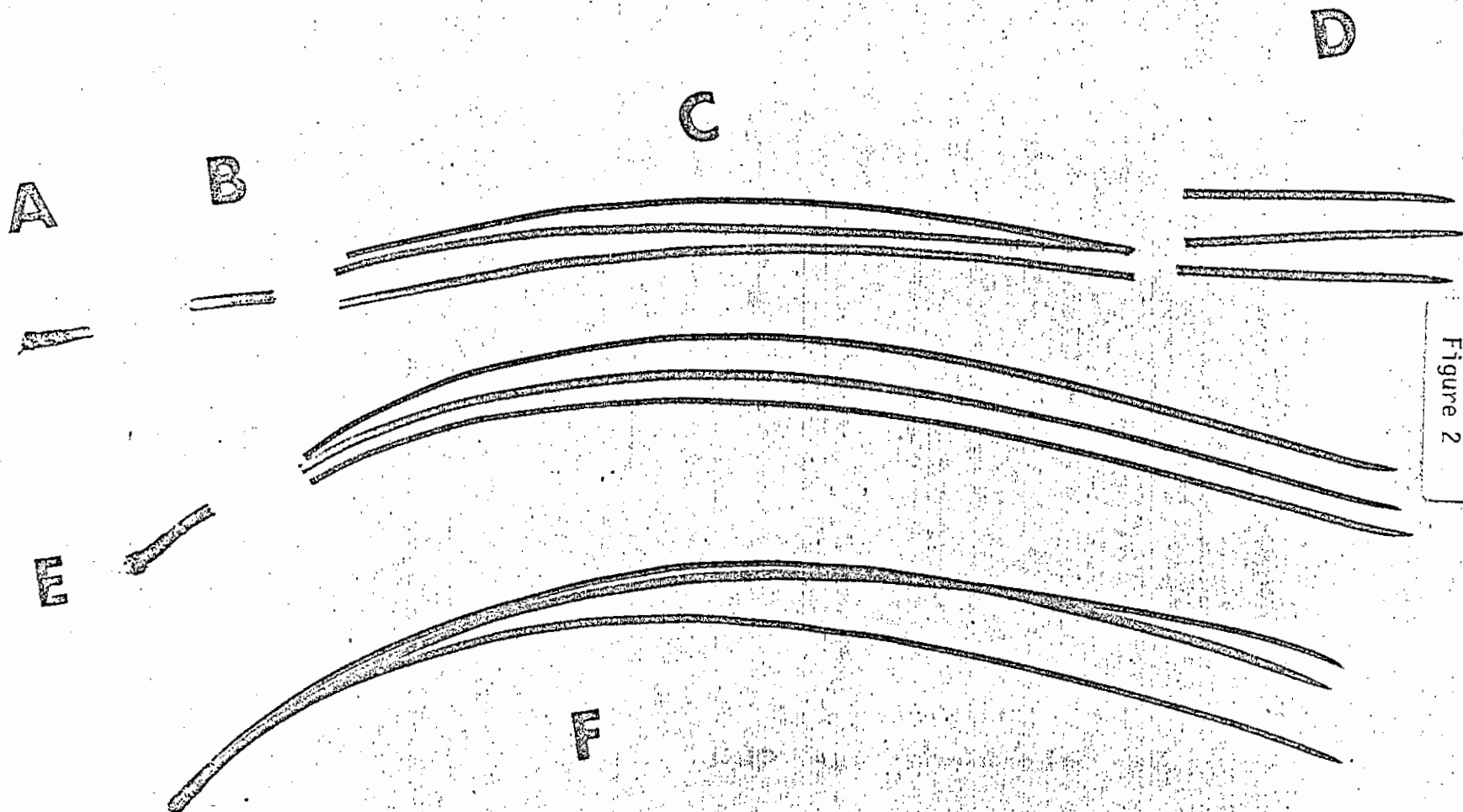


Figure 2

that the (1) tip portion, (2) middle portion, and (3) needle base and sheath were each analyzed separately and compared with the fluoride results obtained from the analysis of (4) the whole needle. On Table 2 are the fluoride concentrations of the separate portions and whole needles of each of the samples prepared and analyzed this way. With other foliage samples (F59B-F65B), the foliage samples were separated into five different portions for fluoride analysis so that the (1) tip portion, (2) middle portion, (3) basal tissue (without sheath), and (4) sheath were each analyzed separately and compared with the fluoride results of (5) the whole needle. On Table 3 are the fluoride results of these separate analyses, and in Figure 3 (bar graph) are the average fluoride concentrations found in these various needle portions for the 1973, 1974, and 1975 foliar growth. The 1976 foliage, except for one sample (F64B), was not separated this last way (sheath and basal needle tissue separately) since the sheaths of 1-to 2-month-old foliage is very difficult to separate from the basal needle tissues.

As can be ascertained from looking at the data depicted in the bar graph in Figure 3, the fluoride levels in the tips of needles are significantly higher than other portions of the needles as well as the whole needles. Also, it is easy to see from the data on both Table 3 and Figure 3 that the fluoride concentrations in the needle sheaths are significantly higher than the basal needle tissues they surrounded. Since the fascicular sheath tissues of pine species are composed of short-lived cells (from living parenchymatous to dead sclerenchymatous cells in 90 days), all fluorides (except for 2 ppm) found in these tissues are there as a particulate fluoride and that portion which is soluble fluoride particulate is what forms the acids which burn out the basal needle tissues and causes the premature casting of these needles.

TABLE 2

THE DALLES, OREGON  
JUNE-JULY, 1976

PINE NEEDLES SEPARATED INTO FOUR PORTIONS: WHOLE NEEDLES (WN); TIPS (T); MIDDLES (M); BASE + SHEATH (B + SH)

F# and Location	Species	1973				1974			
		WN	T	M	B+S	WN	T	M	B+S
F48B Hughes Residence	Ponderosa Pine	8.0	26.8	4.9	15.6	5.5	26.8	5.9	5.6
F49B Cherry Heights Road	"	17.5	62.3	7.6	11.2	7.2	66.6	10.7	10.8
F50B Cherry Heights Road	"	←———— None —————>				6.2	25.0	7.3	6.0
F51B Toda--Dallesport, WA	Scotch Pine	←———— None —————>				4.9	14.5	3.6	14.0
F52B Aluminum Plant	"	266	498.1	160.6	116.7	213.5	406.2	118.3	113.6
F53B Toda--Dallesport, WA	Ponderosa Pine	13.3	33.1	13.1	15.1	10.6	35.1	11.1	12.1
F56B Pumping Plant Cherry Heights Road	"	13.2	16.1	2.9	8.4	5.9	17.3	4.0	7.1
F65B Cherry Heights Road	"	←———— None —————>				7.4	22.5*		3.8
F57B Cemetery by Catholic Church, Cherry Hts. Rd.	"	←———— None —————>				19.3	58.6	11.3	15.8

\*Tips and Middles Analyzed Together

TABLE 2  
(continued)

THE DALLES, OREGON  
JUNE-JULY, 1976

PINE NEEDLES SEPARATED INTO FOUR PORTIONS: WHOLE NEEDLES (WN); TIPS (T); MIDDLES (M); BASE + SHEATH (B + SH)

F# and Location	Species	1975				1976			
		WN	T	M	B+S	WN	T	M	B+S
F48B Hughes Residence	Ponderosa Pine	6.5	14.1	2.4	2.6	1.4	1.9	1.4	1.3
F-49B Cherry Heights Road	"	8.6	17.6	6.0	4.0	1.7	1.6	2.7	2.2
F50B Cherry Heights Road	"	5.4	16.9	6.7	5.4	1.8	1.9	0.9	0.8
F51B Toda--Dallesport, WA	Scotch Pine	11.7	3.1	4.1	8.7	3.5	2.9	4.3	2.0
F52B Aluminum Plant	"	158.7	257.9	129.0	118.0	2.3		3.7*	6.6
F53B Toda--Dallesport, WA	Ponderosa Pine	9.0	17.1	10.6	7.3	3.4		2.9*	2.4
F56B Pumping Plant Cherry Heights Road	"	4.9	14.9	5.3	5.1	2.0	2.2	1.6	4.4
F65B Cherry Heights Road	"	4.7	19.9	3.8	4.2	0.9		1.9*	2.3
F57B Cemetery by Catholic Church, Cherry Hts. Rd.	"	11.6	24.6	5.1	10.3	1.6	12.8	2.8	1.9

\*Tips and Middles Analyzed Together

TABLE 3

FLUORIDE DATA FROM THE DALLES, OREGON ON PINE FOLIAGE SAMPLES  
 DIVIDED INTO 5 DIFFERENT PORTIONS: WHOLE NEEDLES (WN); TIPS (T); MIDDLES (M); BASES (B); SHEATHS (SH)

F# and Collection Site	Species	1973					1974				
		WN	T	M	B	SH	WN	T	M	B	SH
F-59B -- Sorosis Park, east side	Ponderosa pine	22.4	52.2	14.1	7.7	30.2	12.3	39.3	17.4	4.3	21.1
F-60B -- 1/2 mile west of alum. plant, top of tree	"	29.0	71.5	11.9	7.1	24.0	25.8	51.9	12.2	7.3	21.5
F-61B -- Don Bailey home orchard	"	6.8	--	--	--	--	5.4	13.0	4.1	3.9	5.3
F-62B -- Sorosis Park, west side	"	8.1	35.9	4.2	3.0	28.1	5.2	28.3	7.7	3.3	15.2
F-64B -- Don Bailey home orchard	"	--	--	--	--	--	11.2	24.6	5.7	3.1	16.7
F-63B -- 1/2 mile west of alum. plant, bottom of tree	"	20.1	63.3	6.2	9.1	27.0	19.1	39.2	8.2	6.3	18.2
F-65B -- Don Bailey, upper orchard	"	8.5	25.5	4.7	3.2	18.2	7.4	15.3	5.4	3.7	12.8
Average fluoride concentration	"	15.8	49.7	8.2	6.0	25.5	12.3	31.0	8.7	4.6	15.8

TABLE 3  
(continued)

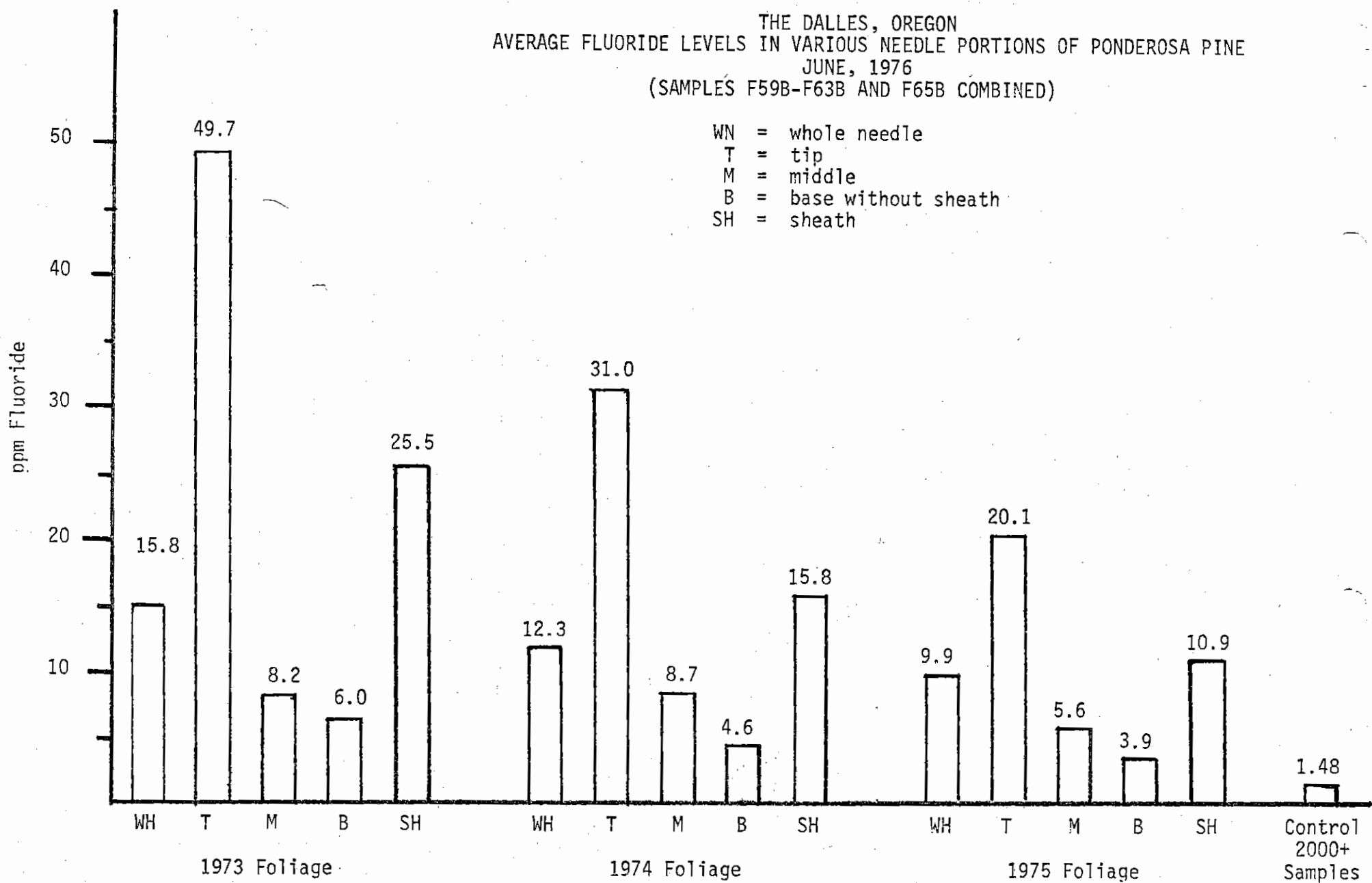
F# and Collection Site	Species	WN	T	1975			WN	T	1976		
				M	B	SH			M	B	SH
F-59B -- Sorosis Park, east side	Ponderosa pine	7.6	16.7	4.3	4.7	10.7	3.1	2.7	3.6		2.1**
F-60B -- 1/2 mile west of alum. plant, top of tree	"	24.5	40.8	11.7	6.5	19.8	3.8		6.5*		3.3**
F-61B -- Don Bailey home orchard	"	7.3	14.4	5.9	2.9	7.2	2.0		4.8*		3.6**
F-62B -- Sorosis Park, west side	"	5.8	15.2	3.6	2.7	6.9	2.9		2.4*		1.5**
F-64B -- Don Bailey home orchard	"	11.8	21.5	4.8	2.6	10.9	3.8	2.0	3.2	3.5	3.1
F-63B -- 1/2 mile west of alum. plant, bottom of tree	"	6.9	18.2	4.9	5.4	13.7	3.3		2.8*		2.8**
F-65B -- Don Bailey, upper orchard	"	5.9	14.2	3.8	2.4	7.0	2.2		2.6*		2.5**
Average fluoride concentration	"	9.9	20.1	5.6	3.9	10.9	3.0	--	--	--	--

\* -- tips and middles analyzed together

\*\* -- bases and sheaths analyzed together

Figure 3

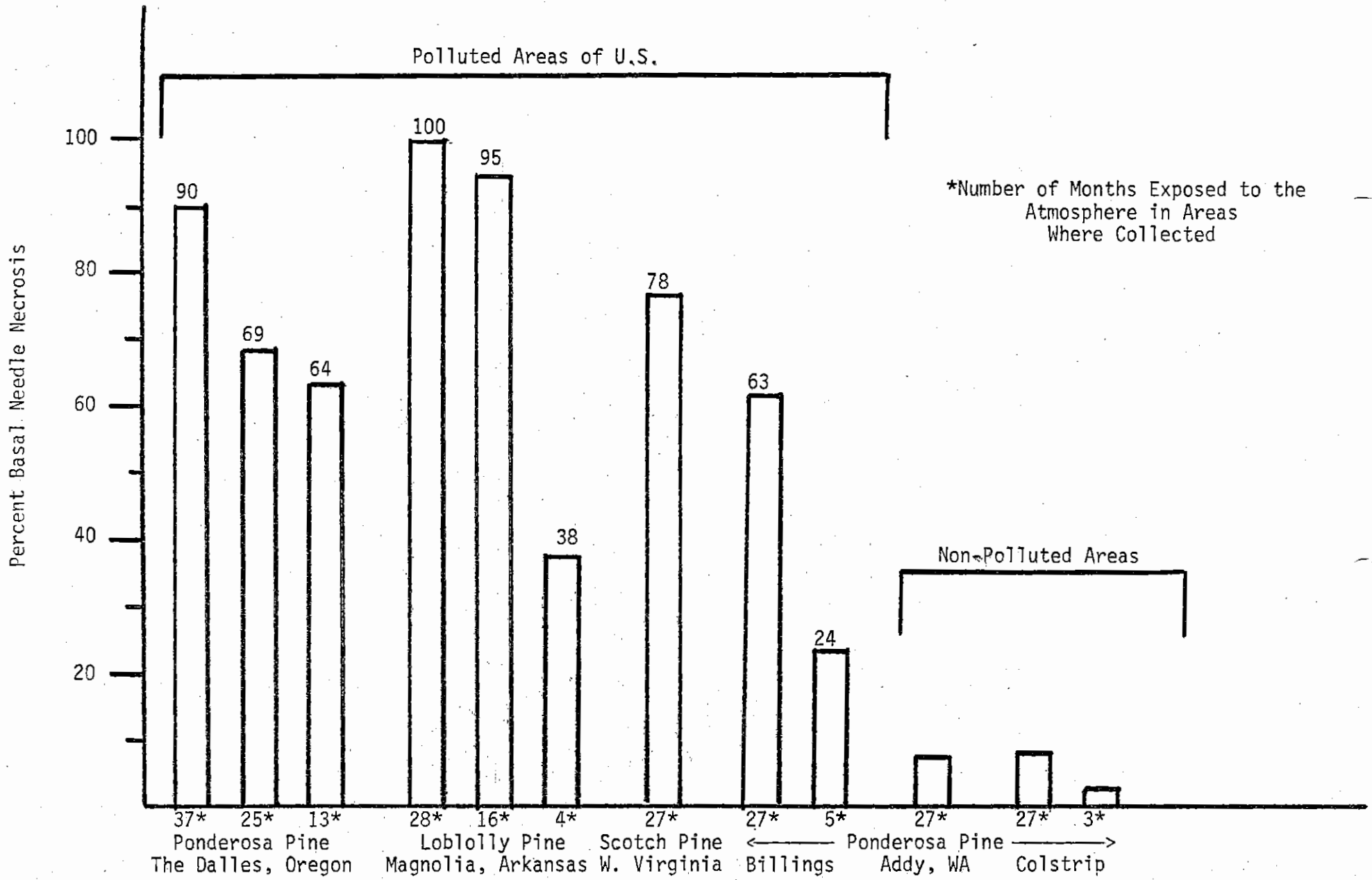
THE DALLES, OREGON  
AVERAGE FLUORIDE LEVELS IN VARIOUS NEEDLE PORTIONS OF PONDEROSA PINE  
JUNE, 1976  
(SAMPLES F59B-F63B AND F65B COMBINED)





As one can easily ascertain from the data (Figure 1), the percentage of basal needle necrosis of ponderosa pine foliage (Samples F-60B and F-63B) collected 3/4 of a mile directly west (down the river on Martin Marietta's property) is extreme, being 100% for foliage exposed 25 and 36 months (1974 and 1973 foliage, respectively) and 98% for foliage exposed 13 months (1975 foliage) to this very polluted atmosphere of The Dalles, Oregon area. At a further distance from the aluminum plant, such as on the west side of Sorosis Park and at Don Bailey's cherry orchards up Mill Creek, the percentage of basal necrosis is less than found on the Martin Marietta's property, but is still extremely high and is indicative of a very serious air pollution problem. So that readers can ascertain for themselves just how prevalent and serious the burnout of the basal needle tissues of ponderosa pines is in The Dalles, Oregon area, a bar graph (Figure 4) has been prepared which compares the average basal needle necrosis occurring to pine foliage in three other polluted areas of the United States and two pristine areas. It should be noted by the reader when studying this bar graph that the number directly below each bar for any given area is the number of months the needles were exposed to the atmosphere prior to being collected and studied by us. Outside of the loblolly pine foliage collected in the area of Magnolia, Arkansas, where bromine, chlorine (two other halogens like fluoride) and sulfur emissions from six bromine plants are killing thousands of pines and hardwoods, the severity of the basal needle necrosis disease is as severe in The Dalles, Oregon area as any area where we have carried out such studies. One also notes that the basal needle necrosis of Scotch pine foliage from Mt. Storm, West Virginia, and ponderosa pine foliage in Billings, Montana (Figure 4) is very prevalent and serious in these two areas which are polluted with both sulfur and fluoride

Figure 4



emissions of stationary sources. It is a very well known and a scientifically accepted fact that both gaseous HF and  $\text{SO}_2$  in the atmosphere will form acids (HF much more readily than  $\text{SO}_2$ , since  $\text{SO}_2$  must be oxidized  $\text{SO}_3 \rightarrow \text{SO}_4$ ). If Martin Marietta is allowed to release into the atmosphere any additional HF or  $\text{SO}_2$ , then there should remain little doubt in anyone's mind that these additional emissions will increase the amount of foliar damage to pine trees from the increased incidence of acid rains.

What I am trying to demonstrate with the data in the previously mentioned bar graphs and tables is that a very serious disease situation is currently occurring to the pine foliage of The Dalles, Oregon with the current level of fluoride and sulfur pollution in the ambient air. Furthermore, I am attempting to demonstrate to the reader that while pine needle tip necrosis caused by the gaseous HF emission of the Martin Marietta Aluminum Plant is present in conifer foliage throughout The Dalles, Oregon area, the most serious pollution damage to pines is occurring beneath the fascicular sheaths (thus hidden) from the formation of hydrofluoric acids and particulates in the atmosphere which land on and impact the needle tissues.

Sulfur chemical analysis of the foliage of plant species collected from various areas of The Dalles in June of 1976 demonstrates very adequately that atmospheric sulfur emissions are currently being released by the Martin Marietta Aluminum Plant. On Tables 4 and 5 are the sulfur contents of plant foliage collected at varying distances from the Martin Marietta Aluminum Plant. During the last five years, sulfur analysis of over 5000 pine foliage samples have been carried out here at the University of Montana Environmental Studies Laboratory to determine what the normal sulfur levels in pine foliage grown in clean pristine areas are and what levels are found in foliage from polluted

TABLE 4  
SULFUR DATA FOR VEGETATION OTHER THAN PINE FOLIAGE

Sample #	Vegetation	Sulfur (ppm)
F-36B	Ginko	1400
F-37B	Ginko	750
F-47B	Ginko	500
F-38B	Poplar	1350
F-43B	Poplar	1500
F-42B	Boysenberry	900
F-45B	Corn	2300

TABLE 5  
SULFUR DATA FOR PINE FOLIAGE BY DIFFERENT YEARS' GROWTH

Sample #	Species	1973	ppm Sulfur		1976
			1974	1975	
F-48B	Ponderosa pine	1650	1050	1050	700
F-49B	" "	800	500	500	450
F-50B	" "	--	1300	1150	500
F-51B	Scotch pine	--	250	300	350
F-54B	" "	--	--	400	750
F-55B	" "	650	550	450	450
F-56B	Ponderosa pine	500	400	700	550
F-57B	" "	--	1050	950	750
F-58B	Scotch pine	--	800	950	900
F-59B	Ponderosa pine	1550	1550	1450	750
F-60B	" "	900	900	900	700
F-61B	" "	800	850	800	600
F-62B	" "	600	550	750	750
F-66B	" "	--	800	600	350

areas of the United States. These past studies on sulfur accumulation disclose that the normal sulfur levels in ponderosa pine foliage collected in clean pristine areas, regardless of the age of the foliage or where (upper or lower crown of tree) on the tree collected, ranges from 400 to 600 ppm and that  $500 \pm 50$  ppm for 97% of the samples is the average level of sulfur in ponderosa pine foliage samples.

In The Dalles, Oregon area, pine foliage samples collected in June, 1976 contained sulfur concentrations ranging from 350 ppm to 1650 ppm. On Tables 4 and 5 and Figure 5 are presented the sulfur accumulation levels found in ponderosa pine foliage, as well as in other foliage collected in June of this year in The Dalles. Special note should be taken by the reader of the sulfur as well as the fluoride levels in ginko foliage (Samples F-36B and F-37B, i.e., Tables 4 and 6) collected at the Klindt's residence, which is approximately 1/2 mile due east (up the river) of the Martin Marietta Aluminum Plant. One notes that the sulfur content found in ginko foliage from the University of Montana campus (F-47B), which is fertilized three times each summer, contains 500 ppm of sulfur and 1.5 ppm of fluoride, while that at the Klindt's residence contains 750 to 1400 ppm of sulfur and 95.4 to 216.2 ppm of fluoride, depending where on this damaged tree the foliage was collected. On this table (4) one also notes that the pine foliage of six samples collected from various areas of the Dalles area contain 800 ppm and greater levels of sulfur, which are considered by us to be indicative of  $SO_2$  atmospheric pollution problems. Of special interest in both sulfur and fluoride accumulation are the two pine foliage samples from Sorosis Park collected on the east and west sides of the park. One notes that both the sulfur levels and, to a lesser degree, the fluoride levels in the foliage from the east side of the park are significantly higher than those found in foliage from the west side of the park. The reason for

Figure 5

HIGH, LOW, AND AVERAGE SULFUR LEVELS IN PONDEROSA PINE FOLIAGE

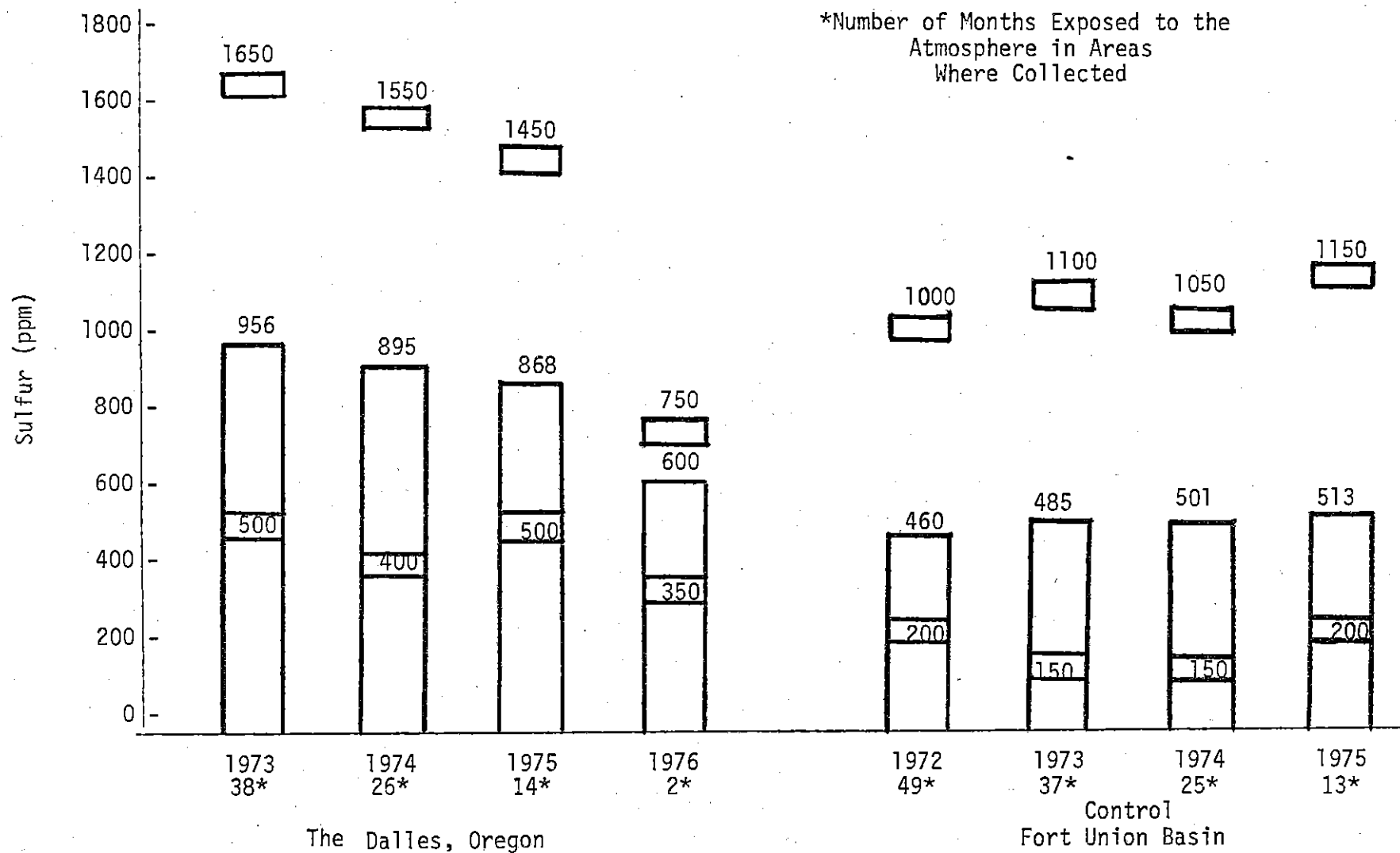


TABLE 6  
 FLUORIDE DATA FOR VEGETATION OTHER THAN PINE FOLIAGE

Sample #	Species	Year of Foliage			1976
		1973	1974	1975	
F-36B	Ginko	--	--	--	216.2
F-37B	"	--	--	--	95.4
F-47B	"	--	--	--	1.2
F-38B	Poplar	--	--	--	100.0
F-43B	"	--	--	--	41.8
F-39B	Cherry (Royal Ann): old leaves	--	--	--	10.1
	" " " : young leaves	--	--	--	6.4
F-44B	Cherry (Royal Ann): old leaves	--	--	--	6.7
F-40B	Holly	--	--	--	157.5
F-41B	Iris: top of leaves (burnt)	--	--	--	181.0
	" : base of leaves	--	--	--	50.2
F-42B	Boysenberry	--	--	--	309.0
F-45B	Cucumber	--	--	--	35.0
"	Corn	--	--	--	5.1
F-46B	Pepper	--	--	--	15.2



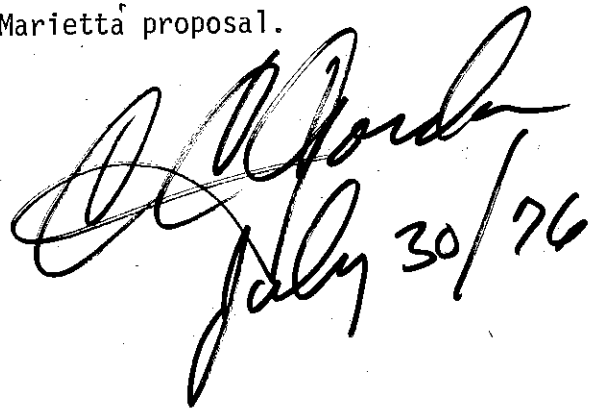
this is that the trees on the west side of the park are protected from the prevailing winds coming from the west, west-northwest, and west-southwest (carrying the Martin Marietta Plant's pollutants) by tall broadleaf and ponderosa pine trees on adjacent private property which are being severely damaged. It is well worth the DEQ members' time when visiting the Dalles area to examine the stumps of cut down trees and the currently dying trees of Sorosis Park on both the east and west sides of the park to realize for themselves what a serious air pollution problem is occurring with the current HF and SO<sub>2</sub> atmospheric levels in that area.

While no excessive levels of sulfur were found in conifer samples (Scotch and ponderosa pine) collected across the Columbia River in Dallesport, Washington, the fluoride levels in all vegetation samples were at levels above what is known to be normal. Furthermore, it is obvious from the fluoride analysis of the Scotch pine sample (F-54B) next to the Dallesport Elementary School that this elementary school playground is being more severely fumigated by Martin Marietta Aluminum Plant fluoride emissions than are the vegetable crops of Frank and Marguerite Toda (Dallesport, Washington), which are manifesting fluoride-caused leaf necrosis.

#### Summary

While it may very well be difficult to argue currently that the addition of 1 1/2 or more tons of SO<sub>2</sub> released/day into the atmosphere of The Dalles will cause an increased synergistic impact effect rather than an increased additive impact effect, it is by no means difficult to adequately demonstrate that serious vegetation damage is occurring today with the current phytotoxic emissions of the Martin Marietta Aluminum Plant. If the personnel of the Oregon DEQ examines the current production records of the orchard growers and the dead and very sick ponderosa pine trees in and around the properties of these orchards, I believe

they will be unable to find any arguments presented by the management of Martin Marietta Aluminum worthy of allowing this company to increase their atmospheric phytotoxic emission and pollution damage to the private properties in The Dalles, Oregon, and Dallesport, Washington, over what is occurring today. Indeed, it is extremely surprising to me that the question of allowing Martin Marietta to increase their phytotoxic emissions is even being considered by the Oregon DEQ until that department prepares an Environmental Impact Statement for these additional gases for the citizens of Dallesport, Washington, and The Dalles, Oregon. Furthermore, the fact that additional SO<sub>2</sub> emissions in The Dalles, Oregon, and Dallesport, Washington will cause an increase in significant airshed deterioration to occur is sufficient reason alone for denying the Martin Marietta proposal.

  
July 30/76

APPENDIX I

# EFFECTS OF HYDROGEN FLUORIDE AND SULPHUR DIOXIDE ALONE AND IN COMBINATION ON SEVERAL SPECIES OF PLANTS\*

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## ABSTRACT

*Bean, barley and sweet corn were exposed separately to charcoal-filtered air, hydrogen fluoride (HF), sulphur dioxide (SO<sub>2</sub>), and a combination of the two pollutants. In two experiments, plants were exposed to 0.0005–0.0007 mg F/m<sup>3</sup> (0.0006–0.0009 ppm), to 0.15 or 0.30 ppm (0.40 or 0.79 mg/m<sup>3</sup>) SO<sub>2</sub>, and to the combined pollutants for 7 days. Lower concentrations of SO<sub>2</sub> were used in two other experiments, viz. 0.06 to 0.08 ppm (0.16–0.21 mg/m<sup>3</sup>) and exposures were made for 27 days. When high concentrations of SO<sub>2</sub> were used, severe injury occurred on corn and barley leaves, and the combination of SO<sub>2</sub> and HF did not alter foliar symptom production. Beans were not injured by any of the treatments. With lower concentrations of SO<sub>2</sub>, the foliar response of barley and corn was accentuated by the combination of SO<sub>2</sub> and HF. On both of the corn cultivars tested, symptoms consisted of elliptical lesions on the distal half of older leaves. In one experiment, foliar accumulation of fluoride was reduced by the combination of SO<sub>2</sub> and HF as compared with HF alone. Fresh and dry weight yields of plant tops were not affected by treatment in any experiment.*

## INTRODUCTION

Plants are rarely, if ever, exposed to a single phytotoxic air pollutant in the field. The atmospheric environment usually contains a mixture of potential phytotoxicants derived from any number of sources. The effects of mixtures of air pollutants on plants were largely unknown until Menser & Heggstad (1966)

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reported that subthreshold concentrations of SO<sub>2</sub> and O<sub>3</sub> produced an ozone type of foliar injury on tobacco greater than the additive effects of pollutants alone. They suggested that this combination of pollutants lowered the threshold for injury and that the effect was synergistic. Other investigators have confirmed their results for tobacco (Grosso *et al.*, 1971; MacDowall & Cole, 1971; Matsushima, 1971; Menser *et al.*, 1973), and other species of plants (Applegate & Durant, 1969; Dochinger *et al.*, 1970; Jacger & Banfield, 1970; Banfield, 1971; Grosso *et al.*, 1971; Matsushima, 1971; Houston & Stairs, 1972; Tingey *et al.*, 1973). Mixtures of NO<sub>2</sub> and SO<sub>2</sub> (Tingey *et al.*, 1971a) and of NO<sub>2</sub> and O<sub>3</sub> (Matsushima, 1971) have also been reported to produce more foliar injury on several plant species than the additive effects of the individual pollutants alone. Injury produced by mixtures of SO<sub>2</sub> and O<sub>3</sub>, however, may be no greater than additive or even less than additive (de Koning & Jegier, 1970; Tingey *et al.*, 1971b; Keller, 1973). Similar results have also been shown for the effects of HF in combination with other pollutants. Hitchcock *et al.* (1962) did not find an interaction when gladiolus plants were exposed to HF and SO<sub>2</sub> and to HF and hydrocarbons, and Matsushima & Brewer (1972) found no interactive effects in citrus exposed to HF and SO<sub>2</sub>.

Because HF and SO<sub>2</sub> commonly occur together in certain industrial emissions, a series of experiments was carried out to determine possible interactive effects of HF and SO<sub>2</sub> at concentrations near the threshold for foliar injury on several species of plants.

#### MATERIALS AND METHODS

##### *Plant culture*

Three species of plants were used in the first three experiments: barley (*Hordeum vulgare* L. cv. Dickenson), sweet corn (*Zea mays* L. cv. Marcross) and bean (*Phaseolus vulgaris* L. cv. Pinto). Between 50 and 70 seeds of barley and six seeds of corn and bean were sown in an artificial peat-vermiculite mix (Jiffy Mix, Zonolite Corp., W. R. Grace & Co.) in 10 cm peat pots and grown in a greenhouse supplied with charcoal-filtered air. After 10 days, both corn and bean plants were thinned to three plants a pot. All plants were fertilised seven days later and continued on a biweekly schedule alternating with 20-20-20 (NPK) and calcium nitrate (both at 10 g/l). Plants were watered daily with tap water while in the greenhouse and three times a day with deionised water while in the fumigation chambers. In a fourth experiment, seeds of two sweet corn cultivars (Marcross and Surecross) were sown and maintained as described above, but were thinned to two plants a pot after germination.

##### *Environmental conditions*

All fumigations were carried out in controlled environment fumigation chambers (Controlled Environments, PGW-18 (modified), Winnipeg, Canada) under the

following set of conditions: temperature, 24°C; relative humidity, 70%; light intensity, total 25.4 Klux (1980, 1100, and 660  $\mu\text{W cm}^{-2}$  at 400–500, 600–700 and 700–800 m $\mu$ , respectively). Mixture of cool-white fluorescent and incandescent. Photoperiod, 16 h/day.

#### Fumigation procedures and air analysis

Desired concentrations of HF were generated and maintained by volatilisation of aqueous HF solutions with heated air (Mandl *et al.*, 1971). The concentration of HF within the fumigation chambers was monitored by means of a paper tape sampler adjusted to one-hour sampling intervals (Mandl *et al.*, 1971) and analysed for fluoride with a specific ion electrode (Intersociety Committee, 1972a). Desired concentrations of SO<sub>2</sub> were obtained by metering 2% SO<sub>2</sub> (v/v) in nitrogen through a micro-flow needle valve. The concentration of SO<sub>2</sub> within the fumigation chambers was monitored continuously with a conductometric analyser (Scientific Industries SO<sub>2</sub> Monitor, Model 67, Mineola, NY). The concentrations of pollutants and durations of exposure used in each of the four experiments are shown in Table 1.

TABLE 1  
PLANT SPECIES, AGE OF PLANTS AT THE BEGINNING OF THE EXPERIMENT, DURATION OF EXPOSURE, AND CONCENTRATION OF POLLUTANTS FOR EACH EXPERIMENT

Experiment No.	Plants, cultivars	Age (days)	Length of fumigation (days)	Treatment and concentration	
				HF (mg F/m <sup>3</sup> )*	SO <sub>2</sub> (ppm)†
1	Barley cv. Dickinson	20	7	0.00067 ± 0.00019	—
	Corn cv. Marcross			0.00056 ± 0.00011	+0.308 ± 0.012
	Bean cv. Pinto			—	0.336 ± 0.039
2	Barley cv. Dickinson	10	7	0.00066 ± 0.00021	—
	Corn cv. Marcross			0.00049 ± 0.00015	+0.145 ± 0.010
	Bean cv. Pinto			—	0.150 ± 0.020
3	Barley cv. Dickinson	10	27	0.00072 ± 0.00009	—
	Corn cv. Marcross			0.00063 ± 0.00006	+0.083 ± 0.012
	Bean cv. Pinto			—	0.076 ± 0.011
4	Corn cvs.	20	27	0.00053 ± 0.00005	—
	Marcross and Surecross			0.00056 ± 0.00007	+0.073 ± 0.009
	—			—	0.059 ± 0.011

\* 0.0006 mg F/m<sup>3</sup> ≡ 0.00075 ppm.

† 0.10 ppm ≡ 0.60 mg SO<sub>2</sub>/m<sup>3</sup>.

In the first three experiments, ten pots each of barley, corn and bean were placed randomly in each of four fumigation chambers. In the fourth experiment, 18 pots each of Marcross and Surecross corn were placed on opposite sides of the four chambers.

#### Symptom evaluation

In experiments 1 and 2, a visual estimate was made of foliar injury on all species. In Experiment 3, injury on barley leaves was expressed as the percentage of injury

on each plant. In corn, 2-cm transverse sections were removed from the centre, 5-cm from the proximal and distal ends, and midway between the proximal and distal ends and the centre of each leaf. The number of lesions on each section was counted. In Experiment 4, 2-cm transverse sections were removed from the centre of the corn leaves, halfway between the centre and the distal end, and one-quarter the distance between the centre and the distal end. The number of lesions on each section was counted. Marginal or tip chlorosis was estimated as percentage of leaf area affected.

#### *Fluorine analysis and histology*

At the end of the experiments, plant tissues were harvested and fresh and dry weights determined. Dried tops of bean and barley and leaves of corn were analysed for fluorine (Intersociety Committee, 1972b). Selected tissues from corn leaves were fixed in formol-acetic alcohol, embedded in paraffin, sectioned and stained with safranin-fast green for histological examination (Sass, 1951).

### RESULTS

#### *Experiment 1*

After 72 h of fumigation, marginal and tip chlorosis (3-5 mm) appeared at the distal ends of barley leaves exposed to  $\text{SO}_2$  alone or in combination with HF. Within 24 h, necrotic bands appeared below the distal ends, and after seven days, more than 50% of each leaf was necrotic. No differences were observed between treatments of  $\text{SO}_2$  (0.30 ppm) alone and in combination with HF (0.0006-0.0009 ppm). After seven days, the older leaves of corn exposed to  $\text{SO}_2$ , or  $\text{SO}_2$  + HF, had developed both chlorosis and necrosis, but there were no differences between treatments. In the control and HF treatments, there were no foliar symptoms on the corn or barley plants, and leaves of bean plants exhibited no symptoms from any of the four treatments. There were no significant differences in height or fresh and dry weights of plant tops. Fluorine accumulation in tops or leaves is shown in Table 2, but no statistical analyses were made because the plant samples were pooled.

#### *Experiment 2*

Because of the severe foliar injury produced by  $\text{SO}_2$  in Experiment 1, the concentration of  $\text{SO}_2$  was reduced by about half (to 0.15 ppm). After 120 h, barley plants exhibited marginal and tip chlorosis (10-15 mm) at the distal ends of the leaves. After seven days, about 35% of each leaf was necrotic. No differences were observed between exposures to  $\text{SO}_2$  and the combination of  $\text{SO}_2$  + HF. Older leaves of corn developed marginal and tip chlorosis after seven days, but again no differences were seen between the  $\text{SO}_2$  alone or the  $\text{SO}_2$  + HF treatments.

TABLE 2  
 FLUORINE CONCENTRATION IN TOPS OF BEAN AND BARLEY, AND LEAVES OF CORN PLANTS SEPARATELY  
 EXPOSED TO CHARCOAL-FILTERED AIR, SO<sub>2</sub>, HF, AND SO<sub>2</sub> + HF IN THREE EXPERIMENTS\*

Species	Treatment	Fluorine concentration ppm (dry wt)		
		Experiment 1	Experiment 2	Experiment 3
Bean	Control	15.2	7.9	6.4
	SO <sub>2</sub>	25.5	4.7	5.3
	HF	80.9	48.3	61.4
	HF + SO <sub>2</sub>	96.9	31.3	79.2
Barley	Control	9.0	4.7	4.7
	SO <sub>2</sub>	6.5	2.5	4.4
	HF	36.2	28.3	63.0
	HF + SO <sub>2</sub>	30.0	20.8	52.6
Corn	Control	1.6	0.3	0.6
	SO <sub>2</sub>	2.0	1.4	0.9
	HF	15.5	2.6	9.6
	HF + SO <sub>2</sub>	5.5	3.5	8.4

\* Values for Experiments 1 and 2 represent results of pooled tissues and were unsuitable for statistical analysis. Values for Experiment 3 are the means for 10 replicate pots.

In corn or barley plants exposed to a control atmosphere or to HF, no symptoms appeared. None of the treatments produced foliar lesions on bean. F accumulation in tops or leaves is shown in Table 2, but no statistical analyses were made because the plant samples were pooled; however, the overall accumulation of F was lower than in Experiment 1 (Table 2).

#### Experiment 3

Severe foliar injury was again produced by SO<sub>2</sub> in Experiment 3, and the concentration of SO<sub>2</sub> was further reduced by about half (to 0.06-0.08 ppm). After 14 days, barley leaves exposed to SO<sub>2</sub> or SO<sub>2</sub> + HF exhibited marginal and tip chlorosis and exposure to the combination of SO<sub>2</sub> and HF produced red stippling on the distal half of the leaves. By the end of the fumigation period (27 days), most of the areas of the leaves where chlorosis or red stippling had been induced by the combined pollutants developed into bifacial necrosis. HF induced a small amount of tip and marginal necrosis. Injury produced by the combination of SO<sub>2</sub> and HF was greater than that produced by SO<sub>2</sub> and HF alone. Evaluation of the amount of foliar injury in barley showed that the effect of SO<sub>2</sub> + HF produced significantly more injury than that produced by the sum of HF and SO<sub>2</sub> alone (Table 3).

After 14 days of fumigation, corn leaves exhibited an unusual symptom which occurred in much greater abundance on leaves exposed to the combination of SO<sub>2</sub> + HF than with either pollutant alone. The injury appeared as small (1-3 mm), elliptical, bifacial lesions on the distal half of older leaves. Light green lesions appeared which developed into necrotic lesions—often having a dark centre and surrounded by a dark green halo—within two or three days (Fig. 1).



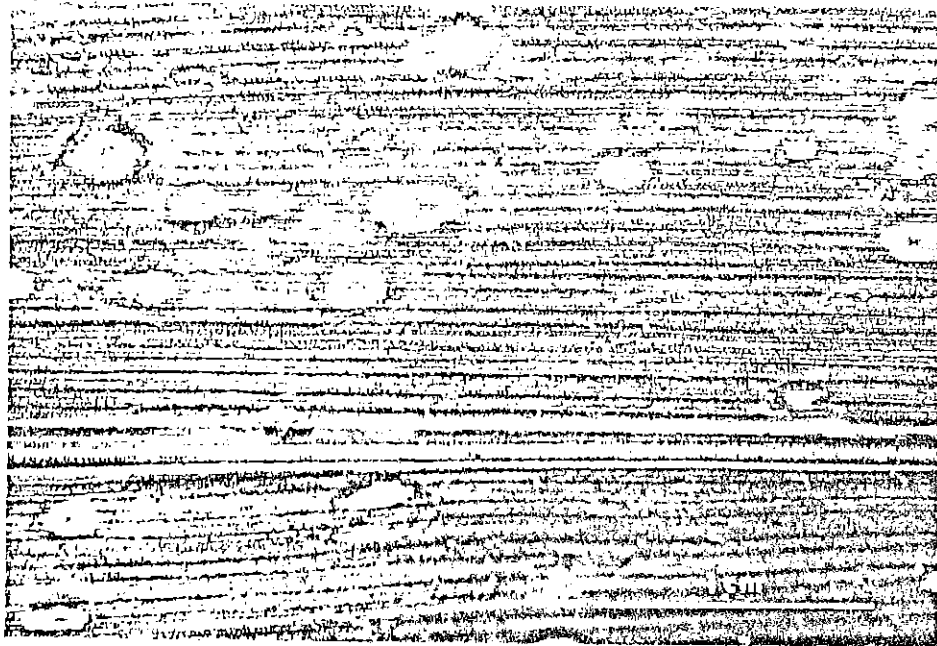


Fig. 1. Appearance of lesions from upper surface of cv. Marcross leaves (5x).

TABLE 3  
INJURY OF BARLEY LEAVES AFTER EXPOSURE FOR 27 DAYS  
SEPARATELY TO HF AND SO<sub>2</sub> ALONE AND IN COMBINATION  
(EXPERIMENT 3)

<i>Treatment</i>	<i>No. of plants</i>	<i>% of leaf injured (±SD)</i>
Control	557	0
HF	558	6.7 ± 5.3
SO <sub>2</sub>	566	21.8 ± 11.3
SO <sub>2</sub> + HF	602	61.8 ± 4.9*

\* Significantly greater than HF or SO<sub>2</sub> alone ( $\alpha = 0.01$ ).

The lesions were distributed randomly over the distal half of the leaf and were most abundant on older leaves (Table 4). The number of lesions produced by the combination of SO<sub>2</sub> and HF was significantly greater than the sum of those produced by either pollutant alone. Histological examination of tissue sections showed no evidence of microbial pathogens.

TABLE 4  
NUMBER OF LESIONS ON LEAVES OF CV. MARCROSS AFTER EXPOSURE FOR 27 DAYS SEPARATELY TO HF  
AND SO<sub>2</sub> ALONE AND IN COMBINATION (EXPERIMENT 3)

Treatment	Number of lesions occurring on leaf at node number above ground							Total No. lesions
	3	4	5	6	7	8	9	
Control	0	0	0	0	0	0	0	0
HF	2	9	52	70	75	13	0	221*
SO <sub>2</sub>	195	419	406	346	133	15	0	1514*
SO <sub>2</sub> + HF	295	718	852	741	332	79	12	3019*

\* Significantly different ( $\alpha = 0.001$ ) from all other treatments and control.

Analysis for fluorine in tissues showed no significant differences between the two fluoride treatments or the control and SO<sub>2</sub> treatments for any species (Table 2). Bean plants appeared normal in all treatments. There were no significant differences in plant height or in fresh and dry weights of plant tops between treatments for any species.

#### Experiment 4

Because the appearance of bifacial lesions on corn leaves was the most significant result of Experiment 3, a fourth experiment was carried out under essentially the same experimental conditions except that two cultivars of corn were used—cv. Marcross because it was used earlier, and cv. Surecross because of its greater resistance to HF (Zimmerman & Hitchcock, 1956)—and they were older. Bifacial lesions first appeared after 12 days on both species but, on cv. Marcross, the abundance of lesions was far greater on leaves of plants exposed to SO<sub>2</sub> + HF than with SO<sub>2</sub> alone, and on cv. Surecross, symptoms occurred only in the SO<sub>2</sub> and HF treatment. By the end of the fumigation period (27 days), the greater abundance of lesions on plants exposed to the combined pollutants was obvious (Fig. 2). From both visual and histological examinations, there were no differences between lesions induced by SO<sub>2</sub> alone or by the combination of SO<sub>2</sub> and HF in both cultivars. Again lesions were most abundant on the distal half of older leaves (Table 5) and there were significantly more in the combination treatment than in the individual treatments. The production of foliar lesions on cv. Surecross was far less than on cv. Marcross. There was also a significant decrease in foliar accumulation of fluoride in leaves of both corn cultivars exposed to the combination of SO<sub>2</sub> and HF when compared with HF alone, but there was no difference in fluoride accumulation in leaves in the control or SO<sub>2</sub> treatments. The amount of fluoride-induced marginal chlorosis was estimated to be about 60% greater for both cultivars in the combination treatment than in the HF treatment alone. None of the treatments produced significant differences in plant height or in fresh and dry weights of plant tops of either cultivar.

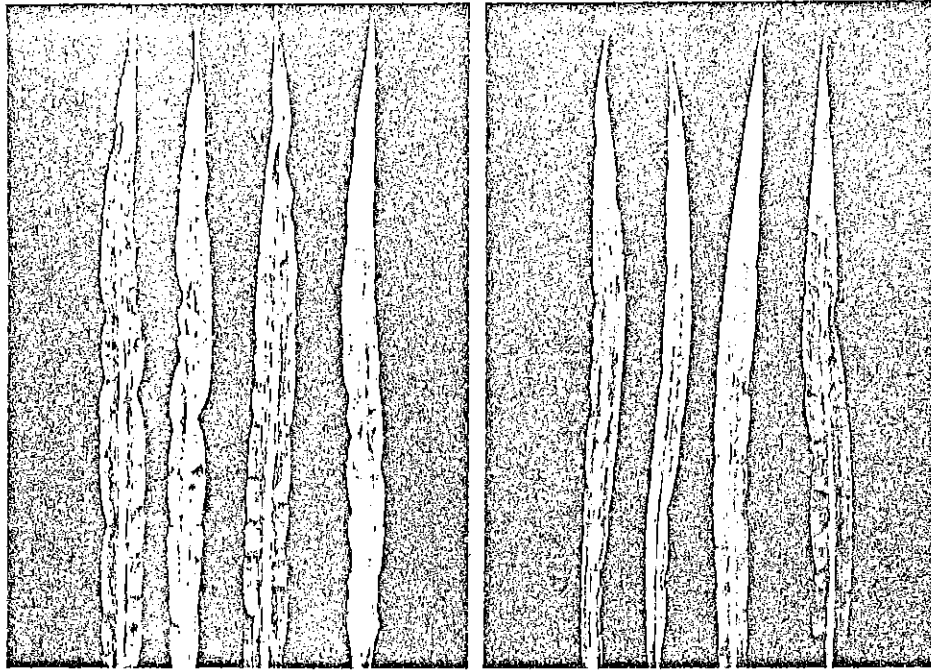


Fig. 2. Effect of separate exposure to charcoal-filtered air, SO<sub>2</sub>, HF, and a combination of SO<sub>2</sub> and HF on foliage of two sweet corn cultivars after 27 days. Left to right: SO<sub>2</sub>, SO<sub>2</sub> + HF, HF, control for cvs. Marcross and Surecross (Experiment 4).

TABLE 5  
NUMBER OF LESIONS AND FLUORIDE ACCUMULATION IN FOLIAGE OF CVS. MARCROSS AND SURECROSS EXPOSED SEPARATELY TO HF AND SO<sub>2</sub> ALONE OR IN COMBINATION (EXPERIMENT 4)

Treatment	Number of lesions occurring on leaf at node number above ground						Total No. lesions	Ppm F†
	3	4	5	6	7	8		
cv. <i>Marcross</i>								
Control	0	0	0	0	0	0	0	2.63
HF	3	1	7	5	2	0	18*	19.32*
SO <sub>2</sub>	219	129	191	148	7	2	696*	2.57
SO <sub>2</sub> + HF	985	1680	3075	2045	365	137	8287*	14.43*
cv. <i>Surecross</i>								
Control	0	0	0	0	0	0	0	3.28
HF	0	0	0	0	0	0	0	12.43*
SO <sub>2</sub>	6	23	3	0	0	0	32*	1.48
SO <sub>2</sub> + HF	48	194	459	156	8	0	865*	8.97*

\* Significantly different within rows ( $\alpha = 0.001$ ) and between treatments and control.  
† Values are the means for 10 replicate pots.

## DISCUSSION

Exposure of barley and corn plants to 0.3 and 0.15 ppm of SO<sub>2</sub> in Experiments 1 and 2, respectively, produced significant foliar injury on both species, but the presence of HF neither potentiated nor attenuated the severity of symptom expression. When the concentration of SO<sub>2</sub> was reduced to 0.06–0.08 ppm, elliptical bifacial lesions appeared on corn leaves (Experiments 3 and 4) and the response was accentuated by HF. Although the expression of foliar symptoms was different in barley, the presence of HF produced a similar accentuation of foliar injury to that on corn cultivars (Experiment 3). The lesions induced by SO<sub>2</sub> on corn leaves resembled those produced by infection with *Helminthosporium maydis* or *Colletotrichum* sp. and have not been found described in the literature. A similar symptom may, however, be inferred from the description of Guderian & van Haut (1970) for initial symptoms of chronic SO<sub>2</sub> injury in monocotyledonous species on which diffuse green spots appeared which later became necrotic.

Accumulation of F by plants depends upon many factors, including the species of plant, its age or stage of development and environmental factors, as well as the presence of other atmospheric pollutants. It was therefore not surprising to find: (1) that the greatest accumulation of F was found in beans, with barley accumulating a somewhat lower concentration, and corn being by far the lowest and (2) that the greater foliar accumulation of F found in corn plants in Experiments 1 and 4 than in Experiments 2 and 3 was probably the result of using older plants in the former experiments even though environmental conditions were the same for all trials. It was perhaps paradoxical that, in Experiment 4, the combination of SO<sub>2</sub> and HF resulted in a significantly lower F accumulation in corn than did HF alone. Most recent investigations have shown that relatively low concentrations of SO<sub>2</sub> result in decreased stomatal resistance (greater stomatal opening) (Majernik & Mansfield, 1971; Biscoe *et al.*, 1973) and that HF induces stomatal closure (Poovaiah & Wiebe, 1973). Thus, one might expect that the combination of SO<sub>2</sub> and HF would induce greater foliar F accumulation. However, because these effects on stomatal activity were determined for relatively short exposure periods, they may not be valid for relatively much longer exposures (*e.g.* 27 days in Experiment 4). Our results suggest that perhaps long exposures to both pollutants can induce stomatal closure or affect the magnitude of stomatal periodicity (although stomatal closure was not reflected by effects on growth).

These experiments have demonstrated that one particular combination of SO<sub>2</sub> and HF at relatively low concentrations accentuates the production of lesions and attenuates the uptake of fluoride in the foliage of two cultivars of corn. Higher concentrations of SO<sub>2</sub> in the mixture did not accentuate foliar injury, but the higher degree of SO<sub>2</sub> injury was sufficient to make evaluation difficult. We cannot conclude that the foliar injury induced in Experiments 3 and 4 was synergistic because various combinations of the two pollutants were not tested systematically.

Another problem in the interpretation lies in the extrapolation of these results (and those of others) to field conditions. Most studies on pollutant interactions, where effects were accentuated or attenuated, were carried out with potted plants and with some degree of environmental control. Under such conditions, no attempt could be made to extend the duration of exposure sufficiently to permit the determination of the effects of treatments on yield (*i.e.* production of seeds, pods and ears). Therefore, the lack of any significant effects on the fresh or dry weights of tops or leaves in our experiments does not necessarily reflect possible effects on fruiting. The response of cv. Marcross corn to SO<sub>2</sub> and HF alone and in combination when grown to harvest under field conditions will be the subject of a later paper.

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# Influence of Sulfur Dioxide and Hydrogen Fluoride as a Mix or Reciprocal Exposure on Citrus Growth and Development

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The influence of exposure to mixtures of SO<sub>2</sub> and HF on Koethen sweet orange and mixtures and alternate exposure to these gases on Satsuma mandarin were tested using a rotating fumigation greenhouse. Effects of HF-SO<sub>2</sub> mixtures on linear growth and leaf area of Koethen orange were additive, not synergistic. No necrosis was observed on Koethen oranges exposed to HF, SO<sub>2</sub>, or a mixture of HF and SO<sub>2</sub>. Effects of the mixture on chlorosis of Satsuma mandarin foliage was also not synergistic. No significant difference in linear growth of Satsuma mandarin was found among all treatments. Alternate exposure to SO<sub>2</sub> followed by HF produced no synergistic injury to Satsuma mandarin. Satsuma mandarin appeared more sensitive than Koethen orange to HF, SO<sub>2</sub>, and mixtures of these two gases using degree of chlorosis and leaf abscission as the criteria of sensitivity. If linear growth and leaf area were the principal criteria considered, Koethen orange would appear more sensitive.

Under field conditions more vegetation is frequently subjected to mixtures of pollutants rather than to a single pollutant. Considerable information exists in the literature concerning the effects of HF or SO<sub>2</sub> alone on plants. Thomas<sup>1</sup> has reviewed this literature. Only a few reports concerning the influence of mixed gases on plants have been published.<sup>2-4</sup> Certain combinations of two gases acting simultaneously may produce more damage than the sum of their individual effects. This phenomenon is referred to as synergism or synergistic effects. Menser and Heggestad<sup>3</sup> found that a mixture of SO<sub>2</sub> and O<sub>3</sub> caused

synergistic injury to tobacco plants. Applegate and Durrant<sup>2</sup> also found synergistic action of O<sub>3</sub>-SO<sub>2</sub> mixtures on peanuts.

It is also likely that plants in the field may often be affected by several kinds of gases acting alternately or in succession as well as individually or in mixtures. Alternate exposures would occur when wind direction fluctuated in an area near several sources of pollutants. Brewer and Taylor<sup>5</sup> found that the damaging effects of alternate exposures of lemon trees to HF and O<sub>3</sub> were equivalent to the total effects of

the two gases acting alone. Matsushima and Taylor,<sup>6</sup> however, found that the injury resulting from alternate exposures to SO<sub>2</sub> and NO<sub>2</sub> was not additive, and was highly dependent on the order of exposure. SO<sub>2</sub> followed by NO<sub>2</sub> produced very severe damage; SO<sub>2</sub> following NO<sub>2</sub> was no more damaging than SO<sub>2</sub> or NO<sub>2</sub> alone. Mixtures of SO<sub>2</sub> and NO<sub>2</sub> were found to be highly synergistic.

The purpose of this experiment was to determine whether combinations of SO<sub>2</sub> and HF might also produce synergistic effects and whether previous exposure to one of these gases might influence subsequent response of citrus to the other gas.

## Materials and Methods

Two species of citrus, Koethen sweet orange (*Citrus sinensis*) and Satsuma mandarin (*C. unshui*), were used in this experiment. Two-year-old Koethen orange seedlings were grown in pots for 47 days prior to fumigation treatments in a greenhouse equipped with activated carbon filters. Prior to beginning the fumigations on May 26, all 2-year-old leaves were removed. Satsuma mandarin trees, budded on trifoliolate orange rootstocks the previous winter, were also grown for several months prior to fumigation in the carbon filtered greenhouse.

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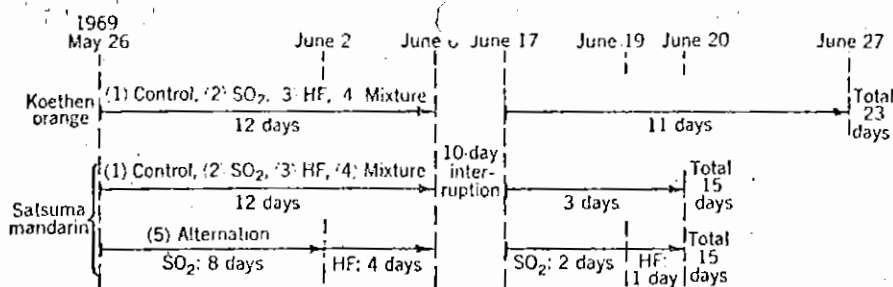


Figure 1. Schedule of fumigation treatments.

The schedule of fumigation treatments are shown in Figure 1. The fumigation periods were 23 days for Koethen orange and 15 days for Satsuma mandarin. A 10-day interruption in treatment followed 12 days fumigation with both species. Koethen orange and Satsuma mandarin were simultaneously exposed to (1) clean air (control), (2) SO<sub>2</sub>, (3) HF, and (4) SO<sub>2</sub> + HF (mixed gas treatment) in a four-chambered rotating fumigation greenhouse (Figure 2). Satsuma mandarin were also alternately exposed to SO<sub>2</sub> and then HF (treatment number 5). The periods of exposure were 10 days to SO<sub>2</sub> and 5 days to HF. Plants were moved about in the chambers periodically during fumigation to minimize any effects of nonuniform conditions within the fumigation chambers.

The rotating greenhouses were equipped with an automatic environment control system. Temperatures in the four chambers were kept at approximately 30°C. The concentration of SO<sub>2</sub> was effectively maintained at approximately 0.8 parts per million

(ppm) or 2.3 mg/m<sup>3</sup> during this experiment, but the HF concentration varied from approximately 2.5 parts per billion (ppb) or 2.2 µg/m<sup>3</sup> at the beginning of the experiment to approximately 13 ppb (11.6 µg/m<sup>3</sup>) at the end of the experiment. On the successive dates (June 4 and 5) the concentrations of the HF only treatment were temporarily substantially higher than in the SO<sub>2</sub>-HF mixture treatment as shown in Table I.

All trees were selected for uniformity and eight trees were used in all treatments. Koethen orange seedlings grew uniformly during the experiment. Satsuma mandarin undergoes several growth cycles per year characterized by rapid growth flushes followed by temporary rest; unfortunately all of the plants used were not in the same growth phase, thereby making leaf area and internode length measurements of dubious value in this species. Leaf area of Koethen orange was measured on two matured leaves 10 cm below the top of each plant on the fifth day after termination of treatment, and it was

indicated as a relative value obtained by multiplying the length in centimeters by the width in centimeters. At the beginning of treatment, leaf areas were not measured because both the trees and their leaf size on a certain leaf position were apparently uniform. Internode length was obtained as the quotient of plant height divided by leaf number. After the fumigation treatments all trees were kept in a carbon filtered greenhouse for approximately 6 weeks for periodic observation.

Fluorine contents of leaves were determined semiautomatically using an auto analyzer and procedures suggested by Weinstein and associates.<sup>7</sup>

## Results and Discussion

### Koethen Sweet Orange

No visible injury and no leaf abscission were observed on Koethen orange as a result of any of the treatments used during this experiment. According to Brewer,<sup>8</sup> fluorine induced chlorosis usually appeared on California citrus foliage when the fluorine accumulated was in excess of 50 ppm in leaves. Leonard and Granes<sup>9</sup> have reported young citrus leaves developed chlorosis at 20-30 ppm fluorine in Florida. In this experiment, Koethen orange did not show any visible chlorosis symptoms even though a maximum fluorine content of 144 ppm F was found in leaves exposed to the SO<sub>2</sub>-HF mixture treatment (Table II). Using symptom development as the only criteria, it would appear that Koethen orange is relatively insensitive to SO<sub>2</sub> and HF, both alone and in combination. When growth responses were considered the picture was different. Plant growth was influenced by these gases. All Koethen orange trees grew well and continuously from planting on April 9 to the end of the experiment on August 8. Although significant differences in linear growth were recognized among the treatments on June 17 (after 12 days exposure to the various treatments and 10 days rest period), maximum linear growth was recorded in the HF treatment, and minimum linear growth was obtained with the SO<sub>2</sub>-HF mixture treatment. The observed depressing effects of SO<sub>2</sub> on linear growth were consistent with previous reports which indicated that linear growth of *Citrus natsudaidai* was much depressed by SO<sub>2</sub> in spite of the fact that no visible symptoms of injury appeared.<sup>10,11</sup> Linear growth was suppressed almost as much by SO<sub>2</sub> alone as it was by the combination of HF and SO<sub>2</sub>. Differences in linear growth resulting from these two gases were rather small. It would appear from the results obtained in this experiment that so far as linear growth is concerned, mixtures of SO<sub>2</sub> and HF were not synergistic but simply addi-

Table I. Concentrations of hydrogen fluoride (HF) (ppb) used in the fumigation chambers when Koethen sweet orange and Satsuma mandarin seedling were exposed.

Treatment	Sampling date						
	May 27	May 28	June 2	June 4	June 5	June 6	June 23
HF	2.3	7.9	19.4	13.2	12.8	11.6	14.7
SO <sub>2</sub> + HF	2.5	8.6	17.1	6.3	9.1	10.6	12.4

Table II. Influence of SO<sub>2</sub>, HF, and their mixture on Koethen orange.

Treatment	Plant height, cm				Leaf area, <sup>b</sup> cm <sup>2</sup> July 2	Internode length			F content in leaves, ppm dry wt	
	May 26 <sup>a</sup>	June 17	July 2	Aug. 8		Length, cm	May 26 <sup>a</sup> relative number	July 2 relative number	June 9	July 10
	1. Control	51.0	69.4	79.7		97.0	28.8	1.44	100	205
2. SO <sub>2</sub>	53.2	66.4	73.5	106.7	25.9	1.33	100	104	5	7
3. HF	52.2	71.5	81.1	109.6	22.3	1.31	100	110	63	123
4. SO <sub>2</sub> + HF	51.2	64.6	76.9	105.1	18.3	1.44	100	99	60	144
F value	0.20 NS	1.77 NS	2.73 NS	0.61 NS	22.74 <sup>c</sup>					

No visible injury in all treatments.

<sup>a</sup> Beginning of fumigation.

<sup>b</sup> Length × width of leaf.

<sup>c</sup> Significantly different at 0.01 level of probability. NS Not significant.



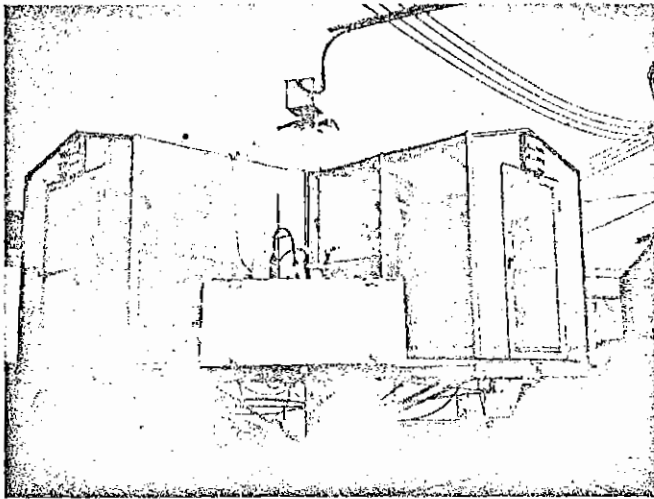


Figure 2. Four-chambered rotating fumigation greenhouse.

tive. These tendencies of linear growth affected by these gases were the same on July 2, 26 days after treatment was begun, and on the fifth day after termination of treatment. To observe the duration of suffering from the treatment, all trees were kept in the greenhouse equipped with activated carbon filters for 42 days after the end of fumigation until August 8. Measurement of the plants on August 8, however, indicated that there was no effect of these treatments on linear growth, or rather slight promotion in these fumigated plants than in non-fumigated plants. This would indicate the effects of SO<sub>2</sub> and HF alone and in combination do not persist for any great length of time, but might remain for one or two months without visible injury.

Increase of linear growth without increase in number of leaves in the HF treatment is an indication of abnormal growth in citrus. These results agreed with a previous report by Brewer<sup>12</sup> which indicated that linear growth of six different varieties of citrus was accelerated by exposure to relatively high concentrations. Short internode lengths together with minimum linear growth resulting from the SO<sub>2</sub> treatment indicated that sulfur dioxide tended to depress linear growth but not produce the weak, spindly growth associated with the HF treatments. Growth suppression also resulted from

exposure to a mixture of the two gases, but there was no evidence of synergism. Since the individual effects of the two gases on linear growth were not the same, the net result of a mixture of the two would depend on the relative concentrations of the two gases in the mixture.

Leaf area measurements made on the fifth day after the end of fumigation indicated responses quite different from those concerned with linear growth. The differences of leaf size among the treatments were apparently recognized, and the differences of leaf area were highly significant. At the beginning of treatment, Koethen orange trees had about 30 leaves per plant, and at the end of treatment had about 50 leaves. About 20 new leaves developed during the treatment. The uppermost 2 fully developed new leaves were chosen as indicators for assessing the degree of damage resulting from exposure to the various gases. Both SO<sub>2</sub> and HF resulted in reduced leaf area and the effects of a mixture of the two gases were additive. Brewer *et al.*<sup>12</sup> found that many citrus varieties were increased in linear growth but depressed in leaf area by HF fumigation. The results of these experiments are consistent with these reports. It is evident that leaf area is an extremely sensitive and meaningful indicator for measuring the response of citrus species to these gases.

#### Satsuma Mandarin

Interveinal chlorosis was observed on mature leaves in all except the control treatments after about 10 days of fumigation, but no acute injury (necrosis) was observed in Satsuma mandarin (Table III). The chlorosis patterns on mature leaves in the HF treatment were the same as previously reported by Brewer,<sup>12,13</sup> but the degree of chlorosis was not so severe. Severe chlorosis and necrosis patterns of the type usually considered symptoms of acute HF damage were not observed even at the end of the fumigation (June 19). Approximately 20% of the total leaf area in the HF treatment was chlorotic. Mild interveinal chlorosis was also observed as a result of the SO<sub>2</sub> treatment, but only a few leaves were affected. With the mixture of SO<sub>2</sub> and HF, approximately 4% of the total leaf area of mature leaves was chlorotic. It has been reported by Solberg and Adams<sup>1</sup> that even with acute injury the aspects of leaf damage resulting from fumigation with SO<sub>2</sub>, HF, and/or SO<sub>2</sub>-HF mixtures were microscopically indistinguishable in all species examined. In this experiment the chlorosis patterns caused by the mixed gases were indistinguishable from the pattern produced by the individual gases, which were also similar, indicating that visible chlorosis patterns would not be an effective means of differentiating between effects of these two gases in the field.

On the whole, the degree of chlorosis resulting from the HF treatment was somewhat more severe than with the SO<sub>2</sub>-HF mixture treatment. The concentrations of HF found in the HF treatment chamber were temporarily higher than that in the mixed gas chamber (Table I), and might explain the fact that less chlorosis resulted from the mixture than from the HF alone. However, F content of leaves from the HF treatment after 10 days fumigation (June 9) was 32 ppm while that of the mixture treatment was 38 ppm. A month later, however, the HF leaves contained 60 ppm F and the SO<sub>2</sub>-HF leaves contained 42 ppm F. On June 9 the F content of Koethen oranges receiving the HF and SO<sub>2</sub> + HF treatments were 63 and 60 ppm, respectively. By July 10 these values had increased to 123 and 144 ppm, respectively. Degree of leaf abscission was closely correlated with the degree of chlorosis. Maximum abscission occurred with HF alone, but the SO<sub>2</sub>-HF

Table III. Influence of SO<sub>2</sub>, HF, their mixture and alternating combination on Satsuma mandarin.

Treatment	Plant height, cm				Degree of chlorosis June 6, % area	Leaf fall rate <sup>b</sup> July 2, %	F content in leaves, ppm dry wt	
	May 26 <sup>a</sup>	June 17	July 2	Aug. 8			June 9	July 10
1. Control	30.6	39.1	50.7	74.6	0	0.9	3	6
2. SO <sub>2</sub>	34.0	34.7	48.8	75.9	1.3	0.8	8	7
3. HF	33.7	38.3	53.7	70.3	19.0	5.6	32	60
4. SO <sub>2</sub> + HF	32.0	37.6	63.8	78.3	3.9	1.8	38	42
5. Alternation	35.4	40.2	60.1	86.9	6.2	0	19	30
F value	0.55 NS	0.56 NS	2.10 NS	1.24		2.65 <sup>c</sup>		

<sup>a</sup> Beginning of fumigation.

<sup>b</sup> Spring cycle leaves.

<sup>c</sup> Significantly different at .05 level of probability.

NS Not significant.

mixtures of SO<sub>2</sub> and HF are not synergistic. In no instance were the combined effects of the mixture of the two gases more severe than would be expected if their individual effects were simply additive. In some instances it seemed that the two gases were somewhat less toxic when combined than when alone, but slightly different concentrations of HF in the HF and SO<sub>2</sub>-HF treatments prevent accurate assessment of this point.

Sequential exposures of Satsuma mandarin to SO<sub>2</sub> and HF (treatment number 5 in Table 3) were designed to determine whether previous exposure to one of the gases influenced the subsequent sensitivity of the plants to the second pollutant. Brewer and Taylor<sup>6</sup> found that alternate exposures of lemon trees to HF one week and ozone the next produced additive results, indicating that neither gas affected the response of the plants to the second. In this report the degree of chlorosis in the alternate (HF then O<sub>3</sub>) treatment was somewhat less than the sum of individual effects of HF and O<sub>3</sub>. Effects on leaf abscission were exactly additive. Matsushima and Taylor<sup>6</sup> recently found the effects of mixtures of SO<sub>2</sub> and NO<sub>2</sub> to be synergistic and NO<sub>2</sub> following SO<sub>2</sub> nearly as toxic as the synergistic mixture. The reverse order (SO<sub>2</sub> following NO<sub>2</sub>) of fumigation produced greatly reduced damage to several kinds of vegetables indicating that previous exposure to NO<sub>2</sub> reduced the sensitivity of these plants to damage by SO<sub>2</sub>. In this experiment concen-

trations of SO<sub>2</sub> and NO<sub>2</sub> were 1.0 and 10 ppm, respectively. Degree of necrosis was the criterion used as an indication of acute injury.

Linear growth response of Satsuma mandarin to these treatments was similar to that of the Koethen orange (Table III). Alternate exposures to SO<sub>2</sub> and HF had no significant effect on linear growth of Satsuma mandarin. Satsuma mandarin was fumigated with SO<sub>2</sub> or with HF for 8 days less than was used with Koethen orange experiments, but it is doubtful whether a significant difference in linear growth would have developed even if the duration of exposure had been extended another week or 8 days. Failure of Satsuma mandarin to respond to these treatments so far as linear growth was concerned is probably associated with peculiar growth spurts by Satsuma mandarin followed by rest periods. No differences in leaf area among the treatments were found in Satsuma mandarin. Degree of chlorosis and leaf fall rate resulting from alternate exposures were also not synergistic.

Satsuma mandarin would be considered more sensitive than Koethen orange to SO<sub>2</sub>, HF, and to the mixtures of these gases using degree of chlorosis and leaf abscission as the criteria of sensitivity. If linear growth and leaf area were the principal criteria of injury considered, Koethen orange would appear more sensitive than Satsuma mandarin. Brewer<sup>12</sup> has, previously observed similar responses among varieties exposed to HF gas.

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# FLUORIDES AND SULFUR DIOXIDES AS CAUSES OF PLANT DAMAGE

by

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**SUMMARY:** Fluoride ( $F^-$ ) and sulfur trioxide ( $SO_3$ ) levels were determined in three polluted industrial areas where the two pollutants had damaged vegetation. The appearance of the leaves was typical of  $F^-$  injury whereas no lesions indicated toxicity by sulfur oxides. Chemical analyses of the plants supported these findings. Fluoride levels in gladiolus ranged from 3.4 to 8.7 mg% and those of  $SO_3$  from 0.77 to 1.15%. The author concludes that, by far, the greatest damage from gaseous combustion to horticulture, farming and forestry is caused by  $F^-$  containing compounds, primarily hydrogen fluoride.

In the extensive literature on damage to vegetation by air pollution, sulfur dioxide is considered to be the most widely distributed and destructive agent (1-3). This concept originated in the 19th century when damage appeared on forest plants near industries where large amounts of coal or coke were used. At that time it was already known that, during combustion, sulfur in coal is transformed into  $SO_2$  which passes through the smokestack into the atmosphere and reaches the forests. In almost all cases, the portion of the trees facing the factories was more heavily damaged than that on the opposite sides. Therefore, it was thought that injury to trees had been brought about by emissions of  $SO_2$ .

This conclusion was further supported by the fact that the damaged portions of plants near factories contain considerably more sulfur than samples taken from non-industrial areas. The sulfur content decreases proportionately to the distance from the source of the smoke. As indicated in Table I, these features are as pertinent today as before. In samples 1 to 3 the leaves from the portion of the trees facing the smoke contained more sulfur than leaves on the opposite sides. In samples 4 and 5 the recorded  $SO_2$  values decreased with increasing distance from the factories. Since the above-described phenomenon recurred year after year,  $SO_2$  was held responsible for the damage.

During the past 10 years  $F^-$  compounds were found to share in the damage which had been formerly attributed solely to  $SO_2$  (4, 5). In horticultural operations in the Netherlands  $F^-$  compounds were recognized as the major

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TABLE 1  
Sulfur Content of Leaves

Sample	SO <sub>3</sub> %
I. On Side of Trees:	
1. a) facing factory	1.87
b) opposite "	1.19
2. a) facing factory	0.74
b) opposite "	0.58
3. a) facing factory	1.13
b) opposite "	0.92
II. At Distances from the Source of Smoke	
4. a) 250 m south	1.43
b) 1750 m south	0.41
c) 2500 m south	0.36
5. a) 500 m ESE	0.81
b) 2850 m ESE	0.63
c) 3500 m ESE	0.53

cause of damage (6). Finally in 1962, Bohne (7) reported that gaseous products of combustion containing F<sup>-</sup> compounds caused most of the damage in horticulture, farming and forestry. The following observations further support this concept:

Situation I

After conversion of a brickworks from an annular kiln to a tunnel kiln and, along with it, to the use of oil as fuel, severe damage appeared on leaves of many trees in the surrounding gardens. Because of the clearly visible oily coating on the leaves, the damage in the vicinity of the factory was attributed to oil and to SO<sub>2</sub> liberated during combustion. Severe, sharply defined areas of necrosis were noted on the margin of otherwise bright green leaves. Depending on the plant species, the necrotic lesions on the leaf margins exhibited different shades of brown, which were typical of F<sup>-</sup> damage. In gladiolus plants, red-brown areas beginning at the tips and slanting to the central portion of the leaves were evident. The leaves on the portion of the trees and bushes facing the factory showed much greater damage than on the opposite sides. Chemical analyses of the washed parts of the plant are presented in Table 2. Fluoride assays were carried out according to the method by Gericke and Kurnies (8). None of the samples taken at the end of June showed a high sulfur content, whereas the F<sup>-</sup> level in all samples was 12 to 23 times above normal (0.5 mg%). Therefore, F<sup>-</sup> emissions must have been generated by thermal decomposition of the F<sup>-</sup> compounds contained in the clay during the firing of the brick.

FLUORIDE

TABLE 2

Sulfur and Fluorine Content (Dry) of Leaves and Needles

Plant Type	% SO <sub>3</sub>	mg % F <sup>-</sup>
Plums (Damson)	0.36	7.3
Apple	0.38	8.1
Pear	0.45	11.7
Horse-Chestnut	0.41	6.0
Apricot	0.41	10.8
Gladiolus	0.77	8.7
Blue Spruce	0.54	8.6

Situation II

In another community the circumstances were more complex. Farmers noted severe damage to vegetation. Beef cattle grazing on pasture became emaciated and/or died after a short illness. Residents complained of headaches and throat irritation during the first few weeks after they had moved into the area. Emissions from three neighboring factories, an electric power station, a briquette factory, and an iron-refining smelter were considered the likely cause, and the damage to vegetation was believed to be due to SO<sub>2</sub>. The damage to beef cattle was attributed to accumulation of molybdenum dust from the iron smelter.

Here again, the injury to plants consisted of unusually severe brown-colored necrosis on the leaf margin. The lesions were sharply delineated from the otherwise healthy looking portions of the leaf. Gladiolus plants showed the typical F<sup>-</sup> injury described above. Gardens near the factories were devastated in strips. Several kinds of cabbage which are intolerant to combustion gases were heavily damaged. The wheat in one field was only 1/2 m high at harvest time and had only small, narrow husks. Table 3 presents the analysis of plant samples.

TABLE 3.

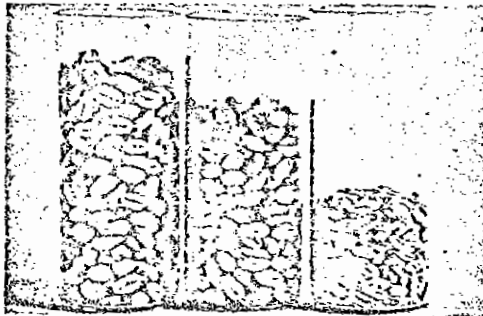
Sulfur and Fluorine Content of Leaves

Plant Type	% SO <sub>3</sub>	mg % F <sup>-</sup>
String-bean	1.36	97.1
Strawberry	1.00	41.9
Gladiolus	1.15	3.4
Lilac	1.12	60.1
Hornbeam	1.00	13.5
Wheat straw	1.31	584.0

Sulfur oxides from the air did contaminate the plants, but the concentrations were not high enough to cause the unusually severe damage. With a  $F^-$  content of over 20 mg% (200 ppm) in the leaves and with 584 mg% of  $F^-$  (5840 ppm) in wheat straw,  $F^-$  poisoning of the plants was considered to be the cause of the damage. The effect of  $F^-$  containing gases on wheat kernels is illustrated in Fig. 1.

Fig. 1

Comparison of 400 Grams of Winter Wheat  
at Various Distances from Factory



- Left: 2,5 km east of factory, 0,02 mg%  $F^-$ , thousand grains weighing 50,2 g.  
Center: 300 m east of the works, 0,16 mg%  $F^-$ , thousand grains weighing 42,0 g.  
Right: 50 m east of the works, 2,99 mg%  $F^-$ , thousand grains weighing 17,1 g.

Calcium fluoride ( $CaF_2$ ) was used at the smelter as a flux in the process of smelting molybdenum. Since the  $F^-$  emitting foundry has installed scrubbing equipment for the exhausts, only insignificant damage has appeared in the vicinity of the smelter. Beef cattle is now on pasture in the area without ill-effect.

The typical damage to gladiolus, the brown and sharply defined margin on portions of otherwise green leaves and the greatly increased  $F^-$  content of the plants pointed to  $F^-$  rather than  $SO_2$  injury.

Situation III

Because of the presence of many coal mines, blast furnaces, electric stations and the high consumption of coal by industry and by the numerous households near large cities in the German Ruhr area,  $SO_2$  remains a permanent constituent of the polluted air. Forestry workers consider the gas the major factor impeding the cultivation of conifers and hold it responsible for its progressive decline.

In the center of the Ruhr valley, inhabitants complained of heavy damage to numerous trees and flowers. In a large section nearly all cherry trees had died. In another location, pine trees were in a deplorable condition. A nearby power plant which emitted large quantities of SO<sub>2</sub> was held responsible for the damage. In addition to gladiolus, pears, damson plums, apricots, peaches, birches, horse-chestnuts, currants and peonies were affected. In many areas throughout the whole region emission of concentrated gases of combustion had defoliated certain plants in closely growing groups. Some had already lost their leaves in June and many had died.

TABLE 4

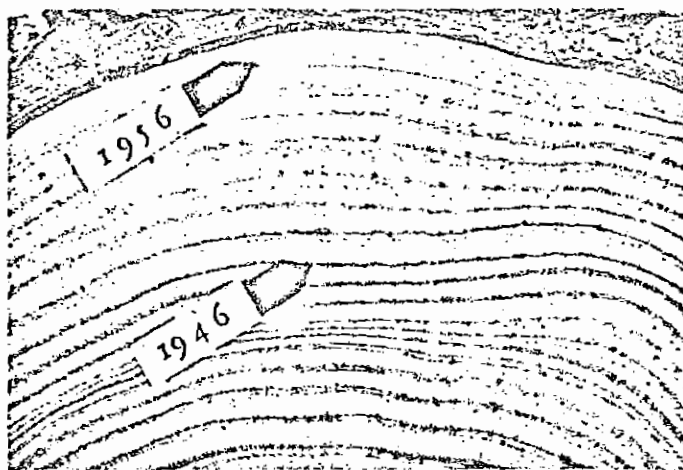
## Sulfur and Fluorine Content of Leaves

No.	No.	% SO <sub>3</sub>	mg % F <sup>-</sup>
	Lilac		
1.		1.17	16.2
2.		1.17	10.5
3.		1.40	13.0
	Pear		
4.	a) green part	1.17	10.4
	b) black-brown edge	1.41	34.7
5.	a) green part	1.63	10.7
	b) black-brown edge	1.63	23.8
6.	a) green part	1.29	12.3
	b) black-brown edge	0.85	21.8
	Horse-Chestnut		
7.		0.98	15.7
8.		1.71	50.4
9.		1.64	29.2
	Pine Needles (2 years old)		
10.		1.04	10.6
11.		1.13	14.2
12.		0.99	10.8
13.		0.82	8.2

Table 4 shows the results of a few assays of numerous others tested for sulfur and fluoride. The sulfur levels varied from 0.82-1.71% indicating an increase due to SO<sub>2</sub> absorption. However, on the basis of numerous SO<sub>2</sub> assays of leaves carried out during the past 15 years at sites without SO<sub>2</sub> emission, SO<sub>2</sub> cannot be held responsible for the leaf damage. For example, the undamaged parts and the black-brown margins of the pear leaves of sample #5 contained only 1.63% of SO<sub>3</sub>. Such levels of sulphur oxides were not sufficiently high to produce the severe burns at the leaf margins.

On the other hand, the leaves showed unusually high F<sup>-</sup> levels from repeated exposures to F<sup>-</sup> containing gases of combustion. Without exception, the black-brown margins of samples 4 to 6 exhibited a much higher F<sup>-</sup> content than the accompanying green portions of the leaves.

Fig. 2

Effects of F<sup>-</sup> Emissions on the Growth in Thickness of Pine Trees

The effect of F<sup>-</sup> emission on the growth of the above-mentioned pine trees is illustrated in Fig. 2. There had been no disturbance in growth until 1956 after a fertilizer factory, from which gases escaped during the decomposition of raw phosphates, started operation. It was situated between large electric power plants. At that time, the growth in thickness of the pines which had been uniform up to that point, came to an almost complete standstill.

The experience in the three above-described situations indicates that where fluorides and sulfur oxides are emitted simultaneously from industrial complexes, the major portion of the damage is due to F<sup>-</sup>.

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# FLUORIDE CONCENTRATIONS FOUND IN NASN SAMPLES OF SUSPENDED PARTICLES

by

R. S. Yunghans and T. B. McMullen  
Cincinnati, Ohio

**SUMMARY:** Based on over 7700 measurements for  $F^-$  ion in 24 hour samples of suspended particles collected at urban stations in 1966 and 1967, the following statements can be made:

1. Eighty-seven percent of all measurements at urban stations showed concentrations below  $0.05 \mu\text{g}/\text{m}^3$ , the threshold of detectability.

2. Thirteen measurements (0.2% of urban samples) exceed  $1.00 \mu\text{g}/\text{m}^3$ ; the maximum was  $1.89 \mu\text{g}/\text{m}^3$ .

3. Ninety-seven percent of all measurements at non-urban stations showed no detectable amounts of  $F^-$ .

4. Three non-urban samples (0.2%) contained  $F^-$  concentrations exceeding  $0.10 \mu\text{g}/\text{m}^3$ ; the maximum was  $0.16 \mu\text{g}/\text{m}^3$ .

5. Maximum  $F^-$  levels reported in this paper are well below most of the published standards for a 24 hour average concentration of soluble  $F^-$ , as HF ( $10 \mu\text{g}/\text{m}^3$  in the U.S.S.R. and Czechoslovakia,  $7 \mu\text{g}/\text{m}^3$  Montana;  $5 \mu\text{g}/\text{m}^3$  in Pennsylvania, 3, 3, 1.61, and  $0.8 \mu\text{g}/\text{m}^3$  in industrial, urban, and rural areas, respectively, of New York State). This does not refute the findings of special investigations near major sources that have clearly documented excessive levels and adverse effects on vegetation and livestock.

No geographic patterns of  $F^-$  occurrence are discernible in the data. Measurements over a longer period of time will be needed before tests for trends can be applied.

Because of the bi-weekly sampling schedule, it is unknown whether any of the sites samples maintained concentrations for several consecutive days that would be harmful to certain plants. In a few locations certain sensitive species of gladiolus possibly could be injured (about  $0.08 \mu\text{g}/\text{m}^3$  over a 5-week period).

Although there are localized instances of deleterious effects from  $F^-$  on plant and animal life in proximity to specific sources, this sampling of diverse areas of the country, both populated and rural, indicates that airborne  $F^-$  does not prevail in the general environment at concentrations anywhere approaching the currently acknowledged thresholds that would cause concern for human well-being.

From the Division of Air Quality and Emission Data, U.S. Department of Health, Education, and Welfare, Public Health Service, Consumer Protection and Environmental Health Service, National Air Pollution Control Administration, Cincinnati, Ohio.

APPENDIX II

PLATE 1

#1 -- Macrophotograph of green pine needles with necrotic basal tissues collected on Cherry Heights at Jerry Davis's orchards.

#2 -- Macrophotograph depicting basal needle necrosis of needles in Photograph #1.

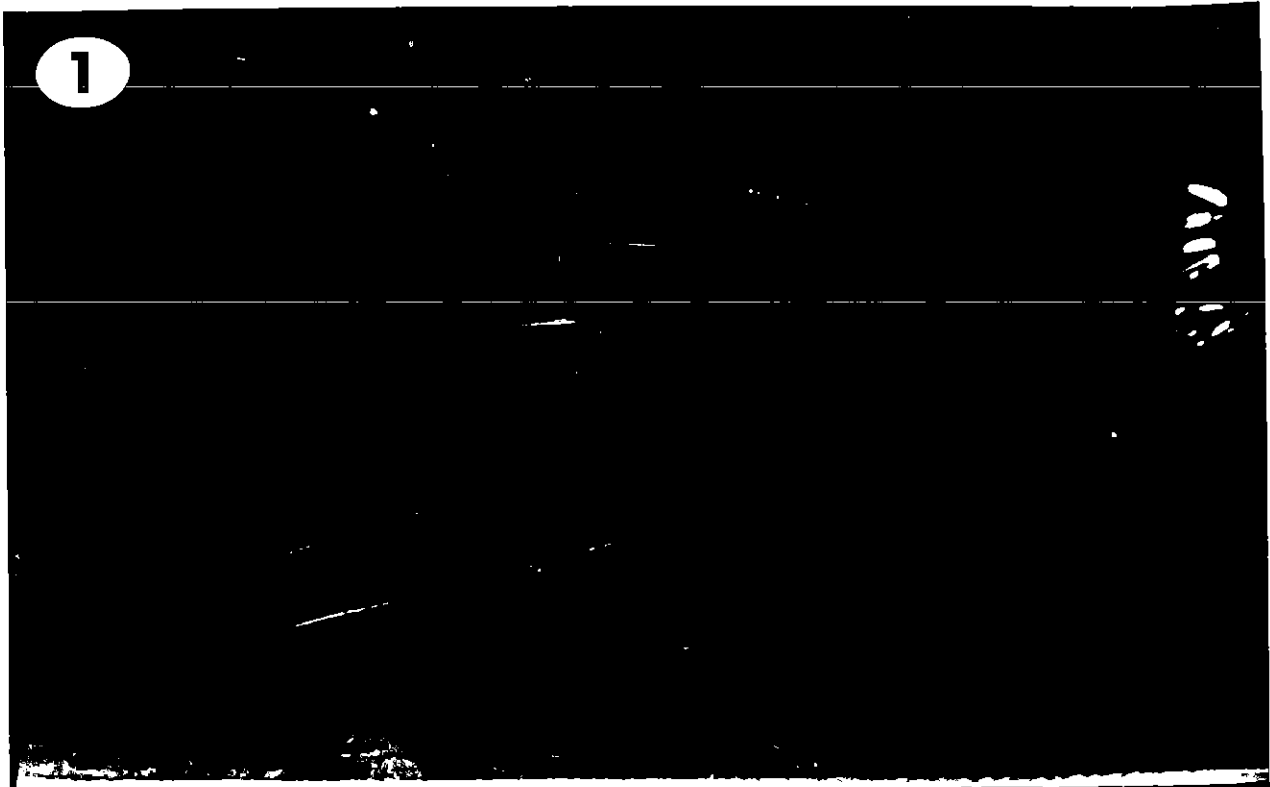


PLATE 2

#3--#6 -- Photomicrographs of a cross-section of a necrotic ponderosa pine needle set collected from Sorosis Park. Note tissue pathology where acids have destroyed various tissues of the pine needles, including epidermal, hypodermal, mesophyll and endodermal tissue. This same tissue pathology has been observed in several hundreds of needles collected from The Dalles and other polluted areas.

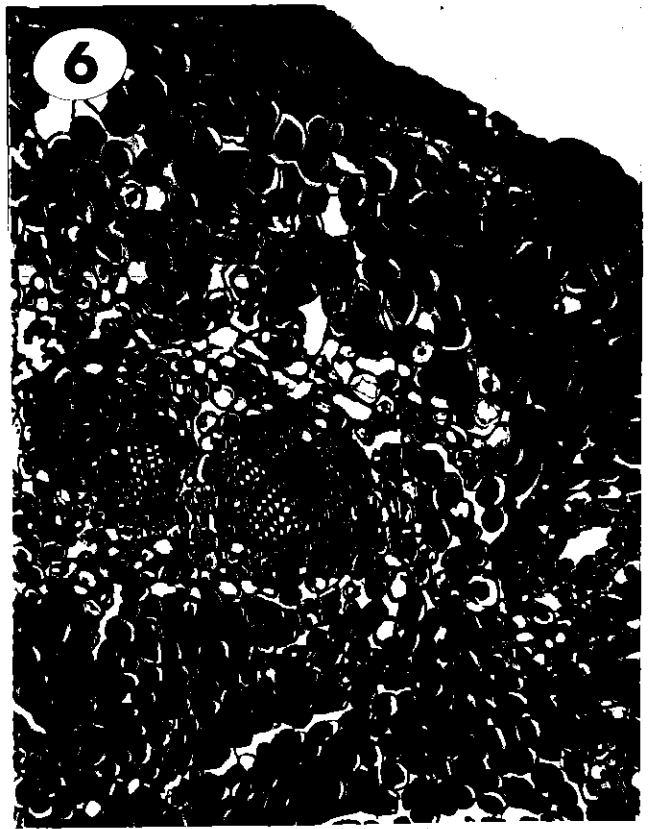
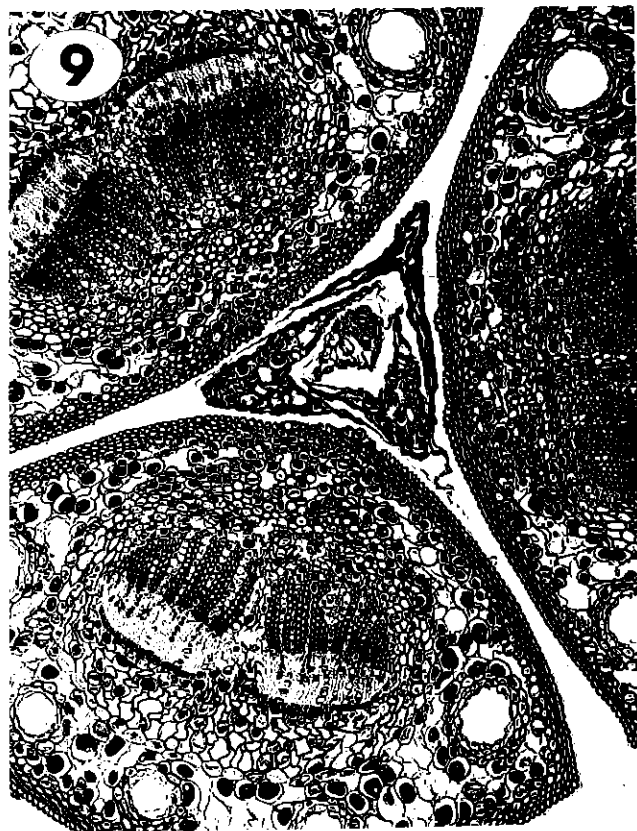
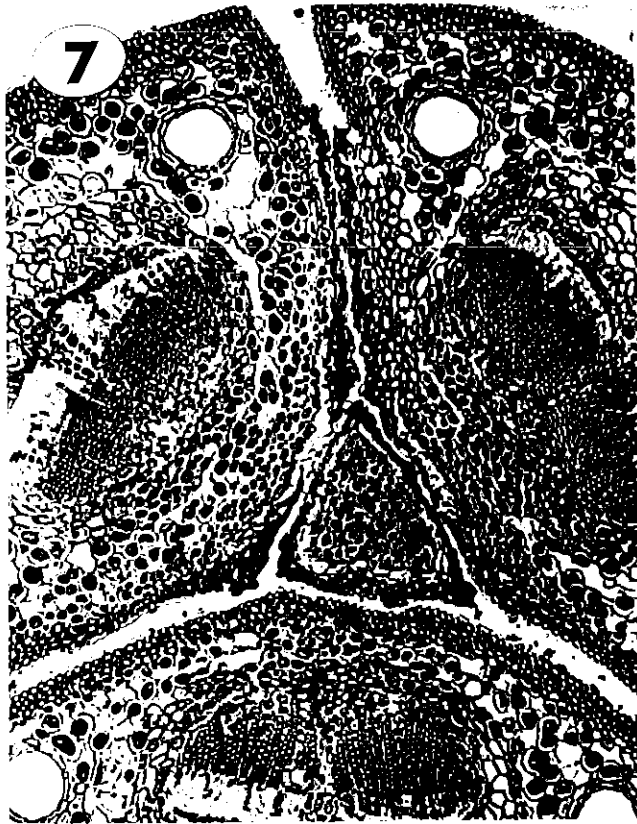


PLATE 3

Photographs #7 and #8 are photomicrographs of ponderosa pine needle set damaged by acid solutions and rains. The interfacial tissues of the 3 needles have been damaged by the acid solutions as has the dwarf shoot bud (triangular structure between the needles).

Photomicrographs #9 and #10: same needle set as in Photographs #7 and #8, but higher up on needle towards apex of needle. Photo shows how tip of dwarf shoot bud has been completely destroyed.





GEO. F. EDMUNDS, JR., PH.D.  
CONSULTING BIOLOGIST3044 CASCADE WAY  
SALT LAKE CITY 9, UTAHTELEPHONE  
HUNTER 4-8357

July 11, 1975

RECEIVED  
JUL 14 1975  
ANS'D.....FILE.....

Mr. Douglas Ragen, Attorney  
Miller, Anderson, et al.  
900 S. W. Fifth Avenue  
Portland, Oregon 97204

Dear Mr. Ragen:

My study of August, 1974 on the ponderosa pine in the Dalles area gave me a good basis for intelligent evaluation of the pine problem in the area.

Some specific details first.

1. The pines near the Ken Fleck #2 orchard show normal growth except as follows: Three trees are lightly damaged by moderate infestations of black pineleaf scale. A few pines are moderately damaged by winter injury. Several trees were sampled with an increment borer; all are showing better growth in the last 15 years than previously.
2. The trees near the Ken Fleck home are in remarkably good condition. There is a slight amount of winter injury on the road side of the trees. See the three photographs. The needles on these trees are over 12 inches long -- near maximum for ponderosa pine.

We found that many trees in The Dalles area are in poor condition from some factor other than scale insects. The tops of trees are killed and one side of the tree is thinned out or covered with dead twigs. Earlier we expressed the opinion that this is winter injury. We are now convinced that we are right, but it is a winter injury very different than another pattern that I have found elsewhere in Oregon, Washington, Idaho and British Columbia. Damage to trees tends to be episodic.

When my wife and I took increment borings from winter damaged trees, we found that they had strongly depressed growth rings at irregular intervals. A strong depression would be followed by five or six years of increasing width. The frequency of these depressed growth ring patterns has not changed in the last 150 years. In fact it persists back to 300 years, but the sample size of these old trees was much smaller.

At the Mill Creek Orchard hill in Sorosis Park and near Sorosis Park I looked for deflected trunks and double tops and recorded their frequency

July 11, 1975

and the number of years ago they occurred (by counting bud scale scar rings and branch patterns). After about five years, the estimates get 10-20% off of real years. Double topping and trunk deflection (a result of top kill) has not changed in frequency in these areas in the last 100 years or so. Much closer to the Martin-Marietta plant it is possible to see a consistent pattern of top kills that are all about the same age (about the time of maximum fluoride damage). This was the case near the Bruno Kroon orchard.

I was unable to detect any current fluoride-type markings here or elsewhere on any species of conifer.

The exact timing of this winter injury should be determined. My evidence is almost overwhelming that it is caused by cold winds blowing from the interior. I would like to see Roger Doerr (Z) and Fred Scholes both sharpen their eyes for this winter damage and the meteorological conditions related to it.

There are two factors that make the winter injury at The Dalles different than the other cold injury that I have been studying on ponderosa pine. First, these trees are not likely to be as cold hardy as interior populations. Secondly, the injury I have studied results from frost pockets or "lakes" of cold air, a situation impossible on the Columbia River.

I have discovered that when twigs on a tree are killed by cold some of the apparently undamaged twigs break bud very late in the season. Such buds open up into needles of variable length. I saw some of this in The Dales area and it may be that this is what Dr. Gordon refers to as short needle-long needle syndrome at The Dales. Actually, I found no other type of needle development that seems to fit such a description.

I hereby warn Martin-Marietta that an increase in black pineleaf scale damage will almost certainly occur. On the hill above Mill Creek Orchards and in many other areas I saw much higher scale populations than I have seen in the last few years and I believe more severe than those that occurred before the then Harvey Aluminum plant operated. The cause of the increased populations is clearly the practice of ULV applications of insecticide that have greatly increased drift. However, the short lived insecticides probably will not sublime and be transported long distances as they did at the peak of "hard" chlorinated hydrocarbon insecticide usage.

Sincerely,

George F. Edmunds, Jr.

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITYRECEIVED  
APR 26 1976AIR QUALITY CONTROLUniversity Of Utah Research Institute  
Research Park  
391 Chipeta Way  
Salt Lake City, Utah 84108  
Phone: (801) 581-5226

April 20, 1976

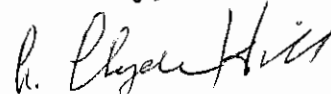
Mr. Jack A. Payne  
Engineer, Plan Review  
Dept. of Environmental Quality  
1234 S.W. Morrison Street  
Portland, Oregon 97205

Dear Mr. Payne:

Regarding your letter of April 14, 1976, you asked me to look over the projected sulfur dioxide levels which will result from an existing industrial plant modifying their air pollution control system. The projected sulfur dioxide levels are well below the national secondary standard for sulfur oxides. Since I believe that the national standards are adequate to protect vegetation from damage I see no reason for thinking that damage would occur at these projected low level concentrations. It is my understanding that cherry foliage is relatively resistant to sulfur dioxide injury. In one study for example it took approximately 2-½ times as much sulfur dioxide to damage or injure cherry foliage as it did to injure alfalfa or some of the more sensitive species. I am not aware of any studies of the effects of sulfur dioxide on cherry blossoms.

In summary, based on the available data, I would not expect any damage to cherries in the vicinity of the industrial plant from sulfur dioxide.

Sincerely,

A. Clyde Hill  
Director  
Environmental Studies Lab

ACH:mc

## THE UNIVERSITY OF UTAH

DEPARTMENT OF BIOLOGY

April 20, 1976

Jack A. Payne  
 Engineer, Plan Review  
 Air Quality Control Division  
 Department of Environmental Quality  
 1234 Morrison Street  
 Portland, Oregon 97205



Dear Mr. Payne,

In response to your letter of April 14, I have reviewed some of the available research concerning thresholds of vegetation injury from sulfur dioxide with special reference to sweet cherry.

About the only research dealing with this species (Prunus avium) comes from the Landesanstalt für Immissions - und Bodennutzungsschutz in Essen Germany and reported by H. Van Haut, H. Stratman and R. Guderian. They list sweet cherry as intermediate in sensitivity with a long term (growing season to annual) threshold of about 760 to 1200  $\mu\text{g}/\text{m}^3$ . A closely related species (Prunus padus) is reported to have a 3 hour threshold 1830  $\mu\text{g}/\text{m}^3$ .

The most sensitive pine trees are also considered intermediately sensitive. Reports in the United States indicate some reproduction (pine cone production) losses may occur at 86  $\mu\text{g}$  averaged over the growing seasons. But this included 5 to 10 hour peaks of 1430  $\mu\text{g}/\text{m}^3$  (Research at the University of Utah and other institutions has shown that it is the peaks, not the long term averages, that are most critical in causing injury.)

Research in the U.S., Germany, and elsewhere consistently show alfalfa to be among the most sensitive species known. Personal experience shows that alfalfa would not be injured at less than at least 570  $\mu\text{g}/\text{m}^3$  for a 2 hour average. Still higher concentrations would be required to have any effect at all on the growth of any other species including sweet cherries.

Sincerely,

  
 Michael Treshow

db

## UNIVERSITY OF CALIFORNIA, RIVERSIDE

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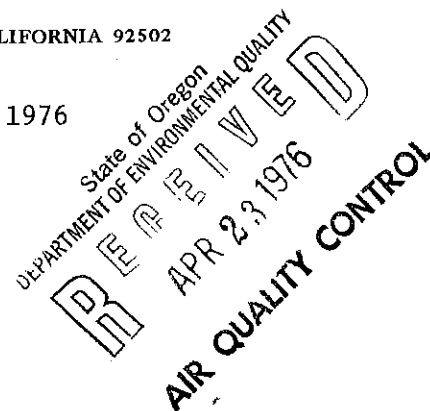


SANTA BARBARA • SANTA CRUZ

STATEWIDE AIR POLLUTION RESEARCH CENTER

RIVERSIDE, CALIFORNIA 92502

April 21, 1976



Mr. Jack A. Payne  
 Engineer, Plan Review  
 Air Quality Control Division  
 Department of Environmental Quality  
 1234 S.W. Morrison Street  
 Portland, OR 97205

Dear Mr. Payne:

In your letter dated April 14 you presented the "projected and worst case" concentration of SO<sub>2</sub> for four time periods, if modifications of a specified air pollution control system on an industry in Oregon were made. The maximum worst case you presented for a two-hour maximum period was 92.8 µg/m<sup>3</sup> or about 0.035 ppm. This concentration should not produce injury to plants unless it is added to a substantial background of sulfur dioxide coming from some other sources. I am not familiar with reports on studies of blossom injury from low concentrations of sulfur dioxide, but I feel confident that the levels you listed will not have an adverse effect on the sweet cherries. It is obviously possible that a very brief period of high levels of acidic pollutants such as this may adversely effect the blossoms during that critical period that the pollen is germinating, but I don't think there is any research data to support such a happening. The 12-hour, 24-hour and annual averages would probably have little significance relative to effects on the blossoms, since the critical period is a very short time. So, I think that the attention should be focused on the 2-hour average or even for a shorter period of time.

Long-term exposures to the two-hour and 12-hour maximum concentrations might result in a slight elevation of sulfate in plant tissues, but again I believe this would be of little consequence, unless there are other sources of sulfur dioxide in the area. In recent years, synergistic reactions have been discussed by a number of researchers, and it is fairly well established that low levels of sulfur dioxide, when present with ozone, may cause injury to vegetation. Some of the researchers seem to think that concentrations of about .04 ppm or 100 µg/m<sup>3</sup> of sulfur dioxide in the presence of about .1 ppm of ozone may produce injury. Several of the researchers have indicated that a much higher concentration of sulfur dioxide (.25 ppm) is required to induce much of a synergistic reaction.

BOYCE THOMPSON INSTITUTE FOR PLANT RESEARCH, INC.  
1086 NORTH BROADWAY  
YONKERS, N. Y. 10701

LEONARD H. WEINSTEIN  
PROGRAM DIRECTOR  
ENVIRONMENTAL BIOLOGY

22 April 1976

Mr. Jack A. Payne  
Engineer, Plant Review  
Air Quality Control Division  
Department of Environmental Quality  
1234 S. W. Morrison St.  
Portland, OR 97205

Dear Mr. Payne:

I have looked over the estimated SO<sub>2</sub> concentrations that were given in your letter of 14 April and which we discussed over the telephone earlier.

Since we discussed the matter at some length I am not going into great detail. But neither I nor my colleagues would be concerned that even the "worst case" concentrations would be detrimental to even the most susceptible plant receptors, let alone sweet cherry. One problem you may have, however, will be to measure these concentrations with any degree of accuracy.

There seems to be some consensus that injury to susceptible species can occur at a concentration of 0.4 to 0.5 ppm (1048 to 1310  $\mu\text{g m}^{-3}$ ), although some believe that this mean concentration must include a peak value of 1 ppm or more to induce injury. The 0.4 to 0.5 ppm value is a conservative estimate because the TVA group believes that injury to susceptible plants at one hour requires a mean concentration of 0.5 to 1.0 ppm and at three hours of 0.3 to 0.6 ppm.

Among the most conservative data available are those from Biersdorf, Germany, where effects on yield and quality of spinach and gooseberry were reported where the seasonal (7-month) average of SO<sub>2</sub> was 26  $\mu\text{g m}^{-3}$  (0.01 ppm), but these results included maximum 30-minute peaks of up to 4450  $\mu\text{g m}^{-3}$  (1.7 ppm). Even this average is more than three times greater than the "worst case" annual average.

I suggest you obtain the review by Jones, Weber, and Balsillie which was presented at the 1974 APCA meeting. If you don't have it, I can send you a copy.

As I mentioned on the telephone, you could also solicit opinions from Dr. H. C. Jones of TVA, Dr. A. C. Hill of the University of Utah, and Dr. S. N. Linzon of the Ontario Ministry of the Environment.

Sincerely yours,



Leonard H. Weinstein

**TOOZE KERR PETERSON MARSHALL & SHENKER**

ROBERT M. KERR  
LAMAR TOOZE  
EDWIN J. PETERSON  
L. GUY MARSHALL  
ARDEN E. SHENKER  
CHAS. R. HOLLOWAY, III  
PAUL R. DUDEN  
STEPHEN R. FRANK  
WM. G. SHERIDAN, JR.  
E. RICHARD BODYFELT  
MICHAEL J. GENTRY  
FARRAND M. LIVINGSTON  
BARRY M. MOUNT  
ROGER K. STROUP  
WILLIAM W. KINSEY

ATTORNEYS AT LAW  
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1100 S. W. SIXTH AVENUE  
PORTLAND, OREGON 97204  
TELEPHONE (503) 223-5181

EARLE P. SKOW  
OF COUNSEL  
LAMAR TOOZE, SR.  
1895-1971

September 22, 1976

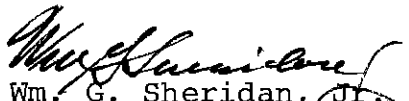
Department of Environmental  
Quality  
1234 S.W. Morrison Street  
Portland, Oregon 97205

Attention Mr. Jim Broad

Re: Martin Marietta - AQ File 33-0001  
Our File: 2288-d

Enclosed is a copy of Dr. Taylor's report following his  
visit to The Dalles on June 25, 1976, as requested by you.  
On September 21, 1976.

Very truly yours,

  
Wm. G. Sheridan, Jr.  
WGS/lm

cc - Don Evans - Wasco County Fruit &  
Produce League

Enclosure

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED  
SEP 23 1976  
AIR QUALITY CONTROL

O. CLIFTON TAYLOR, PH.D  
CONSULTING HORTICULTURIST  
4762 WINDSOR ROAD  
RIVERSIDE, CALIFORNIA 92507

Report on a Survey of Sweet Cherry Crop  
at The Dalles, Oregon

June 25, 1976

At the request of Mr. Don Bailey, I participated in a tour of selected sweet cherry orchards on June 25, 1976, to observe variations in fruit set. At noon I joined Mr. Bailey, Dr. Facticeau and two representatives of the Oregon Department of Environmental Quality in the parking lot at the Wasco County Agricultural Agents office. Since time for the tour was short the five of us went in one car directly to the Erickson orchard on the ridge near the Ed Henricks orchard.

From the Erickson orchard we drove through the Wilson Meyers property, down across Mill Creek and up the ridge to Mr. Bailey's home. We visited a small cherry orchard on the west slope below Mr. Bailey's home and stopped to examine the pine trees at the implement parking area.

After looking at orchards on some of the ridges and slopes along Mill Creek, we proceeded over the ridge to the east to look at orchards in the general "Three Mile Creek" and "Dry Hollow" region. It was essential that I return to California on the evening plane from Portland, so this was a very superficial



examination of the cherry orchards.

The principal objective of the tour was to show the geographical pattern where light fruit set had occurred in the 1976 season. The reason for the light set in specific areas has not been proven, but certain of the growers strongly suspect that it was related to air-borne emissions from the Martin Marietta plant. Mr. Bailey also indicated a strong suspicion that needle tip burn on pine trees growing in the Mill Creek region was induced by pollutants from the plant. Obviously, the growers are concerned that if pollutant injury is occurring in 1976 and the scrubbing system on the Martin Marietta plant is altered to allow additional sulfur dioxide to be emitted, the suspected adverse effect may be compounded.

#### Observations

Erickson Ridge orchard. - The set of sweet cherries on the north side of the trees in this area was obviously lighter than on the south side of the trees. Just from observation it appeared that overall set of fruit in this area was considerably lighter than on trees in the Three Mile Creek area.

The aluminum plant is directly north of the Erickson orchard, but it should be pointed out, also, that persistent and frequently strong winds blow from that direction. Growth characteristics of the trees in this area show the effect of long exposure to wind from the north.

I believe there was a comment that the cherry crop on the Wilson Meyers

property, east and northeast of the Erickson property, was light. The fruit had been harvested when we arrived. We did not visit other orchards in the Cherry Heights region, but it was my understanding there were no other complaints. It was stated that the crop on properties known as the Henricks, Bill Myers, Fleck and Martin-Marietta (Harvey) orchards was at least satisfactory in 1976.

Wes Meyers. - A few cherry trees on the Wes Meyers property near Mill Creek had not been picked and the crop looked relatively light. Attention was called to the needle tip burn on pine trees growing along the hillside below the Erickson and Wilson Meyer properties.

Bailey Properties. - A small cherry orchard on the side of the slope below Mr. Bailey's home had, with the exception of a few trees, been picked earlier in the morning. The unpicked trees had a light crop of fruit and the crop that was there seemed lighter on the northwest side than on the remainder of the tree.

This small orchard is on a shoulder or bench of the west slope of the hill above Mill Creek. The elevation was about the same as the Erickson orchard on the ridge across Mill Creek to the northwest. There was not time to examine a large number of orchards along Mill Creek, but it was pointed out that the complaints of light crop was confined largely to a strip around Mill Creek at about the elevation of the Erickson and Bailey orchards. It was reported that orchards in the low land along Mill Creek and those higher

than the ridges where we looked had reasonably good crops.

Attention was directed to the pine trees at the implement parking area on the Bailey property. The current season needles on these large trees were green and healthy, but the older needles had brown-necrotic tips. The burn involved 2 to 3 inches of the needle tip and there seemed to be a relatively uniform amount all around the trees and from top to bottom.

Three Mile Creek area. - The Bing cherries in this region and on the east slope of the hill east of Mr. Bailey's home had heavy crops in most cases and the crop was well distributed around the trees. An occasional orchard had obviously received inadequate care and this reduced the crop, but for the most part all the areas we visited in the eastern sector of the cherry growing region near The Dalles had a normal to heavy crop of fruit. I must repeat, however, that because of the time limitation it was not possible to make a thorough survey and assessment of crop condition.

Our attention was called to pine trees in the Three Mile Creek area and at one residence in the city when we stopped. These pines had none of the needle tip burn described previously on pines in the Mill Creek area.

Photographs. Mr. Bailey showed us photographs taken from the deck at his home. One set was marked "1974" and the second set was marked "1976". I did not record the exact dates, but the 1976 photographs were taken in the spring and I believe the 1974 pictures were also taken in the spring.

The view shown in the 1976 pictures was across Mill Creek Valley and each one showed a white to grey colored "cloud" hanging at about the height of the ridge crests where light fruit set was observed. The regions higher up on the hillsides in the background appeared to be relatively clear. We were informed that the "cloud" was, in the opinion of the growers, primarily smoke produced by the Martin Marietta plant. It seemed reasonable to accept this explanation, but there was no way to verify it at this late date. We were informed that cherry growers experiencing the light fruit set in some of the ridge areas associated the occurrence of smoke accumulation in those areas at some periods during the spring with the poor set of fruit.

#### Discussion

The problems associated with variations in yield and fruit set in The Dalles sweet cherry region are obviously very complex or the growers and involved scientists would have solved them. It is well known that pollination, fertilization and development of fruits may be adversely affected by many climatic, environmental and cultural factors. Crop failure can sometimes be attributed to a single factor, but frequently the cause is obscure because a combination of factors are involved.

It was not possible to determine if temperature, wind or some other climatic condition may have influenced bee activity at a critical stage of blossom fertilization. If the concentration of toxic substances is high enough in the smoke from the Martin-Marietta plant to prevent fruit set, it is conceivable that the pollutants could, under some weather conditions, be concentrated

along the ridges around Mill Creek. Mr. Bailey's photographs present evidence that smoke from some source did accumulate in the general region of the poor crop. Even though a cursory review of leaf analyses and atmospheric fluoride data, provided by Oregon State University, revealed no excessively high fluoride concentrations in the area, I have no basis for positively rejecting pollutants as a possible reason for reduced crop in some areas. It must be recognized that stratified cool temperatures (not frost) and high winds in these areas could prevent bee activity at a critical stage and still not affect conditions in other areas.

The advisability of granting a permit for Martin Marietta to alter their air scrubbing system in such a way that additional sulfur dioxide would be released to the atmosphere can still be questioned. However, it is still my judgment, based on available research data from a variety of crops, that the addition of the amounts of SO<sub>2</sub> indicated by the Department of Environmental Quality should have no adverse effect on cherry crops in the area. Possible synergistic reactions involving two or more toxicants and the possibility of unique atmospheric conditions which could confine and concentrate the pollutants in one area make it impossible to guarantee no undesirable effects, but with what is now known, I believe the risk is small.

The combined effect of sulfur dioxide and fluoride is not well known, even though the possibility of synergism (more than additive effect) has been suggested. Further research is needed to determine if such interactions occur and, if so, how important are they.

*C. L. Taylor*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY  
200 S. W. 35TH ST.  
CORVALLIS, OREGON 97330

JUL 9 1976

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED  
JUL 13 1976  
AIR QUALITY CONTROL

Mr. H. M. Patterson, Administrator  
Air Quality Control Division  
Department of Environmental Quality  
1234 SW Morrison Street  
Portland, Oregon 97205

Dear Mr. Patterson:

The enclosed information was prepared by Dr. Ibrahim Hindawi in response to your request of June 16, 1976. You will find that most of the publications referenced contain information you already have considered in your environmental assessment of the proposed primary air pollution control systems. The work at Boyce Thompson Institute (Mandl, et al.) does suggest that SO<sub>2</sub> and HF, in very low concentration mixes, can cause synergistic effects on sensitive species. However, considering the low SO<sub>2</sub> concentrations predicted and the speculative status of synergistic response, the evidence is probably insufficient to warrant any additional constraining action at this time.

Sincerely yours,

A. F. Bartsch  
Director

Enclosures

CC. HMP, FAS, JFK, Norm Edmiston

Estimated Sulfur Dioxide Levels and the Possibility of SO<sub>2</sub> Damage to  
Cherry Trees and Possible Vegetation Damage by Low Levels of  
Sulfur Dioxide in the Presence of Fluoride

Published information by the U. S. Environmental Protection Agency (1) indicates that during the growing season, average concentrations of SO<sub>2</sub> as low as 26 to 66 µg/m<sup>3</sup> (0.010 to 0.025 PPM) will affect a large number of agronomic species. This average was associated with a maximum exposure of 30 minutes value of 2096 to 4978 µg/m<sup>3</sup> (0.8 to 1.9 PPM). Reduced growth of white pine occurred with an average SO<sub>2</sub> concentration of 45 µg/m<sup>3</sup> (0.017 PPM) associated with peak 30 minutes maximum exposure of 3249 µg/m<sup>3</sup> (1.24 PPM) during the growing season over a 10-year period (Table 1).

Table 1

SO<sub>2</sub> Concentration Producing Injury to Vegetation (1)  
(Evaluated by EPA)

<u>Plant Variety</u>	<u>µg/m<sup>3</sup></u>	<u>PPM</u>
Large number of agronomic species	26-66	0.010-0.025
	with maximum 30 minutes value of 2096 to 4978 µg/m <sup>3</sup> (0.8-1.9 PPM)	
White Pine	45	0.017
	with peak 30 minutes of maximum of 3249 µg/m <sup>3</sup> (1.24 PPM during 10-year period.	

Table 2

Estimated SO<sub>2</sub> Ambient Levels at The Dalles Area

(by the Department of Environmental Quality, the State of Oregon)

Projected		Worse Case		Hours Duration
$\mu\text{g}/\text{m}^3$	PPM	$\mu\text{g}/\text{m}^3$	PPM	
78.0	.029	92.9	.035	2
51.3	.019	61.0	.023	12
32.8	.012	39.1	.015	24
6.2	.002	7.4	.003	Annual Average

Hydrogen Fluoride

Hydrogen fluoride is an accumulative toxicant, and plant injury development is usually associated with fluoride build-up in the leaf over a relatively long period in contrast to the short term exposure that normally causes injury with sulfur dioxide and most atmospheric phytotoxicants. Also, the fluoride ion is relatively stable in contrast to SO<sub>2</sub> and other pollutants that break down or change chemically to some organic and inorganic forms within the leaf and other plant tissue. In the green house, continuous exposure to hydrogen fluoride in the concentration range between .0004-.0006 PPM for several months will cause injury to sensitive varieties of gladiolus, apricots and peaches. Snow Princes gladiolus have been injured by fumigation with 0.01 PPM hydrogen fluoride for five weeks (2). Continuous exposure to hydrogen fluoride in the concentration range of .15-1 PPM



for several months will cause injury to cherry trees and could effect yield production (3).

A recent publication (4) indicated that an air fluoride measurement showed airborne fluorides present in The Dalles area. Pollen tube growth of Sweet cherries in a controlled fumigation environment was reduced at air fluoride levels that have been reported in The Dalles. The reduction in cherry pollen tube growth could affect fertilization and thus cut down of fruit production. Fumigation for 24 hours at the lowest concentration tested  $2.5 \mu\text{g}/\text{m}^3$  (.00125 PPM) in 1970 and  $3.7 \mu\text{g}/\text{m}^3$  (.00185 PPM) in 1971 resulted in little or no pollen tube growth (5).

Dr. Facticeau (4) also found that the growth pattern studied showed a relationship between the distance and direction from the aluminum plant and leaf fluoride levels. He indicated that as the distance from the aluminum plant increased, fruit set increased. He also stated that no evidence has been found to indicate that the growth of Sweet cherry trees is influenced by elevated fluoride in the air, even though growth suppression of the plant species has been reported.

#### Hydrogen Fluoride/Sulfur Dioxide Interaction

Prior to 1975 there was no published information indicating an interaction between sulfur dioxide and hydrogen fluoride. However, information by Richard H. Mandel and et. al. (6) reports the effects of  $\text{SO}_2$  and HF on foliar injury of P. Vulgaris pinto, barley and sweet corn.

A 7 day exposure to a mixture of 0.15 PPM SO<sub>2</sub> and 0.0006 PPM HF caused a similar amount of injury on barley and corn as did SO<sub>2</sub> alone. HF alone caused no injury. When the concentration of SO<sub>2</sub> in the mixture was decreased to 0.06-0.08 PPM and the exposure time increased to 27 days, the amount of foliar injury on barley was greater than the injury experienced with combined HF and SO<sub>2</sub>, Table 3.

Table 3  
Injury to Barley Leaves After Exposure for 27 Days  
Separately and in Combination to HF and SO<sub>2</sub>

Treatment	Concentration PPM		No. of Plants	% of Leaf Injured (± SD)
	SO <sub>2</sub>	HF		
Control			557	0
HF		.0006-.0009	558	6.7 ± 5.3
SO <sub>2</sub>	.15		566	21.8 ± 11.3
SO <sub>2</sub>	0.06-0.08 +	.0006-.0009	602	61.8 ± 4.9*

\*Significantly greater than HF or SO<sub>2</sub> alone.

#### In Conclusion

The response of a given variety or species of plant to a specific air pollutant can not be predetermined on the basis of the known response of related plants to the same pollutants. Neither can the response be predetermined by a given response of a plant to similar doses of different pollutants. The interplay of genetic susceptibility and environmental influence must be considered for each plant and pollutant. Therefore, one can not predict that the cherry trees in

The Dalles area will respond to sulfur dioxides and hydrogen fluoride in the same manner that the barley plant did.

Fluoride and sulfur dioxide in the air do not exist alone. Fluoride, sulfur dioxide, acid mist, oxide of the nitrogen, particulates and probably ozone, all are released into the atmosphere and could affect vegetation below the threshold levels of sulfur dioxide hydrogen fluoride.

Environmental factors such as temperature, humidity, high light intensity and moisture and also biotic factors that impinge on plant species and affect their responses to the interactions of pollutants make it difficult to accurately predict plant reaction.

#### Finally

I. The interaction of sulfur dioxide and hydrogen fluoride is not well understood, at either the concentration levels or for physiological and symtomological changes.

II. It is possible that the  $SO_2$  level predicted could be tolerated at some locations, although, plant injury might occur at other sites. This assumption will be justified only when the effects of individual pollutants are evaluated. It is very difficult to predict the combined effects of two or more pollutants on vegetation in relation to the air pollutants toxicant level. More studies are needed before a definite statement can be made.

## References

1. U. S. Environmental Protection Agency, Research Triangle Park, North Carolina, Effect of Sulfur Oxides in the Atmosphere on Vegetation. EPA-A3-73-030, September, 1973.
2. Thomas, M. D., "Effect of Air Pollution on Plants", World Health Organization, Monograph Series, No. 46, Columbia University Press, New York, 1961.
3. Adams, D.F., Hendrix, J.W., and Applegate, H.G. (1957), Relationship Among Exposure Periods, Foliar Burn, and Fluorine Content of Plant Exposed to Hydrogen Fluoride. Agr. Food Chem. 5, 108-116.
4. T. J. Facteau and Mellenthin W. M., Fluoride Investigation in The Dalles Area 1968-1974. Oregon Agricultural Experimental Station, Oregon State University, Corvallis, Oregon. February 1976.
5. T.J. Facteau, S. Y. Wang, and K. E. Roure, The Effect of Hydrogen Fluoride on Pollen Germination and Pollen Tube Growth in Prunus Anium L. cv. Royal Ann.
6. Richard H. Mandl, et. al. Effect of Hydrogen Fluoride and Sulfur Dioxide Alone and in Combination on Several Species of Plants. Environmental Pollut. (9) (1975).

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED  
OCT 11 1976

cc JFK  
FAS  
Original to LK  
Through EJM

MARTIN MARIETTA ALUMINUM QUALITY CONTROL

REDUCTION DIVISION  
POST OFFICE BOX 711  
THE DALLES, OREGON 97058  
TELEPHONE (503) 296-6161

October 11, 1976

Mr. Loren Kramer, Director  
Department of Environmental Quality  
1234 S. W. Morrison Street  
Portland, Oregon 97205

Dear Mr. Kramer:

In reply to your letter of September 27, 1976 requesting information on capital and operating costs of wet scrubbing, capital and operating costs of proposed dry system, capital and operating costs of a system to control secondary waste water discharge to EPA waste water limits, and cost savings associated with the above; the following information is provided.

As to the first item, we attach letter to EPA on the subject of wet scrubbing. As per the attached letter, capital costs for 70% scrubbers at The Dalles plant would range from 2 to 2.3 million dollars and operating costs would range from \$295,000 to \$350,000 per annum depending upon which system is considered.

The capital costs and operating costs of the dry system were provided in our application for our air discharge permit modification. As this application was made some five months ago (May 13, 1976), the figure of \$5.3 million and \$136,000 respectively are no longer valid. Martin Marietta Aluminum did have a firm contract signed by the vendor, but that contract was never consummated because of the delay in getting the permit. Our present estimate is that the costs of the yet to be renegotiated contract will be at least 10% higher.

The capital and operating costs for control of secondary scrubber water discharge to meet EPA waste water limits are not known at this time as we do not have the technology at hand. It is this fact which triggered our proposal for a waiver of the 1977 guidelines as to fluorides. Said proposal has been approved

by the Department and is based upon the installation of dry scrubbers and the operation of the secondary scrubbers on a "once-through" basis. Costs relating to the overall waste water proposal are available in the Waste Water Division of the Department.

Cost savings associated with the above items are as follows:

**Pollution Control Tax Credits** - It has been Martin Marietta's practice to apply any tax credit to property taxes and there is no saving as such (see attached memo).

**Fluoride Recovery** - Based upon the return of one-half the aluminum fluoride use to the cells by capture in the dry system, and a present cost of about \$500/ton FOB the plant for aluminum fluoride, the raw material saved would be approximately \$79,000 per month.

**Sludge Disposal Costs** - We are uncertain as to which sludge the question addresses, i.e., sludge eliminated by the installation of the dry system and the elimination of the present wet primary system, sludge generated by a new wet scrubber after a dry primary system, or sludge generated by recycling and treating the secondary scrubbing system. As the waste water treatment of the secondary system is outside the purview of an air contaminant discharge permit modification involving the primary system, only the first and last of the alternatives will be addressed.

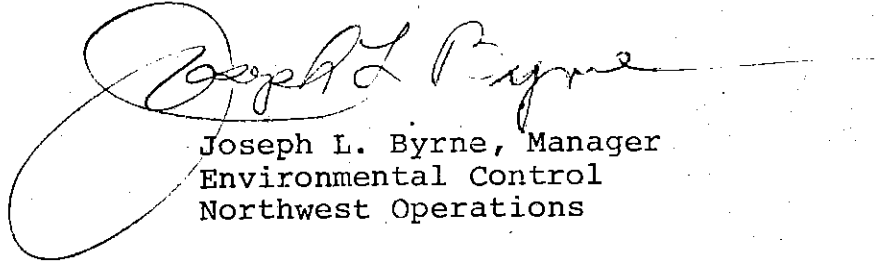
As to the first alternative, the amount of sludge which would be eliminated by the installation of the dry system as reported in Martin Marietta's request dated January 13, 1976 for modification of the N.P.D.E.S. Permit is approximately 8500 tons/year (9700 cu yds/yr).

As to the last alternative, the amount calculated for the two Research-Cottrell proposals would be approximately 5370 tons per year if only the SO<sub>2</sub> generated sludge is considered. The sludge generated by any of the available wet SO<sub>2</sub> scrubbing schemes is dependent upon the particular scheme considered, i.e., lime, limestone, caustic, carbonate, double alkaline, etc., and the pH at which the system is operated. It would appear that there would be at least as much sludge generated by wet scrubbing after the dry scrubber as would be eliminated by the installation of the dry system.

October 11, 1976

Since the Department has already made the determination that the installation of the dry scrubber is "best practical technology" in the written findings and recommendations under cover letter dated May 11, 1976 made in support of Martin Marietta's request for a variance from the 1977 guidelines for fluoride discharge to the river, the thrust of the September 27, 1976 letter would appear to be moot.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Joseph L. Byrne", is written over a horizontal line. The signature is fluid and somewhat stylized, with a large loop at the beginning.

Joseph L. Byrne, Manager  
Environmental Control  
Northwest Operations

JLB:ph  
Attachments

# INTEROFFICE MEMO

The Dalles, Oregon

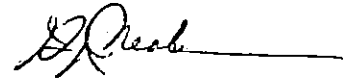
October 8, 1976

TO: J. L. Byrne  
FROM: H. J. Neuberger  
SUBJECT: DEQ Memo, September 27, 1976

With reference to the above memo, I have contacted Tom Bannon in our Corporate Tax Office concerning the Pollution Control Tax Credit information they require.

Mr. Bannon informs me that the Corporation has never elected to take the income tax credit before and would probably follow this practice again.

Since we have no experience with the income tax credit, we should inform the Department of Environmental Quality that there are no savings from this source arising from the dry scrubbing system.



H. J. Neuberger

HJN:gc



MARTIN MARIETTA ALUMINUM

REDUCTION DIVISION  
POST OFFICE BOX 711  
THE DALLES, OREGON 97058  
TELEPHONE (503) 296-6161

October 8, 1976

Ms. Betty Wiese  
U. S. Environmental Protection Agency  
Region X  
1200 Sixth Avenue  
Seattle, Washington 98101

Dear Ms. Wiese:

SUBJECT: Notice of Application to Construct and  
Preliminary Determination

The following remarks on the above are addressed to the subjects of (1) wet scrubbing for SO<sub>2</sub> removal behind the proposed dry scrubber (Alternative B), and (2) the proposed emission limitation.

#### Wet Scrubbing

In your preliminary determination document Appendix A, the wet scrubber alternative is discussed. The costs generated in this section depend upon the Singmaster and Breyer study, Air Pollution Control in the Primary Aluminum Industry. This study addresses itself to the control of fluoride and particulates and speaks to sulfur dioxide emissions only cursorily and speaks to their control not at all.

A direct transfer of cost data for fluoride scrubbing from the Singmaster report to SO<sub>2</sub> scrubbing may entail a substantial underestimate. The "scrubability" of HF and SO<sub>2</sub> are vastly different. Hydrogen fluoride can be easily scrubbed by low energy gas washers while SO<sub>2</sub> scrubbing is largely dependent upon the pH of the scrubbing media. Limestone slurry, milk of lime, caustic, ammonia and other basic scrubbing media are usually employed. The necessary ancillary equipment for chemical handling, pH control, etc., comprise large additional costs.

As the cost of wet scrubbing must be considered as part of the BACT determination, we are enclosing a budget proposal received from Research-Cottrell, a vendor with some experience in

SO<sub>2</sub> removal devices and procedures for two control schemes, the Bacho and the Research-Cottrell proprietary systems.\* This proposal presents costs substantially higher than those generated from consideration of the Singmaster report and are, I believe, much more realistic.

The most practical SO<sub>2</sub> gas scrubbing devices available today are based upon scrubbing with a basic scrubbing medium, i.e., lime solution, caustic solution, ammonia, etc. The scrubbing efficiency of this device is primarily a function of the pH of the scrubbing medium. The higher the pH, the better the SO<sub>2</sub> scrubbing.

The design specifications for Goldendale (Case A) and The Dalles (Case B) of inlet SO<sub>2</sub> concentrations approximate those generated by sulfur content in coke of 2-3% and hooding efficiencies from 80-90+%. The exhaust concentration requires about 75-85% efficiency.

The recommended practice, if lesser efficiencies are allowable, would be to bypass some substantial portion of the gas stream (say 30%) and treat the remainder to the 95% efficiency level. This would provide about 70% overall efficiency in the primary gas stream.

Even if one accepts the lower performance figure, the cost prorated on the basis of gas flow (a conservative estimate) is still very substantial, \$2,331,000 for the Bacho SO<sub>2</sub> removal system, and \$1,988,000 for the R-C proprietary limestone system at The Dalles plant. The comparable budget figures for 85% overall efficiency at The Dalles plant are \$3,330,000 for the Bacho system and \$2,840,000 for the proprietary system. Costs for both plants as presented in the budget proposal are \$7,300,000 and \$6,536,000 respectively. Operating costs would also be substantial.

The operating costs from the two systems have been calculated using Martin Marietta data on cost of lime, limestone, power, labor, etc., and the corresponding classes itemized in the budget estimate. These annual operating costs would be from \$295,000 to \$350,000 per annum at The Dalles and \$340,000 to \$406,000 per annum at Goldendale depending upon which of the two systems is considered.

These costs do not include the costs involved in sludge handling and disposal.

It must be recognized that this proposal is not a firm bid proposal with a performance guarantee. No vendor has any experience with SO<sub>2</sub> scrubbing in the aluminum reduction industry.

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\* Other responses to our inquiry, in their variety of processes and range of capital and operating costs, make it obvious that there is no clear BACT for this situation.

It is significant that the problem of SO<sub>2</sub> control in the aluminum industry has been addressed in three EPA documents:

- (1) The Singmaster report in Section 10, "Potential Fields for Research and Development in Pollution Abatement" states on pages 10-17, "Removal of SO<sub>2</sub> from aluminum plant effluents presents difficult problems because of the low concentrations in the gas streams, an order of magnitude lower than occurs in other industrial effluents...".
- (2) The Background Information for Standards of Performance: Primary Aluminum Industry, Volume I, states on page 14, "A standard for control of sulfur oxides is not now being considered because control technology has not been demonstrated in this industry."
- (3) The N.S.P.S. for aluminum reduction plants states, "The standard will result in the use of either of two types of primary control devices: wet electrostatic precipitator or dry fabric filters which use alumina as an absorbent. The latter will likely be preferred, because it generates no waste stream." (Emphasis added) In addition, in addressing the question of why SO<sub>2</sub> had not been included in the N.S.P.S., the director further says, "...SO<sub>2</sub> control technology had not been demonstrated in the industry...".

A wet scrubbing requirement reintroduces the waste water treatment and sludge disposal problems, the elimination of which is one of our primary reasons to install the dry system. As quoted above from the N.S.P.S., the dry system is preferred because it eliminates the water discharge and sludge problems. Wet scrubbing would also take up more of the allowable increment because of higher ground level concentrations caused by cooling of the plume.

The foregoing demonstrates that alternative B is not the BACT under 40 CFR 52.01(f). The cost of this additional control is economically prohibitive in both initial capital and in the continuing operating costs.

While the capital and operating costs by themselves should be sufficient reason to reject alternative B, the benefits that might accrue are so minimal (differences of a few percent of the PSD increment), that the cost effectiveness of achieving these minimal benefits argue strongly against alternative B.

The foregoing also demonstrates EPA's recognition that the technology for SO<sub>2</sub> scrubbing has not been "adequately demonstrated".\*1

Alternative B should be rejected as BACT for these plants.

### SO<sub>2</sub> Emission Limitations

The SO<sub>2</sub> emissions projected in our application were based upon average sulfur content in coke over the period (1973-1975) and of necessity very limited information on the SO<sub>2</sub> scrubbing performance of the proposed dry system. Both of these factors introduce uncertainties into the projected SO<sub>2</sub> emissions. The impact of the variation in sulfur content of the coke can be examined by reviewing the monthly lab analyses on coke received from the period January 1973 to August 1976. These variations are the normal variations experienced in the production runs of coke. For example, the range of sulfur content per average monthly deliveries at our The Dalles plant has varied from 1.52% sulfur content to 2.33% with 23 months exceeding 2% sulfur content over this 44 month period. In short, around 52% of our monthly deliveries exceeded 2%. While our submission of the 2% figure is a fair approximation of historical content of sulfur, we do not believe such average figure should be the basis for a maximum SO<sub>2</sub> emission limitation level.

We also submitted data on the basis of utilization of 2.8% sulfur coke. The basis for such submission was due to the fact that we have essentially no control over the expected increase of the sulfur content. In fact, at the time of our submission, and now, we have every reason to believe that the sulfur content of the calcined coke may approach 2.8%. The data submitted to EPA reveals that even if up to 2.8% sulfur coke is utilized, we will still be within the SO<sub>2</sub> increments allowed by law. Any setting of emission limitations should also give due recognition to this factor, particularly since BACT under 40 CFR 52.01 (f) (1) includes consideration of the raw material available and "...to be employed in the facility involved...".

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\*1 40 CFR 52 01(f) (2)

Ms. Betty Wiese

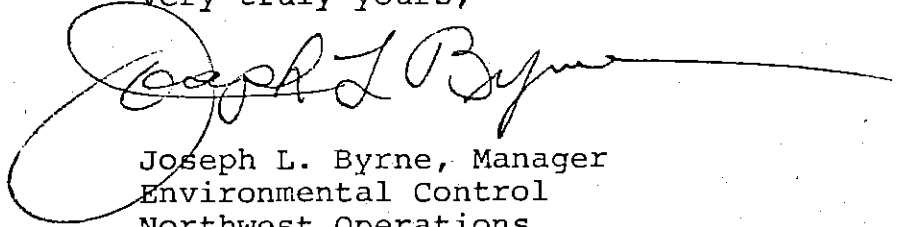
- 5 -

October 8, 1976

Under 40 CFR 52.21 (d) ii, this factor is to be considered by EPA in specifying an emission level which would be achieved by the application of best available control technology as defined in § 52.01 (f).

The installation of the dry scrubber should be approved as submitted and the SO<sub>2</sub> emission limitations should be revised in a manner which realistically reflects the foregoing items.

Very truly yours,

A handwritten signature in cursive script, reading "Joseph L. Byrne", with a long horizontal flourish extending to the right.

Joseph L. Byrne, Manager  
Environmental Control  
Northwest Operations

JLB:ph  
Encl.

# Research-Cottrell

## Industrial Precipitator Division

June 25, 1976

Mr. George Steele  
Manager, Northwest Engineering  
Martin Marietta Aluminum  
P. O. Box 711  
The Dalles, Oregon 97058

Dear Mr. Steele:

The following information is submitted in response to your June 10 request for a budget proposal for an SO<sub>2</sub> removal system.

### I. Design Specifications

	<u>Case A</u>	<u>Case B</u>
	2 Gas Stream	1 Gas Stream
Volume.....	95,000 acfm @ 250°F	164,000 acfm @ 250°F
Composition.....	CO 0.5 - 1%	CO 0.5 - 1%
	CO <sub>2</sub> 3 - 4%	CO <sub>2</sub> 3 - 4%
	O <sub>2</sub> 16 - 18%	O <sub>2</sub> 16 - 18%
	N <sub>2</sub> 77 - 79%	N <sub>2</sub> 77 - 79%
	SO <sub>2</sub> 300 - 500 ppm inlet	SO <sub>2</sub> 300 - 500 ppm inlet
SO <sub>2</sub> Emission.....	75 ppm Outlet Max.	75 ppm Outlet Max.

Removal of particulate is not required.

85% SO<sub>2</sub> removal required.

95% SO<sub>2</sub> removal efficiency with lime, therefore treat 89.5% (.85)  
of the gas and bypass 10.5% of the gas in each stream. (.95)

### II. Estimated System Price

	<u>System A</u>	<u>System B</u>	<u>Total</u>	
2 Bahco Size 60 Modules		2 Bahco Size 50 Modules		
Equipment Only	\$1,740,000	Equipment Only	\$1,320,000	\$3,060,000
Turnkey System	\$4,100,000	Turnkey System	\$3,330,000	\$7,300,000

- continued -

The equipment only quote includes materials and engineering of our system. The turnkey system quote includes these two items and the following equipment installation:

Access Facilities

Instrumentation within the battery limits  
Flue Work, Process and Utility Piping within the battery limits  
Insulation where required within the battery limits  
Pipe and Flue Supports within the battery limits

Sludge concentration to 30-50% solids  
Training and startup assistance

Note battery limits of the system in the attached drawing.

The proposed scrubbing system does not include:

Foundations and Site Preparation  
Sludge Disposal Facilities  
Suitable Water, Instrument and Plant Air and Wiring - beyond  
20 feet of the scrubber

III. Estimated Annual Operating Cost

(8760 hours at 100% design load)

	<u>System A</u>	<u>System B</u>	<u>Total</u>
Lime (tons)	2,450	2,100	4,550
Power (KWH)	5,095,000	4,324,000	9,419,000
Labor (man per 8 hour shift)	0.5	0.25	0.75
Maintenance (3% of capital)	\$123,000	\$99,000	\$222,000
Water (gallons)	2,460,000	1,872,000	4,332,000
	24,600,000	18,720,000	43,320,000

Note:

The water needs no treatment. Standard process water is sufficient.

System A has 2 streams separated by 2000 feet, therefore a 0.25man/8 hour shift must be allocated. System B is at another plant located 35 miles away.

Computer printout data is attached with various gas and liquid flows, temperatures, volumes, pressures, etc. Explanation of this data will be discussed during our meeting next week.

#### IV. Process Description

An R-C/Bahco scrubber system performs both particulate and SO<sub>2</sub> removal. Hot flue gas enters the first stage of the scrubbing system where it contacts the scrubbing solution in an inverted venturi. The gas is cooled and SO<sub>2</sub> and particulates are removed. After the first stage venturi, the contacting process is repeated. A cyclonic mist eliminator is used to separate the scrubbing liquid from the gas to produce an essentially droplet-free stack gas.

A solution containing reagent makeup and reaction products is pumped from the reagent slurry tank to the second stage venturi for its initial contact with the flue gas. After the initial contact, the solution flows by gravity to the first stage venturi for its second contact with hot flue gas. This countercurrent contacting results in efficient reagent usage. The spent solution flows to the reagent slurry tank from the scrubber by gravity. A portion of the spent solution is pumped to a centrifuge for subsequent disposal.

The reagent makeup system includes a storage bin with a pneumatic unloading system, a feed system, an agitated dissolving tank and a reagent feed pump.

See attached Bahco process flow diagram and enclosed literature.

The composition of the gas exiting the scrubber system is essentially the same as that entering except the SO<sub>2</sub> content has been reduced and the moisture has been increased.

....In addition to our Bahco SO<sub>2</sub> removal system which utilizes lime as the scrubbing reagent we also offer our proprietary limestone system.

#### I. Design Specifications

Same as previously stated. However, for System A we will join the two gas streams into a single duct and the combined stream will be treated in one tower.

Attached are the following four tables for System A and B

Table 1.....Basic Design Conditions.

Table 2.....Design Highlights

Table 3.....System Requirements

Table 4.....Major Equipment List



II. Estimated System Price

	<u>System A</u>	<u>System B</u>	<u>Total</u>
Absorber Tower	20' Ø x 82.5'	18' Ø x 82.5'	
Equipment Only	3,013,000	2,298,000	5,311,000
Turnkey System	3,696,000	2,840,000	6,536,000

The above prices include the same general items stated for the Bahco system.

III. Estimated Annual Operating Cost  
(8760 hours at 100% design load)

	<u>System A</u>	<u>System B</u>	<u>Total</u>
Limestone (tons)	4,750	4,100	8,850
Power (KWH)	4,932,000	4,115,000	9,047,000
Labor (Man Per 8 Hour Shift)	1.5	1.5	3.0
Maintenance (3% of Capital)	\$111,000	85,000	\$196,000
Water (Gallons)	36,900,000	31,732,000	68,632,000

IV. Process Description

In the R-C packed absorber tower, a ground limestone slurry passes down and reacts to neutralize SO<sub>2</sub> in the rising flue gas, forming a slurry containing calcium sulfite, calcium sulfate and unreacted limestone. Fly ash is removed earlier by an electrostatic precipitator.

Flue gas in the tower is processed in two stages: a cyclonic quenching stage and a main absorber stage. In the quencher stage the flue gas is quenched and a portion of the SO<sub>2</sub> is absorbed by the limestone slurry. The flue gas then passes to the main absorber stage, where most of the remaining SO<sub>2</sub> is removed. Absorption efficiency in excess of 95 percent of the SO<sub>2</sub> is achieved in the treated gas through scrubbing with the limestone slurry.

The net product, a slurry with approximately 15% solids, can be thickened and then discarded.

The self-regulating multi-stage scrubbing process minimizes the three main problems in the flue gas desulfurization - corrosion, plugging and scaling.

- o Corrosion is stymied as the buildup of harmful chlorides is restricted to one corrosion resistant area - the cyclonic quencher.
- o Plugging is prevented by: a simplified piping design; fresh water sprays in areas such as demisters; and vigorous slurry handling techniques.

Mr. George Steele  
Martin Marietta Aluminum

June 25, 1976

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- o Scaling due to crystallized sulfates and sulfites is minimized by close control over the formation of each compound in each area of the system.

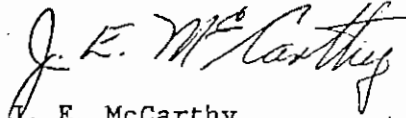
See attached R-C multi-stage limestone SO<sub>2</sub> scrubbing process.

The selection of the most economical system is dependent upon several factors which require evaluation; for example: sludge removal system, reagent cost, load swings and others that we will discuss. Operating costs for each system can be calculated from the data shown.

Thank you for inviting Research-Cottrell to offer our SO<sub>2</sub> removal systems for your consideration. We look forward to working with you on this project. Upon request we will discuss technical details of our systems. When you desire to visit operating installations, please call me.

Very truly yours,

RESEARCH-COTTRELL, INC.



J. E. McCarthy  
Manager, Sales Development

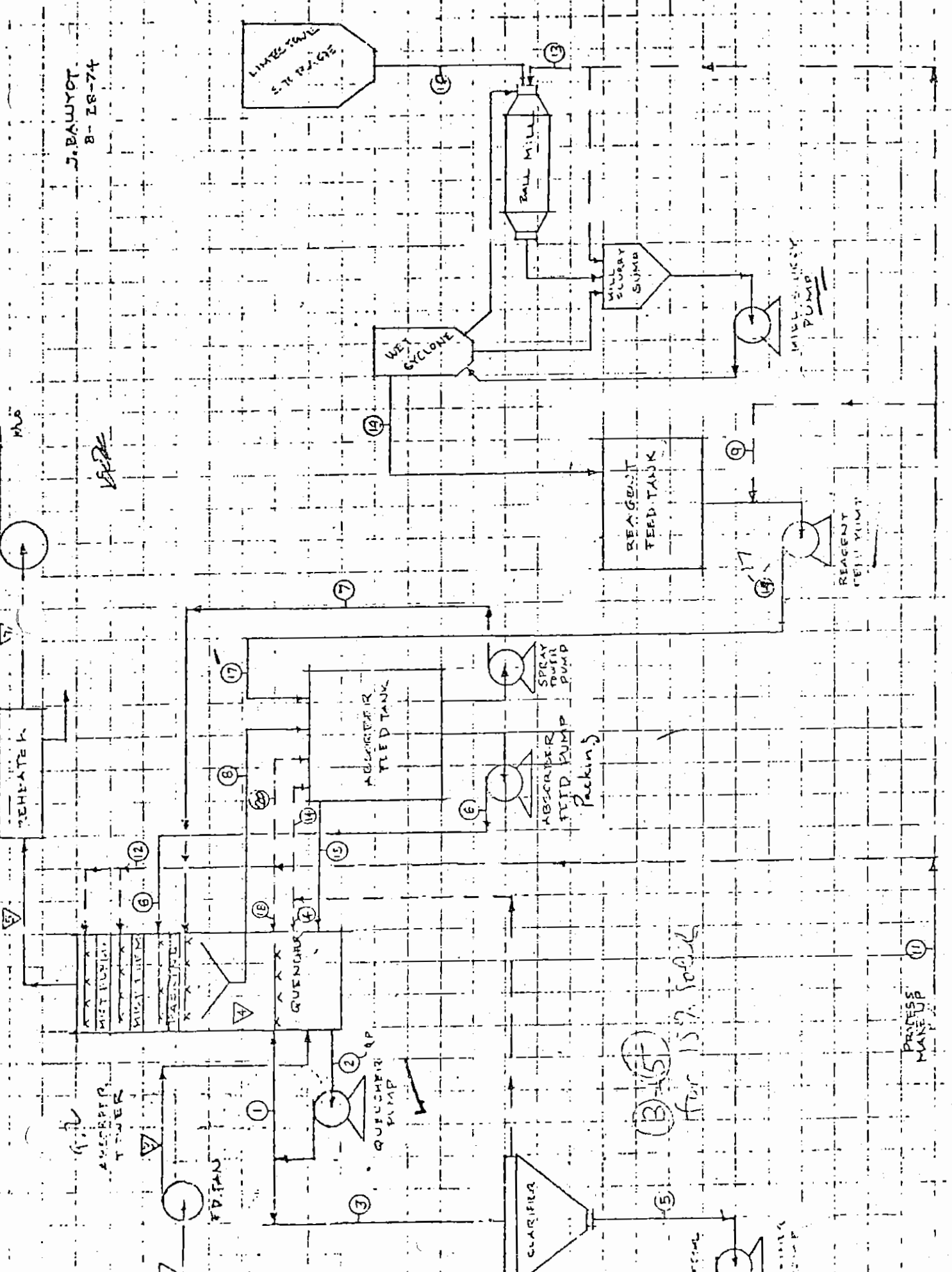
JEM/lmb

cc: Dave Dours (KD Systems)  
W. A. McCormick  
R. H. Betchley  
R. Ferb  
E. Biedell  
J. E. McCarthy (3)

J. BAUYOT  
8-28-74

MWD

SPR



flow 15% solids

(3) (5)

PROCESS WATER

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*System A*

TOTAL GAS TO SYSTEM----- 181971 ACFMW  
 SO2 TO THE SYSTEM----- 500 PPM(WET)  
 SO2 TO THE SYSTEM----- 505.051 PPM(DRY)  
 MOISTURE IN INLET GAS----- 1 %  
 MOISTURE IN OUTLET GAS----- 8.1 %  
 SO2 FROM THE SYSTEM----- 23.2126 PPM(WET)  
 SO2 FROM THE SYSTEM----- 25.2525 PPM(DRY)  
 FLY ASH TO THE SYSTEM----- 0 GR./SCFW  
 FLY ASH TO THE SYSTEM----- 0 GR./SCFD  
 FLY ASH FROM THE SYSTEM---- 0 GR./SCFW  
 FLY ASH FROM THE SYSTEM---- 0 GR./SCFD  
 SO2 REMOVAL EFF. AT FDS/COUEN. --- 50 %  
 SO2 REMOVAL EFF. AT TOWER --- 90 %  
 OVERALL SO2 REMOVAL EFF. ---- 95 %  
 CaCO3 TO SO2 MOL. RATIO----- 1

SYSTEM - - - - - SO2 REMOVAL

MATERIAL BALANCES

STREAM NUMBER	2*	3*	4*
COMPONENTS OF GAS PHASE			
FLUE GAS, ACFMW	181,971	178,101	144,258
FLUE GAS, ACFMD	180,151	176,320	132,605
FLUE GAS, LBS/HR	563,007	563,007	590,019
MOISTURE, LBS/HR	3,508	3,508	30,519
FLYASH, LBS/HR	0	0	0
SO2, LBS/HR	623.6	623.6	311.8
TEMPERATURE, DEG. F.	300.0	300.0	107.6
PRESSURE, I.W.C	2.0	10.8	6.0

STREAM NUMBER	5*	7*
COMPONENTS OF GAS PHASE		
FLUE GAS, ACFMW	144,772	149,612
FLUE GAS, ACFMD	133,077	137,526
FLUE GAS, LBS/HR	590,019	590,019
MOISTURE, LBS/HR	30,519	30,519
FLYASH, LBS/HR	0	0
SO2, LBS/HR	31.2	31.2
TEMPERATURE, DEG. F.	107.6	120.1
PRESSURE, I.W.C	4.5	1.5

STREAM NUMBER	1	2	5
COMPONENTS OF SLURRY PHASE			
CAC03 ,LBS/HR	8,855.6	8,904.4	48.7
CAS03..5H2O,LBS/HR	67,228.1	67,619.0	390.9
CAS04.2H2O ,LBS/HR	148,474.0	149,342.7	868.7
DUST&IMPUR.,LBS/HR	18,596.6	18,704.8	108.3
WATER ,LBS/HR	1,377,875	1,385,902	8,027
CHLORIDE,PPM	12	12	14
SOLID ,LBS/HR	243,154	244,571	1,417
SLURRY RATE,LBS/HR	1,621,029	1,630,473	9,444
DENSITY,LBS/GAL	9.09	9.09	9.09
GPM	2,973.7	2,991.0	17.3
% SOLIDS IN SLURRY	15.00	15.00	15.00
TEMPERATURE, DEG. F.	107.6	107.6	107.6

STREAM NUMBER	6	7	8
COMPONENTS OF SLURRY PHASE			
CAC03 ,LBS/HR	151,811.6	33,735.9	185,109.0
CAS03..5H2O,LBS/HR	132,822.9	29,516.2	162,810.5
CAS04.2H2O ,LBS/HR	35,419.4	7,871.0	43,416.1
DUST&IMPUR.,LBS/HR	30,596.5	6,790.2	37,395.8
WATER ,LBS/HR	3,155,854	701,301	3,860,358
CHLORIDE,PPM	3	3	3
SOLID ,LBS/HR	350,650	77,922	428,731
SLURRY RATE,LBS/HR	3,506,505	779,223	4,295,070
DENSITY,LBS/GAL	8.82	8.82	8.82
GPM	6,623.6	1,471.9	8,114.0
% SOLIDS IN SLURRY	10.00	10.00	9.98
TEMPERATURE, DEG. F.	107.6	107.6	107.6

STREAM NUMBER	10	12	13
COMPONENTS OF SLURRY PHASE			
CAC03 ,LBS/HR	974.4	0.0	0.0
DUST&IMPUR.,LBS/HR	108.3	0.0	0.0
WATER ,LBS/HR	0	9,242	2,010
CHLORIDE,PPM	0	3	3
SOLID ,LBS/HR	1,083	0	0
SLURRY RATE,LBS/HR	1,083	9,242	2,010
GPM	0.0	18.5	4.0
TEMPERATURE, DEG. F.	60.0	107.6	60.0

STREAM NUMBER	15	17	18
COMPONENTS OF SLURRY PHASE			
CAC03 ,LBS/HR	535.9	974.4	0.0
CAS03..5H2O,LBS/HR	471.4	0.0	0.0
CAS04.2H2O ,LBS/HR	125.7	0.0	0.0
DUST&IMPUR.,LBS/HR	108.3	108.3	0.0
CHLORIDE,PPM	3	3	3
WATER ,LBS/HR	11,171	2,010	23,857
SOLID ,LBS/HR	1,241	1,083	0
SLURRY RATE,LBS/HR	12,412	3,093	23,857
DENSITY,LBS/GAL	8.82	10.31	8.34
GPM	23.4	5.0	47.7
% SOLIDS IN SLURRY	10.00	35.00	0.00
TEMPERATURE, DEG. F.	107.6	60.0	60.0

-----  
 STREAM NUMBER 11  
 CHLORIDE, PPM 3  
 GPM 70.2  
 -----

PROCESS EQUIPMENT

EQUIP	PIECES	DIAM. (FT)	HEIGHT (FT.)	VOL./UNIT (GAL.)
DEMISTER/OUCHER TOWER	1 1	20 20	82.5	

HEAT EXCHANGERS

FUNCTION	DUTY MILLION BTU/HR	MEDIUM LB/HR	AREA/UNIT SQ FT	PIECES
REHEATING	1.9	2133	890	1

\*HEATING MEDIUM--# 100 SAT. STEAM

PUMPS

FUNCTION	PIECES	RATE (GPM)	HEAD FEET	H.P./UNIT
FDS/QCH FEED	1	2986	75	82.2
PACKING	1	6624	85	200.7
SPRAY CHAMBER	1	1472	85	44.6
REAGENT FEED	1	5	100	0.3

FAN

PIECES	RATE ACFM	HEAD I.W.C.	H.P./UNIT
1	181971	8.8	335.923

CHEMICALS AND UTILITIES  
 OF 1 UNIT/UNITS

LIMESTONE - - - 1083 LB/HR  
 TOTAL WATER----- 70.2 GPM  
 # 100 SAT. STEAM - 2133 LB/HR  
 POWER FOR PUMPS- - - 327.876 HP  
 POWER FOR FANS - - 335.923 HP  
 POWER FOR AGITATORS - - 66 HP  
 TOTAL POWER FOR SYSTEM - - - 729.799 HP

NET EVAPORATIVE LOSS= 27011LB/HR

USED: 27.6 UNITS

System B

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TOTAL GAS TO SYSTEM----- 157070 ACFMW  
 SO2 TO THE SYSTEM----- 500 PPM(WET)  
 SO2 TO THE SYSTEM----- 505.051 PPM(DRY)  
 MOISTURE IN INLET GAS----- 1 %  
 MOISTURE IN OUTLET GAS----- 8.1 %  
 SO2 FROM THE SYSTEM----- 23.2126 PPM(WET)  
 SO2 FROM THE SYSTEM----- 25.2525 PPM(DRY)  
 FLY ASH TO THE SYSTEM----- 0 GR./SCFW  
 FLY ASH TO THE SYSTEM----- 0 GR./SCFD  
 FLY ASH FROM THE SYSTEM--- 0 GR./SCFW  
 FLY ASH FROM THE SYSTEM--- 0 GR./SCFD  
 SO2 REMOVAL EFF. AT FDS/QUEN.---- 50 %  
 SO2 REMOVAL EFF. AT TOWER ---- 90 %  
 OVERALL SO2 REMOVAL EFF. ---- 95 %  
 CAC03 TO SO2 MOL. RATIO----- 1

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SYSTEM - - - - - SO2 REMOVAL

## MATERIAL BALANCES

STREAM NUMBER	2*	3*	4*
COMPONENTS OF GAS PHASE			
FLUE GAS, ACFMW	157,070	153,730	124,518
FLUE GAS, ACFMD	155,499	152,193	114,459
FLUE GAS, LBS/HR	485,965	485,965	509,280
MOISTURE, LBS/HR	3,028	3,028	26,343
FLYASH, LBS/HR	0	0	0
SO2, LBS/HR	538.3	538.3	269.1
TEMPERATURE, DEG. F.	300.0	300.0	107.6
PRESSURE, I.W.C	2.0	10.8	6.0

STREAM NUMBER	5*	7*
COMPONENTS OF GAS PHASE		
FLUE GAS, ACFMW	124,961	129,139
FLUE GAS, ACFMD	114,866	118,707
FLUE GAS, LBS/HR	509,280	509,280
MOISTURE, LBS/HR	26,343	26,343
FLYASH, LBS/HR	0	0
SO2, LBS/HR	26.9	26.9
TEMPERATURE, DEG. F.	107.6	120.1
PRESSURE, I.W.C	4.5	1.5

STREAM NUMBER	1	2	5
COMPONENTS OF SLURRY PHASE			
CAC03, LBS/HR	7,643.8	7,685.9	42.1
CAS03..5H2O, LBS/HR	58,028.6	58,366.0	337.4
CAS04..2H2O, LBS/HR	128,156.8	128,906.6	749.8
DUST&IMPUR., LBS/HR	16,051.8	16,145.3	93.5
WATER, LBS/HR	1,189,326	1,196,255	6,929
CHLORIDE, PPM	12	12	14
SOLID, LBS/HR	209,881	211,104	1,223
SLURRY RATE, LBS/HR	1,399,207	1,407,358	8,152
DENSITY, LBS/GAL	9.09	9.09	9.09
GPM	2,566.8	2,581.7	15.0
% SOLIDS IN SLURRY	15.00	15.00	15.00

TEMPERATURE, DEG. F.

107.6

107.6

107.6

STREAM NUMBER	6	7	8
COMPONENTS OF SLURRY PHASE			
CAC03 ,LBS/HR	131,037.6	29,119.5	159,778.6
CAS03..5H2O,LBS/HR	114,647.4	25,477.2	140,531.4
CAS04.2H2O ,LBS/HR	30,572.6	6,793.9	37,475.0
DUST&IMPUR.,LBS/HR	26,409.7	5,868.8	32,278.5
WATER ,LBS/HR	2,724,006	605,335	3,337,267
CHLORIDE,PPM	3	3	3
SOLID ,LBS/HR	302,667	67,259	370,064
SLURRY RATE,LBS/HR	3,026,673	672,594	3,707,330
DENSITY,LBS/GAL	8.82	8.82	8.82
GPM	5,717.2	1,270.5	7,003.7
% SOLIDS IN SLURRY	10.00	10.00	9.98
TEMPERATURE, DEG. F.	107.6	107.6	107.6

STREAM NUMBER	10	12	13
COMPONENTS OF SLURRY PHASE			
CAC03 ,LBS/HR	841.1	0.0	0.0
DUST&IMPUR.,LBS/HR	93.5	0.0	0.0
WATER ,LBS/HR	0	7,978	1,735
CHLORIDE,PPM	0	3	3
SOLID ,LBS/HR	935	0	0
SLURRY RATE,LBS/HR	935	7,978	1,735
GPM	0.0	15.9	3.5
TEMPERATURE, DEG. F.	60.0	107.6	60.0

STREAM NUMBER	15	17	18
COMPONENTS OF SLURRY PHASE			
CAC03 ,LBS/HR	462.6	841.1	0.0
CAS03..5H2O,LBS/HR	406.9	0.0	0.0
CAS04.2H2O ,LBS/HR	108.5	0.0	0.0
DUST&IMPUR.,LBS/HR	93.5	93.5	0.0
CHLORIDE,PPM	3	3	3
WATER ,LBS/HR	9,642	1,735	20,593
SOLID ,LBS/HR	1,071	935	0
SLURRY RATE,LBS/HR	10,714	2,670	20,593
DENSITY,LBS/GAL	8.82	10.31	8.34
GPM	20.2	4.3	41.1
% SOLIDS IN SLURRY	10.00	35.00	0.00
TEMPERATURE, DEG. F.	107.6	60.0	60.0

STREAM NUMBER	11
CHLORIDE,PPM	3
GPM	60.6

## PROCESS EQUIPMENT.

EQUIP	PIECES	DIAM. (FT)	HEIGHT (FT.)	VOL./UNIT (GAL.)
DEMISTER/OUCHER	1	18		
TOWER	1	18	82.5	

## HEAT EXCHANGERS



FUNCTION	DUTY MILLION BTU/HR	MEDIUM LB/HR	AREA/UNIT SQ FT	PIECES
REHEATING	1.6	1841	768	1

\*HEATING MEDIUM--# 100 SAT. STEAM

PUMPS

FUNCTION	PIECES	RATE (GPM)	HEAD FEET	H.P./UNIT
FDS/GCH FEED	1	2578	75	71
PACKING	1	5717	85	173.2
SPRAY CHAMBER	1	1270	85	38.5
REAGENT FEED	1	4	100	0.3

FAN

PIECES	RATE ACFM	HEAD I.W.C.	H.P./UNIT
1	157070	8.8	289.955

CHEMICALS AND UTILITIES  
OF 1 UNIT/UNITS

LIMESTONE - - - 935 LB/HR  
TOTAL WATER----- 60.6 GPM  
# 100 SAT. STEAM - 1841 LB/HR  
POWER FOR PUMPS- - - 283.01 HP  
POWER FOR FANS - - 289.955 HP  
POWER FOR AGITATORS - - 57 HP  
TOTAL POWER FOR SYSTEM - - - - 629.965 HP

NET EVAPORATIVE LOSS= 23315LB/HR.

USED: 27.7 UNITS

READY  
BYE

OFF AT 10:28

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*System A*~~CASE I~~

TABLE I-BASIC DESIGN CONDITIONS

1. BOILER SIZE (MW)	0-
2. PLANT ELEVATION AND (FT. ASL) BAROMETRIC PRESSURE (PSIA)	500 14.55
3. TOTAL GAS TO SYSTEM (ACFM)	203380-
4. INLET SO <sub>2</sub> : A) LB/HR B) PPM	697 500.0
5. INLET GAS PRESSURE TO SYSTEM (LWC)	0.5-
6. INLET GAS TEMP. (F)	300.0-
7. SATURATED GAS TEMPERATURE (F)	107.6-
8. STACK INLET TEMP. (F)	137.6
9. STOICHIOMETRY	1.00
10. LIMESTONE PURITY (%)	90.0-
DESIGN FUEL (COAL)	
SULFUR (%)	0.00-
HEATING VALUE (BTU/LB)	0

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*Alumenum 6/25/76*

TABLE II- DESIGN HIGHLIGHTS-

1. TYPE OF SYSTEM	DRY-WET
2. SO <sub>2</sub> ABSORBER TOWER	
A) NUMBER PER BOILER	1
B) TOWER DIAMETER (FT)	20
C) TOWER HEIGHT (FT)	32.5
3. FLUE GAS TREATMENT:	
A) FLUE GAS FROM BOILER (ACFM)	203380
B) FLUE GAS TO BE TREATED (ACFM)	181944
C) FLUE GAS TO BE BYPASSED	21436
4. LIQUID TO GAS RATIO: (L/G)	
A) QUENCHER SECTION	20
B) SPRAY TOWER SECTION	10
C) PACKED TOWER SECTION	45
5. SO <sub>2</sub> REMOVAL EFFICIENCY:	
1. OVERALL EFFICIENCY	
A) SO <sub>2</sub> REMOVAL EFFICIENCY (%)	35.00
B) INLET SO <sub>2</sub> TO FGD SYSTEM (LB/HR)	697
(PPMW)	500.0
C) OUTLET SO <sub>2</sub> FROM FGD SYSTEM (LB/HR)	104.6
(PPMW)	67.9
2. TOWER EFFICIENCY	
A) SO <sub>2</sub> REMOVAL EFFICIENCY (%)	95.0
B) INLET SO <sub>2</sub> TO ABSORBER TOWER (LB/HR)	624
(PPMW)	500.0
C) OUTLET SO <sub>2</sub> FROM ABS. TOWER (LB/HR)	31.2
(PPMW)	23.2
6. ABSORBER TOWER PRESSURE DROP: (IWC)	
INLET DUCT	0.5
ABSORBER TOWER	5.0
REHEATER	3.0
OUTLET DUCT	0.5
STACK	1.0
TOTAL	10.3

TABLE III - SYSTEM REQUIREMENTS

-----	
1. REAGENT: (TONS/HR)	
LIMESTONE	0.54
2. MAKEUP WATER (GPM)	
15% SOLID SLUDGE	70
50% SOLID SLUDGE	57
70% SOLID SLUDGE	55
3. SLUDGE RATE (LB/HR)	
15% SOLID SLUDGE	9444
50% SOLID SLUDGE	2333-
70% SOLID SLUDGE	2024
4. REHEATER (STEAM REHEATER OR EQUAL)	
REHEAT TEMP. DUE TO REHEATER (F)	12.5
REHEAT TEMP. DUE TO BYPASS (F)	17.5
REHEATER POWER (MILLION BTU/HR)	1.90-
5. POWER CONSUMPTION: (HP)	
I.D. FANS	335.9-
QUENCHER PUMPS	82.2
SPRAY TOWER PUMPS	44.6-
PACKED TOWER PUMPS	200.7
REAGENT FEED PUMPS	0.3
AGITATORS	135.3
TOTAL	799.0

MAJOR EQUIPMENT LIST

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EQUIPMENT	NO. PER BOILER	SIZE AND CAPACITY	REMARKS-
-----	-----	-----	-----
1. ABSORBER TOWERS	1	20 FT I.D. 82.5 FT HIGH	EACH WITH 14955 GALLONS CAPACITY SUMP
2. ABSORBER TOWER TANK	1	40478 GALLONS 32 FT HIGH 16 FT DIAMETER	PROVIDING 5 MINUTES RETENTION TIME
3. REAGENT FEED TANK	1	3600 GALLONS 9 FT HIGH 9 FT DIAMETER	PROVIDING 8 HOURS STORAGE CAPACITY
4. REAGENT FEED PUMPS	2	8 GPM	PUMPING SLURRY AT 35% SOLIDS
5. QUENCHER PUMPS	2	2991 GPM	PUMPING SLURRY AT 15% SOLIDS
6. SPRAY PUMPS	2	1472 GPM	PUMPING SLURRY AT 10% SOLIDS
7. PACKING PUMPS	2	6624 GPM	PUMPING SLURRY AT 10% SOLIDS
8. I.D. FAN	1	203380 ACFM	
9. LIMESTONE SILO	1	13 TONS	TO PROVIDE 24 HOURS STORAGE CAPACITY
10. BALL MILL	1	0.5 TONS/HR	

*System B*  
CASE II

TABLE I-BASIC DESIGN CONDITIONS.

1. BOILER SIZE (MW)	0-
2. PLANT ELEVATION AND (FT. ASL)	500
BAROMETRIC PRESSURE (PSIA)	14.55
3. TOTAL GAS TO SYSTEM (ACFM)	175550
4. INLET SO <sub>2</sub> : A) LB/HR	602
B) PPMW	500.0
5. INLET GAS PRESSURE TO SYSTEM (IWC)	0.5
6. INLET GAS TEMP. (F)	300.0
7. SATURATED GAS TEMPERATURE (F)	107.6
8. STACK INLET TEMP. (F)	137.6
9. STOICHIOMETRY	1.00
10. LIMESTONE PURITY (%)	90.0
DESIGN FUEL (COAL)	
SULFUR (%)	0.00
HEATING VALUE (BTU/LB)	0-

TABLE II- DESIGN HIGHLIGHTS

1. TYPE OF SYSTEM		DRY-WET-
2. SO <sub>2</sub> ABSORBER TOWER		
A) NUMBER PER BOILER		1-
B) TOWER DIAMETER (FT)		13'
C) TOWER HEIGHT (FT)		32.5
3. FLUE GAS TREATMENT:		
A) FLUE GAS FROM BOILER (ACFM)		175550
B) FLUE GAS TO BE TREATED (ACFM)		157047-
C) FLUE GAS TO BE BYPASSED		16503
4. LIQUID TO GAS RATIO: (L/G)		
A) QUENCHER SECTION		20-
B) SPRAY TOWER SECTION		10'
C) PACKED TOWER SECTION		45
5. SO <sub>2</sub> REMOVAL EFFICIENCY:		
1. OVERALL EFFICIENCY		
A) SO <sub>2</sub> REMOVAL EFFICIENCY (%)		35.00
B) INLET SO <sub>2</sub> TO FGD SYSTEM (LB/HR)		602-
(PPMW)		500.0
C) OUTLET SO <sub>2</sub> FROM FGD SYSTEM (LB/HR)		90.3-
(PPMW)		67.9-
2. TOWER EFFICIENCY		
A) SO <sub>2</sub> REMOVAL EFFICIENCY (%)		95.0
B) INLET SO <sub>2</sub> TO ABSORBER TOWER (LB/HR)		538-
(PPMW)		500.0
C) OUTLET SO <sub>2</sub> FROM ABS. TOWER (LB/HR)		26.9
(PPMW)		23.2
6. ABSORBER TOWER PRESSURE DROP: (IWC)		
INLET DUCT		0.5
ABSORBER TOWER		5.3-
REHEATER		3.0
OUTLET DUCT		0.5
STACK		1.0
TOTAL		10.3-

TABLE III - SYSTEM REQUIREMENTS

-----	
1. REAGENT: (TONS/HR)	
LINESTONE	0.47-
-----	
2. MAKEUP WATER (GPM)	
15% SOLID SLUDGE	61-
50% SOLID SLUDGE	49
70% SOLID SLUDGE	43
-----	
3. SLUDGE RATE (LB/HR)	
15% SOLID SLUDGE	8152
50% SOLID SLUDGE	2446
70% SOLID SLUDGE	1747-
-----	
4. REHEATER (STEAM REHEATER OR EQUAL)-	
REHEAT TEMP. DUE TO REHEATER (F)	12.5
REHEAT TEMP. DUE TO BYPASS (F)	17.5
REHEATER POWER (MILLION BTU/HR)	1.64
-----	
5. POWER CONSUMPTION: (HP)	
I.D. FANS	290.0
QUENCHER PUMPS	71.0-
SPRAY TOWER PUMPS	38.5
PACKED TOWER PUMPS	173.2-
REAGENT FEED PUMPS	0.3-
AGITATORS	131.8
TOTAL	704.8



## MAJOR EQUIPMENT LIST

EQUIPMENT	NO. PER BOILER	SIZE AND CAPACITY	REMARKS
1. ABSORBER TOWERS	1	18 FT I.D. 82.5 FT HIGH.	EACH WITH 12909 GALLONS CAPACITY SUMP
2. ABSORBER TOWER TANK	1	34939 GALLONS 32 FT HIGH 14 FT DIAMETER-	PROVIDING 5 MINUTES RETENTION TIME-
3. REAGENT FEED TANK	1	3107 GALLONS 9 FT HIGH 9 FT DIAMETER-	PROVIDING 3 HOURS STORAGE CAPACITY
4. REAGENT FEED PUMPS	2	7 GPM	PUMPING SLURRY AT 35% SOLIDS-
5. QUENCHER PUMPS	2	2582 GPM	PUMPING SLURRY AT 15% SOLIDS
6. SPRAY PUMPS	2	1270 GPM	PUMPING SLURRY AT 10% SOLIDS
7. PACKING PUMPS	2	5717 GPM	PUMPING SLURRY AT 10% SOLIDS
8. I.D. FAN	1	17550 ACFM	
9. LIMESTONE SILO	1	11 TONS	TO PROVIDE 24 HOURS STORAGE CAPACITY
10. BALL MILL	1	0.5 TONS/HR	



State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: JFK, ~~FAS~~ *[Signature]*  
From: JAB  
Subject: Martin Marietta, EI #33-0001  
Conversation with Dr. Hindawi

Date: Oct. 14, 1976

On October 13, 1976 Dr. Hindawi informed me that the chemical analysis for fluoride content of the vegetation samples taken on August 11, 1976 from The Dalles area had been completed. He outlined the results as follows:

Location: Bailey orchard, 3 mi SE of Martin Marietta  
Specimen: 1976 pine needles  
Fluoride levels: tip - 3.5 ppm, base - 2.5 ppm  
Specimen: 1975 pine needles  
Fluoride levels: tip - 10.3 ppm, base - 5 ppm

Location: Ericksen orchard, 2 mi SE Martin Marietta  
Specimen: Apple leaves  
Fluoride levels: 4.5 ppm

Location: Cemetery, 1 mi. SE Martin Marietta  
Specimen: 1976 pine needles  
Fluoride level: tip - 8.7 ppm, base 4 ppm

Location: 10 mi SE Martin Marietta  
Specimen: 1974 pine needles  
Fluoride levels: tip - 3.5 ppm, base - 4 ppm  
Specimen: 1975 pine needles  
Fluoride levels: tip - 9 ppm, base - 4 ppm  
Specimen: 1976 pine needles  
Fluoride levels: tip - 3.5 ppm, base - 3 ppm

Location: Jack Thane's home, downtown The Dalles  
Specimen: Peony leaves  
Fluoride levels: 19 ppm  
Specimen: Zinnia leaves  
Fluoride levels: 16 ppm

Location: Bailey orchard, 3 mi SE Martin Marietta  
Specimen: Peach leaves  
Fluoride levels: 15.5 ppm

Location: 1 mi. SE Martin Marietta  
Specimen: pine needles  
Fluoride levels: tip - 22.5 ppm, base - 4.8 ppm

Location: 10 mi SE Martin Marietta  
Specimen: Golden apple leaves  
Fluoride levels: 3.8 ppm

MEMO TO JFK, FAS  
Oct. 14, 1976  
Page 2

Location: 1 mi. SE Martin Marietta  
Specimen: Oak leaves  
Fluoride levels: 10 ppm

Dr. Hindawi's conclusion

The above fluoride levels are well below the level at which Dr. Hindawi would become concerned. He believes the minimum level of concern to be 35 ppm fluoride in the vegetation sample. Dr. Hindawi believes the observed levels to be insignificant.

Dr. Hindawi also took six vegetation samples on August 11, 1976 for SO<sub>2</sub> content; however, chemical analysis of these samples has not been completed. Completion is expected within several weeks. Dr. Hindawi does not anticipate finding SO<sub>2</sub> levels high enough to cause damage.

JAB:mh

Department of Environmental Quality  
1234 S. W. Morrison  
Portland, Oregon 97205

Jim Swenson  
229-5327

NEWS MATERIAL

ENVIRONMENTAL QUALITY COMMISSION TO MEET IN THE DALLES

(Portland, Oregon, October 8, 1976) -- The Environmental Quality Commission, the five member citizen commission that directs the activities of the Oregon Department of Environmental Quality, meets Friday, October 15 in The Dalles.

On the agenda are adoption of revised rules for open burning (not agricultural), adoption of the priority list for funding of sewerage projects statewide and adoption of amendments to DEQ rules on septic tanks.

Of interest to residents in the area where the meeting is being held, the Commission will consider a request from Martin Marietta's aluminum reduction plant in The Dalles. Martin Marietta is proposing to install a system that will allow them to recover and reuse expensive fluorides that are presently being discharged to the Columbia River. Under the Martin Marietta proposal, air discharge of sulfur dioxides would increase.

The Commission will also consider a recommendation from DEQ Director Loren Kramer that the City of Maupin be required to upgrade their inadequate sewage treatment facility discharging to the Deschutes River. The DEQ has been working with the City of Maupin since 1966 and still has not achieved resolution of this water pollution problem.

MORE

Open burning rules come to the Commission for adoption after public hearings in Medford, Eugene, Salem and Portland. The proposal would not change the present rules for burning of domestic wastes or backyard burning. The proposal would allow the DEQ more flexibility in approving special types of burning. It would allow the DEQ to issue permits for burning of some materials in the special control areas of the state when burning was determined to be the last resort for reasonable disposal of the wastes.

Most of the changes proposed in the subsurface sewage disposal rules (septic tanks) are aimed at smoothing administration of the program. They would also give the counties of the State more flexibility in approving alternative systems on properties where the standard septic tank is not appropriate.

The sewage works construction grants priority list determines in what order projects proposed by cities, counties and the state will be funded as funds become available. The \$39,802,804 being carried over into fiscal 1977 will assure the funding of the first 41 projects on the priority list. If the DEQ receives the \$43,500,000 it anticipates from the federal government, projects through #95 could be funded. In all, there are 195 projects identified on the list.

The Commission will hear a status report on the DEQ's efforts to revise air pollution regulations for paper mills using the kraft process. Public hearings have been held in Eugene, Albany, Toledo and St. Helens -- areas of the state where kraft mills are located. No action is anticipated on this issue at the meeting.

An additional public hearing is being recommended to air views on the overall kraft mill regulation.

The EQC will also discuss a report from a citizen/industry task force which has been studying the DEQ's air contaminant discharge permit issuing program.

The meeting will be held in The Dalles City Council Chambers, 313 Court Street. Beginning at 9:00 a.m. The City of Maupin sewage problems are scheduled to be discussed at 9:30 a.m. The Martin Marietta request will be heard beginning at 10:30 a.m.

The EQC will breakfast together at Tapadera Inn, 112 W. Second Street in The Dalles at 7:30 a.m. They will lunch at the same location at Noon.

# # #

EDITORS:

Staff reports on individual agenda items are available prior to the meeting by contacting Jim Swenson, 229-5327, Portland. Swenson will also be at the meeting in The Dalles to assist with arranging any interviews or obtaining additional information.



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

### MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Addendum to Agenda Item H, October 15, 1976 EQC Meeting  
Sewage Works Construction Grant Project Priority List for FY 77

### Background

My memorandum to the EQC dated September 23, 1976 contained four recommendations. The fourth recommendation requested EQC approval of the modified FY 77 Priority List which was identified in Attachment "D" to the September 23 Memorandum. That recommendation was based on our assumption that Congress would pass the proposed Federal Water Pollution Control Act Amendments of 1976 prior to adjournment. However, Congress adjourned early in October without passage of the proposed bill which means that Oregon has not received a grant allotment for FY 77.

When Congress reconvenes in January 1977, we expect that a first order of business will be passage of the "Federal Water Pollution Control Act Amendments of 1977", which will authorize additional construction grant allotments to each state, beginning in January or February 1977. It is our understanding that the Environmental Protection Agency will be authorized to commit funds immediately after passage of this bill.

Based on the above information, the Department carefully reexamined the proposed FY 77 Priority List to determine the most effective way to utilize FY 76 monies carried over into FY 77 (i.e., approximately \$39 million) prior to receipt of FY 77 monies. As indicated on the September 23 memorandum, we have estimated that Oregon will receive a FY 77 grant allotment of \$43,500,000.00 which together with FY 76 carryover will enable us to fund projects through priority number 95.

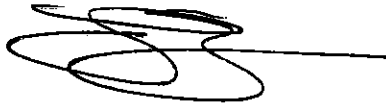
### Recommended Action

By assuming that Oregon will receive a FY 77 grant allotment by February 1977, we recommend that those projects ranked 1 through 95 which are scheduled prior to February be approved for funding out of the FY 76 carryover monies. EQC approval of this recommendation will give Oregon's grant program greater continuity by eliminating the need to delay certification of projects ranked 42 through 95 up to five months.



Contains  
Recycled  
Materials

In order to more clearly display expected actions during FY 77, the FY 77 Priority List was separated into two parts, (1) containing projects scheduled through January 1977, and (2) containing projects scheduled from February 1977 through September 1977. These two parts are attached to this memorandum and are identified as Part I and Part II, respectively. In order to stay within funding constraints, the City of Sutherlin's Step 3 grant certification was rescheduled from December 1976 to February 1977. Our grants program staff contacted the City of Sutherlin's consulting engineer to determine the appropriate date for Step 3 grant certification.



LOREN KRAMER  
Director

HLS:ak  
Attachments: Part I & Part II

October 11, 1976



DEPARTMENT OF ENVIRONMENTAL QUALITY  
FY 1977 PRIORITY LIST AND SCHEDULE

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (\$1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
3	CORVALLIS - AMENDED PROJECT			STP IMP	2	00600	1076	INCR	1
323	NETARTS-OCEANSIDE S D	002988	43	STP, INT	3	1400	1076		2
411	REDWOOD S D	002994	14	STP, INT	3	2185	0876 0976		3
347	REDMOND	NA	43	SYSTEM	3	11000	0976		4
432	FOSTER-MIDWAY	NA	14	SYSTEM	3	1866	1076		5
410	WINSTON-GREEN	002879	56	STP	2	412	0376 0676	RECERTIF	6
438	JOHN DAY-CANYON CITY	002722	01	STP, INT	2	22	0776 0976		7
600	CANYON CITY	NA		INT	2	20	0776 0876		8
491	USA - LOWER TUALATIN	NA	16	INT	2	150	0776 0776		9
491	USA - LOWER TUALATIN	NA	16	INT	3	2200	0976		9
434	GLENDALE	002273	33	STP IMP	3	867	1276		10
429	EAGLE POINT	002229	87	STP IMP	2	21	1275 0176		12
423	CAVE JUNCTION	002833	30	STP IMP	2	28	0676 0676		13
4	CAVE JUNCTION	002833	30	STP IMP	3	213	0177		13
424	BOARDMAN	002070	80	STP IMP	3	1247	0876 0976		14
226	WHEELER - NTCSA INCR	002068	50	INT	3	612	0776 0776		15
404	YAMHILL	002280	84	STP IMP	2	11	1275 0576	RECERTIF	16
505	TILLAMOOK CITY	002066	16	STP IMP	2	189	0976 0976		17
444	MOLALLA	002238	84	STP EXP	3	293	1176		18
446	LEBANON	002081	14	STP IMP	3	1800	1076		19
510	JEFFERSON	002045	84	STP, INT	2	31	0876 0976		20
450	LINCOLN CITY-PHASE 1	NA	56	INT	3	500	0177		21
385	VENETA	002053	52	PS -STP	3	80	1076	INCR	23
373-	CHILOQUIN		32	PS & INT	3	25	1076	INCR	24
453	BONANZA		78	STP IMP	3	425	1076		25
524	LAKE OSWEGO -HARVEY	NA	16	INT	3	142	0976		26
525	LAKE OSWEGO -TERRACE	NA	88	INT	3	110	1176		27

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
4	LAKE OSWEGO -EVERGRN	NA	91	INT	2	23	0276	0276		28
313	WEST LINN-LOWER TUAL	NA	20	INT	3	112	0976	0976		29
528	COVE	NA	50	STP IMP	3	568	1276			30
417	PACIFIC CITY S D		26	STP, INT	2	45	0576	0576		32
417	PACIFIC CITY S D		26	STP, INT	3	355	0177			32
448	AURORA		26	STP, INT	2	72	0576	0576		33
451	TWIN ROCKS S D	002349	50	INT, STP	3	150	0776	0776		34
538	ROADS END S D	NA	33	INT	3	212	1176			35
544	ADRIAN		12	STP, INT	3	238	1076			36
545	PRINEVILLE -LAUGHLIN	NA	43	INT	3	220	0177			37
547	UKIAH	NA	01	STP, INT	3	267	1076			38
566	PORT OF PORTLAND	NA		INT	3	141	1076			39
581	NORTH ROSEBURG S D	002359	14	INT & PS	2	50	0876	0776		40
4-01	BEND PHASE 1A	NA	56	SYSTEM	2	700	1076			41
585	LAKE OSWEGO -GLENMOR	NA		COLL SYS	2	80	1076			43
579	MADRAS	NA	14	INT	2	35	1176			44
382-02	USA - FANNO PHASE 5	NA	56	INT	3	139	0976			45
619	ASTORIA - WILLIAMSPORT	INT		INT	1	00019	1276			46
487-02	ROSEBURG METRO	002258	14	STP, INT	2	1300	0177			47
616	ROSEBURG SEWER REHAB	002258	14	STP, INT	2	300	1076		PHASED	48
488	CANYONVILLE	002072	33	STP IMP	2	69	0976			49
439	MT VERNON		45	STP, INT	2	50	1176			51
489	HILLSBORO-IRRIGATION	002334		STP	2	8	0976			52
575	USA - GASTON	002015		STP IMP	1	9	0976			53
576	USA - BANKS	002012		STP IMP	1	9	1176			54
496	JUNCTION CITY	002656	09	STP IMP	2	32	0976			55
4-1	EUGENE AIRPORT	002648	14	STP IMP	2	19	0976			56

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
4	HARRISBURG	002075	52	STP	2	34	1076			57
452	MONMOUTH-INDEPENDENCE	002061	09	STP	2	72	0976			58
454-02	EUGENE-SPRINGFIELD	002620	14	STP	2	697	1176			59
494	NEWBERG-DUNDEE	002025	84	REG STP	2	108	1176			62
570	SPRINGFIELD	002632		STP IMP	2	200	1276			63
492	USA - UPPER TUALATIN	NA	16	INT	2	153	1176			64
603	USA - BRONSON CK	NA		INT	2	60	1176			66
611	USA - ROCK CK TRUNK	NA		INT	2	200	1176			67
374	MAUPIN	002260	67	STP IMP	2	31	0976			68
474	EUGENE - EASTSIDE	NA	14	INT	2	900	1276			69
413	GOLD HILL	002259	33	STP IMP	2	34	1276			70
617	OAKLAND	002049		STP IMP	1	15	0177			71
556	REEDSPORT	NA	33	INT	2	45	1176			72
4	JACKSONVILLE	002079	30	INT	2	81	1276			73
557	PORTLAND - SLUDGE	NA		STP IMP	2	277	0976			74
539	ST HELENS	NA	86	INT	2	165	1176			76
499	PRAIRIE CITY			STP, INT	2	00040	1176			77
342	PORTLAND - SE RELIEV	NA		INT	3	2888	1276			78
586	RAINIER	002038		STP IMP	1	10	1076			79
475	LA GRANDE-ISLAND CITY	002046	12	STP, INT	2	181	1176			80
472	ELGIN	002243	01	STP IMP	2	31	1276			81
501	CORVALLIS-CRESCENT V	NA		INT	2	111	0976			82
583	IONE		63	STP, INT	2	35	0177			83
502	HAMMOND	002274	43	INT	2	36	0177			84
590	BAY CITY	002257		STP IMP	1	12	1276			85
584	SILETZ	002041		STP IMP	1	10	1276			86
406	PORT OF TILLAMOOK BAY	002291	04	STP IMP	1	13	0976			87

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
5	SEASIDE	002040	56	STP IMP	1	49	1076			88
427	AUMSVILLE	002272	36	STP IMP	2	36	0976			89
506	SHERIDAN-WILLAMINA	002064	47	STP IMP	2	48	1076			91
508	AMITY	002621	20	STP IMP	2	21	1276			92
476	GERVAIS	002739	09	STP/ INT	2	66	1176			93
509	WOODBURN	002000	16	STP, INT	2	132	1176			93
615	CARLTON	002054		STP IMP	1	20	1076			94
273	ROCKAWAY	002330	33	STP IMP	2	184	1176			95
559	LINCOLN CITY PHASE 2	002047	56	STP, INT	2	337	0976			97
512	COTTAGE GROVE	002055	47	STP IMP	2	105	0976			98
513	CRESWELL	002754	40	STP IMP	2	36	1076			99
518	NEWPORT			STP IMP	1	00015	1076			100
514	OAKRIDGE	002231	47	STP IMP	2	28	0177			101
5	LOWELL	002004		STP IMP	2	50	0177			102
594	ESTACADA	002057		STP IMP	1	20	1276			103
515	SCIO	002930	36	STP IMP	2	14	1176			105
620	PHILOMATH			STP IMP	1	00012	1176			107
517	HERMISTON	002076	56	STP, INT	2	263	1276			111
589	MILTON-FREEWATER	002278		STP IMP	1	50	0976			114
564	NORTH POWDER	002240	47	STP IMP	2	35	0976			115
519	JOSEPH	002060	01	STP IMP	2	50	1076			116
554	ENTERPRISE	002056	01	STP IMP	2	44	1076			117
473	DUFUR	002905	63	STP IMP	2	12	1176			118
523	ST PAUL		20	STP, INT	2	41	1276			121
437	WAUNA-WESTPORT		16	STP, INT	1	24	1276			129
426	MULTNOMAH CO - INVERNESS #8			INT	2	00060	1276			130
46	GRESHAM - LINNEMAN	NA	56	INT	2	157	1076			131

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
3	COLUMBIA CITY	002071		INT	2	21 1176				132
532	HWY 101 S D	NA		INT	2	19 1176				136
467	SILVERTON	002065		STP IMP	2	26 1276				137
534	NEWBERG - NORTHWEST	NA	43	INT	2	20 1176				142
536	LAPINE			STP, INT	1	12 0976				145
447	MILL CITY		09	STP, INT	1	22 0976				147
537	SW LINCOLN CO S D		43	STP, INT	2	254 0177				148
542	CARMEL-FOULWEATHER S D		43	STP, INT	2	136 1076				149
560	ROSEBURG -RIFLE RNG	NA		INT	1	9 1176				150
607	BCVSA - WHETSTONE	NA		INT	1	12 0177				153
574	WESTSIDE S D - K FALLS		32	STP/ INT	2	80 1276				155
541	SISTERS		33	STP, INT	2	56 0177				157
449	FALLS CITY			STP, INT	1	12 0177				158
5	CRESCENT			STP, INT	1	12 0976				159
597	YONCALLA	002245		STP IMP	1	12 1176				162
608	USA - BROOKWOOD TRNK	NA		INT	2	2 1076				165
610	USA - SUNSET TRUNK	NA		INT	2	40 1176				166
613	USA - REEDSVILLE TRNK	NA		INT	2	90 0177				167
549	HILLSBORO - WESTSIDE	002334		STP AUTO	1	6 1076				169
535	CANBY	NA	60	INT	1	10 1176				171
621	PORTLAND - LINNTON	INT		INT	1	00015 0177				172
568	ELKTON		47	STP	1	10 0177				173
563	ROSEBURG - LOOKINGGL	NA		INT	1	10 1076				174
562	IMBLER		67	STP, INT	2	21 1276				181
578	TROUTDALE	002052	38	INT & EXP	2	66 0177				182
552	POWERS	002693	33	STP IMP	1	3 0177				186
5	BANDON - JOHNSON	NA	33	INT	2	46 1076				187

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
5	STANFIELD	002697	67	STP IMP	2	43 1176				190
593	ELMIRA	NA		INT	1	8 0177				191
602	NESKOWIN			STP, INT	1	15 1276				192

DEPARTMENT OF ENVIRONMENTAL QUALITY  
FY 1977 PRIORITY LIST AND SCHEDULE

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET DATE (MM/YY)	COMMENT	PRIOR. NO.
31	CORVALLIS - AMENDED PROJECT			STP IMP	2	00600	1076	INCR	1
323	NETARTS-OCEANSIDE S	D002988	43	STP, INT	3	1400	1076		2
411	REDWOOD S D	002994	14	STP, INT	3	2185	0876 0976		3
347	REDMOND	NA	43	SYSTEM	3	11000	0976		4
432	FOSTER-MIDWAY	NA	14	SYSTEM	3	1866	1076		5
410	WINSTON-GREEN	002879	56	STP	2	412	0376 0676	RECERTIF	6
438	JOHN DAY-CANYON CITY	002722	01	STP, INT	2	22	0776 0976		7
600	CANYON CITY	NA		INT	2	20	0776 0876		8
491	USA - LOWER TUALATIN	NA	16	INT	2	150	0776 0776		9
491	USA - LOWER TUALATIN	NA	16	INT	3	2200	0976		9
434	GLENDALE	002273	33	STP IMP	3	867	1276		10
429	EAGLE POINT	002229	87	STP IMP	2	21	1275 0176		12
423	CAVE JUNCTION	002833	30	STP IMP	2	28	0676 0676		13
41	CAVE JUNCTION	002833	30	STP IMP	3	213	0177		13
424	BOARDMAN	002070	80	STP IMP	3	1247	0876 0976		14
226	WHEELER - NTCSA INCR	002068	50	INT	3	612	0776 0776		15
404	YAMHILL	002280	84	STP IMP	2	11	1275 0576	RECERTIF	16
505	TILLAMOOK CITY	002066	16	STP IMP	2	189	0976 0976		17
444	MOLALLA	002238	84	STP EXP	3	293	1176		18
446	LEBANON	002081	14	STP IMP	3	1800	1076		19
510	JEFFERSON	002045	84	STP, INT	2	31	0876 0976		20
450	LINCOLN CITY-PHASE 1	NA	56	INT	3	500	0177		21
385	VENETA	002053	52	PS -STP	3	80	1076	INCR	23
373-	CHILOQUIN		32	PS & INT	3	25	1076	INCR	24
453	BONANZA		78	STP IMP	3	425	1076		25
524	LAKE OSWEGO -HARVEY	NA	16	INT	3	142	0976		26
525	LAKE OSWEGO -TERRACE	NA	88	INT	3	110	1176		27

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
4	LAKE OSWEGO -EVERGRN	NA	91	INT	2	23	0276	0276		28
313	WEST LINN-LOWER TUAL	NA	20	INT	3	112	0976	0976		29
528	COVE	NA	50	STP IMP	3	568	1276			30
417	PACIFIC CITY S D		26	STP, INT	2	45	0576	0576		32
417	PACIFIC CITY S D		26	STP, INT	3	355	0177			32
448	AURORA		26	STP, INT	2	72	0576	0576		33
451	TWIN ROCKS S D	002349	50	INT, STP	3	150	0776	0776		34
538	ROADS END S D	NA	33	INT	3	212	1176			35
544	ADRIAN		12	STP, INT	3	238	1076			36
545	PRINEVILLE -LAUGHLIN	NA	43	INT	3	220	0177			37
547	UKIAH	NA	01	STP, INT	3	267	1076			38
566	PORT OF PORTLAND	NA		INT	3	141	1076			39
581	NORTH ROSEBURG S D	002359	14	INT & PS	2	50	0876	0776		40
4 -01	BEND PHASE 1A	NA	56	SYSTEM	2	700	1076			41
585	LAKE OSWEGO -GLENMOR	NA		COLL SYS	2	80	1076			43
579	MADRAS	NA	14	INT	2	35	1176			44
382-02	USA - FANNO PHASE 5	NA	56	INT	3	139	0976			45
619	ASTORIA - WILLIAMSPORT	INT		INT	1	00019	1276			46
487-02	ROSEBURG METRO	002258	14	STP, INT	2	1300	0177			47
616	ROSEBURG SEWER REHAB	002258	14	STP, INT	2	300	1076		PHASED	48
488	CANYONVILLE	002072	33	STP IMP	2	69	0976			49
439	MT VERNON		45	STP, INT	2	50	1176			51
489	HILLSBORO-IRRIGATION	002334		STP	2	8	0976			52
575	USA - GASTON	002015		STP IMP	1	9	0976			53
576	USA - BANKS	002012		STP IMP	1	9	1176			54
496	JUNCTION CITY	002656	09	STP IMP	2	32	0976			55
4.1	EUGENE AIRPORT	002648	14	STP IMP	2	19	0976			56



PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
49	HARRISBURG	002075	52	STP	2	34	1076			57
452	MONMOUTH-INDEPENDENCE	002061	09	STP	2	72	0976			58
454-02	EUGENE-SPRINGFIELD	002620	14	STP	2	697	1176			59
494	NEWBERG-DUNDEE	002025	84	REG STP	2	108	1176			62
570	SPRINGFIELD	002632		STP IMP	2	200	1276			63
492	USA - UPPER TUALATIN	NA	16	INT	2	153	1176			64
603	USA - BRONSON CK	NA		INT	2	60	1176			66
611	USA - ROCK CK TRUNK	NA		INT	2	200	1176			67
374	MAUPIN	002260	67	STP IMP	2	31	0976			68
474	EUGENE - EASTSIDE	NA	14	INT	2	900	1276			69
413	GOLD HILL	002259	33	STP IMP	2	34	1276			70
617	OAKLAND	002049		STP IMP	1	15	0177			71
556	REEDSPORT	NA	33	INT	2	45	1176			72
4	JACKSONVILLE	002079	30	INT	2	81	1276			73
557	PORTLAND - SLUDGE	NA		STP IMP	2	277	0976			74
539	ST HELENS	NA	86	INT	2	165	1176			76
499	PRAIRIE CITY			STP, INT	2	00040	1176			77
342	PORTLAND - SE RELIEV	NA		INT	3	2888	1276			78
586	RAINIER	002038		STP IMP	1	10	1076			79
475	LA GRANDE-ISLAND CITY	002046	12	STP, INT	2	181	1176			80
472	ELGIN	002243	01	STP IMP	2	31	1276			81
501	CORVALLIS-CRESCENT V	NA		INT	2	111	0976			82
583	IONE		63	STP, INT	2	35	0177			83
502	HAMMOND	002274	43	INT	2	36	0177			84
590	BAY CITY	002257		STP IMP	1	12	1276			85
584	SILETZ	002041		STP IMP	1	10	1276			86
400	PORT OF TILLAMOOK BAY	002291	04	STP IMP	1	13	0976			87

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
51	SEASIDE	002040	56	STP IMP	1	49	1076			88
427	AUMSVILLE	002272	36	STP IMP	2	36	0976			89
506	SHERIDAN-WILLAMINA	002064	47	STP IMP	2	48	1076			91
508	AMITY	002621	20	STP IMP	2	21	1276			92
476	GERVAIS	002739	09	STP/ INT	2	66	1176			93
509	WOODBURN	002000	16	STP, INT	2	132	1176			93
615	CARLTON	002054		STP IMP	1	20	1076			94
273	ROCKAWAY	002330	33	STP IMP	2	184	1176			95
559	LINCOLN CITY PHASE 2	002047	56	STP, INT	2	337	0976			97
512	COTTAGE GROVE	002055	47	STP IMP	2	105	0976			98
513	CRESWELL	002754	40	STP IMP	2	36	1076			99
518	NEWPORT			STP IMP	1	00015	1076			100
514	OAKRIDGE	002231	47	STP IMP	2	28	0177			101
51	LOWELL	002004		STP IMP	2	50	0177			102
594	ESTACADA	002057		STP IMP	1	20	1276			103
515	SCIO	002930	36	STP IMP	2	14	1176			105
620	PHILOMATH			STP IMP	1	00012	1176			107
517	HERMISTON	002076	56	STP, INT	2	263	1276			111
589	MILTON-FREEWATER	002278		STP IMP	1	50	0976			114
564	NORTH POWDER	002240	47	STP IMP	2	35	0976			115
519	JOSEPH	002060	01	STP IMP	2	50	1076			116
554	ENTERPRISE	002056	01	STP IMP	2	44	1076			117
473	DUFUR	002905	63	STP IMP	2	12	1176			118
523	ST PAUL		20	STP, INT	2	41	1276			121
437	WAUNA-WESTPORT		16	STP, INT	1	24	1276			129
426	MULTNOMAH CO - INVERNESS #8			INT	2	00060	1276			130
400	GRESHAM - LINNEMAN	NA	56	INT	2	157	1076			131

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
3	COLUMBIA CITY	002071		INT	2	21 1176				132
532	HWY 101 S D	NA		INT	2	19 1176				136
467	SILVERTON	002065		STP IMP	2	26 1276				137
534	NEWBERG - NORTHWEST	NA	43	INT	2	20 1176				142
536	LAPINE			STP, INT	1	12 0976				145
447	MILL CITY		09	STP, INT	1	22 0976				147
537	SW LINCOLN CO S D		43	STP, INT	2	254 0177				148
542	CARMEL-FOULWEATHER S D		43	STP, INT	2	136 1076				149
560	ROSEBURG -RIFLE RNG	NA		INT	1	9 1176				150
607	BCVSA - WHETSTONE	NA		INT	1	12 0177				153
574	WESTSIDE S D - K FALLS		32	STP/ INT	2	80 1276				155
541	SISTERS		33	STP, INT	2	56 0177				157
449	FALLS CITY			STP, INT	1	12 0177				158
5	CRESCENT			STP, INT	1	12 0976				159
597	YONCALLA	002245		STP IMP	1	12 1176				162
608	USA - BROOKWOOD TRNK	NA		INT	2	2 1076				165
610	USA - SUNSET TRUNK	NA		INT	2	40 1176				166
613	USA - REEDSVILLE TRNK	NA		INT	2	90 0177				167
549	HILLSBORO - WESTSIDE	002334		STP AUTO	1	6 1076				169
535	CANBY	NA	60	INT	1	10 1176				171
621	PORTLAND - LINNTON	INT		INT	1	00015 0177				172
568	ELKTON		47	STP	1	10 0177				173
563	ROSEBURG - LOOKINGGL	NA		INT	1	10 1076				174
562	IMBLER		67	STP, INT	2	21 1276				181
578	TROUTDALE	002052	38	INT & EXP	2	66 0177				182
552	POWERS	002693	33	STP IMP	1	3 0177				186
5	BANDON - JOHNSON	NA	33	INT	2	46 1076				187

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESC.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
51	STANFIELD	002697	67	STP IMP	2	43 1176				190
593	ELMIRA	NA		INT	1	8 0177				191
602	NESKOWIN			STP, INT	1	15 1276				192

## PART II

DEPARTMENT OF ENVIRONMENTAL QUALITY  
FY 1977 PRIORITY LIST AND SCHEDULE

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
4	WINSTON-GREEN	002879	56	STP	3	1500	0377		6
438	JOHN DAY-CANYON CITY	002722	01	STP, INT	3	1290	0577		7
600	CANYON CITY	NA		INT	3	250	0377		8
436	SUTHERLIN	002084	33	STP IMP	3	1652	0277		11
429	EAGLE POINT	002229	87	STP IMP	3	124	0477		12
404	YAMHILL	002280	84	STP IMP	3	120	0277		16
505	TILLAMOOK CITY	002066	16	STP IMP	3	800	0677		17
510	JEFFERSON	002045	84	STP, INT	3	284	0277		20
428	BROWNSVILLE	002008	36	STP IMP	3	213	0377		22
463	LAKE OSWEGO -EVERGRN	NA	91	INT	3	213	0377		28
530	LAKE SIDE	002999	33	STP, INT	3	709	0377		31
448	AURORA		26	STP, INT	3	568	0477		33
581	NORTH ROSEBURG S D	002359	14	INT & PS	3	480	0477		40
4 -03	BEND PHASE 1B	NA	56	SYSTEM	2	950	0777		41
585	LAKE OSWEGO -GLENMOR	NA		COLL SYS	3	600	0477		43
579	MADRAS	NA	14	INT	3	250	0577		44
619	ASTORIA - WILLIAMSPORT	INT		INT	2	00080	0877		46
616	ROSEBURG SEWER REHAB	002258	14	STP, INT	3	2000	0677	PHASED	48
488	CANYONVILLE	002072	33	STP IMP	3	600	0577		49
605	PORTLAND - ELK ROCK	NA		INT	3	225	0877		50
439	MT VERNON		45	STP, INT	3	400	0677		51
489	HILLSBORO-IRRIGATION	002334		STP	3	71	0377		52
575	USA - GASTON	002015		STP IMP	2	60	0577		53
576	USA - BANKS	002012		STP IMP	2	60	0777		54
496	JUNCTION CITY	002656	09	STP IMP	3	248	0677		55
497	EUGENE AIRPORT	002648	14	STP IMP	3	142	0577		56
4	HARRISBURG	002075	52	STP	3	352	0477		57

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
41	MONMOUTH-INDEPENDENCE	002061	09	STP	3	567	0377		58
454-03	EUGENE-SPRINGFIELD		14	REHAB	3	2000	0777		59
458	CORVALLIS AIRPORT	002250	43	STP	2	57	0277		60
493	TRI-CITY S D		56	REG STP	2	670	0677		61
494	NEWBERG-DUNDEE	002025	84	REG STP	3	851	0877		62
492	USA - UPPER TUALATIN	NA	16	INT	3	2017	0677		64
605	HALSEY	002239		STP IMP	1	12	0277		65
603	USA - BRONSON CK	NA		INT	3	400	0477		66
611	USA - ROCK CK TRUNK	NA		INT	3	2000	0777		67
374	MAUPIN	002260	67	STP IMP	3	357	0377		68
413	GOLD HILL	002259	33	STP IMP	3	266	0677		70
556	REEDSPORT	NA	33	INT	3	354	0777		72
498	JACKSONVILLE	002079	30	INT	3	495	0777		73
5	PORTLAND - SLUDGE	NA		STP IMP	3	4290	0477		74
558	BCVSA - WHITE CITY	002246	14	INT	2	103	0577		75
539	ST HELENS	NA	86	INT	3	1100	0677		76
499	PRAIRIE CITY	002003	80	STP, INT	3	272	0577		77
586	RAINIER	002038		STP IMP	2	35	0577		79
475	LA GRANDE-ISLAND CITY	002046	12	STP, INT	3	1980	0577		80
472	ELGIN	002243	01	STP IMP	3	357	0677		81
501	CORVALLIS-CRESCENT V	NA		INT	3	781	0677		82
583	IONE		63	STP, INT	3	300	0877		83
584	SILETZ	002041		STP IMP	2	35	0677		86
466	PORT OF TILLAMOOK BAY	002291	04	STP IMP	2	50	0277		87
503	SEASIDE	002040	56	STP IMP	2	182	0577		88
427	AUMSVILLE	002272	36	STP IMP	3	387	0277		89
4 J	DAYTON	002363	84	STP IMP	2	27	0277		90

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
4	GERVAIS	002739	09	STP/ INT	3	567	0677		90
508	AMITY	002621	20	STP IMP	3	238	0577		92
509	WOODBURN	002000	16	STP, INT	3	1135	0477		93
615	CARLTON	002054		STP IMP	2	60	0677		94
273	ROCKAWAY	002330	33	STP IMP	3	1100	0777		95
511	CANNON BEACH	002022	16	STP IMP	2	74	0277		96
559	LINCOLN CITY PHASE 2	002047	56	STP, INT	3	2929	0477		97
512	COTTAGE GROVE	002055	47	STP IMP	3	845	0777		98
513	CRESWELL	002754	40	STP IMP	3	284	0577		99
618	NEWPORT			STP IMP	2	00045	0777		100
514	OAKRIDGE	002231	47	STP IMP	3	212	0877		101
592	DALLAS	002073		STP IMP	2	35	0477		104
515	SCIO	002930	36	STP IMP	3	107	0677		105
5	MT ANGEL	002876	84	STP IMP	2	35	0377		106
588	MT ANGEL	002876	84	STP IMP	3	300	0977		106
620	PHILOMATH			STP IMP	2	00040	0777		107
569	MONROE	002920	47	STP IMP	2	40	0377		108
569	MONROE	002920	47	STP IMP	3	300	0877		108
571	UMATILLA	002230		STP EXP	3	350	0377		109
571	UMATILLA	002230		STP EXP	2	50	0677		109
516	KLAMATH FALLS REGION	002630	33	STP	2	497	0677		110
517	HERMISTON	002076	56	STP, INT	3	2186	0977		111
518	ONTARIO	002062	12	STP IMP	2	44	0977		112
431	BAKER	002069	12	STP, IMP	2	146	0977		113
589	MILTON-FREEWATER	002278		STP IMP	2	185	0377		114
589	MILTON-FREEWATER	002278		STP IMP	3	800	0977		114
5	NORTH POWDER	002240	47	STP IMP	3	300	0477		115

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
5	JOSEPH	002060	01	STP IMP	3	387	0377		116
554	ENTERPRISE	002056	01	STP IMP	3	370	0377		117
473	DUFUR	002905	63	STP IMP	3	96	0577		118
521	N ALBANY S D	NA	09	INT	2	117	0477		119
522	NORTH PLAINS	NA		INT	1	10	0977		120
523	ST PAUL		20	STP, INT	3	359	0777		121
526	CLACKAMAS CO - RHODO-W		56	STP IMP	2	46	0677		122
567	HAPPY VALLEY	NA	08	INT	2	35	0277		123
567	HAPPY VALLEY	NA	08	INT	3	300	0877		123
455	SHADY COVE		30	STP, INT	2	72	0277		125
455	SHADY COVE		30	STP, INT	3	568	0877		125
456	MERLIN-COLONIAL VALLEY		40	STP, INT	1	24	0677		126
527	BCVSA - CENTRAL PT		14	INT	2	90	0577		127
5	IRRIGON			STP, INT	2	30	0877		128
437	WAUNA-WESTPORT		16	STP, INT	2	91	0777		129
426	MULT CO-INVERNESS #8	NA		INT	3	413	0577		130
465	GRESHAM - LINNEMAN	NA	56	INT	3	1061	0677		131
356	COLUMBIA CITY	002071		INT	3	200	0577		132
577	HOOD RIVER-WESTSIDE	NA	63	INT	2	15	0577		133
577	HOOD RIVER-WESTSIDE	NA	63	INT	3	100	0977		133
572	THE DALLES - FOLEY	NA	63	INT	2	20	0277		134
572	THE DALLES - FOLEY	NA	63	INT	3	100	0777		134
531	DUNES CITY			STP, INT	1	14	0577		135
532	HWY 101 S D	NA		INT	3	200	0677		136
467	SILVERTON	002065		STP IMP	3	212	0577		137
533	FLORENCE	002074	47	STP IMP	2	69	0577		139
	DONALD		09	STP, INT	2	46	0577		141



PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
5	NEWBERG - NORTHWEST	NA	43	INT	3	121	0577		142
471	TANGENT			INT	1	14	0377		143
471	TANGENT			INT	2	55	0877		143
460	ALBANY - NORTHEAST	NA		INT	1	20	0277		144
536	LAPINE			STP, INT	2	55	0477		145
622	PORTLAND - 45TH DR	INT		INT	1	00015	0277		146
447	MILL CITY		09	STP, INT	2	91	0577		147
537	SW LINCOLN CO S D		43	STP, INT	3	2200	0977		148
542	CARMEL-FOULWEATHER S D		43	STP, INT	3	1063	0377		149
560	ROSEBURG -RIFLE RNG	NA		INT	2	25	0777		150
561	AGATE BEACH S D	NA		INT	1	18	0377		152
561	AGATE BEACH S D	NA		INT	2	68	0977		152
607	BCVSA - WHETSTONE	NA		INT	2	70	0977		153
5	MERRILL	002048		STP, INT	1	12	0477		154
574	WESTSIDE S D - K FALLS		32	STP/ INT	3	650	0777		155
541	SISTERS		33	STP, INT	3	434	0877		157
449	FALLS CITY			STP, INT	2	45	0577		158
546	CRESCENT			STP, INT	2	38	0377		159
587	HAINES		01	STP, INT	2	35	0377		160
587	HAINES		01	STP, INT	3	300	0877		160
597	YONCALLA	002245		STP IMP	2	50	0777		162
470	COBURG		14	STP, INT	1	22	0377		163
470	COBURG		14	STP, INT	2	91	0977		163
604	CLACK CO-KELLOGG SL	002622		STP IMP	1	10	0477		164
608	USA - BROOKWOOD TRNK	NA		INT	3	6	0377		165
610	USA - SUNSET TRUNK	NA		INT	3	320	0577		166
3	USA - REEDSVILLE TRNK	NA		INT	3	450	0777		167

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
5	HILLSBORO - WESTSIDE	002334		STP AUTO	2	25	0477		169
598	OAK LODGE S D	002614		STP IMP	1	15	0277		170
598	OAK LODGE S D	002614		STP IMP	2	50	0977		170
535	CANBY	NA	60	INT	2	23	0377		171
535	CANBY	NA	60	INT	3	142	0877		171
621	PORTLAND - LINNTON	INT		INT	2	00045	0877		172
568	ELKTON		47	STP	2	40	0877		173
563	ROSEBURG - LOOKINGGL	NA		INT	2	25	0577		174
580	LEXINGTON		63	STP, INT	2	44	0277		176
580	LEXINGTON		63	STP, INT	3	380	0877		176
614	ARLINGTON	002019		STP EXP	2	20	0477		177
609	BCVSA - WEST MEDFORD	NA		INT	1	10	0377		179
612	BCVSA - WAGNER CK	NA		INT	1	6	0577		180
5	IMBLER		67	STP, INT	3	164	0577		181
591	CASCADE LOCKS	NA		INT	1	8	0377		183
606	CLATSKANIE	NA		INT	1	8	0977		184
551	SANDY	NA	04	INT	1	5	0377		185
551	SANDY	NA	04	INT	2	21	0977		185
552	POWERS	002693	33	STP IMP	2	12	0777		186
553	BANDON - JOHNSON	NA	33	INT	3	262	0377		187
468	SCOTTS MILLS			STP, INT	1	16	0377		188
468	SCOTTS MILLS			STP, INT	2	58	0977		188
477	DETROIT			STP, INT	1	16	0477		189
477	DETROIT			STP, INT	2	58	0977		189
565	STANFIELD	002697	67	STP IMP	3	335	0677		190
593	ELMIRA	NA		INT	2	19	0777		191
2	NESKOWIN			STP, INT	2	45	0877		192

PROJECT NO.	PROJECT	NPDES NO.	ENGR. CODE	PROJECT DESCR.	STEP	ESTIMATED PROJECT COST (1,000)	TARGET CERT. (MM/YY)	COMMENT	PRIOR. NO.
578	SUMPTER			STP, INT	1	4	0477		193
479	JUNTURA			STP, INT	1	4	0377		194
601	WALLOWA LAKE S A			STP, INT	1	10	0277		195



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

### MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. H, October 15, 1976 EQC Meeting

Sewage Works Construction Grant Project Priority List  
for FY 77

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### Background

At its July 30, 1976 meeting, the staff presented to the Environmental Quality Commission a proposed FY 77 Sewerage Works Construction Priority List for federal construction grants. Also presented were proposed modifications in the criteria for priority ranking. The Commission accepted the Director's recommendation to 1) approve the modified criteria and 2) authorize a public hearing on the priority list. The public hearing was held on August 25, 1976 in the Public Service Building Auditorium. The hearing officer's report is attached as "Attachment A".

### Modifications to Priority List and Priority Criteria

After evaluation of public input from the hearing and staff actions, the FY 77 priority list has had the following modifications:

1. Six new projects were added to the list.
2. Seven projects had their ranking increased either by certification during the review cycle or by documentation of a higher point assignment.
3. Two projects were removed from the list due to EPA award of a grant during the review cycle.

A detailed summary of modifications to the draft priority list is attached as "Attachment B".

Several editorial modifications in the criteria for priority ranking were made by the staff. These changes were in response to the concerns of the U. S. Environmental Protection Agency as expressed by Dr. L. Edwin Coate's letter of August 13, 1976.



Contains  
Recycled  
Materials

The changes which have been made are discussed individually below:

1. Project Scheduling

A statement was added to conform with federal regulations. "If the Director initiates a schedule modification without prior request by the applicant, the applicant will be notified and allowed the opportunity to negotiate the new schedule".

An explanatory note was added to describe the Department's enforcement authority which can be used to keep specific projects on schedule.

2. Contingency Reserve

The words "at his discretion" have been deleted and the words "in accordance with state and federal regulations" have been substituted. The reason was to clarify utilization of the \$500,000 reserve under 40 CFR 35.915(i).

A detailed summary of the entire 15% reserve was added to clarify what the reserve consists of and how it will be used.

3. Eligibility for Funding

The sentence "Collection sewer eligibility must be determined in accordance with 40 CFR 35.925-13" was added to the criteria. The addition was required to detail collection system eligibility.

4. Project Need Points

The word "appropriate" was deleted and the words "determined eligible for grant participation after comparison with federal grant criteria" were added. The reason was to clarify collection system eligibility.

The proposed criteria for priority ranking of sewerage works construction needs for FY 77 is enclosed as Attachment "C".

Discussion

The priority list and ranking criteria have been modified where appropriate by grants program staff. Each change took into account public, local government and federal government concerns. The bases for modifications are documented.

As of September 7, 1976, the State of Oregon had the following FY 1976 grant funds unobligated:

General Account	\$38,347,299.00
Reserve for Increases	1,173,753.00
Special Reserve for Step I and Step II Projects (40 CFR 35.915(i))	<u>281,752.00</u>
Total	\$39,802,804.00

The carryover of these FY 1976 monies into FY 1977 will fund projects through priority number 41 on the FY 1977 priority list. When Oregon receives a FY 1977 grant allotment which is estimated to be \$43,500,000.00, projects through priority number 95 can be funded.

Director's Recommendation

It is recommended that the EQC:

1. Approve the proposed changes in priority criteria contained in Attachment "C".
2. Distribute funds carried over from FY 1976 as follows:

General Account	\$38,347,299.00
Reserve for Increases	1,173,753.00
Special Reserve for Step I and Step II	281,752.00
3. Apply the 15% reserve requirement to any new FY 1977 grant allotment.
4. Approve the modified FY 1977 priority list Attachment "D".



LOREN KRAMER  
Director

THB:ak  
Attachments A, B, C and D

September 23, 1976



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

### MEMORANDUM

To: Environmental Quality Commission

From: C. P. Hilbrick, Jr., Hearings Officer

Subject: Report of August 25, 1976 Public Hearing Concerning  
the Proposed FY 1977 Grant Priority List

Pursuant to the requirements of Public Law 92-500, CFR 35.915(f) and 35.556, a public hearing was held on August 25, 1976 for the purpose of obtaining testimony from all interested parties concerning the Sewerage Works Construction Grant Priority List for Fiscal Year 1977. At 10:15 AM in the Public Service Building, 2nd Floor Auditorium, Portland, Oregon, Hearing Officer Clarence P. Hilbrick called the hearing to order.

Mr. Thomas H. Blankenship of the Water Quality Division Construction Grants Program made a detailed presentation. He explained the proposed modifications to the "Criteria for Priority Ranking of Sewerage Works Construction needs for FY 77". Also, Mr. Blankenship discussed the proposed FY 77 priority list. At the completion of the formal staff presentation, the Hearings Officer started to call upon the registered witnesses.

The first witness called was Mr. Richard O. Miller, Manager of the Bear Creek Valley Sanitary Authority. Mr. Miller summarized his written testimony which included concern about the placement of the West Side Trunk Project on the proposed list. He also expressed concern about the possibility of time delays outside the control of the applicant. He also opposed any changes in the criteria which would limit the total number of projects funded in any fiscal year.

The second witness was Mr. F. Duane Lee, a consulting engineer representing the City of Troutdale. Mr. Lee read a statement in which he expressed the City of Troutdale's opposition to its ranking on the priority list. He requested that this ranking be revised based on the facts presented in his statement.



Contains  
Recycled  
Materials

The third and final witness was Mr. Robert Thomas, attorney for the following:

1. Town of Bonanza
2. City of Chiloquin
3. City of Merrill
4. Crescent Sanitary District
5. Westside Sanitary District.

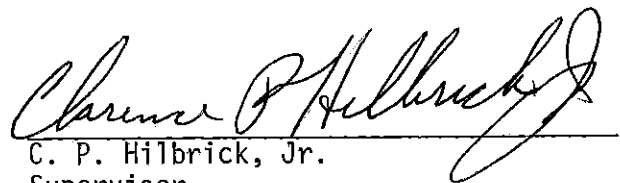
Mr. Thomas approved of the ranking of the Bonanza and Chiloquin projects. He then expressed concern about the schedule of the East Merrill project. It was his opinion that the impending court battle over the forced health hazard annexation would cause major delays in the project. He then objected to the ranking of the Crescent and the Westside projects because both sanitary districts are ready to proceed with the projects now. He also stated that failing subsurface sewage disposal systems in both districts were causing pollution of the local rivers.

At the close of the public hearing the Hearings Officer left the record open for an additional 14 days to allow for submission of statements and documentation.



Summary of Written Statements & Letters Made Part of the Hearing Record

1. August 4, 1976 letter from the City Manager of the City of Newport requesting that a project be placed on the priority list.
2. August 13, 1976 letter from L. Edwin Coate expressing EPA concerns with the proposed criteria for priority ranking.
3. August 19, 1976 letter from the City Engineer of the City of Astoria requesting that a project be placed on the priority list.
4. August 23, 1976 letter from the Mayor of the City of John Day requesting modification of project schedule (speed-up).
5. August 24, 1976 written statement of Richard O. Miller.
6. August 25, 1976 written statement of F. Duane Lee.
7. September 2, 1976 letter from Whiteley, Jacobsen & Associates requesting change in the St. Helen's project ranking.
8. Memo dated September 2, 1976 listing modifications to proposed criteria which were acceptable to EPA.
9. September 3, 1976 letter from Richard O. Miller expressing concern about project scheduling and requesting modification.
10. Memo dated September 7, 1976 giving status report on the Troutdale STP.
11. September 7, 1976 letter from Mr. J. Ned Dempsey providing additional information about the possible pollution of the Little Deschutes by failure of subsurface sewage systems in the Crescent S.D.
12. September 9, 1976 letter from Mr. David B. Hammond providing additional information about the possible pollution of the Klamath River by subsurface sewage system failure in the Westside S.D.
13. September 10, 1976 memo detailing the pollution problems along the Youngs River in the City of Astoria.
14. August 16, 1976 letter from the City of Corvallis requesting that the Corvallis sewage treatment plant expansion be retained at the top of the FY 77 priority list.
15. September 7, 1976 letter from the City of Portland requesting that the S. W. 45th Drive project be included in the 1977 priority list.
16. September 7, 1976 memo from Mr. T. H. Blankenship concerning the City of Portland's proposed Linnton interceptor project.
17. September 7, 1976 memo from Mr. T. H. Blankenship concerning the City of Philomath's proposed project to eliminate raw sewage bypasses.



C. P. Hilbrick, Jr.  
Supervisor  
Sewerage Works Construction Section  
Water Quality Division

## SUMMARY OF MODIFICATIONS TO THE PRIORITY LIST

1. Corvallis STP (Completion) Added to list at City's request and given priority No. 1 on the basis of FY 76 ranking.
2. John Day-Canyon City Priority ranking changed from 44 to 7 on the basis of Step 2 certification prior to priority list adoption.
3. Canyon City Priority ranking changed from 45 to 8 on the basis of Step 2 certification prior to priority list adoption.
4. Salem (Glen Creek) Priority ranking was 7, project was dropped from list on the basis of FY 76 grant award.
5. Boardman Priority ranking changed from 68 to 14 on the basis of Step 3 certification prior to priority list adoption.
6. Tillamook City Priority ranking changed from 86 to 17 on the basis of Step 2 certification prior to priority list adoption.
7. Jefferson Priority ranking changed from 92 to 20 on the basis of Step 2 certification prior to priority list adoption.
8. North Bend Priority ranking was 21, project was dropped from list on the basis of FY 76 grant award.
9. West Linn (Lower Tualatin) Priority ranking changed from 119 to 29 on the basis of Step 3 certification prior to priority list adoption.
10. Astoria (Willamsport Int.) Project added to priority list at the request of the City. After staff evaluation of the need, priority No. 46 was assigned.
11. St Helens Priority ranking changed from 150 to 76 on the basis of re-evaluation of the need at the request of the City.
12. Newport Project added to priority list at the request of the City after staff evaluation of need, priority No. 100 was assigned.

13. Philomath  
Project added to priority list at the request of the City. After staff evaluation of the need, priority No. 107 was assigned.
14. Portland (Linnton Int.)  
Project added to priority list at the request of the City. After staff evaluation of the need, priority No. 172 was assigned.
15. Portland (45th Drive)  
Project added to priority list at the request of the City. After staff evaluation of the need, priority No. 146 was assigned.

CPH:ak  
September 23, 1976

Changed Criteria  
Reflecting EPA Letter of 8/13/76

Criteria for Priority Ranking  
of  
Sewerage Works Construction Needs for FY[76] 77

I Purpose

The criteria and rules for application set forth herein shall be used to govern the priority ranking of identified sewerage works construction needs for construction grant funding pursuant to applicable state and federal law and regulations from ~~[July 1, 1975 through June 30, 1976.]~~ October 1, 1976 through September 30, 1977. The criteria and rules for application shall be re-evaluated prior to ~~[June 30, 1976]~~ September 30, 1977 to assess the necessity for changes based on availability of funds relative to needs.

II Definition

Applicable definitions from ORS Chapters 468 and 454 shall apply.

III Development and adoption of Project Priority List

At least annually, and prior to the beginning of the federal fiscal year related to the available grant funds, the Department shall prepare a proposed project priority list pursuant to the criteria and rules for application set forth herein. As required by federal rules and after appropriate notice, a hearing shall be held on the proposed list. Following evaluation of testimony received and modification as necessary, the Commission shall adopt a project priority list which shall be the official Sewerage Works Construction Grant Priority list of the State of Oregon. The adopted list may be revised at any time following appropriate notice and hearing.

IV Priority Criteria

Identified needs shall be ranked using a numerical point system.

Table A contains the schedule for points assignment within each of the five categories of:

- a) Project Need
- b) Regulatory Emphasis
- c) Stream segment ranking
- d) Project Type
- e) Step Status

Except for projects receiving [1000] 999 total points under the Project Need category, each need or project will be assigned appropriate points in each of five categories. The points for each project will then be added and sum therefrom will be the point total used for developing the project priority list. The project with the highest point total will be the highest priority project.

## V Rules for Application of Criteria

### A. Assignment of Points

Points shall be assigned for each project based on best available data at the time of ranking for adoption of a list. In the event additional information justifies a change in point assignment, change in ranking shall be accomplished in accordance with B or C below.

### B. Additions or Elevation in Ranking

Projects may be added to the list or elevated in ranking at the discretion of the Director subject to the following procedure:

1. Points shall be assigned in accordance with Table A and the point total will determine the ranking of the project with respect to projects already on the list.
2. Sponsors of those projects which have fewer total points than the new or re-ranked project shall be notified of the proposed list modifications and a public hearing shall be scheduled with appropriate notice given for the purpose of receiving testimony on the list modifications.
3. Following the evaluation of testimony received, the Commission may adopt the modified list as under Section III.

### C. Deletion or Reduction in Ranking

Projects may be deleted from the list or reduced in ranking by the Director without public hearing either in the event of a project's receiving full funding, or by reassessment of point totals or basic project desirability. Sponsors of projects thus deleted or reduced in ranking shall be notified of the revised status of the project and may request a hearing before the Commission regarding the revised status. Such a hearing request must be made to the Director within 20 days following receipt of the notification of revised status and the Director shall schedule a hearing before the Commission within 60 days.

### D. Carryover of Projects to Subsequent Year Lists

1. All projects which have [received] been certified for a Step II or Step III grant in a given fiscal year and are not completed will automatically be placed at the top of the priority list for the next fiscal year in the same relative ranking as they appeared in the prior year in order to assure continuity and funding.

2. All projects which have not yet ~~[received]~~ been certified for any grant or have been certified for ~~[received]~~ only a Step I grant will be subject to reprioritization along with all new projects for the next year's list.

E. Project Scheduling

Funds shall be reserved for each project for those phases that are scheduled for ~~[initiating within three months of the end]~~ certification prior to the end of the fiscal year. Phases which will not be initiated within that time frame will be scheduled for funding from subsequent year funds. In the event of unavoidable schedule slippage, and upon formal request and justification by the applicant, the Director may modify the schedule for the project and continue the reservation of funds provided that such modified schedule does not extend beyond the end of the fiscal year. If request and justification for schedule modification is not received within 30 days after the schedule date, the Director may reallocate the funds to other projects on the list. If the Director initiates a schedule modification without prior request by the applicant, the applicant will be notified and allowed the opportunity to negotiate the new schedule. [In the event of schedule slippage, the Department may either reserve the funds for an additional three months or may allocate same to the next project on the list awaiting funds. The Department shall notify the applicant of its intent to take such action.]

Note: If a grant schedule is directly related to an NPDES Waste Discharge Permit schedule, the Department has authority to enforce that permit schedule. Also, the Environmental Quality Commission may enforce a schedule by order when appropriate.

F. Contingency Reserve

A minimum of ~~[8%]~~ 15% of each fiscal year's allocation of grant funds shall be set aside as a contingency reserve for grant increases and cost adjustments. A portion of the contingency reserve may be allocated to initiate new projects three months prior to the end of the fiscal year if it appears that the total reserve will not need to be maintained. A portion of the contingency reserve not to exceed \$500,000 shall be set aside for Step I and Step II projects pursuant to 40 CFR 35.915(i). The Director is authorized to allocate this portion of the reserve in accordance with state and federal regulations for Step I and Step II projects which may or may not be on the priority list. The Director may return any portion of this special reserve to the main reserve if it will not be used prior to the end of the fiscal year for Step I and II grants.

The 15% reserve shall consist of: 1) a 5% reserve specifically for increases after grant award, 2) a \$500,000 reserve under CFR 35.915(i), 3) the remainder to be State undesignated at the time of priority list adoption.

## VI Eligibility for Funding

- A. Except as noted in B below, facilities eligible for grant assistance shall be limited to sewage treatment works, interceptor sewers, major pumping stations and pressure mains, and such public sewer system rehabilitation as can be shown to have an obvious cost effective benefit related directly to size, effective life or performance of the sewage treatment plant.
- B. For FY [76] 77, collection system shall be eligible for grant assistance where such systems are required to comply with a mandatory annexation order issued pursuant to ORS 222 or DEQ regulations requiring elimination of Waste Disposal Wells (OAR Chapter 340 Section 44-005 et seq). This eligibility of collective systems will not be extended beyond [~~June-30, 1976~~] September 30, 1977 unless the Environmental Quality Commission finds that sufficient federal funds are available to permit extension without jeopardizing the construction program for essential treatment works and interceptor sewers. Collection sewer eligibility must be determined in accordance with 40 CFR 35.925-13.

HLS:ak

September, 1976

Table A

Project Priority Ranking Criteria for FY 77

Point  
Assignment

Point  
Categories

Project Need

[1000]  
999 Total\*

Project necessary to comply with mandatory annexation order under ORS 222 or Waste Disposal Well Schedule under OAR Chapter 340, Section 44-005 et seq. (Includes sewage collection system, where determined eligible for grant participation after comparison with federal grant criteria).

(\*Points for regulatory emphasis, stream segment ranking, project type, and step status included in total.)

800

Project necessary to achieve compliance with in-stream Water Quality Standards contained in OAR Chapter 340 Division 4 Subdivision 1 or eliminate a contribution to standards violation.

700

Project necessary to comply with minimum waste treatment standards or effluent standards established by the Department of Environmental Quality or the Environmental Protection Agency.

600

Project needed to minimize or eliminate documented "non-point source" contamination of groundwater or surface waters relating to subsurface sewage disposal system malfunction in known urban or urbanizing areas.

400

Project desirable for prevention of potential water pollution problems.

Regulatory Emphasis

100

Environmental Quality Commission Order or Regulation.

90

NPDES or State Waste Discharge Permit.

80

Letter directive, preliminary planning approval or project authorization from the Department of Environmental Quality.

50

Other written statement of project desirability by DEQ or the Commission.

Stream Segment Ranking

77 maximum

Streams ranked in inverse order to that shown in "Annual State Water Strategy - FY 75".

Project Type

10

Sewage treatment plant projects including cost-effective sewer rehabilitation.

8

Interceptor sewers, major pumping stations and pressure mains.



FISCAL YEAR 1977  
NEEDS PRIORITY RANKING

ATTACHMENT "D"  
September 15, 1976

Applicant	Project Need Points	Emphasis Points	River Segment Pt.	Project Type Pts.	Step Status	Total Points	Priority Number
CORVALLIS	*						1
NETARTS-OCEANSIDE	*						2
REDWOOD SD	*						3
REDMOND	*						4
FOSTER MIDWAY	*						5
WINSTON-GREEN HURF.*	*						6
JOHN DAY	*						7
CANYON CITY	*						8
USA FLOWER TUALATIN*	*						9
GLENDALE	*						10
SUTHERLIN	*						11
EAGLE POINT	*						12
CAVE JUNCTION	*						13
BOARDMAN	*						14
WHEELER - ADDENDUM TO NTC5A GRANT	*						15
YAMHILL	*						16
TILLAMOOK CITY	*						17
MOLALLA	*						18
LEBANON	*						19
JEFFERSON	*						20
LINCOLN CITY - PHASE I	*						21
BROWNSVILLE	*						22
VENETA	*						23
CHILOQUIE	*						24
WAMANZA	*						25
LAKE OSWEGO PHADVEY WAY *	*						26
LAKE OSWEGO TERRACE*	*						27
LAKE OSWEGO EVERGREEN*	*						28
WEST LINN - LOWER TUALATIN	*						29
COVE	*						30
LAKESIDE	*						31
PACIFIC CITY S.D.	*						32
AURORA	*						33
TWIN ROCKS S.D. BARVIEW*	*						34
ROADS END S.D.	*						35
ADRIAN	*						36
PRINEVILLE BLAUGHLIN-MELROSE*	*						37
UKIAH	*						38
PORT OF PORTLAND	*						39
NORTH ROSEBURG S. D.	*						40
BEND	999					999	41
TERRHONNE	999					999	42
L.OSWEGO GLENMORRIE*	999					999	43
MADRAS	999					999	44
USA DEANNO-PHASE 5*	800	90	77	8	3	978	45
ASTORIA	800	100	69	8	1	978	46
ROSEBURG METRO - REG.*	800	90	73	10	2	975	47
ROSEBURG SEWER REHAB.*	800	90	73	10	2	975	48
CANYONVILLE	800	90	73	10	2	975	49
PORTLAND BELK ROCK*	800	80	76	8	1	965	50
VERNON	800	80	68	10	2	960	51
HILLSBORO-IRRIGATION	700	100	77	10	2	889	52
USA - GASTON	700	90	77	10	1	878	53

Applicant	Project Need Points	Emphasis Points	River Segment Pt.	Project Type Pts.	Step Status	Total Points	Priority Number
USA - BANKS	700	90	77	10	1	878	54
JUNCTION CITY	700	90	76	10	2	878	55
EUGENE AIRPORT	700	90	76	10	2	878	56
HARRISBURG	700	90	76	10	2	878	57
MONMOUTH-INDEPENDENCE	700	90	76	10	2	878	58
EUGENE-SPRINGFIELD	700	90	76	10	2	878	59
CORVALLIS AIRPORT	700	90	76	10	2	878	60
TRI-CITY - COUNTY	700	90	76	10	2	878	61
MEMBERG-OLUNDEE	700	90	76	10	2	878	62
SPRINGFIELD	700	90	76	10	2	878	63
USA UPPER TUALATIN*	700	90	77	8	2	877	64
HALSEY	700	90	76	10	1	877	65
USA BRONSON CK.	700	90	77	8	2	877	66
USA - ROCK CK. TRUNK	700	90	77	8	2	877	67
MAULDIN	700	90	74	10	2	876	68
EUGENE BEASTSIDE*	700	90	76	8	2	876	69
GOLD HILL	700	90	71	10	2	873	70
OAKLAND	700	90	72	10	1	873	71
REEDSPORT	700	90	72	8	2	872	72
JACKSONVILLE	700	90	71	8	2	871	73
PORTLAND WSLUDGE*	700	90	69	10	2	871	74
BCVSA - WHITE CITY	700	90	71	8	2	871	75
ST. HELENS	700	90	69	10	2	871	76
PRAIRIE CITY	700	90	68	10	2	870	77
PORTLAND WSE RELIEVING*	700	90	69	8	3	870	78
RAINIER	700	90	69	10	1	870	79
LAGRANDE - ISLAND CITY	700	90	67	10	2	869	80
ELGIN	700	90	67	10	2	869	81
CORVALLIS - CRESCENT VLY.	700	80	76	8	2	866	82
TONE	700	80	69	10	2	861	83
HAMMOND	700	80	69	8	2	859	84
RAY CITY	700	90	57	10	1	858	85
SILETZ	700	90	56	10	1	857	86
PORT OF TILLAMOOK BAY	700	90	57	8	1	856	87
SEASIDE	700	90	54	10	1	855	88
AIMSVILLE	700	90	48	10	2	850	89
DAYTON	700	90	46	10	2	848	90
SHERIDAN - WILLAMINA	700	90	46	10	2	848	91
AMITY	700	90	46	10	2	848	92
WOODBURN - GERVATS	700	90	45	10	2	847	93
CARLTON	700	90	46	10	1	847	94
ROCKAWAY	700	90	41	10	2	843	95
CANNON BEACH	700	90	41	10	2	843	96
LYNCOLE CITY - BRASE II	700	90	41	10	2	843	97
COTTAGE GROVE	700	90	40	10	2	842	98
CRESWELL	700	90	40	10	2	842	99
NEWPORT	700	90	41	10	1	842	100
OAKRIDGE	700	90	39	10	2	841	101
LOWELL	700	90	39	10	2	841	102
ESTACADA	700	90	38	10	1	839	103
DALLAS	700	90	36	10	2	838	104
SCIO	700	90	35	10	2	837	105
MT. ANGEL	700	90	35	10	2	837	106

Applicant	Project Need Points	Emphasis Points	River Segment Pt.	Project Type Pts.	Step Status	Total Points	Priority Number
PHILOMATH	700	90	34	10	1	835	107
MONROE	700	90	32	10	2	834	108
UMATILLA	700	90	29	10	2	831	109
KLAMATH FALL REG. BCO.*	700	90	28	10	2	830	110
HERMISTON	700	90	26	10	2	828	111
ONTARIO	700	90	24	10	2	826	112
BAKER	700	90	7	10	2	809	113
MILTON-FREEWATER	700	90	8	10	1	809	114
NORTH POWDER	700	90	7	10	2	809	115
JOSEPH	700	90	6	10	2	808	116
ENTERPRISE	700	90	6	10	2	808	117
DEER	700	90	1	10	2	803	118
NORTH ALBANY S.D.	600	90	76	8	2	776	119
NORTH DEAINS	600	80	77	10	1	768	120
ST. PAUL	600	80	76	10	2	768	121
CLACKAMAS CO. - BRIDGEMAN*	600	90	66	10	2	768	122
HAPPY VALLEY	600	80	76	8	2	766	123
GLIDE - RIDGELY	600	80	72	10	2	764	124
SHADY COVE	600	80	71	10	2	763	125
MERLIN - COL. VALLEY	600	80	71	10	1	762	126
BCVSA - CENTRAL POINT WESTSIDE*	600	80	71	8	2	761	127
TRIGON	600	80	69	10	2	761	128
WAINA - WESTPORT	600	80	69	10	1	760	129
MULTNOMAH COUNTY WINTERNESS #8*	600	80	69	8	2	759	130
GRESHAM - LINNEMAN*	600	80	69	8	2	759	131
COLUMBIA CITY	600	80	69	8	2	759	132
HOOD RIVER WESTSIDE*	600	80	69	8	2	759	133
THE DALLES HOLEY LAKES*	600	80	69	8	2	759	134
DINES CITY	600	80	63	10	1	754	135
HIGHWAY 101 S.D.	600	80	57	8	2	747	135
SILVERTON	600	90	45	10	2	747	137
MAPLETON	600	80	54	10	2	746	138
FLORENCE - SLUDGE*	600	80	54	10	2	746	139
TURNER	600	80	48	10	2	740	140
DONALD	600	50	76	10	2	738	141
NEWBERG - HWY*	600	50	76	8	2	736	142
TANGENT	600	50	76	8	1	735	143
ALBANY - HWY*	600	50	76	8	1	735	144
LAPINE	600	50	74	10	1	735	145
PORTLAND - 45TH DR INT	600	50	76	8	1	735	146
MILL CITY	600	80	42	10	1	733	147
S.W. LINCOLN CO. S.D.	600	80	41	10	2	733	148
CARMEL - FOULWEATHER S.D.	600	80	41	10	2	733	149
ROSEBURG - RIFLE RANGE RD.*	600	50	73	8	1	732	150
BAY TO BAY S.D.	600	80	41	8	2	731	151
AGATE BEACH	600	80	41	8	1	730	152
BCVSA - WHETSTONE	600	50	71	8	1	730	153
MERRILL - DE. MERRILL*	600	90	26	10	1	727	154
WESTSIDE S.D.	600	80	28	10	2	720	155
MODOC POINT	600	80	28	10	1	719	156
SETERS	600	80	15	10	2	707	157
FALLS CITY	600	50	35	10	1	696	158
CRESCENT	600	50	11	10	1	672	159

Applicant	Project Need Points	Emphasis Points	River Segment Pt.	Project Type Pts.	Step Status	Total Points	Priority Number
HAINES	600	50	7	10	2	669	160
CORVALLIS MOBIL PARK	400	90	76	8	1	575	161
YONCALIA	400	90	72	10	1	573	162
CORBURG	400	80	76	10	1	567	163
CLACKAMAS CO. S.D. McKELLOGG SLUDGE*	400	80	76	10	1	567	164
USA - BROOKWOOD TRUNK	400	80	77	8	2	567	165
USA - SUNSET TRUNK	400	80	77	8	2	567	166
USA - REEDSVILLE TRUNK	400	80	77	8	2	567	167
RIGGS JUNCTION	400	80	69	8	1	558	168
HILLSBORO BR&D - WESTSIDE*	400	50	77	10	1	538	169
OAKLOGGE S.D.	400	50	76	10	1	537	170
CANBY	400	50	76	8	1	535	171
PORTLAND - LINNONT INT	400	50	76	8	1	535	172
ELKTON	400	50	72	10	1	533	173
ROSEBURG HOOKINGGLASS*	400	50	73	8	1	532	174
MEDEFORD	400	50	71	10	1	532	175
LEXINGTON	400	50	69	10	2	531	176
ARLINGTON	400	50	69	10	2	531	177
WARRENTON	400	50	69	10	1	530	178
BCVSA - WEST MEDEFORD	400	50	71	8	1	530	179
BCVSA - WAGNER CK.	400	50	71	8	1	530	180
IMBLER	400	50	67	10	2	529	181
TROUTDALE	400	50	66	10	2	528	182
CASCADE LOCKS	400	50	69	8	1	528	183
CLATSKANIE	400	50	69	8	1	528	184
SANDY	400	50	66	8	1	525	185
POWERS	400	50	51	10	1	512	186
RANDON JOHNSON*	400	50	52	8	2	512	187
SCOTT'S MILL	400	50	45	10	1	506	188
DETROIT	400	50	42	10	1	503	189
STANFELD	400	50	29	10	2	491	190
ELMIRA	400	50	32	8	1	491	191
NEKOWIN	400	50	22	10	1	483	192
SUMPTER	400	50	7	10	1	468	193
JUNTURA	400	50	7	10	1	468	194
WALLOWA LAKE S.A.	400	50	6	10	1	467	195

DEPARTMENT OF ENVIRONMENTAL QUALITY  
 FY 1977 PRIORITY LIST AND SCHEDULE

September 15, 1976

PROJECT NO.	PROJECT	NEDES NO.	RISK CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	FINANCIAL CRIT.	ENV/YO	ACTUAL CRIT. (MM/Y)	COMMENT	PRIOR NO.
355	CORVALLIS - AMENDED PROJECT			STP IMP	2	00600	1076			INCR	1
323	NETARTS-OCEANSIDE S D	002988	43	STP, INT	3	1400	1076				2
411	REDWOOD S D	002994	14	STP, INT	3	2185	0876	0976			3
347	REDMOND	NA	43	SYSTEM	3	11000	0976				4
432	FOSTER-MIDWAY	NA	14	SYSTEM	3	1866	1076				5
410	WINSTON-GREEN	002879	56	STP	2	412	0376	0676		RECERTIF	6
410	WINSTON-GREEN	002879	56	STP	3	1500	0377				6
438	JOHN DAY-CANYON CITY	002722	01	STP, INT	2	22	0776	0976			7
438	JOHN DAY-CANYON CITY	002722	01	STP, INT	3	1290	0577				7
600	CANYON CITY	NA		INT	2	20	0776	0876			8
600	CANYON CITY	NA		INT	3	250	0377				8
437	USA - LOWER TUALATIN	NA	16	INT	2	150	0776	0776			9
601	USA - LOWER TUALATIN	NA	16	INT	3	2200	0976				9
434	GLENDALE	002273	33	STP IMP	3	867	1276				10
436	SUTHERLIN	002084	33	STP IMP	3	1652	1276				11
429	EAGLE POINT	002229	87	STP IMP	2	21	1275	0176			12
429	EAGLE POINT	002229	87	STP IMP	3	124	0477				12
423	CAVE JUNCTION	002833	30	STP IMP	2	28	0676	0676			13
423	CAVE JUNCTION	002833	30	STP IMP	3	213	0177				13
424	BOARDMAN	002070	80	STP IMP	3	1247	0876	0976			14
226	WHEELER - NTCSA INCR	002068	50	INT	3	612	0776	0776			15
404	YAMHILL	002280	84	STP IMP	2	11	1275	0576		RECERTIF	16
404	YAMHILL	002280	84	STP IMP	3	120	0277				16
505	TILLAMOOK CITY	002066	16	STP IMP	2	189	0976	0976			17
505	TILLAMOOK CITY	002066	16	STP IMP	3	800	0677				17
444	MOLALLA	002238	84	STP EXP	3	293	1176				18
446	LEBANON	002081	14	STP IMP	3	1800	1076				19
510	JEFFERSON	002045	84	STP, INT	2	31	0876	0976			20
510	JEFFERSON	002045	84	STP, INT	3	284	0277				20
450	LINCOLN CITY-PHASE I	NA	56	INT	3	500	0177				21
428	BROWNSVILLE	002008	36	STP IMP	3	213	0377				22
385	VENETA	002053	52	PS -STP	3	80	1076			INCR	23
373-	CHILAQUIN		32	PS & INT	3	25	1076			INCR	24
452	BONANZA		78	STP IMP	3	425	1076				25
524	LAKE OSWEGO -HARVEY	NA	16	INT	3	142	0976				26
525	LAKE OSWEGO -TERRACE	NA	88	INT	3	110	1176				27
463	LAKE OSWEGO -EVERGRN	NA	91	INT	2	23	0276	0276			28
463	LAKE OSWEGO -EVERGRN	NA	91	INT	3	213	0377				28
313	WEST LINN-LOWER TUAL	NA	20	INT	3	112	0976	0976			29
528	COVE	NA	50	STP IMP	3	568	1276				30
530	LAKESIDE	002999	33	STP, INT	3	709	0377				31
417	PACIFIC CITY S D		26	STP, INT	2	45	0576	0576			32
417	PACIFIC CITY S D		26	STP, INT	3	355	0177				32
448	AURORA		26	STP, INT	2	72	0576	0576			33
448	AURORA		26	STP, INT	3	568	0477				33
451	TWIN ROCKS S D	002349	50	INT, STP	3	150	0776	0776			34
538	ROADS END S D	NA	33	INT	3	212	1176				35
544	ADRIAN		12	STP, INT	3	238	1076				36
545	PRINEVILLE -LAUGHLIN	NA	43	INT	3	220	0177				37
547	UKIAH	NA	01	STP, INT	3	267	1076				38
566	PORT OF PORTLAND	NA		INT	3	141	1076				39
581	NORTH ROSEBURG S D	002359	14	INT & PS	2	50	0876	0776			40
581	NORTH ROSEBURG S D	002359	14	INT & PS	3	480	0477				40

PROJECT NO.

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PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	RIOR NO.
327-11	BEND PHASE 1A	NA	56	SYSTEM	2	700	1076			61
328-12	BEND PHASE 1B	NA	56	SYSTEM	2	950	0777			41
329	LAKE OSWEGO - GLENMOR	NA		COLL. SYS	2	80	1076			42
330	LAKE OSWEGO - GLENMOR	NA		COLL. SYS	3	600	0477			43
331	MADRAS	NA	14	INT	2	35	1176			44
332	MADRAS	NA	14	INT	3	250	0577			44
333-12	USA - FANNO PHASE 5	NA	56	INT	3	139	0976			45
334	ASTORIA - WILLIAMSPORT INT			INT	1	00019	1276			46
335	ASTORIA - WILLIAMSPORT INT			INT	2	00080	0877			46
336-12	ROSEBURG METRO	002258	14	STP, INT	2	1300	1176			47
337	ROSEBURG SEWER REHAB	002258	14	STP, INT	2	300	1076		PHASED	48
338	ROSEBURG SEWER REHAB	002258	14	STP, INT	3	2000	0677		PHASED	48
339	CANYONVILLE	002072	33	STP IMP	2	69	0976			49
340	CANYONVILLE	002072	33	STP IMP	3	600	0577			49
341	PORTLAND - ELK ROCK	NA		INT	3	225	0877			50
342	MT VERNON		45	STP, INT	2	50	1176			51
343	MT VERNON		45	STP, INT	3	400	0677			51
344	HILLSBORO-IRRIGATION	002334		STP	2	8	0976			52
345	HILLSBORO-IRRIGATION	002334		STP	3	71	0377			52
346	USA - GASTON	002015		STP IMP	1	9	0976			53
347	USA - GASTON	002015		STP IMP	2	60	0577			53
348	USA - BANKS	002012		STP IMP	1	9	1176			54
349	USA - BANKS	002012		STP IMP	2	60	0777			54
350	JUNCTION CITY	002656	09	STP IMP	2	32	0976			55
351	JUNCTION CITY	002656	09	STP IMP	3	248	0677			55
352	EUGENE AIRPORT	002648	14	STP IMP	2	19	0976			
353	EUGENE AIRPORT	002648	14	STP IMP	3	142	0377			56
354	HARRISBURG	002075	52	STP	2	34	1076			57
355	HARRISBURG	002075	52	STP	3	352	0477			57
356	MONMOUTH-INDEPENDENCE	002061	09	STP	2	72	0976			58
357	MONMOUTH-INDEPENDENCE	002061	09	STP	3	567	0377			58
358-12	EUGENE-SPRINGFIELD	002620	14	STP	2	697	1176			59
359-12	EUGENE-SPRINGFIELD		14	REHAB	3	2000	0777			59
360	CORVALLIS AIRPORT	002250	43	STP	2	57	0277			60
361	TRI-CITY S.D.		56	REG STP	2	670	0677			61
362	NEWBERG-DUNDEE	002025	84	REG STP	2	108	1176			62
363	NEWBERG-DUNDEE	002025	84	REG STP	3	851	0877			62
364	SPRINGFIELD	002632		STP IMP	2	200	1276			63
365	USA - UPPER TUALATIN	NA	16	INT	2	153	1176			64
366	USA - UPPER TUALATIN	NA	16	INT	3	2017	0677			64
367	WALSEY	002239		STP IMP	1	12	0277			65
368	USA - BRONSON CK	NA		INT	2	60	1176			66
369	USA - BRONSON CK	NA		INT	3	400	0477			66
370	USA - ROCK CK TRUNK	NA		INT	2	200	1176			67
371	USA - ROCK CK TRUNK	NA		INT	3	2000	0777			67
372	MAIDEN	002260	67	STP IMP	2	31	0976			68
373	MAIDEN	002260	67	STP IMP	3	357	0377			68
374	EUGENE - EASTSIDE	NA	14	INT	2	900	1276			69
375	GOLD HILL	002259	33	STP IMP	2	34	1276			70
376	GOLD HILL	002259	33	STP IMP	3	266	0677			70
377	OAKLAND	002049		STP IMP	1	15	0177			
378	REEDSPORT	NA	33	INT	2	45	1176			
379	REEDSPORT	NA	33	INT	3	354	0777			72

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
438	JACKSONVILLE	002079	30	INT	2	81	1276			73
438	JACKSONVILLE	002079	30	INT	3	495	0777			73
437	PORTLAND - SLUDGE	NA		STP IMP	2	277	0976			74
437	PORTLAND - SLUDGE	NA		STP IMP	3	429	0477			74
438	BCVSA - WHITE CITY	002246	14	INT	2	103	0577			75
439	ST HELENS	NA	86	INT	2	165	1176			76
439	ST HELENS	NA	86	INT	3	1100	0677			76
439	PRAIRIE CITY			STP, INT	2	00040	1176			77
439	PRAIRIE CITY	002003	80	STP, INT	3	272	0577			77
442	PORTLAND - SE RELIEV	NA		INT	3	2888	1276			78
444	RAINIER	002038		STP IMP	1	10	1076			79
444	RAINIER	002038		STP IMP	2	35	0577			79
475	LA GRANDE-ISLAND CITY	002046	12	STP, INT	2	181	1176			80
475	LA GRANDE-ISLAND CITY	002046	12	STP, INT	3	1980	0577			80
472	ELGIN	002243	01	STP IMP	2	31	1276			81
472	ELGIN	002243	01	STP IMP	3	357	0677			81
501	CORVALLIS-CRESCENT V	NA		INT	2	111	0976			82
501	CORVALLIS-CRESCENT V	NA		INT	3	781	0677			82
533	LOME		63	STP, INT	2	35	0177			83
533	LOME		63	STP, INT	3	300	0877			83
502	HAMMOND	002274	43	INT	2	36	0177			84
500	RAY CITY	002257		STP IMP	1	12	1276			85
504	SILETZ	002041		STP IMP	1	10	1276			86
504	SILETZ	002041		STP IMP	2	35	0677			86
466	PORT OF TILLAMOOK BAY	002291	04	STP IMP	1	13	0976			87
466	PORT OF TILLAMOOK BAY	002291	04	STP IMP	2	50	0277			87
503	SEASIDE	002040	56	STP IMP	1	49	1076			88
503	SEASIDE	002040	56	STP IMP	2	182	0577			88
427	AUMSVILLE	002272	36	STP IMP	2	36	0976			89
427	AUMSVILLE	002272	36	STP IMP	3	387	0277			89
430	DAYTON	002363	84	STP IMP	2	27	0277			90
476	GERVAIS	002739	09	STP/ INT	3	567	0677			90
506	SHERIDAN-WILLAMINA	002064	47	STP IMP	2	48	1076			91
508	AMITY	002621	20	STP IMP	2	21	1276			92
508	AMITY	002621	20	STP IMP	3	238	0577			92
476	GERVAIS	002739	09	STP/ INT	2	66	1176			93
509	WOODBURN	002000	16	STP, INT	2	132	1176			93
509	WOODBURN	002000	16	STP, INT	3	1135	0477			93
615	CARLTON	002054		STP IMP	1	20	1076			94
615	CARLTON	002054		STP IMP	2	60	0677			94
273	ROCKAWAY	002330	33	STP IMP	2	184	1176			95
273	ROCKAWAY	002330	33	STP IMP	3	1100	0777			95
511	CANNON BEACH	002022	16	STP IMP	2	74	0277			96
559	LINCOLN CITY PHASE 2	002047	56	STP, INT	2	337	0976			97
559	LINCOLN CITY PHASE 2	002047	56	STP, INT	3	2929	0477			97
512	COTTAGE GROVE	002055	47	STP IMP	2	105	0976			98
512	COTTAGE GROVE	002055	47	STP IMP	3	845	0777			98
512	CRESWELL	002754	40	STP IMP	2	36	1076			99
513	CRESWELL	002754	40	STP IMP	3	284	0577			99
518	NEWPORT			STP IMP	1	00015	1076			100
518	NEWPORT			STP IMP	2	00045	0777			100
511	OAKRIDGE	002231	47	STP IMP	2	28	0177			101
514	OAKRIDGE	002231	47	STP IMP	3	212	0877			101

PROJECT NO.

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR.
104	LOWELL	002004		STP IMP	2	5	0177			107
104	ESTACADA	002057		STP IMP	1	21	1276			103
104	DALLAS	002073		STP IMP	2	35	0477			104
104	SCIO	002930	36	STP IMP	2	14	1176			104
104	SCIO	002930	36	STP IMP	3	107	0677			104
106	MT ANGEL	002876	84	STP IMP	2	35	0377			106
106	MT ANGEL	002876	84	STP IMP	3	300	0977			106
107	PHILOMATH			STP IMP	1	00012	1176			107
107	PHILOMATH			STP IMP	2	00040	0777			107
108	MONROE	002920	47	STP IMP	2	40	0377			108
108	MONROE	002920	47	STP IMP	3	300	0877			108
109	UMATILLA	002230		STP EXP	2	50	0677			109
109	UMATILLA	002230		STP EXP	3	350	0377			109
110	KLAMATH FALLS REGION	002630	33	STP	2	407	0677			110
111	HERMISTON	002076	56	STP, INT	2	242	1276			111
111	HERMISTON	002076	56	STP, INT	3	2184	0977			111
112	ONTARIO	002062	12	STP IMP	2	44	0977			112
113	BAKER	002069	12	STP, IMP	2	146	0977			113
114	MILTON-FREEWATER	002278		STP IMP	1	50	0976			114
114	MILTON-FREEWATER	002278		STP IMP	2	185	0377			114
114	MILTON-FREEWATER	002278		STP IMP	3	800	0977			114
115	NORTH POWDER	002240	47	STP IMP	2	35	0976			115
115	NORTH POWDER	002240	47	STP IMP	3	300	0477			115
116	JOSEPH	002060	01	STP IMP	2	50	1076			116
116	JOSEPH	002060	01	STP IMP	3	387	0377			116
117	ENTERPRISE	002056	01	STP IMP	2	44	1076			117
117	ENTERPRISE	002056	01	STP IMP	3	370	0377			117
118	DUFUR	002905	63	STP IMP	2	12	1176			118
118	DUFUR	002905	63	STP IMP	3	96	0577			118
119	N ALBANY S D	NA	09	INT	2	117	0477			119
120	NORTH PLAINS	NA		INT	1	10	0977			120
121	ST PAUL		20	STP, INT	2	41	1276			121
121	ST PAUL		20	STP, INT	3	359	0777			121
122	CLACKAMAS CO - RHODO-W		56	STP IMP	2	46	0677			122
123	HAPPY VALLEY	NA	08	INT	2	35	0277			123
123	HAPPY VALLEY	NA	08	INT	3	300	0877			123
125	SHADY COVE		30	STP, INT	2	72	0277			125
125	SHADY COVE		30	STP, INT	3	568	0877			125
126	MERLIN-COLONIAL VALLEY		40	STP, INT	1	24	0677			126
127	BCVSA - CENTRAL PT		14	INT	2	90	0577			127
128	IRRIGON			STP, INT	2	30	0877			128
129	WAUNA-WESTPORT		16	STP, INT	1	24	1276			129
129	WAUNA-WESTPORT		16	STP, INT	2	91	0777			129
130	MULTNOMAH CO - INVERNESS #8			INT	2	00060	1276			130
130	MULT CO-INVERNESS #8	NA		INT	3	413	0577			130
131	GRESHAM - LINNEMAN	NA	56	INT	2	157	1076			131
131	GRESHAM - LINNEMAN	NA	56	INT	3	1061	0677			131
132	COLUMBIA CITY	002071		INT	2	21	1176			132
132	COLUMBIA CITY	002071		INT	3	200	0577			132
133	HOOD RIVER-WESTSIDE	NA	63	INT	2	15	0577			133
133	HOOD RIVER-WESTSIDE	NA	63	INT	3	100	0977			133
134	THE DALLES - FOLEY	NA	63	INT	2	20	0277			134
134	THE DALLES - FOLEY	NA	63	INT	3	100	0777			134



PROJECT NO.

PROJECT NO.	PROJECT	NPDES NO.	EMER CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CEBT. (MM/Y)	ACTUAL CEBT. (MM/Y)	COMMENT	PRIOR NO.
532	DINES CITY			STP, INT	1	14	0577			135
532	HWY 101 S D	NA		INT	2	19	1176			136
532	HWY 101 S D	NA		INT	3	200	0677			136
467	SILVERTON	002065		STP IMP	2	25	1276			137
467	SILVERTON	002065		STP IMP	3	212	0577			137
512	FLORENCE	002074	47	STP IMP	2	69	0577			139
445	DONALD		09	STP, INT	2	46	0577			141
524	NEWBERG - NORTHWEST	NA	43	INT	2	20	1176			142
524	NEWBERG - NORTHWEST	NA	43	INT	3	121	0577			142
471	TANGENT			INT	1	14	0377			143
471	TANGENT			INT	2	55	0877			143
450	ALBANY - NORTHEAST	NA		INT	1	20	0277			144
526	LAPINE			STP, INT	1	12	0976			145
526	LAPINE			STP, INT	2	55	0477			145
622	PORTLAND - 45TH DR			INT	1	00015	0277			146
447	MILL CITY		09	STP, INT	1	22	0976			147
447	MILL CITY		09	STP, INT	2	91	0577			147
527	SW LINCOLN CO S D		43	STP, INT	2	254	0177			148
527	SW LINCOLN CO S D		43	STP, INT	3	2200	0977			148
542	CARMEL-FOULWEATHER S D		43	STP, INT	2	136	1076			149
542	CARMEL-FOULWEATHER S D		43	STP, INT	3	1063	0377			149
540	ROSEBURG - RIFLE RNG	NA		INT	1	9	1176			150
540	ROSEBURG - RIFLE RNG	NA		INT	2	25	0777			150
561	AGATE BEACH S D	NA		INT	1	18	0377			152
561	AGATE BEACH S D	NA		INT	2	68	0977			152
507	BCVSA - WHETSTONE	NA		INT	1	12	0177			153
507	BCVSA - WHETSTONE	NA		INT	2	70	0977			153
540	MERRILL	002048		STP, INT	1	12	0477			154
574	WESTSIDE S D - K FALLS		32	STP/ INT	2	80	1276			155
574	WESTSIDE S D - K FALLS		32	STP/ INT	3	650	0777			155
541	SISTERS		33	STP, INT	2	56	0177			157
541	SISTERS		33	STP, INT	3	434	0877			157
449	FALLS CITY			STP, INT	1	12	0177			158
449	FALLS CITY			STP, INT	2	45	0577			158
546	CRESCENT			STP, INT	1	12	0976			159
546	CRESCENT			STP, INT	2	38	0377			159
587	HAINES		01	STP, INT	2	35	0377			160
587	HAINES		01	STP, INT	3	300	0877			160
597	YONCALLA	002245		STP IMP	1	12	1176			162
597	YONCALLA	002245		STP IMP	2	50	0777			162
470	COBURG		14	STP, INT	1	22	0377			163
470	COBURG		14	STP, INT	2	91	0677			163
604	CLACK CO-KELLOGG SL	002622		STP IMP	1	10	0477			164
608	USA - BROOKWOOD TRNK	NA		INT	2	2	1076			165
608	USA - BROOKWOOD TRNK	NA		INT	3	6	0377			165
610	USA - SUNSET TRUNK	NA		INT	2	40	1176			166
610	USA - SUNSET TRUNK	NA		INT	3	320	0577			166
612	USA - REEDSVILLE TRNK	NA		INT	2	90	0177			167
612	USA - REEDSVILLE TRNK	NA		INT	3	450	0777			167
549	HILLSBORO - WESTSIDE	002334		STP AUTO	1	6	1076			169
549	HILLSBORO - WESTSIDE	002334		STP AUTO	2	25	0477			169
508	OAK LODGE S D	002614		STP IMP	1	15	0277			170
508	OAK LODGE S D	002614		STP IMP	2	50	0977			170

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
533	CANBY	NA	60	INT	1	10	1176			171
534	CANBY	NA	60	INT	2	23	0377			171
535	CANBY	NA	60	INT	3	142	0877			171
537	PORTLAND - LINNION	INT		INT	1	00	15	0177		172
537	PORTLAND - LINNION	INT		INT	2	00	45	0877		172
541	ELKTON		47	STP	1	10	0177			173
540	ELKTON		47	STP	2	40	0877			173
542	ROSEBURG - LOOKINGGL	NA		INT	1	10	1076			174
542	ROSEBURG - LOOKINGGL	NA		INT	2	25	0577			174
546	LEXINGTON		63	STP, INT	2	44	0277			175
546	LEXINGTON		63	STP, INT	3	380	0877			175
547	ARLINGTON	002019		STP EXP	2	20	0477			177
548	BOVSA - WEST MEDFORD	NA		INT	1	10	0377			179
548	BOVSA - WAGNER CK	NA		INT	1	6	0577			180
549	IMPLER		67	STP, INT	2	21	1275			181
549	IMPLER		67	STP, INT	3	164	0577			181
549	TROUTDALE	002052	38	INT & EXP	2	66	0177			182
551	CASCADE LOCKS	NA		INT	1	8	0377			183
551	CLATSKANIE	NA		INT	1	8	0977			184
551	SANDY	NA	04	INT	1	5	0377			185
551	SANDY	NA	04	INT	2	21	0977			185
552	POVEDS	002693	33	STP IMP	1	3	0177			186
552	POVEDS	002693	33	STP IMP	2	12	0777			186
552	RANDON - JOHNSON	NA	33	INT	2	46	1076			187
552	RANDON - JOHNSON	NA	33	INT	3	262	0377			187
543	SCOTTS MILLS			STP, INT	1	16	0377			88
442	SCOTTS MILLS			STP, INT	2	58	0977			188
477	DETROIT			STP, INT	1	16	0477			189
477	DETROIT			STP, INT	2	58	0977			189
545	STANFIELD	002697	67	STP IMP	2	43	1176			190
545	STANFIELD	002697	67	STP IMP	3	335	0677			190
502	ELMIRA	NA		INT	1	8	0177			191
502	ELMIRA	NA		INT	2	19	0777			191
602	NEKOWIN			STP, INT	1	15	1276			192
602	NEKOWIN			STP, INT	2	45	0877			192
528	SUMPTER			STP, INT	1	4	0477			193
479	JUNTURA			STP, INT	1	4	0377			194
601	WALLOWA LAKE S A			STP, INT	1	10	0277			195

DEPARTMENT OF ENVIRONMENTAL QUALITY  
 FY 1978 PRIORITY LIST AND SCHEDULE

September 15, 1976

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/Y)	ACTUAL CERT. (MM/Y)	COMMENT	PRIOR NO.
	CORVALLIS - AMENDED PROJECT			STP IMP	3	6000	1077		INCR	1
486-02	BEND PHASE IA	NA	56	SYSTEM	3	11000	1077			41
486-04	BEND PHASE IB	NA	56	SYSTEM	3	18000	0379			41
464	TERREBONNE			SYSTEM	1	22	1177			42
464	TERREBONNE			SYSTEM	2	60	0778			42
464	TERREBONNE			SYSTEM	3	800	0379			42
619	ASTORIA - WILLIAMSPORT INT			INT	3	00650	0478			46
487-03	ROSEBURG METRO	002258	14	STP, INT	3	8300	1077			47
616	ROSEBURG SEWER REHAB	002258	14	STP, INT	2	500	1177		PHASED	48
616	ROSEBURG SEWER REHAB	002258	14	STP, INT	3	4000	1078		PHASED	48
575	USA - GASTON	002015		STP IMP	3	450	1077			53
576	USA - WANKS	002012		STP IMP	3	450	0378			54
454-04	EUGENE-SPRINGFIELD	002620	14	STP	3	21500	0178		TO BE PHASED	59
458	CORVALLIS AIRPORT	002250	43	STP	3	355	1077			60
493	TRI-CITY S D		56	REG STP	3	6722	0378			61
570	SPRINGFIELD	002632		STP IMP	3	1500	1077			63
595	HALSEY	002239		STP IMP	2	30	1077			65
595	HALSEY	002239		STP IMP	3	250	0778			65
474	EUGENE - FASTSIDE	NA	14	INT	3	8000	1277			69
617	OAKLAND	002049		STP IMP	2	45	1177			71
617	OAKLAND	002049		STP IMP	3	300	0778			71
558	BCVSA - WHITE CITY	002246	14	INT	3	412	1077			75
586	RAINIER	002038		STP IMP	3	300	0178			79
502	HAYMOND	002274	43	INT	3	284	0178			84
590	RAY CITY	002257		STP IMP	2	40	1077			85
590	RAY CITY	002257		STP IMP	3	300	0678			85
59	SILETZ	002041		STP IMP	3	300	0378			86
466	PORT OF TILLAMOOK BAY	002291	04	STP IMP	3	387	0178			87
503	SEASIDE	002040	56	STP IMP	3	1419	0478			88
470	DAYTON	002353	84	STP IMP	3	206	1177			90
506	SHERIDAN-WILLAMINA	002064	47	STP IMP	3	516	0178			91
615	CARLTON	002054		STP IMP	3	350	0378			94
511	CANNON BEACH	002022	16	STP IMP	3	830	1077			96
618	NEWPORT			STP IMP	3	00300	0278			100
573	LOWELL	002004		STP IMP	3	400	1277			102
594	ESTACADA	002057		STP IMP	2	80	0578			103
594	ESTACADA	002057		STP IMP	3	650	0279			103
592	DALLAS	002073		STP IMP	3	250	1077			104
620	PHILOMATH			STP IMP	3	00300	0378			107
516	KLAMATH FALLS REGION	002630	33	STP	3	5500	0578			110
518	ONTARIO	002062	12	STP IMP	3	385	0678			112
431	BAKER	002069	12	STP, IMP	3	1210	0678			113
521	N ALBANY S D	NA	09	INT	3	1233	0178			119
522	NORTH PLAINS	NA		INT	2	21	0378			120
522	NORTH PLAINS	NA		INT	3	135	0878			120
526	CLACKAMAS CO - RHODO-W		56	STP IVP	3	284	0378			122
425	GLIDE-IDLEYLD			STP, INT	2	0				124
425	GLIDE-IDLEYLD			STP, INT	3	0				124
456	VERLIN-COLONIAL VALLEY		40	STP, INT	2	91	0278			126
456	VERLIN-COLONIAL VALLEY		41	STP, INT	3	709	0878			126
527	BCVSA - CENTRAL PT		14	INT	3	702	0178			127
5	TRIGCOM			STP, INT	3	26	0478			129
42	WAINA-WESTPORT		16	STP, INT	3	709	0278			129

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET CERT. (MM/YY)	ACTUAL CERT. (MM/YY)	COMMENT	PRIOR NO.
431	DUNES CITY			STP, INT	2	55	0378			123
431	DUNES CITY			STP, INT	3	55	1078			123
442	MAPLETON		72	STP, INT	2	69	1178			138
442	MAPLETON		72	STP, INT	3	550	0879			138
443	FLORENCE	002074	47	STP IMP	3	600	0178			139
443	TURNER		09	STP, INT	2	72	1277			140
443	TURNER		09	STP, INT	3	568	0978			140
445	DONALD		09	STP, INT	3	284	0178			141
471	TANGENT			INT	3	415	0278			143
440	ALBANY - NORTHEAST	NA		INT	2	115	1077			144
440	ALBANY - NORTHEAST	NA		INT	3	1000	0678			144
440	LARINE			STP, INT	3	415	1277			145
440	PORTLAND - 45TH DR INT			INT	2	1000	1077			146
440	PORTLAND - 45TH DR INT			INT	3	6000	0678			146
447	MILL CITY		09	STP, INT	3	700	0278			147
448	ROSEBURG - RIFLE RNG	NA		INT	3	110	0478			150
448	BAY TO BAY S D		43	STP, INT	2	207	1277			151
448	BAY TO BAY S D		43	STP, INT	3	1980	0878			151
441	AGATE BEACH S D	NA		INT	3	533	0478			152
407	BCVSA - WHETSTONE	NA		INT	3	500	0478			153
440	MERRILL	002048		STP, INT	2	38	1277			154
440	MERRILL	002048		STP, INT	3	364	0878			154
440	MODOC POINT			STP, INT	1	12	1177			156
440	MODOC POINT			STP, INT	2	38	0778			156
440	MODOC POINT			STP, INT	3	364	0179			156
440	GALLS CITY			STP, INT	3	354	0278			159
440	CRESCENT			STP, INT	3	364	1077			159
440	CORVALLIS MOBILE PK	NA		INT	1	15	0378			161
440	CORVALLIS MOBILE PK	NA		INT	2	35	1178			161
440	CORVALLIS MOBILE PK	NA		INT	3	525	0679			161
407	YONCALLA	002245		STP IMP	3	400	0378			162
470	CORBURG		14	STP, INT	3	710	0478			163
404	CLACK CO-KELLOGG SL	002622		STP IMP	2	20	1277			164
404	CLACK CO-KELLOGG SL	002622		STP IMP	3	200	0678			164
400	RIGGS JCT	NA		INT	1	12	1177			168
400	RIGGS JCT	NA		INT	2	32	0578			168
400	RIGGS JCT	NA		INT	3	265	1278			168
440	HILLSBORO - WESTSIDE	002334		STP AUTO	3	194	0178			169
408	OAK LODGE S D	002614		STP IMP	3	400	0578			170
421	PORTLAND - LINNTON INT			INT	3	00300	0378			172
448	ELKTON		47	STP	3	360	0478			173
443	ROSEBURG - LOOKINGGL	NA		INT	3	194	1277			174
400	MEDFORD	002626		STP EXP	1	75	0878			175
400	MEDFORD	002626		STP EXP	2	400	0679			175
400	MEDFORD	002626		STP EXP	3	4500	0580			175
414	ARLINGTON	002019		STP EXP	3	150	0378			177
406	WARRENTON	002087		STP IMP	1	20	0978			178
406	WARRENTON	002087		STP IMP	2	60	0779			178
406	WARRENTON	002087		STP IMP	3	480	0380			178
400	BCVSA - WEST MEDFORD	NA		INT	2	45	1277			179
400	BCVSA - WEST MEDFORD	NA		INT	3	300	0978			179
412	BCVSA - WAGNER CK	NA		INT	2	30	0178			180
412	BCVSA - WAGNER CK	NA		INT	3	200	0678			180

PROJECT NO.	PROJECT	NPDES NO.	ENGR CODE	PROJECT DESCR.	STEP	ESTIMATED PROJ. COST (1,000)	TARGET COST. (MM/YY)	ACTUAL COST. (MM/YY)	COMMENT	PRIOR NO.
579	TROUTDALE	002052	38	INT & EXP	3	400	1077			182
580	CASCADE LOCKS	NA		INT	2	15	1177			183
581	CASCADE LOCKS	NA		INT	3	100	0578			183
586	CLATSKANIE	NA		INT	2	15	0478			184
586	CLATSKANIE	NA		INT	3	100	0878			184
581	SANDY	NA	04	INT	3	161	0378			185
582	POWERS	002693	33	STP, IMP	3	97	0178			186
468	SCOTTS MILLS			STP, INT	3	451	0678			189
477	DETROIT			STP, INT	3	451	0278			189
594	FLMIRA	NA		INT	3	80	0278			191
502	NESKOWIN			STP, INT	3	300	0578			192
548	SUMPTER			STP, INT	2	16	1077			193
548	SUMPTER			STP, INT	3	250	0578			193
479	JUNTURA			STP, INT	2	16	1277			194
479	JUNTURA			STP, INT	3	250	0678			194
501	WALLOWA LAKE S A			STP, INT	2	25	1077			195
501	WALLOWA LAKE S A			STP, INT	3	200	0478			195



## ENVIRONMENTAL QUALITY COMMISSION

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### MEMORANDUM

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item I, October 15, 1976 EQC Meeting

Consideration of Adoption of Proposed Amendments to Oregon  
Administrative Rules Chapter 340, Division 7, Sections 71,  
72, 73 and 74 Pertaining to Subsurface and Alternative Systems  
of Sewage Disposal

### Background

The existing rules on subsurface and alternative sewage disposal were adopted by the Commission in August 1975 and became effective September 1, 1975. This version of the rules was the result of 18 months work by a Citizens' Task Force.

After several months of use a number of minor deficiencies in the rules have come to light. These deficiencies indicate certain rule amendments are necessary to make the rules more workable. In addition, it is felt that a number of functions now requiring Department action or participation may logically be assigned to contract counties. Assignment of such functions to contract counties will free Department staff for other departmental duties. Public hearings on the proposed amendments were held in June in Portland, Roseburg and Medford. The proposed amendments are contained in Attachment "A" and are numbered 1 through 55.

### Discussion

The following 43 amendments are housekeeping in nature for clarity, uniformity, error correction, et cetera:

1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21,  
22, 23, 24, 25, 26, 28, 32, 33, 34, 36, 37, 38, 39, 40, 42, 43, 44,  
45, 46, 47, 50, 51, 52, 53 and 54.



Contains  
Recycled  
Materials

The following amendments delete references to systems determined to be under jurisdiction of Department of Commerce:

2, 31 and 41.

Amendment 6 would make the subsurface rules compatible with rules on surety bonds (OAR 340-15-015):

Amendment 10 was inadvertently left out of the rules when they were adopted by the Commission in August 1975; was in the old rules and should have been continued.

Amendment 9 allows the Department to approve pipe and pipe fitting materials without prior approval of the Commission.

Amendment 48 repeals obsolete rules on Appeals Boards - The statute on Appeals Boards was repealed in the 1975 legislative session.

The following are the most substantive amendments. Each has the potential of giving additional authority to contract counties:

Amendments 27, 29 and 30 would make it possible for the Department by letter to authorize counties, who have the resources and staff, to process and approve applications for sewage lagoons, land irrigation of sewage up to 5,000 gallons per day and holding tanks (Alternative Systems).

Amendment 35 is intended to make it clear that the Department feels that building sewers may be installed by sewage disposal service personnel licensed by the Department as well as licensed plumbers. This rule was suggested by the Attorney General's Office. This question is the subject of a suit filed in Marion County Circuit Court.

Amendment 49 would make the temporary rule on the Marion County fee schedule a permanent rule.

Amendment 55 is Geographic Region Rule B which allows filling of sand on sand in areas of high water tables in unconsolidated sands. Hearings were held in Astoria, Coos Bay and Salem on this rule. Only one individual testified in opposition to this proposal stating in effect that this rule would be in conflict with LCDC's Coastal Zone Management Plan.

In addition to those proposed amendments listed in Attachment "A" the following three proposed amendments were taken to hearing but are not recommended for adoption:

1. On Page 32, subsection 71-015(6), lines 2 and 3, delete "or systems designed for a five (5) or more family dwelling or to serve any other dwelling or dwellings or establishment", and in line 5, delete "twelve hundred (1,200)" and insert "five thousand (5,000)".

This amendment would have authorized contract counties to approve systems up to 5,000 gallons daily sewage flow. (Now 1,200 gallons). Since there are so few systems of this size (1,200 - 5,000 gallon range) and large systems are quite often complex, it is felt that both the county and Department should be involved in the approval process. More assurance that the system will function as proposed.

2. On page 49, 71-030(1)(d) delete the entire subsection and substitute the following:

(d) "An area where the temporarily perched water table would be less than twenty-four (24) inches below the surface of the ground continuously for a period of two (2) weeks or longer, or if the disposal trench would be twenty-four (24) inches or deeper, the temporarily perched ground water would come in contact continuously for two (2) weeks or longer. Where an application is denied under this subsection, water table observations, if requested by the applicant to confirm continuous contact or water table levels, shall be by visual observation not less than every third day during the observation period. Water table levels may be predicted during periods of dry weather utilizing criteria set forth in subsections (1)(c)(A), (B) and (C) of this section."

This amendment would have provided different wording on the rule governing the temporarily perched water table without changing the intent of the rule for clarification. We were unable to come to a consensus on how this rule should be worded. We feel that it is not properly worded now, but we don't want to adopt another incorrect version. We need to study this rule further before recommending a change. In the meantime no damage should result from the present wording.

3. On page 52, subsection 71-030(2), line 9, delete "Department" and insert "Director or his authorized representative".

This amendment would have allowed contract counties to grant rural areas variances without concurrence of the Department as now required. We received several convincing arguments against this proposed amendment; thus our recommendation against adoption. The arguments in opposition are as follows:

First, there is basically little difference between the rural areas variances and a regular variance. Approval criteria in both cases is based upon an opinion (of the grantor) as to whether a system will actually function. If this proposed amendment were adopted, rural areas variances could be granted by any sanitarian working for a contract county regardless of training or experience; whereas, with the regular variance program we have fairly strict qualifications for variance officers. It is not logical to have comparatively tough requirements for persons to grant regular variances and practically no requirements for those persons who would grant rural areas variances.



Secondly, since there are no actual rules for granting rural areas variances the county sanitarian could be subjected to pressure at the local level to grant variances that in many instances should not be granted. This would, in effect, be the first opening in our rules where pressure could be applied and the local sanitarian would have no one to fall back on for support. It is felt that the county sanitarian has a tough enough situation to deal with in his day-to-day routine without having to endure the pressure that this measure could bring upon him.

In addition, one other amendment suggested in the hearings was considered but was felt to be premature. This proposed amendment would allow registered sanitarians as well as registered engineers to design alternative systems (sewage stabilization ponds and land irrigation of sewage systems). The reason for this proposal was that few registered engineers are interested in this type of project; thus, in some areas it is difficult to get a system designed.

The argument against this proposal is that these are new concepts of disposal for individual homes; therefore we should get some experience in functioning of such systems designed by registered engineers before opening it up to other professions as this amendment would do.

### Conclusions

Amendments are necessary to make the rules on subsurface sewage disposal more workable, to delete reference to systems under Department of Commerce jurisdiction, to make the rules compatible with the rules on surety bonds and to repeal obsolete rules pertaining to Appeals Boards.

### Recommendation

It is the Director's recommendation that OAR Chapter 340, Division 7, sections 71, 72, 73 (Secretary of State's number 75) and 74 be amended as set forth in Attachment "A"; that the adopted amendments, numbering 55, be filed immediately with the Secretary of State to become effective November 1, 1976.



LOREN KRAMER  
Director

TJO:ak  
September 23, 1976

Attachments: Attachment "A"  
Proposed Amendments to Oregon Administrative  
Rules Chapter 340, Division 7, Subsurface &  
Alternative Sewage Disposal - August 1976.  
Attachment "B"  
(Diagram) Drop Box Cross Section

PROPOSED AMENDMENTS TO OREGON ADMINISTRATIVE RULES CHAPTER 340,  
DIVISION 7, SUBSURFACE AND ALTERNATIVE SEWAGE DISPOSAL

October - 1976

1. On page 7 of the typed copy filed September 2, 1975 with the Secretary of State, subsection 71-010 (50), line 1, delete "prevents" and insert "limits"; after "penetration" insert "more than a restrictive layer. It is virtually free of roots."
2. On page 8, definition (57), line 3, delete "but not limited to,"; in line 4 after "vault privies," insert "construction site type", and in the same line after "chemical" delete the comma; and in line 5 delete "recirculating and combustion".
3. On page 14, definition (85), line 1, after "combination" insert "of".
4. On page 30, subsection 71-013(1), line 6, after the period add the following sentence, "For the purpose of this subsection "emergency repairs" means repairs of a failing subsurface or alternative sewage disposal system where immediate action is necessary to relieve a situation in which sewage is backing up into the dwelling or building."
5. On page 30, subsection 71-015(1), line 2, delete "the Department's approved" and after "forms" insert "approved by the Department".
6. On page 33, subsection 71-015(6)(b), line 2, after the comma following "ORS 454.425" insert "unless otherwise exempt by rules of the Commission,".
7. On page 34, subsection 71-016(3), line 2, after "connect" insert "to".
8. On page 38, subsection 71-020(1)(c), line 1, after "(c)" insert "Operation and"; and in the same line after "be" insert "operated and".
9. On page 38, 71-020(1)(f), line 7, after "herein" insert "or other standards approved by the Department."
10. On page 41, subsection 71-020(2)(h), line 1, after "supply" insert "or when abutting a public street".
11. On page 41, subsection 71-020(2)(i), after "lines" insert "(see footnote 8)".
12. On page 44, 71-020(4), line 1, after "subsurface" insert "or alternative".
13. On page 45, subsection 71-025(1), line 12, after "Systems" insert "(Table 3)".
14. On page 47, subsection 71-027(3), line 2, delete "500" and insert "five hundred (500)"; in line 4, delete "500" and insert "five hundred (500)"; and in line 5, delete "150" and insert "one hundred fifty (150)".
15. On page 47, subsection 71-027(7), line 8, after "three" insert "(3)".
16. On page 49, 71-030(1)(e) - In first line after "(e)" insert "Slope exceeds twenty-five (25) percent or", delete "these" and insert "the"; and in the same subsection delete the colon and insert "in Table 4A."

17. On page 50, at the bottom of the slope-depth chart insert "Table 4A".
18. On page 55, in last line on that page delete "35" and insert "thirty-five (35)".
19. On page 59, subsection 71-030(8)(a)(B), line 3 and line 7, after "chart" insert "(Table 2)".
20. On page 59, subsection 71-030(8)(a)(D), line 9 after "layer" insert "(Table 5)".
21. On page 65, substitute Attachment "B" for the drop box cross section portion of Diagram 11A.
22. On page 67, subsection 71-037(1), line 1, after the period add the following sentence, "For the purpose of this subsection "sewage stabilization pond" means one which is designed and is used to process a sewage flow of less than five thousand (5,000) gallons per day."
23. On page 67, subsection 71-037(1)(b)(B), in line 1, delete "2-1/2" and insert "two and one-half (2-1/2)".
24. On page 67, subsection 71-037(1)(b)(C), in line 2, delete "35" and insert "thirty-five (35)".
25. On page 67, subsection 71-037(1)(b)(D), line 2, delete "of" and insert "so as to form an"; and in the same line delete "material" and insert "barrier".
26. On page 67, subsection 71-037(1)(b)(D), in line 4, delete "3" and insert "three (3)".
27. On page 68, subsection 71-037(1)(c), line 3, delete "both" and "and ORS 468.740"; and in line 4, delete "Department" and insert "Director or by written permission, his authorized representative".
28. On page 68, 71-037(2)(a), line 1, after "sewage" insert "flows of less than five thousand (5,000) gallons per day".
29. On page 69, subsection 71-037(2)(c), line 3, delete "both" and "and ORS 468.740" and in line 4, delete "Department" and insert "Director or by written permission, his authorized representative".
30. On page 70, subsection 71-037(3)(e), line 3, delete "both", "and ORS 468.740" and "Department" and insert "Director or by written permission, his authorized representative."
31. On page 71, subsection 71-040(1)(b), lines 1, 2, 3 and 4, delete "No nonwater-carried waste disposal facility shall be used for dwellings having piped in running water except chemical recirculating toilet facilities may be permitted by the Director or his authorized representative."; and in line 7, after "sites," insert "farm"; and in the same line delete "places of employment,".
32. On page 75, subsection 71-045(6)(i), line 3, after "facilities" insert "unless otherwise authorized by the Director in emergency situations."
33. On page 75, subsection 71-045(7)(a), line 1, after "a" insert "public".
34. On page 76, subsection 71-045(10)(e), line 2, after "or" insert "public".

35. On page 76, section 71-045 after subsection 71-045(10) add a new subsection to read:

"(11) Personnel Qualifications. Any person operating a sewage disposal service licensed by the Department may employ personnel other than journeyman plumbers licensed under ORS Chapter 693 to perform the manual work of installing the pipe in drain and sewage lines from five feet outside a building or structure to the service lateral at the curb or in the street or alley or other disposal terminal holding human or domestic sewage."

36. On page 79, Appendix A, paragraph III.H., line 3, after "some" insert "other".

37. On page 84, Appendix B, Subsection V. Drop Boxes -

Delete the entire subsection and substitute the following:

"V. DROP BOXES

A. Sump. Sumps are optional.

B. Size. Drop boxes shall be large enough to accommodate header pipe.

C. Invert Elevations. Inlet and overflow pipe port inverts shall be at the same elevation. The invert of the header pipe port leading to the disposal trench shall be six (6) inches below inlet and overflow port inverts.

D. Construction. Drop boxes shall be constructed of concrete or other durable material approved by the Department.

E. Cover. Drop box covers shall bear the manufacturer's name and address.

F. Premarketing Certification. Drop box manufacturers shall state in writing, to the Department, that the product(s) to be distributed for use in Oregon will meet all requirements of this section."

38. On page 92, Appendix E, paragraph II.A.2., lines 3 and 4, delete "regulations" and insert "rules".

39. On page 93, Appendix E, in line 4 of paragraph II.A.3, line 3 of paragraph II.B., and line 3 of paragraph II.C., delete "regulations" and insert "rules".

40. On page 94, Appendix E, paragraph II.D., lines 3 and 6 delete "regulations" and insert "rules".

41. On page 98 and 99, Appendix F, delete all of paragraphs III.D., III.E., and III.F.

42. On page 101, subsection 72-020(1), line 2, revise "454.665" to read "454.655".

43. On page 104, subsection 73-015(1), line 2, delete "water" and after "pollution" insert "of public waters". (Secretary of State's number 75-015(1))
44. On page 105, subsection 73-025(7), line 2, after "OAR 71-020(2)" insert ", (Table 4)." (Secretary of State's number 75-025(7))
45. On page 106, subsection 73-040, line 4, after "fee" insert "per granted variance". (Secretary of State's number 75-040)
46. On page 108, subsection 74-015(3), delete the entire subsection and renumber subsequent subsections.
47. On page 109, subsection 74-015(5)(b), line 3, after "pollution" insert "of public waters".
48. Repeal the original sections 73-005, 73-010 and 73-015 pertaining to Subsurface Sewage Disposal Permit Appeals Board.
49. On page 106, in subsection 72-015(4) line 7, delete "Marion" and add a new paragraph (d) to read as follows:

"And (d) the fees to be charged by the County of Marion shall be as follows:

New Construction Installation Permit	\$75.00
Alteration, Repair or Extension Permit	25.00
Evaluation Reports	37.50"

50. On page 44, subsection 71-020(4) line 3, delete "city or other legal entity" which has been formed in compliance with Oregon Revised Statutes, Chapter 450 or 451" and insert "municipality as defined in ORS 454.010(3)"
51. On page 33, subsection 71-013(7), line 2, after "issuance" insert "and except as provided in subsection (8) of this section is not transferable"
52. On page 35, subsection 71-016(3), add a new paragraph to read as follows:
 

"(e) Any other information which the Director or his authorized representative may request."
53. On page 35, subsection 71-016(4), add a new paragraph to read as follows:
 

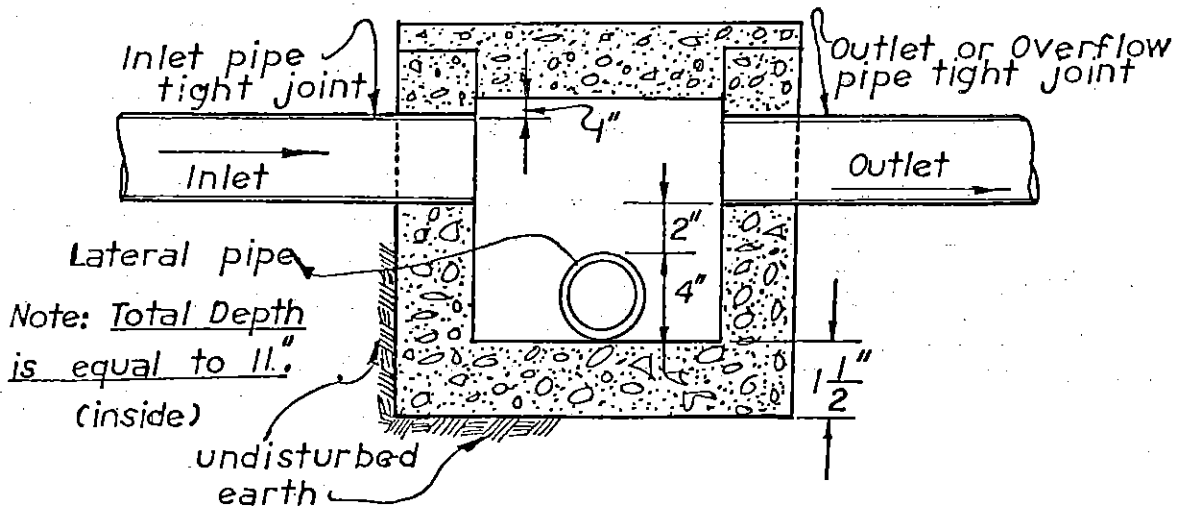
"(c) Section 340-71-020(1)(a) is satisfied."
54. On page 35, Section 71-016, add a new subsection to read as follows:
 

"(7) An "existing subsurface or alternative sewage disposal system" means a subsurface or alternative sewage disposal system which was constructed pursuant to a permit and for which a certificate of satisfactory completion has been issued, or a system the construction of which was completed prior to January 1, 1974."

55. On page 59, Section 71-030, add a new subsection to read as follows:

"(9) Geographic Region Rule B.

- (a) In areas where the permanent water table or the permanently perched water table will be within four (4) feet of the bottom point of the effective sidewall of the disposal trench and the soil on the parcel is medium or fine unconsolidated sand, permits may be issued provided:
  - (A) The water table is not closer than twenty-four (24) inches of the original ground surface.
  - (B) The parcel is filled with like sand adequate in depth to provide four (4) feet of separation between the water table and the bottom point of the effective sidewall of the disposal trench.
  - (C) The parcel is adequate in size to accommodate a filled area for initial drainfield installation and a full replacement area to the construction specifications set forth in subsection (b) of this section.
  - (D) The full replacement area is filled at the same time the initial drainfield site is filled.
  - (E) The filled area is protected from erosion by planting of suitable grasses or other vegetative cover or other materials approved by the Director or his authorized representative.
- (b) Fills shall be adequate in size to accommodate a drainfield sized in accordance with subsection 71-030(3)(c) of these rules and:
  - (A) To accommodate a minimum fill side slope of 3 to 1.
  - (B) To provide for a disposal trench setback of ten (10) feet inside the crown of the fill.
  - (C) The area to be filled is cleared of all vegetative cover.
  - (D) The surface area to be filled is scarified to a depth of at least six (6) inches.
  - (E) The total depth of the fill will be the minimum needed to bring the site into compliance with the subsection 71-030(1)(c).
- (c) Inspection and approval. A site evaluation approval can be issued only after:
  - (A) The fill has been completed, inspected and found to be in compliance with these rules.
- (d) Fees. An additional site evaluation fee will not be charged if the site is modified and approved within ninety (90) days of initial site evaluation application."



DROP BOX CROSS SECTION

NOTE: NOT TO SCALE



## ENVIRONMENTAL QUALITY COMMISSION

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ROBERT W. STRAUB  
GOVERNOR

To: Environmental Quality Commission

From: Peter McSwain, Hearing Officer

Subject: Consolidated Hearing Report: Public Hearings of June and September, 1976, on Two Separate Sets of Proposals to Amend Rules Governing Subsurface Sewage Disposal Systems

### Background

Hearings covered in this report:

Proposals on:

- A. Housekeeping Amendments, Increased Local Authority, Definition of Emergency Repairs, Increase in Jackson County Fees, Delineation of Jurisdiction Between Plumbers and Installers, and Modified Drop-box Specifications were covered.

The package of proposals on the above subjects was submitted to public hearings before Hearing Officer Reiter at 1:30 p.m. and 7:30 p.m. on June 15, 1976, in Roseburg and on June 16, 1976, in Medford. The same package was submitted to public hearing before Hearing Officer McSwain at 10:00 a.m. on June 22, 1976.

Proposals to:

- B. Change Marion County's Permit Fees, and To Allow Filling of Sand-On-Sand in Areas of High Water Table in Unconsolidated Sands.

These two proposals were submitted to public hearing on September 21, at 10:00 a.m. in Salem before Hearing Officer Messer, in Astoria before Hearing Officer Jackman, and in Coos Bay before Hearing Officer Osborne.

The proposals for fee raises were the subject of testimony only in Jackson County and Marion County hearings.



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Witness List

Anderson, E.A.  
Gold Beach

Bartram, Alta L.  
North Roseburg  
Sanitary District

Berg, William  
Gearhart Homeowners  
Association and  
Planning Commissioner

Britton, Jim  
Wildish Land Co.

Herzberg, Herbert R.  
Laborers Union  
Local #85

Hollingsworth, John E.  
Department of  
Transportation  
(Parks Engineering)

Johnson, Michael  
Sewage Disposal  
Service Contractor  
from Florence

Likely, N.A.  
Jacksonville

Lowry, Robert  
Lane County  
Sanitarian

Mason, Bruce  
Clatsop County  
Sanitarian

Mosher, Merrill  
Coos Bay LCDC Local  
Advisory Committee

Olson, C. William  
Josephine County

Ordway, Lyle  
Clatsop County  
Commissioner

Rogers, Bud  
Sanitation and Drainage  
Construction Association

Rudiger, Ed  
Rudiger Construction

Scheer, Steven  
Jackson County Sanitarian

Stout, M.K.  
North Roseburg  
Sanitary District

Tindell, Mr.  
(otherwise unknown)

Tracey, Colman  
Turner, Oregon

VanNatta, Fred  
Oregon Homebuilders  
Association

Wildfang, Howard  
Wildfang Construction Co.

Williams, Larry  
Oregon Environmental Council

Summary of Testimony by Section:

General Testimony

The Astoria public hearing denied the public access because conducted in daytime hours. (Tindell)

The people of Gearhart, who would be affected by the proposal for "sand on sand" fill in certain cases in unconsolidated sand areas, were denied public participation by a report in the Daily Astorian of September 15 stating the hearing (actually on September 21) would be held on September 22. (Berg)

71-013(1) "Emergency repairs" defined.

This proposal should perhaps be in the definition section. The proposal is too strict, overlooking of drainfield failures. (Olson)

It should include cases where there is a broken pressure sewer line. (Hollingsworth)

72-015(4) Fee schedules \$100.

Permit fee is excessive. A larger percentage of the cost should be paid out of the general fund because the protection of public health and waters is largely at stake. (Likely)

72-015(4)(d) Marion County Fees:

There should be no fee increase. The fee structure, the regulations as a whole, the staff of LCDC, and SB 100 should be abolished. (Tracey)

71-015(6)(1)

Local authorization only for systems up to 5,000 gpd flow. This proposal is a good one. (Olson)

71-030(9) Geographic Region Rule B. (Sand-on-Sand Fill)

The proposal should be supported with some redrafting (suggested language was incorporated into Director's proposal). (Lowry)

This proposal is worthy of adoption. Sand is a workable soil to treat effluent under the proposal. (Johnson)

This proposal conflicts with LCDC's coastal zone management plan. (Mosher)

The proposed 24 inch watertable separation (9)(a)(A) might be too much. Separation measurements should not be taken under severe rain conditions. Much of the groundwater is free to use for dispersing sewage effluent. (Ordway)

The proposal is favored by the Clatsop County Health Department as sufficiently protective of the watertable. (Mason)

This proposal allows development in contravention of future comprehensive plans, dictating land use decisions to Gearhart area residents. (Berg)

71-030(1)(d)

Proposal is commendable in that it would give additional authority to contract agents. The wording "24 inches below the surface of the ground or would cause temporarily perched groundwater to come in contact with absorption facility's effective sidewall" needs clarification. Contact with sidewall is most important. Twenty-four inch requirement should be deleted. (Olson)

71-030(2) Transfer of rural areas rule administration to contract agents.

This is a good change. (Olson)

This proposal is a step back toward the era when political influence governed permit issuance. The "variance-like" rural area rules vest too much discretion for a politically beleaguered local official to struggle with. (Williams)

71-037(1) Alternate Disposal Systems

Registered sanitarians should also be allowed to perform the functions reserved to registered professional engineers under this section. In many areas, no engineers are experienced in this type of work. Many sanitarians are actively engaged in review of such systems. (Sheer)

71-037(1)(c), 71-037(2)(c), and 71-037(3)(e).

Authorization for local agent to permit alternate systems. This proposal should be deleted for the same reasons given under 71-030(2) (rural areas) (Williams)

71-045 Who may install beyond building drain (first 5 feet).

This proposal is commendable. Non-plumbers should be allowed to install pipe for building sewers and drain lines. (Herzberg, Rogers, Rudiger, Stout, Henderson, Bartram)

In addition to the rule change, statutory amendment to remove building sewers from Department of Commerce jurisdiction is needed. (Bartram)

Instead of a rule change, statutory amendment is in order to permit installers to hire non-plumbers for this work. (Wildfang)

Competent excavation contractors on government jobs laying similar or larger pipe should not have to have a license from either Commerce or DEQ simply because they turn a corner and go onto private property for a hookup. (Britton)

The "either or" system restored by the latest attorney general's opinion is livable but causes confusion in smaller communities. (Britton)

The proposal should not be adopted. It adds nothing to the revised opinion of the attorney general and serves to cloud the issues which are already the subject of litigation in Marion County Circuit Court where a petition for declaratory judgment has been filed. The home-builders association would be severely troubled if only plumbers could install building sewers because there are too few plumbers to do the work and most small plumbing shops do not have sufficient equipment to handle some of the larger pipe. The work has historically been done by laborers. (VanNatta, Wildfang)

#### Appendix B Drop Boxes

There should be allowed a design where the inlet and outlet lines "elbow" down into the box at a lower level which would permit the top of the box to be lower and, when installed, protected by a deeper earth covering. (Wildfang)

#### NOTES:

1. It is demonstrated that daytime hearings give less than a sufficient opportunity for the public neither by public indication nor by attendance records comparison. Night hearings are held frequently (i.e. Medford and Roseburg in this proceeding) and seem often to have less attendance - exceptions: Wah Chang Albany and Alumax hearings.
2. The Daily Astorian twice published notice of hearing correctly, once before and once after its error. In addition, the legal notice and press release seem to have been correct. Should a flagrant problem of news error arise, it might be wise to re-schedule a hearing. We don't find this instance (see Mr. Berg's general comment) to be such a case.
3. In addition to remarks summarized, the Department's Ron Baker, Dave Couch, Daryl Johnson and Rich Reiter submitted suggestions of great value as coming from employees in the program. It is seen as intra-agency advice and has been so-evaluated, presumably, by the Director and Mr. Osborne.

Respectfully submitted,



Peter McSwain  
Hearing Officer



## ENVIRONMENTAL QUALITY COMMISSION

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ROBERT W. STRAUB  
GOVERNOR

To: Environmental Quality Commission  
From: Director  
Subject: Amendments to Agenda Item K, October 15, 1976, EQC Meeting  
Consideration of Adoption of revised Rules for Open Burning,  
OAR 340-23-025 through 23-050

### Background

Following the preparation of the staff report and revised Rules for Open Burning, additional comments concerning the proposed rule were received from a fire control agency in Washington County. These comments indicated that the rule as proposed would have adverse effects on accomplishment of domestic open burning in certain parts of the county.

### Discussion

During the revision of the open burning rules, the special provisions for Clackamas, Columbia, Multnomah and Washington Counties were incorporated into the proposed rules. In the process of this transition, the special restricted areas of those counties which were a part of the special rules were unified into an overall Open Burning Control Area including all counties within the Willamette Valley. It has been brought to the Department's attention that minor differences in wording resulting from this unification would result in restriction of domestic open burning in parts of Washington and Clackamas Counties. These areas have historically been permitted to conduct domestic open burning during the entire year. The proposed rule as written would restrict the residents to conducting this type of burning only during the fall and spring domestic burning periods. The areas of the two counties which are affected by this change have been allowed to burn domestic waste because of a lack of adequate waste disposal services. This lack of services still exists.

### Conclusions

Wording differences have resulted from the unification of the various special rules into the proposed open burning rules. These differences have resulted in restriction of domestic open burning in areas historically allowed to conduct such burning. The restrictions can be corrected by minor changes in the proposed rules as follows: (changes underlined)



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1. Section 23-045(6)(b), change wording to: "In the Timber and Tri-City Rural Fire Protection Districts, and in areas outside Rural Fire Protection Districts in Washington County."
2. Section 23-045(6)(c), add a new subsection: (IX) In those portions of the Clackamas-Marion Rural Fire Protection District within Clackamas County.

A copy of the affected portion of the rule showing changes is attached to this report.

Directors Recommendation

It is the recommendation of the Director that the proposed Open Burning Rules, OAR 340-23-025 through 23-050 be amended as follows: (deleted wording bracketed, new wording underlined)

1. OAR 340-23-045(6)(b) In the Timber and Tri-City Rural Fire Protection Districts, and in areas outside Rural Fire Protection districts [of] in Washington County.
2. OAR 340-23-046(6)(c)(IX) In those portions of the Clackamas-Marion Rural Fire Protection District within Clackamas County.

And that these amendments become a part of the proposed Rules for Open Burning, OAR 340-23-025 through 23-050.



LOREN KRAMER

RMJ:ds  
10/12/76  
Attachment

(6) DOMESTIC WASTE

Open burning of domestic waste is prohibited within the Willamette Valley Open Burning Control Area, except such burning is permitted until July 1, 1979:

- (a) In Columbia County excluding the area within the Scappoose Rural Fire Protection District.
- (b) In the Timber and Tri-City Rural Fire Protection Districts and in all areas outside of rural fire protection districts [of] in Washington County.
- (c) In the following rural fire protection districts of Clackamas County:
  - (i) Clarkes Rural Fire Protection District.
  - (ii) Estacada Rural Fire Protection District No. 69.
  - (iii) Colton-Springwater Rural Fire Protection District.
  - (iv) Molalla Rural Fire Protection District.
  - (v) Hoodland Rural Fire Protection District.
  - (vi) Monitor Rural Fire Protection District.
  - (vii) Scotts Mills Rural Fire Protection District.
  - (viii) Aurora Rural Fire Protection District.
  - (ix) All portions of the Clackamas-Marion Fire Protection District within Clackamas County.
- (d) In Multnomah County east of the Sandy River.
- (e) In all other parts of the Willamette Valley Open Burning Control Area except Lane County, for the burning of wood, needle, or leaf materials from trees, shrubs, or plants from yard clean-up on the property at which one resides, during the period commencing with the last Friday in October and terminating at sunset on the third Sunday of December, and the period commencing the second Friday in April and terminating at sunset on the third Sunday in May.

- (f) In Lane County, in accordance with the Rules and Regulations of the Lane Regional Air Pollution Authority.
- (g) Domestic open burning is allowed under this section only between 7:30 a.m. and sunset on days when the Department has advised fire permit issuing agencies that open burning is allowed.

(7) OPEN BURNING ALLOWED BY LETTER PERMIT

Burning of commercial, industrial and construction and demolition waste on a singly occurring or infrequent basis may be allowed by a letter permit issued by the Department, provided that the following conditions are met:

- (a) No practicable alternative method for disposal of the waste is available.
- (b) Application for disposal of the waste by burning is made in writing to the Department, listing the quantity and type of waste to be burned, and all efforts which have been made to dispose of the waste by other means.
- (c) The Department shall evaluate all such requests for open burning taking into account reasonable efforts to use alternative means of disposal, the condition of the particular airshed where the burning will occur, other emission sources in the vicinity of the requested open burning, remoteness of the site and methods to be used to insure complete and efficient combustion of the waste material.
- (d) If the Department is satisfied that reasonable alternative disposal methods are not available, and that significant degradation of air quality will not occur as the result of allowing the open burning to be accomplished, the Department may issue a letter permit to allow the burning to take





## ENVIRONMENTAL QUALITY COMMISSION

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ROBERT W. STRAUB  
GOVERNOR

To: Environmental Quality Commission  
From: Director  
Subject: Agenda Item No. K, October 15, 1976, EQC Meeting

Consideration of adoption of revised Rules for Open Burning,  
OAR 340-23-025 through 23-050

### Background

On July 30, 1976 the Commission granted authorization for the Department to conduct public hearings for the proposed revisions to the Open Burning Rules. Hearings were subsequently held by the Department on September 8 in Medford and on September 9 in Eugene, Portland and Salem. Written testimony was accepted for the hearings record until September 19. The Department has reviewed the testimony presented during these hearings, and has prepared revised rules incorporating changes made as a result of the testimony received.

### Discussion

Testimony received at the public hearings was primarily related to three proposed revisions to the rules. The first and most significant change provides for the issuance of special permits for the open burning of waste material otherwise prohibited by the rule, in cases when no alternative method of disposal of the wastes is available. These permits would be limited to singly or infrequently occurring instances, and would be limited in duration according to specific needs. The permits would be issued at the Regional Manager level, and would take into account factors such as remoteness of site, atmospheric conditions and the use of alternative means of disposal of the waste material. The proposed special permits would provide more realistic solutions to occasional open burning problems by allowing infrequently occurring accumulations of wastes to be disposed of in a reasonable fashion without unnecessary delay. The special permits would also provide for emergency disposal of burnable material which might accumulate as a result of natural occurrences such as floods or windstorms, or for man-caused occurrences such as oil spills. The requirements for obtaining the permits are stringent and permits would not be issued if



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alternative disposal methods were reasonably available. Considerable support for the special permit provisions was shown at the hearings. This support was general from fire control agencies, industry and Department Regional personnel. A single exception to the support was received from Portland Regional personnel and fire officials from the Portland area, who requested that the permits be limited to emergency situations in the Portland Metropolitan area.

The second provision of the rules which produced considerable testimony was the proposed provision of six extra random days of permitted domestic open burning. These extra days were proposed to be allowed following the fall burning period during years when weather conditions prevented significant amounts of burning to be accomplished. The proposed provision for the extra days was unanimously opposed by the Portland Region, the Southwest Air Pollution Authority in Vancouver, and by the fire control officials. The fire officials expressed the opinion that the random occurrence of the proposed days would present considerable difficulty and expense in the issuance of fire permits, and would also present difficulty in informing the public on days when burning would be allowed. The Department did not receive any comment favorable to this proposed revision during the hearings.

The third revision causing comment was a proposed change in the starting date for the fall domestic burning period from the last Friday in October to the first day of November. While some support for this change in date was presented during the rule revision, the testimony presented at the hearing opposed the change. The primary reasons for this opposition were that the change would cause confusion on the part of the public, and would result in differing starting dates for burning between the Portland area and Southwest Washington. An additional reason for support for the earlier starting date was that the burning period would always start on a weekend and would therefore be more convenient for a majority of the public.

With the exception of the above testimony, the response to the proposed rules has been generally favorable. Other minor points of revision have been proposed, and have been considered in the final rules presented for adoption with this report. A copy of the proposed rules showing changes as a result of the hearing process is included as Attachment 1 of the report. The final rules proposed for adoption are included as Attachment 2, and the Hearings Officers' reports are included as Attachment 3.

### Summary and Conclusions

Comments received as testimony during the hearings for these rules have been considered by the Department and have generally been incorporated as revisions to the proposed rules. The rules presented for adoption at this time appear to be substantially supported by the Department and by affected fire control officials and industry. Comment from the general public at the hearings was minimal, probably due to the limited number of changes proposed to be made in requirements for domestic open burning.

Based on need and supported by testimony, the Department has concluded that the following provisions of the proposed rules should be retained or changed as indicated:

1. The special permit section, 340-23-045 should be retained to facilitate regulation of open burning of selected industrial, commercial or land clearing wastes where practical alternative disposal methods are not available. Special permits allowed by this section should be restricted to emergency cases in the Portland Metropolitan area since alternative methods for disposal are available in the Metropolitan area.
2. The proposed six random days of domestic burning between the fall and spring burning seasons should not be authorized because of the difficulty of administration on the part of the Department and the fire permit issuing agencies.
3. The proposed change in the starting date of the fall domestic burning period should not be made in order to decrease confusion on the part of the public, and to avoid conflict with Southwest Washington open burning rules. The added advantage of the original date starting on a weekend and thus providing more opportunity for the public to accomplish burning early in the season should be retained.

The above considerations are reflected in the final proposed rule, Attachment 2.

Director's Recommendation

It is the recommendation of the Director that the proposed revisions to the Rules for Open Burning, OAR Chapter 340, Sections 23-025 through 23-050 be adopted by the Commission, and that the Oregon Clean Air Act Implementation Plan be amended in accordance with the provisions of these rules.



LOREN KRAMER

RMJ:cs  
9/27/76

Attachments

Attachment 1

Proposed Rule showing revisions, deleted material is bracketed, new wording is underlined.

DEPARTMENT OF ENVIRONMENTAL QUALITY

PROPOSED RULES FOR OPEN BURNING

July 29, 1976

OAR Chapter 340, Sections 23-005 through 23-020, 28-005(1), (4), (5) and (6), 28-010 through 28-020, and 29-055 are repealed and new Sections 23-025 through 23-050 are adopted in lieu thereof.

23-025 POLICY.

In order to restore and maintain the quality of the air resources of the state in a condition as free from air pollution as is practicable, consistent with the overall public welfare of the State, it is the policy of the Environmental Quality Commission: to eliminate open burning disposal practices where alternative disposal methods are feasible and practicable; to encourage the development of alternative disposal methods; to emphasize resource recovery; to regulate specified types of open burning; to encourage utilization of the highest and best practicable burning methods to minimize emissions where other disposal practices are not feasible; and to require specific programs and timetables for compliance with these rules.

23-030 DEFINITIONS. As used in these Rules unless otherwise required by context:

- (1) "Commercial Waste" means combustible waste which is generated by any activity of wholesale or retail commercial offices or facilities, or by industrial, governmental, institutional, or charitable organization offices and facilities, or by housing facilities with more than four living units including but not limited to apartments, hotels, motels, dormitories and mobile home parks, but does not include any waste which is defined as industrial waste under subsection (9) of this Section or which is prohibited in Section 23-040(7).

- (2) "Commission" means the Environmental Quality Commission.
- (3) "Construction and Demolition Waste" means combustible waste which is generated by the removal of debris, logs, trees, brush, or demolition material from any site in preparation for land improvement or a construction project; any waste occurring as the result of a construction project; or any waste resulting from the complete or partial destruction of any man-made structures such as houses, apartments, commercial buildings, or industrial buildings.
- (4) "Department" means the Department of Environmental Quality.
- (5) "Director" means the Director of the Department of Environmental Quality or his delegated representative pursuant to ORS 468.045(3).
- (6) "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.
- (7) "Fire Hazard" means the presence or accumulation of combustible material of such nature and in sufficient quantity that its continued existence constitutes an imminent and substantial danger to life, property, public welfare, or to adjacent lands.
- (8) "Forced-air Pit Incineration" means any method or device by which burning of waste is done in a subsurface pit or above ground enclosure with combustion air supplied under positive draft or air curtain, and controlled in such a manner as to optimize combustion efficiency and minimize the emission of air contaminants.
- (9) "Industrial Waste" means combustible waste produced as the direct result of any manufacturing or industrial process.

- (10) "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.
- (11) "Open Burning Control Area" means an area established to control specific open burning practices or to maintain specific open burning standards which may be more stringent than those established for other areas of the State, including but not limited to the following areas:
- (a) All areas within incorporated cities having a population of four thousand (4,000) or more and within three (3) miles of the corporate limits of any such city.
- (b) The Coos Bay Open Burning Control Area, as generally depicted on Attachment 1, and as defined as follows:  
Beginning at a point approximately 4-1/2 miles WNW of The City of North Bend, Coos County, at the intersection of the north boundary of T25S, R13E and the coast line of the Pacific Ocean; thence east to the NE corner of T26S, R12E; thence south to the SE corner of T26S, R12E; thence west to the intersection of the south boundary of T26S, R14W and the coastline of the Pacific Ocean; thence northerly and easterly along the coastline of the Pacific Ocean to its intersection with the north boundary of T25S, R13E, the point of beginning.
- (c) The Rogue Basin Open Burning Control Area, as generally depicted on Attachment 2, and as defined as follows:  
Beginning at a point approximately 4-1/2 miles NE of The City of Shady Cove, Jackson County at the NE corner of T34S, R1W, Willamette Meridian; thence south along the Willamette Meridian to the SW

corner of T37S, R1W; thence East to the NE corner of T38S, R1E; thence South to the SE corner of T38S, R1E; thence East to the NE corner of T39S, R2E; thence South to the SE corner of T39S, R2E; thence West to the SW corner of T39S, R1E; thence NW along a line to the NW corner of T39S, R1W; thence West to the SW corner of T38S, R2W; thence North to the SW corner of T36S, R2W; thence West to the SW corner of T36S, R4W; thence South to the SE corner of T37S, R5W; thence West to the SW corner of T37S, R6W; thence North to the NW corner of T36S, R6W; thence East to the SW corner of T35S, R1W; thence North to the NW corner of T34S, R1W; thence East to the point of beginning.

- (d) The Umpqua Basin Open Burning Control Area, as generally depicted on Attachment 3, and as defined as follows:

Beginning at a point approximately 4 miles WNW of the City of Oakland, Douglas County, at the NE corner of T25S, R5W, Willamette Meridian; thence South to the SE corner of T25S, R5W; thence East to the NE corner of T26S, R4W; thence South to the SE corner of T27S, R4W; thence West to the SE corner of T27S, R5W; thence South to the SE corner of T30S, R5W; thence West to the SW corner of T30S, R6W; thence north to the NW corner of T29S, R6W; thence West to the SW corner of T28S, R7W; thence North to the NW corner of T27S, R7W; thence East to the NE corner of T27S, R7W; thence North to the NW corner of T26, R6W; thence East to the NE corner of T26, R6W; thence North to the NW corner of T25S, R5W; thence East to the point of beginning.

(e) The Willamette Valley Open Burning Control Area, defined as follows:

All of Benton, Clackamas, Columbia, Lane, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties.

- (12) "Person" means any individual, corporation, association, firm, partnership, joint stock company, public or municipal corporation, political subdivision, the State and any agency thereof, and the Federal Government and any agency thereof.
- (13) "Population" means the annual population estimate of incorporated cities within the State of Oregon issued by the Center for Population Research and Census, Portland State University, Portland, Oregon.
- (14) "Regional Authority" means the Lane Regional Air Pollution Authority.
- (15) "Waste" means any useless or discarded materials.

#### 23-035 EXCEPTIONS, STATEWIDE

The provisions of these rules shall not apply to:

- (1) Fires set for traditional recreational purposes and traditional ceremonial occasions for which a fire is appropriate provided that no waste materials which may emit dense smoke or noxious odors as prohibited in Section 22-040(7) are included as any part of the fuel used for such fires.
- (2) Any barbecue equipment not used for commercial or fund raising purposes, nor to any barbecue equipment used for commercial or fund raising purposes for no more than two periods in any calendar year, each such period not to exceed two consecutive weeks, in any single area.



- (3) Fires set or allowed by any public agency when such fire is set or allowed to be set in the performance of its official duty for the purpose of weed abatement, instruction of employes in the methods of fire fighting, or for prevention or elimination of a fire hazard, and which are necessary in the opinion of the public agency responsible for such fires.
- (4) Open burning as a part of agricultural operations which is regulated in part by OAR Chapter 340, Division 2, Subdivision 6, Agricultural Operations.
- (5) Open burning on forest land permitted under the Smoke Management Plan filed pursuant to ORS 477.515.
- (6) Fires set pursuant to permit for the purpose of instruction of employees of private industrial concerns in methods of fire fighting, or for civil defense instruction.

#### 23-040 GENERAL REQUIREMENTS AND PROHIBITIONS

- (1) No person shall cause or allow to be initiated or maintained any open burning which is prohibited by any rule of the Commission.
- (2) Open burning in violation of any rule of the Commission shall be promptly extinguished by the person in attendance or person responsible when notified to extinguish the fire by either the Department, or by any other appropriate public official.
- (3) Any person who owns or controls, including the tenant of, property on which open burning occurs or who has caused or allowed such open burning to be initiated or maintained shall be considered the person responsible for the open burning.
- (4) Open fires allowed by these rules shall be constantly attended by a responsible person until extinguished.

- (5) All combustible material to be open burned shall be dried to the extent practicable to prevent emissions of excessive smoke.
- (6) All combustible material to be open burned shall be stacked or windrowed in such a manner as to eliminate dirt, rocks and other non-combustible material, and to promote efficient burning. Equipment and tools shall be available to periodically re-stack the burning material to insure that combustion is essentially complete and that smoldering fires are prevented.
- (7) Open burning of any waste materials which normally emit dense smoke, noxious odors, or which may tend to create a public nuisance such as, but not limited to household garbage, plastics, wire insulation, auto bodies, asphalt, waste petroleum products, rubber products, animal remains, and animal or vegetable wastes resulting from the handling, preparation, cooking, or service of food is prohibited.
- (8) If the Department determines that open burning allowed by these rules may cause or is causing a public nuisance, the Department may require that the burning be terminated or that auxiliary combustion equipment or combustion promoting materials to be used to insure complete combustion and elimination of the nuisance. Auxiliary combustion equipment required under this subsection may include, but is not limited to, fans or air curtain incinerators. Combustion promoting materials may include but are not limited to propane, diesel oil or jellied diesel.
- (9) No open burning shall be initiated in any part of the State on any day or at any time when the Department advises fire permit issuing agencies that open burning is not allowed in that part of the State because of adverse meteorological or air quality conditions.

- (10) No open burning shall be initiated in any area of the State in which an air pollution alert, warning, or emergency has been declared pursuant to OAR Chapter 340, Sections 27-010 and 27-025(2), and is then in effect. Any open burning in progress at the time of such declaration shall be promptly extinguished by the person in attendance or person responsible when notified of the declaration by either the Department or any other appropriate public official.
- (11) Open burning authorized by these rules does not exempt or excuse any person from liability for, consequences, damages or injuries resulting from such burning, nor does it exempt any person from complying with applicable laws, ordinances or regulations of other governmental agencies having jurisdiction.
- (12) Forced-air pit incineration may be approved as an alternative to open burning prohibited by these rules, provided that the following conditions shall be met:
  - (a) The person requesting approval of forced air pit incineration shall demonstrate to the satisfaction of the Department or Regional Authority that no feasible or practicable alternative to forced-air pit incineration exists.
  - (b) The forced air pit incineration facility shall be designed, installed and operated in such a manner that visible emissions do not exceed forty percent (40%) opacity for more than three (3) minutes out of any one (1) hour of operation following the initial thirty (30) minute startup period.

- (c) The person requesting approval of a forced-air pit incineration facility shall obtain an Air Contaminant Discharge Permit, if required therefor, and the person shall be granted an approval of the facility only after a Notice of Construction and Application for Approval is submitted pursuant to OAR Chapter 340, Section 20-020 through 20-030.

#### 23-045 REQUIREMENTS AND PROHIBITIONS BY AREA

##### (1) LANE COUNTY

The rules and regulations of the Lane Regional Air Pollution Authority shall apply to all open burning conducted in Lane County, provided that the provisions of such rules and regulations shall be no less stringent than the provisions of these rules.

##### (2) SOLID WASTE DISPOSAL

Open burning at solid waste disposal sites is prohibited statewide except as authorized by a Solid Waste Permit issued as provided in OAR Chapter 340, Sections 61-005 through 61-085.

##### (3) COMMERCIAL WASTE

Open burning of commercial waste is prohibited within open burning control areas except as may be provided in subsection (7) of this section.

##### (4) INDUSTRIAL WASTE

Open burning of industrial waste is prohibited statewide except as may be provided in subsection (7) of this section.

(5) CONSTRUCTION AND DEMOLITION WASTE

Except as may be provided in subsection (7) of this section, open burning of construction and demolition waste, including non-agricultural land clearing debris, is prohibited as follows:

- (a) Within all open burning control areas in Baker, Benton, Clatsop, Coos, Crook, Deschutes, Douglas, Hood River, Jackson, Josephine, Klamath, Lincoln, Linn, Malheur, Marion, Polk, Tillamook, Umatilla, Union, Wasco and Yamhill Counties.
- (b) In Multnomah County west of the Sandy River.
- (c) In Washington County in all areas within rural fire protection districts, including the areas of incorporated cities within or surrounded by said districts.
- (d) In Columbia and Clackamas Counties within control areas established as:
  - (i) Any area in or within three (3) miles of the boundary of any city of more than 1,000 but less than 45,000 population.
  - (ii) Any area in or within six (6) miles of the boundary of any city of 45,000 or more population.
  - (iii) Any area between areas established by this rule where the boundaries are separated by three (3) miles or less.
  - (iv) Whenever two or more cities have a common boundary, the total population of these cities will determine the control area classification and the municipal boundaries of each of the cities shall be used to determine the limit of the control area.

(6) DOMESTIC WASTE

Open burning of domestic waste is prohibited within the Willamette Valley Open Burning Control Area, except such burning is permitted until July 1, 1979:

- (a) In Columbia County excluding the area within the Scappoose Rural Fire Protection District.
- (b) In the Timber and Tri-City Rural Fire Protection Districts of Washington County.
- (c) In the following rural fire protection districts of Clackamas County:
  - (i) Clarkes Rural Fire Protection District.
  - (ii) Estacada Rural Fire Protection District No. 69.
  - (iii) Colton-Springwater Rural Fire Protection District.
  - (iv) Molalla Rural Fire Protection District.
  - (v) Hoodland Rural Fire Protection District.
  - (vi) Monitor Rural Fire Protection District.
  - (vii) Scotts Mills Rural Fire Protection District.
  - (viii) Aurora Rural Fire Protection District.
- (d) In Multnomah County east of the Sandy River.
- (e) In all other parts of the Willamette Valley Open Burning Control Area except Lane County, for the burning of wood, needle, or leaf materials from trees, shrubs, or plants from yard clean-up on the property at which one resides, during the period commencing with [~~the first day of November~~] the last Friday in October and terminating at sunset on the third Sunday of December, and the period commencing the second Friday in April and terminating at sunset on the third Sunday in May.
- (f) In Lane County, in accordance with the Rules and Regulations of the Lane Regional Air Pollution Authority.

(g) Domestic open burning is allowed under this section only between 7:30 a.m. and sunset on days when the Department has advised fire permit issuing agencies that open burning is allowed. ~~[In the event that meteorological ventilation conditions or inclement weather prevent reasonable accomplishment of domestic waste burning during the period ending on the third Sunday in December and the second Friday in April,--Such additional burning days shall be allowed only when meteorological ventilation conditions permit and weather conditions are favorable and will preferably be weekend days.--No more than six (6) total burning days shall be allowed during the period from the third Sunday in December to the second Friday in April.]~~

(7) OPEN BURNING ALLOWED BY LETTER PERMIT

Burning of commercial, industrial and construction and demolition waste on a singly occurring or infrequent basis may be allowed by a letter permit issued by the Department, provided that the following conditions are met:

~~[(1)]~~ (a) No practicable alternative method for disposal of the waste is available.

~~[(2)]~~ (b) Application for disposal of the waste by burning is made in writing to the Department, listing the quantity and type of waste to be burned, and all efforts which have been made to dispose of the waste by other means.

~~[(3)]~~(c) The Department shall evaluate all such requests for open burning taking into account reasonable efforts to use alternative means of disposal, the condition of the particular airshed where the burning will occur, other emission sources in the vicinity of the requested open burning, remoteness of the site and methods to be used to insure complete and efficient combustion of the waste material.

~~[(4)]~~(d) If the Department is satisfied that reasonable alternative disposal methods are not available, and that significant degradation of air quality will not occur as the result of allowing the open burning to be accomplished, the Department may issue a letter permit to allow the burning to take place. The duration and date of effectiveness of the letter permit shall be specific to the individual request for authorization of open burning, and the letter permit shall contain conditions so as to insure that the burning is accomplished in the most efficient manner and over the shortest time period attainable.

(e) Within the boundaries of Clackamas, Columbia, Multnomah and Washington Counties, such letter permits shall be issued only for the purpose of disposal of waste resulting from emergency occurrences including but not limited to floods, windstorms, or oil spills, provided that such waste cannot be disposed of by any other reasonable means.



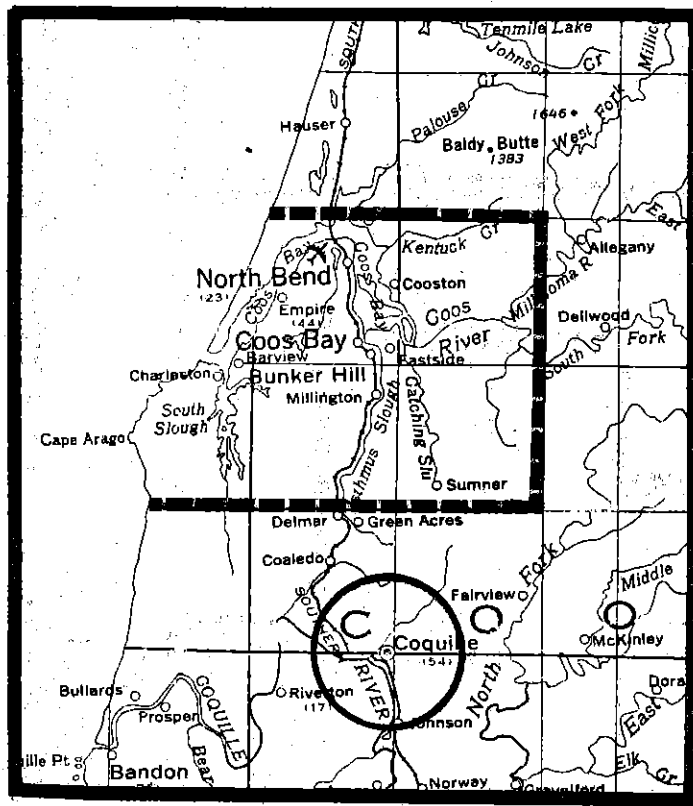
~~[(5)](f)~~ Failure to conduct open burning according to the conditions of the letter permit, or any open burning in excess of that allowed by the letter permit~~[, shall be considered cause for revocation of the letter permit and for enforcement action by the Department.]~~ shall cause the permit to be immediately terminated as provided in OAR 340-14-045(2) and shall be cause for assessment of civil penalties as provided in OAR 340-12-030, 12-035, 12-040(3)(b), 12-045 and 12-050(3), or for other enforcement action by the Department.

#### 23-050 RECORDS AND REPORTS

As required by ORS 478.960(7), fire permit issuing agencies shall maintain records of all open burning permits and the conditions thereof, and shall submit such records or summaries thereof to the Commission as may be required. Forms for any reports required under this section shall be provided by the Department.

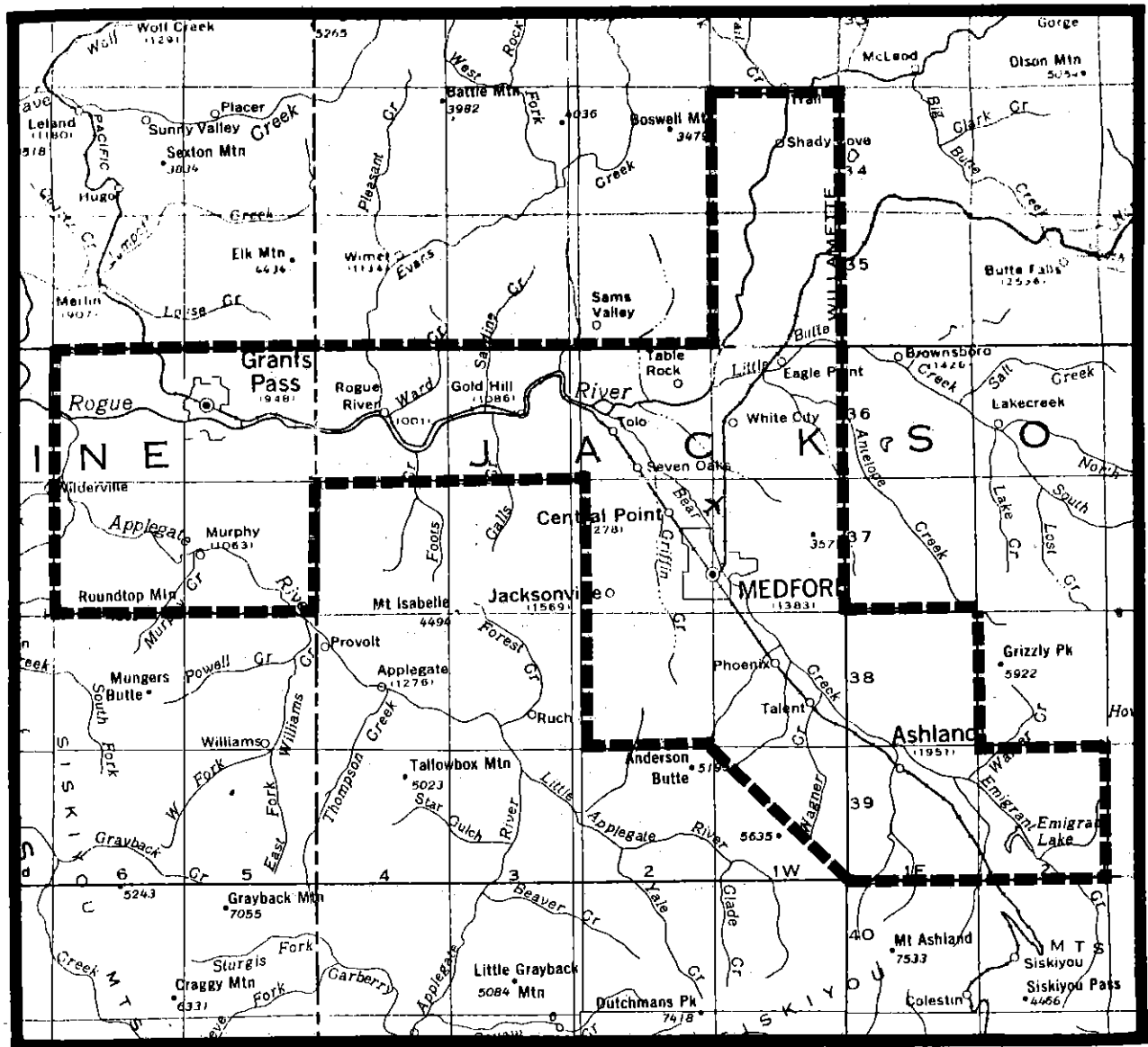
ATTACHMENT 1

COOS BAY OPEN BURNING CONTROL AREA  
(Coquille Control Area Shown As Circle)



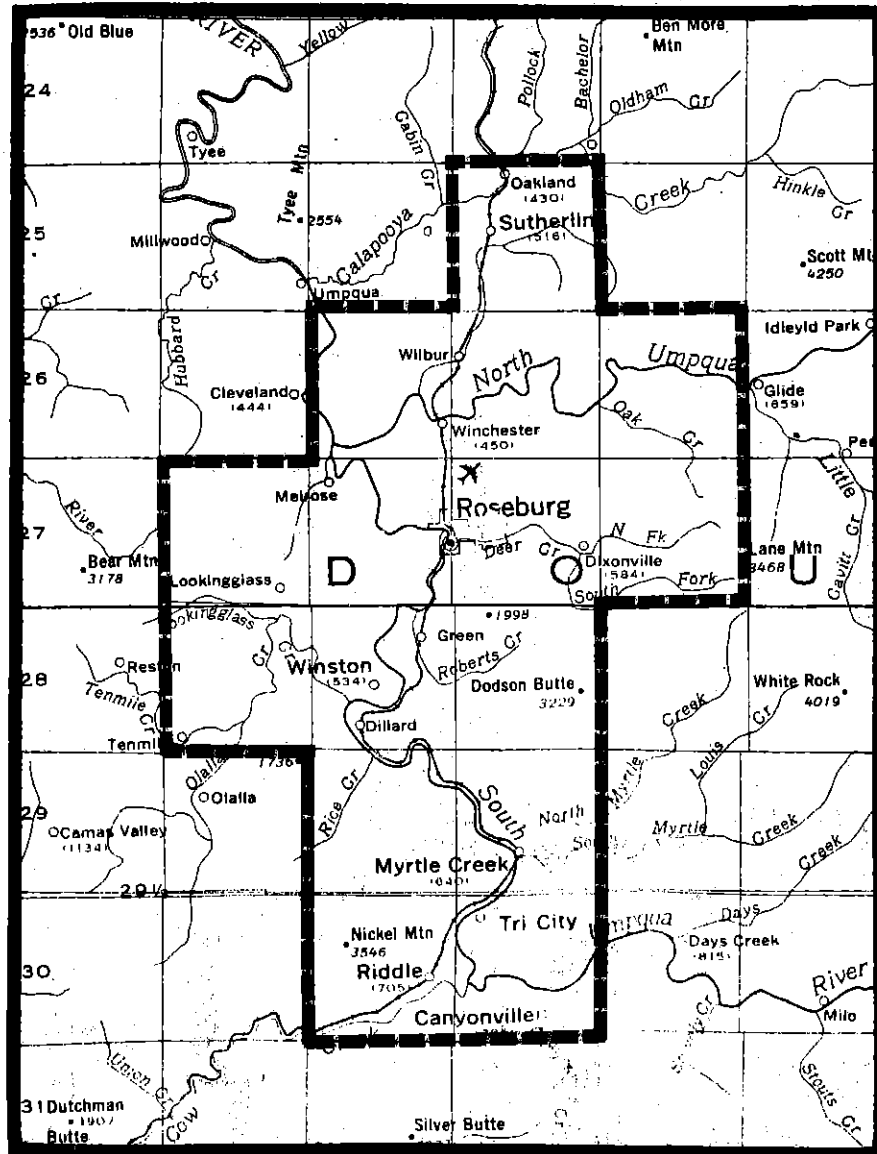
ATTACHMENT 2

ROGUE BASIN OPEN BURNING CONTROL AREA

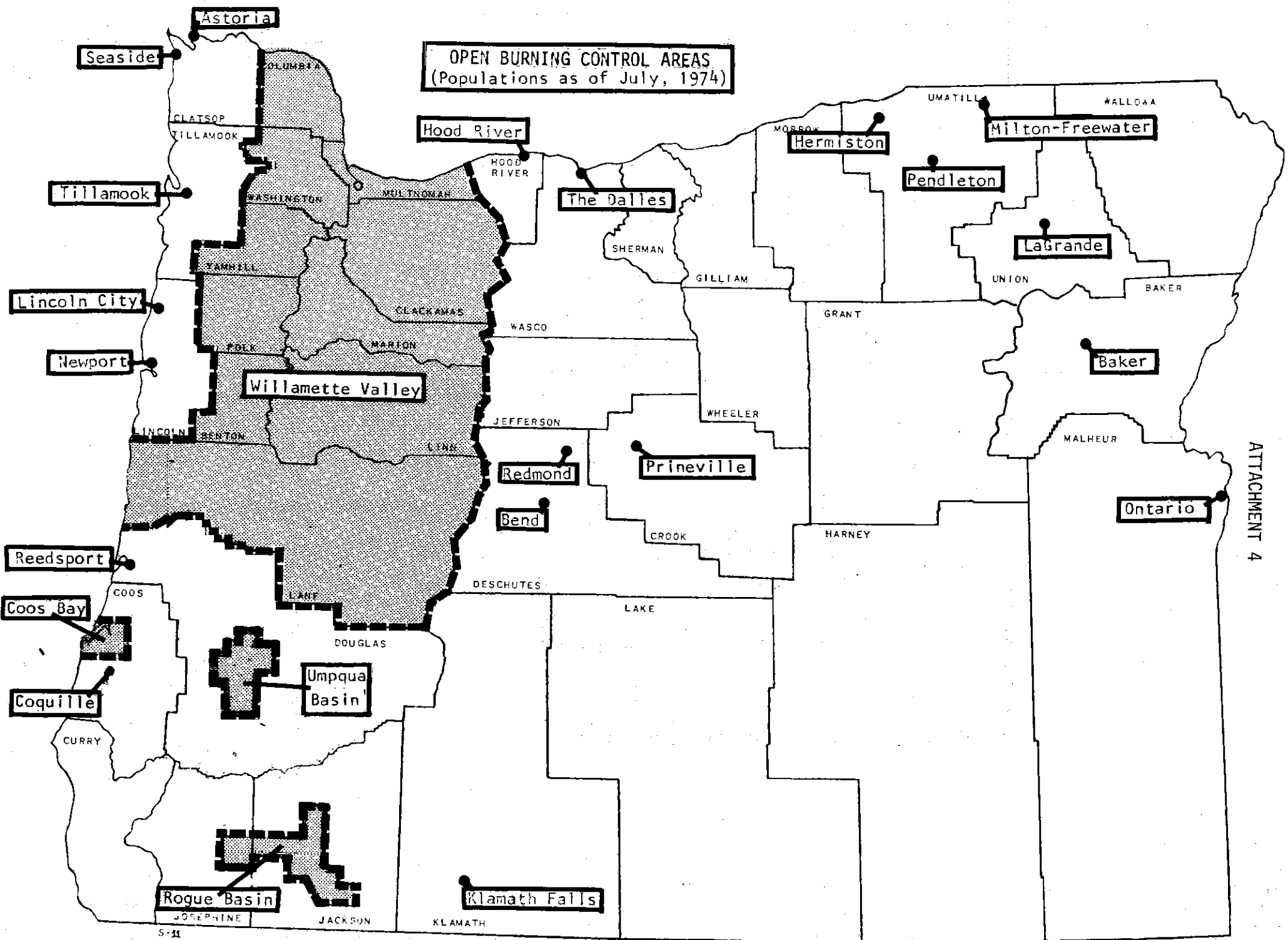


ATTACHMENT 3

UMPQUA BASIN OPEN BURNING CONTROL AREA



**OPEN BURNING CONTROL AREAS**  
(Populations as of July, 1974)



ATTACHMENT 4

DEPARTMENT OF ENVIRONMENTAL QUALITY

RULES FOR OPEN BURNING

September 17, 1976

OAR Chapter 340, Sections 23-005 through 23-020, 28-005(1), (4), (5) and (6), 28-010 through 28-020, and 29-055 are repealed and new Sections 23-025 through 23-050 are adopted in lieu thereof.

**23-025 POLICY.**

In order to restore and maintain the quality of the air resources of the state in a condition as free from air pollution as is practicable, consistent with the overall public welfare of the State, it is the policy of the Environmental Quality Commission: to eliminate open burning disposal practices where alternative disposal methods are feasible and practicable; to encourage the development of alternative disposal methods; to emphasize resource recovery; to regulate specified types of open burning; to encourage utilization of the highest and best practicable burning methods to minimize emissions where other disposal practices are not feasible; and to require specific programs and timetables for compliance with these rules.

**23-030 DEFINITIONS.** As used in these Rules unless otherwise required by context:

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- (2) "Commission" means the Environmental Quality Commission.
- (3) "Construction and Demolition Waste" means combustible waste which is generated by the removal of debris, logs, trees, brush, or demolition material from any site in preparation for land improvement or a construction project; any waste occurring as the result of a construction project; or any waste resulting from the complete or partial destruction of any man-made structures such as houses, apartments, commercial buildings, or industrial buildings.
- (4) "Department" means the Department of Environmental Quality.
- (5) "Director" means the Director of the Department of Environmental Quality or his delegated representative pursuant to ORS 468.045(3).
- (6) "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.
- (7) "Fire Hazard" means the presence or accumulation of combustible material of such nature and in sufficient quantity that its continued existence constitutes an imminent and substantial danger to life, property, public welfare, or to adjacent lands.
- (8) "Forced-air Pit Incineration" means any method or device by which burning of waste is done in a subsurface pit or above ground enclosure with combustion air supplied under positive draft or air curtain, and controlled in such a manner as to optimize combustion efficiency and minimize the emission of air contaminants.
- (9) "Industrial Waste" means combustible waste produced as the direct result of any manufacturing or industrial process.

(10) "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.

(11) "Open Burning Control Area" means an area established to control specific open burning practices or to maintain specific open burning standards which may be more stringent than those established for other areas of the State, including but not limited to the following areas:

(a) All areas within incorporated cities having a population of four thousand (4,000) or more and within three (3) miles of the corporate limits of any such city.

(b) The Coos Bay Open Burning Control Area, as generally depicted on Attachment 1, and as defined as follows:

Beginning at a point approximately 4-1/2 miles WNW of The City of North Bend, Coos County, at the intersection of the north boundary of T25S, R13E and the coast line of the Pacific Ocean; thence east to the NE corner of T26S, R12E; thence south to the SE corner of T26S, R12E; thence west to the intersection of the south boundary of T26S, R14W and the coastline of the Pacific Ocean; thence northerly and easterly along the coastline of the Pacific Ocean to its intersection with the north boundary of T25S, R13E, the point of beginning.

(c) The Rogue Basin Open Burning Control Area, as generally depicted on Attachment 2, and as defined as follows:

Beginning at a point approximately 4-1/2 miles NE of The City of Shady Cove, Jackson County at the NE corner of T34S, R1W, Willamette Meridian; thence south along the Willamette Meridian to the SW



corner of T37S, R1W; thence East to the NE corner of T38S, R1E; thence South to the SE corner of T38S, R1E; thence East to the NE corner of T39S, R2E; thence South to the SE corner of T39S, R2E; thence West to the SW corner of T39S, R1E; thence NW along a line to the NW corner of T39S, R1W; thence West to the SW corner of T38S, R2W; thence North to the SW corner of T36S, R2W; thence West to the SW corner of T36S, R4W; thence South to the SE corner of T37S, R5W; thence West to the SW corner of T37S, R6W; thence North to the NW corner of T36S, R6W; thence East to the SW corner of T35S, R1W; thence North to the NW corner of T34S, R1W; thence East to the point of beginning.

- (d) The Umpqua Basin Open Burning Control Area, as generally depicted on Attachment 3, and as defined as follows:

Beginning at a point approximately 4 miles WNW of the City of Oakland, Douglas County, at the NE corner of T25S, R5W, Willamette Meridian; thence South to the SE corner of T25S, R5W; thence East to the NE corner of T26S, R4W; thence South to the SE corner of T27S, R4W; thence West to the SE corner of T27S, R5W; thence South to the SE corner of T30S, R5W; thence West to the SW corner of T30S, R6W; thence north to the NW corner of T29S, R6W; thence West to the SW corner of T28S, R7W; thence North to the NW corner of T27S, R7W; thence East to the NE corner of T27S, R7W; thence North to the NW corner of T26, R6W; thence East to the NE corner of T26, R6W; thence North to the NW corner of T25S, R5W; thence East to the point of beginning.

(e) The Willamette Valley Open Burning Control Area, defined as follows:

All of Benton, Clackamas, Columbia, Lane, Linn, Marion, Multnomah, Polk, Washington and Yamhill Counties.

- (12) "Person" means any individual, corporation, association, firm, partnership, joint stock company, public or municipal corporation, political subdivision, the State and any agency thereof, and the Federal Government and any agency thereof.
- (13) "Population" means the annual population estimate of incorporated cities within the State of Oregon issued by the Center for Population Research and Census, Portland State University, Portland, Oregon.
- (14) "Regional Authority" means the Lane Regional Air Pollution Authority.
- (15) "Waste" means any useless or discarded materials.

#### 23-035 EXCEPTIONS, STATEWIDE

The provisions of these rules shall not apply to:

- (1) Fires set for traditional recreational purposes and traditional ceremonial occasions for which a fire is appropriate provided that no waste materials which may emit dense smoke or noxious odors as prohibited in Section 22-040(7) are included as any part of the fuel used for such fires.
- (2) Any barbecue equipment not used for commercial or fund raising purposes, nor to any barbecue equipment used for commercial or fund raising purposes for no more than two periods in any calendar year, each such period not to exceed two consecutive weeks, in any single area.

- (3) Fires set or allowed by any public agency when such fire is set or allowed to be set in the performance of its official duty for the purpose of weed abatement, instruction of employes in the methods of fire fighting, or for prevention or elimination of a fire hazard, and which are necessary in the opinion of the public agency responsible for such fires.
- (4) Open burning as a part of agricultural operations which is regulated in part by OAR Chapter 340, Division 2, Subdivision 6, Agricultural Operations.
- (5) Open burning on forest land permitted under the Smoke Management Plan filed pursuant to ORS 477.515.
- (6) Fires set pursuant to permit for the purpose of instruction of employes of private industrial concerns in methods of fire fighting, or for civil defense instruction.

#### 23-040 GENERAL REQUIREMENTS AND PROHIBITIONS

- (1) No person shall cause or allow to be initiated or maintained any open burning which is prohibited by any rule of the Commission.
- (2) Open burning in violation of any rule of the Commission shall be promptly extinguished by the person in attendance or person responsible when notified to extinguish the fire by either the Department, or by any other appropriate public official.
- (3) Any person who owns or controls, including the tenant of, property on which open burning occurs or who has caused or allowed such open burning to be initiated or maintained shall be considered the person responsible for the open burning.
- (4) Open fires allowed by these rules shall be constantly attended by a responsible person until extinguished.

- (5) All combustible material to be open burned shall be dried to the extent practicable to prevent emissions of excessive smoke.
- (6) All combustible material to be open burned shall be stacked or windrowed in such a manner as to eliminate dirt, rocks and other non-combustible material, and to promote efficient burning. Equipment and tools shall be available to periodically re-stack the burning material to insure that combustion is essentially complete and that smoldering fires are prevented.
- (7) Open burning of any waste materials which normally emit dense smoke, noxious odors, or which may tend to create a public nuisance such as, but not limited to household garbage, plastics, wire insulation, auto bodies, asphalt, waste petroleum products, rubber products, animal remains, and animal or vegetable wastes resulting from the handling, preparation, cooking, or service of food is prohibited.
- (8) If the Department determines that open burning allowed by these rules may cause or is causing a public nuisance, the Department may require that the burning be terminated or that auxiliary combustion equipment or combustion promoting materials to be used to insure complete combustion and elimination of the nuisance. Auxiliary combustion equipment required under this subsection may include, but is not limited to, fans or air curtain incinerators. Combustion promoting materials may include but are not limited to propane, diesel oil or jellied diesel.
- (9) No open burning shall be initiated in any part of the State on any day or at any time when the Department advises fire permit issuing agencies that open burning is not allowed in that part of the State because of adverse meteorological or air quality conditions.

- (10) No open burning shall be initiated in any area of the State in which an air pollution alert, warning, or emergency has been declared pursuant to OAR Chapter 340, Sections 27-010 and 27-025(2), and is then in effect. Any open burning in progress at the time of such declaration shall be promptly extinguished by the person in attendance or person responsible when notified of the declaration by either the Department or any other appropriate public official.
- (11) Open burning authorized by these rules does not exempt or excuse any person from liability for, consequences, damages or injuries resulting from such burning, nor does it exempt any person from complying with applicable laws, ordinances or regulations of other governmental agencies having jurisdiction.
- (12) Forced-air pit incineration may be approved as an alternative to open burning prohibited by these rules, provided that the following conditions shall be met:
  - (a) The person requesting approval of forced air pit incineration shall demonstrate to the satisfaction of the Department or Regional Authority that no feasible or practicable alternative to forced-air pit incineration exists.
  - (b) The forced air pit incineration facility shall be designed, installed and operated in such a manner that visible emissions do not exceed forty percent (40%) opacity for more than three (3) minutes out of any one (1) hour of operation following the initial thirty (30) minute startup period.

- (c) The person requesting approval of a forced-air pit incineration facility shall obtain an Air Contaminant Discharge Permit, if required therefor, and the person shall be granted an approval of the facility only after a Notice of Construction and Application for Approval is submitted pursuant to OAR Chapter 340, Section 20-020 through 20-030.

**23-045 REQUIREMENTS AND PROHIBITIONS BY AREA**

**(1) LANE COUNTY**

The rules and regulations of the Lane Regional Air Pollution Authority shall apply to all open burning conducted in Lane County, provided that the provisions of such rules and regulations shall be no less stringent than the provisions of these rules.

**(2) SOLID WASTE DISPOSAL**

Open burning at solid waste disposal sites is prohibited statewide except as authorized by a Solid Waste Permit issued as provided in OAR Chapter 340, Sections 61-005 through 61-085.

**(3) COMMERCIAL WASTE**

Open burning of commercial waste is prohibited within open burning control areas except as may be provided in subsection (7) of this section.

**(4) INDUSTRIAL WASTE**

Open burning of industrial waste is prohibited statewide except as may be provided in subsection (7) of this section.

(5) CONSTRUCTION AND DEMOLITION WASTE

Except as may be provided in subsection (7) of this section, open burning of construction and demolition waste, including non-agricultural land clearing debris, is prohibited as follows:

- (a) Within all open burning control areas in Baker, Benton, Clatsop, Coos, Crook, Deschutes, Douglas, Hood River, Jackson, Josephine, Klamath, Lincoln, Linn, Malheur, Marion, Polk, Tillamook, Umatilla, Union, Wasco and Yamhill Counties.
- (b) In Multnomah County west of the Sandy River.
- (c) In Washington County in all areas within rural fire protection districts, including the areas of incorporated cities within or surrounded by said districts.
- (d) In Columbia and Clackamas Counties within control areas established as:
  - (i) Any area in or within three (3) miles of the boundary of any city of more than 1,000 but less than 45,000 population.
  - (ii) Any area in or within six (6) miles of the boundary of any city of 45,000 or more population.
  - (iii) Any area between areas established by this rule where the boundaries are separated by three (3) miles or less.
  - (iv) Whenever two or more cities have a common boundary, the total population of these cities will determine the control area classification and the municipal boundaries of each of the cities shall be used to determine the limit of the control area.

(6) DOMESTIC WASTE

Open burning of domestic waste is prohibited within the Willamette Valley Open Burning Control Area, except such burning is permitted until July 1, 1979:

- (a) In Columbia County excluding the area within the Scappoose Rural Fire Protection District.
- (b) In the Timber and Tri-City Rural Fire Protection Districts of Washington County.
- (c) In the following rural fire protection districts of Clackamas County:
  - (i) Clarkes Rural Fire Protection District.
  - (ii) Estacada Rural Fire Protection District No. 69.
  - (iii) Colton-Springwater Rural Fire Protection District.
  - (iv) Molalla Rural Fire Protection District.
  - (v) Hoodland Rural Fire Protection District.
  - (vi) Monitor Rural Fire Protection District.
  - (vii) Scotts Mills Rural Fire Protection District.
  - (viii) Aurora Rural Fire Protection District.
- (d) In Multnomah County east of the Sandy River.
- (e) In all other parts of the Willamette Valley Open Burning Control Area except Lane County, for the burning of wood, needle, or leaf materials from trees, shrubs, or plants from yard clean-up on the property at which one resides, during the period commencing with the last Friday in October and terminating at sunset on the third Sunday of December, and the period commencing the second Friday in April and terminating at sunset on the third Sunday in May.
- (f) In Lane County, in accordance with the Rules and Regulations of the Lane Regional Air Pollution Authority.



(g) Domestic open burning is allowed under this section only between 7:30 a.m. and sunset on days when the Department has advised fire permit issuing agencies that open burning is allowed.

(7) OPEN BURNING ALLOWED BY LETTER PERMIT

Burning of commercial, industrial and construction and demolition waste on a singly occurring or infrequent basis may be allowed by a letter permit issued by the Department, provided that the following conditions are met:

- (a) No practicable alternative method for disposal of the waste is available.
- (b) Application for disposal of the waste by burning is made in writing to the Department, listing the quantity and type of waste to be burned, and all efforts which have been made to dispose of the waste by other means.
- (c) The Department shall evaluate all such requests for open burning taking into account reasonable efforts to use alternative means of disposal, the condition of the particular airshed where the burning will occur, other emission sources in the vicinity of the requested open burning, remoteness of the site and methods to be used to insure complete and efficient combustion of the waste material.
- (d) If the Department is satisfied that reasonable alternative disposal methods are not available, and that significant degradation of air quality will not occur as the result of allowing the open burning to be accomplished, the Department may issue a letter permit to allow the burning to take

place. The duration and date of effectiveness of the letter permit shall be specific to the individual request for authorization of open burning, and the letter permit shall contain conditions so as to insure that the burning is accomplished in the most efficient manner and over the shortest time period attainable.

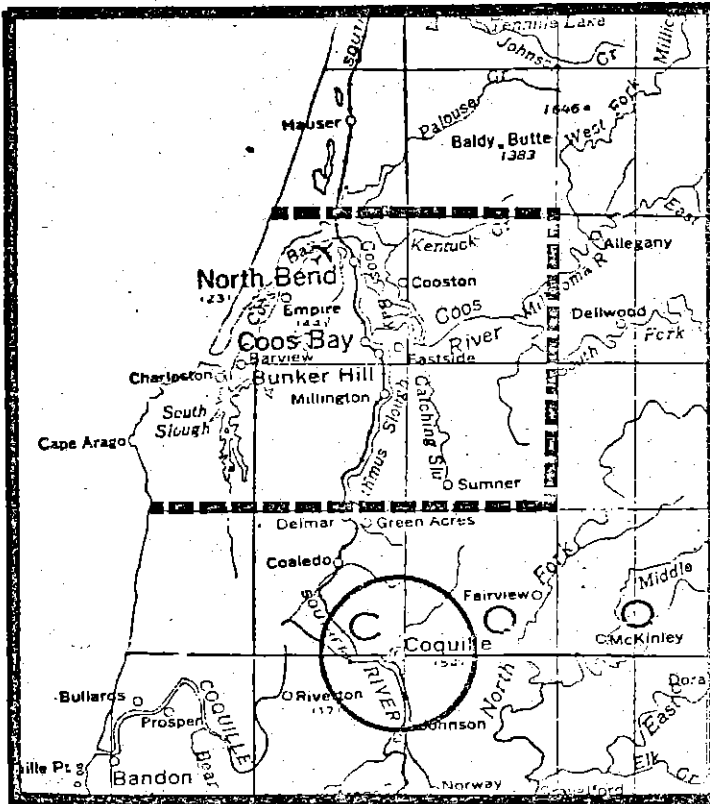
- (e) Within the boundaries of Clackamas, Columbia, Multnomah and Washington Counties, such letter permits shall be issued only for the purpose of disposal of waste resulting from emergency occurrences including but not limited to floods, windstorms, or oil spills, provided that such waste cannot be disposed of by any other reasonable means.
- (f) Failure to conduct open burning according to the conditions of the letter permit, or any open burning in excess of that allowed by the letter permit shall cause the permit to be immediately terminated as provided in OAR 340-14-045(2) and shall be cause for assessment of civil penalties as provided in OAR 340-12-030, 12-035, 12-040(3)(b), 12-045 and 12-050(3), or for other enforcement action by the Department.

#### 23-050 RECORDS AND REPORTS

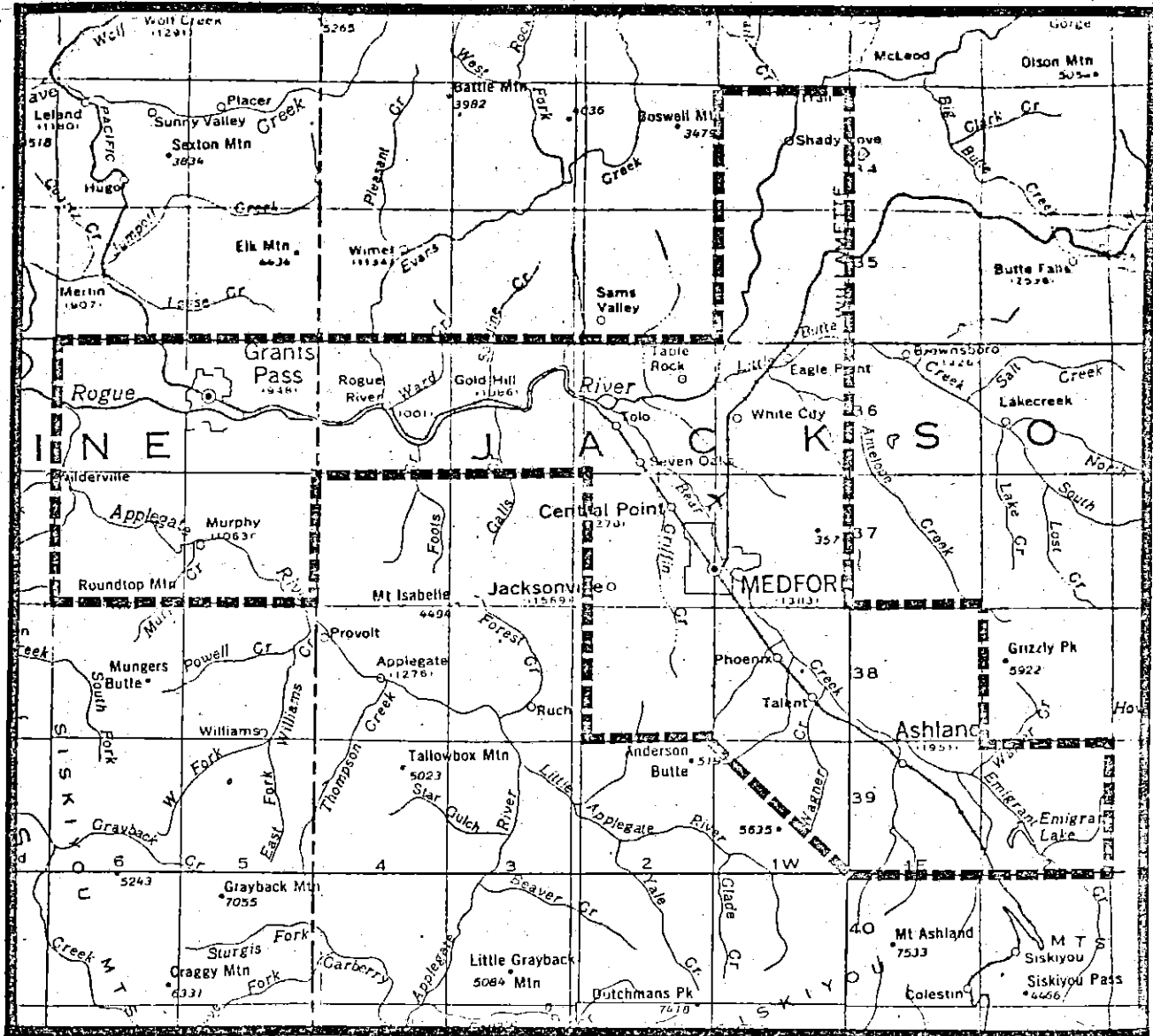
As required by ORS 478.960(7), fire permit issuing agencies shall maintain records of all open burning permits and the conditions thereof, and shall submit such records or summaries thereof to the Commission as may be required. Forms for any reports required under this section shall be provided by the Department.

ATTACHMENT 1

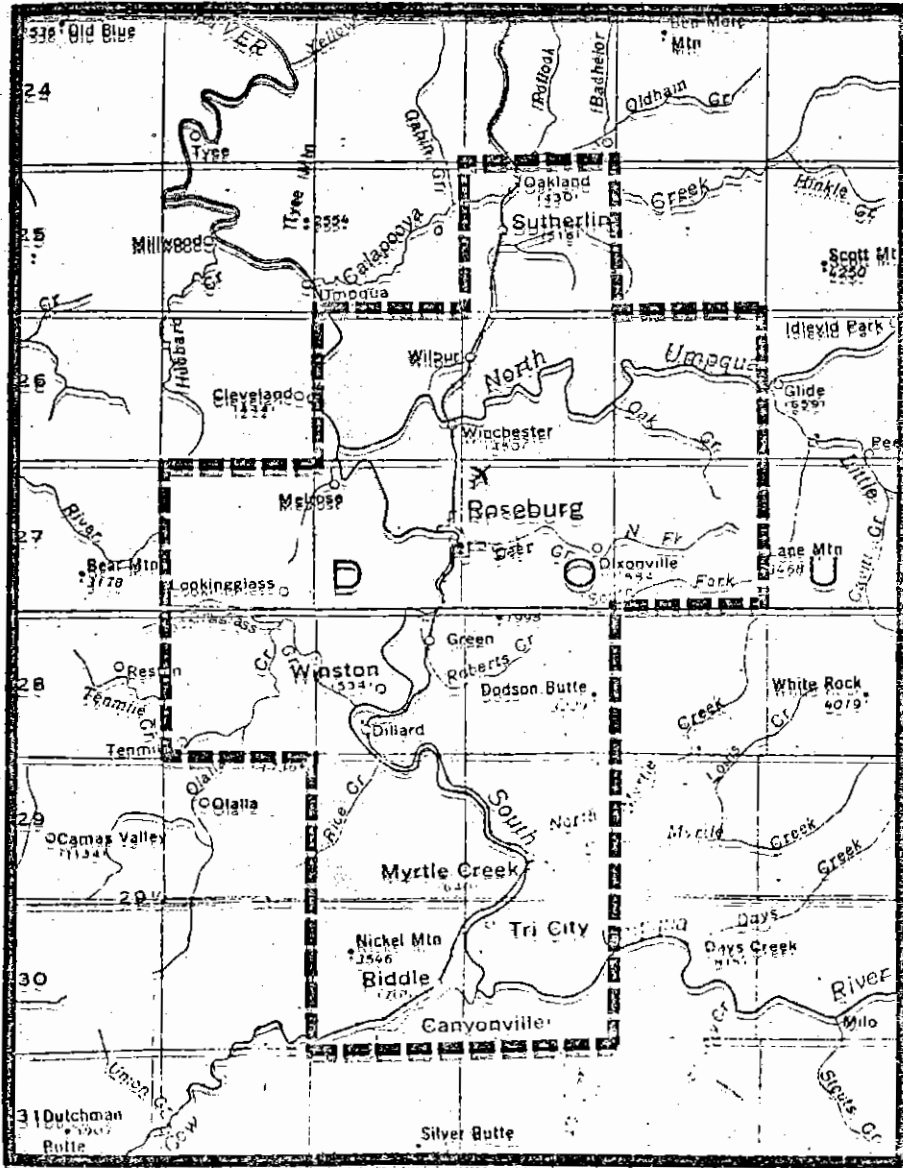
COOS BAY OPEN BURNING CONTROL AREA  
(Coquille Control Area Shown As Circle)

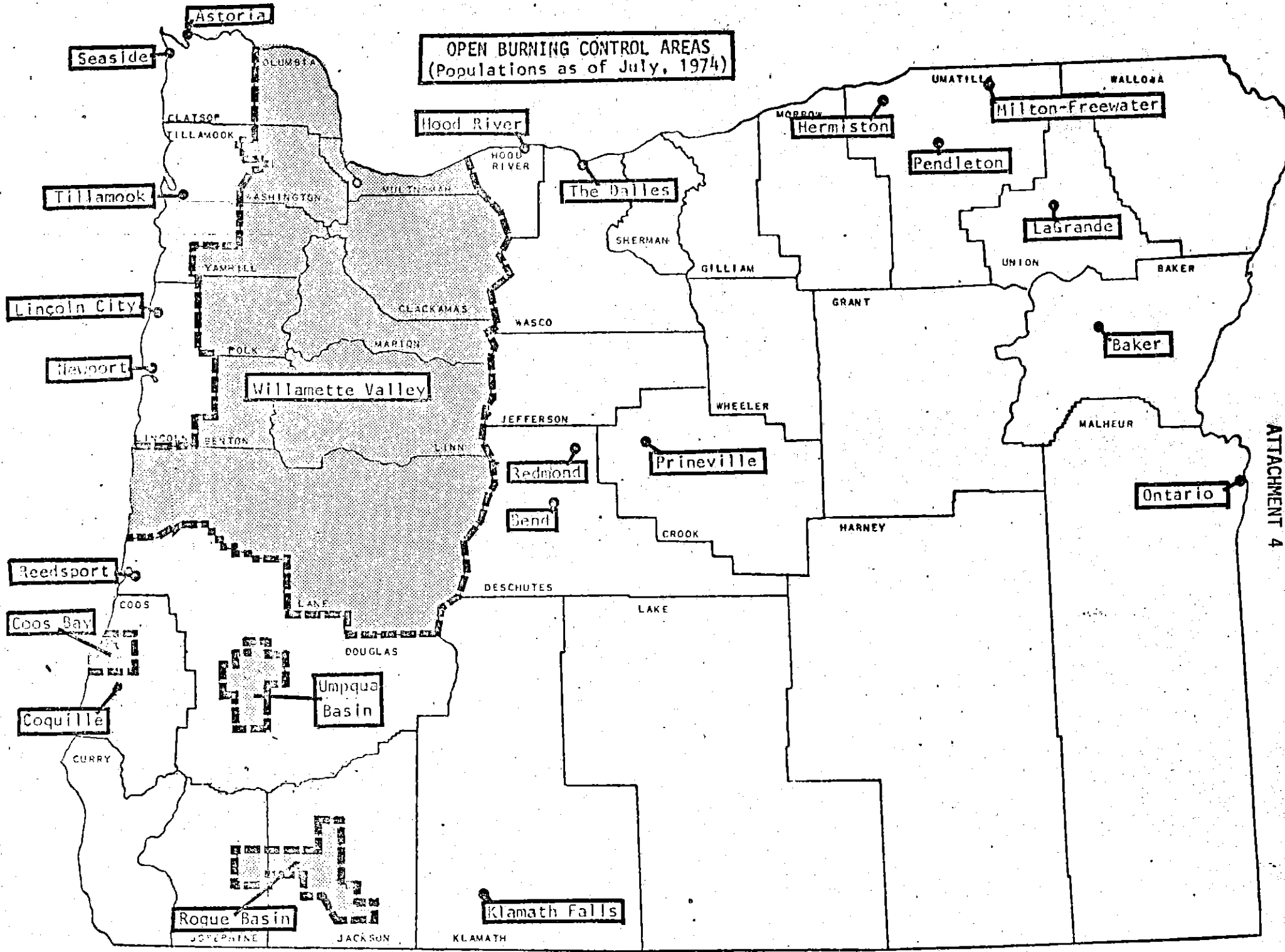


ROGUE BASIN OPEN BURNING CONTROL AREA



UMPQUA BASIN OPEN BURNING CONTROL AREA





ATTACHMENT 4



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

### MEMORANDUM

TO: Environmental Quality Commission

FROM: Hearing Officer

SUBJECT: Hearing Report: Four Public Hearings on Proposed Rules  
for Open Burning

### Background

On September 8, a public hearing was conducted in Medford (See attached memo from Mr. Richard Reiter). On September 9, hearings were held in Eugene, Salem, and Portland. (See attached memos from Mr. Adkison, Mr. Fetrow, and Mr. McSwain).

In addition, written testimony was received up until September 20, 1976.

### Witness List

Anderson, Don - Representing J.A. Greulich - Tualatin Rural Fire Protection District.

Buscho, Robert W. - Fire Marshal, Fire Prevention Division, Portland Fire Bureau.

Dwelle, Fire Marshal of Clackamas County Fire District #1.

Ferris, Carl, Salem.

Grimes, Gary L., SWF Plywood Company.

Johnston, Ralph, Lane Regional APA.

Jones, Al - Acting Chief, Milwaukie Fire Department.

Meurer, Eric, Salem Homebuilders.

Nelson, Ted W. - Weyerhaeuser Company, Southwest Oregon Region.

Owens, Clara J., Lake Oswego.

Peterson, Bill, Salem.

Rogers, William - State Representative from District 44.



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Witness List - continued

Ross, Charles, Forest Grove Fire Department.  
Ruf, Virginia, Springfield, Oregon.  
Stern, Frances, Eugene.  
Tegen, Ron, Stayton Fire Chief.  
Trussel, Carl, Beaver State Construction.  
Vance, Theresa, Eugene Area Signature Gatherer.  
Wagner, Duane - State Forestry Department (Molalla).  
Wenker, Robert - Ashland Disposal Service.

Summary of Testimony

General

The Department has improved over past performance by merely remembering to contact the Portland Fire Bureau regarding the proposed rule changes (Buscho).

The rules are generally deserving of support (Buscho, Wagner, Grimes).

The rules should be uniform for all locations in the state (Wenker).

The burning problem is turning the Eugene area into another Los Angeles. Cities should cooperate with the farmers to solve the problem, (Ruf).

23-030(6) (Page 2 of draft rules)

YARD CLIPPINGS

Do these include grass? (Johnston)

23-030(7) (Page 2 of draft rules)

FIRE HAZARD

Who makes this determination? (Johnston)

23-040(3) (Page 6 of the draft rules)

PERSONS WHO OWN OR CONTROL ARE RESPONSIBLE

This provision should not be allowed to make an absentee owner responsible for his tenants misdeeds. (Rogers)

This may be unenforceable. (Johnston)

23-040(8) (Page 7 of draft rules)

NUISANCE TERMINATION ORDER

"Nuisance" provision is not easily enforced. (Johnston)



23-045(5) (Page 10 of draft rules)

BAN ON BURNING OF CONSTRUCTION AND DEMOLITION WASTE

Some of the counties mentioned have no air quality problem and should be deleted. (Johnston).

23-045(6) (Page 11 of draft rules)

OPEN BURNING IN WILLAMETTE VALLEY OF YARD CLEANUP

The proposal to permit this practice until July 1, 1979 is worthy of support. (Buscho, Wagner).

23-045(6)(G) (Page 12 of draft rules)

DOMESTIC OPEN BURNING - SPRING AND FALL PERIODS

The change of dates is satisfactory. However, these dates should not be the subject of further change. (Buscho). The proposed 6 additional days between fall and spring will work an undue amount of confusion on the part of householders and cause too much additional work for permit issuing agencies. (Buscho, Wagner, Greulich, Ross, Dwelle, Jones, Tegen).

The period for open burning of yard cleanup should either be extended to all seasons in good weather or moved to very early in the spring so that nesting birds won't be affected. (Owens).

The proposal to have 6 burning days in the winter would ruin the few clear winter days and work undue hardship on those in the Eugene area who have respiratory problems. (Stern)

The fall season should be earlier in October when the wastes are less wet. (Tegen)

Burning should be allowed all winter for less confusion and more practicability. (Johnston)

23-045(7) (Page 12 of draft rules)

OPEN BURNING BY LETTER PERMIT

This proposal is strongly endorsed by Weyerhaeuser in its efforts with its barge-like "logster" to maintain the upper Coos Bay estuary and the Coos and Millicoma Rivers in a debris-free condition. (Nelson)

This type of burning should not be permitted unless it is only alternative to an otherwise hazardous situation. To allow it by letter permit is a step backwards. (Buscho)

This proposal should not be followed, at least not in the Willamette Valley where disposal sites are available. (Anderson, Greulich)

OPEN BURNING BY LETTER PERMIT - continued

DEQ should issue letter permits at local levels to contractors to dispose of land clearing debris on site. (Meurer, Peterson, Ferris)

This provision should be adopted because there is a fuel problem attendant to hauling to landfills, a shortage of available landfills, and a reluctance among fill operators to accept commercial, industrial, demolition debris. (Trussel, Ferris) DEQ should adopt this provision to save homebuyers money. (Ferris)

The proposal is needed to alleviate solid waste problems occurring around log handling decks. (Grimes)

This provision is objectionable because it allows smoke to be combined with carbon monoxide, particulate matter and smog to the detriment of health. (Vance and 100 co-petitioners)

There should be provision for application forms in offices of permit issuing agencies. Also, a copy of the letter permit should be on file with the local permit issuing authority. (Tegen)



State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: Environmental Quality Commission  
From: Richard Reiter - Hearings Officer  
(Southwest Regional Manager)  
Subject: Public Hearing - Proposed Rules for Open Burning

Date: September 10, 1976

As requested, on September 8, 1976 a public hearing was held in Medford to invite public comment of the Department's "Proposed Rules for Open Burning". The following persons were in attendance:

10:00 A.M. Session

Doyle Stockton - State Forestry, Central Point  
Donald Moody - State Forestry, Central Point  
John Mathews - Klamath Falls (Fire Department)  
Roy Morrison - Woolley Enterprises, Drain  
Robert Wenker - Ashland Disposal Service  
Gary Rigotti - Ashland Disposal Service  
Merlyn Hough - DEQ, Medford  
Brita Hazell - Citizen, Ashland (Carrying Capacity Study Group)  
Tom Adams - KYJC Radio  
Mark Brown - KOBI TV

8:00 P.M. Session

R. E. McIntyre - Jacksonville (volunteer Fire Department)  
Merlyn Hough - DEQ, Medford  
Martha Hough

Although the hearings officer did field a number of questions regarding interpretation and/or possible implementation of the proposed rules, only one person, Robert Wenker chose to offer comments for the record. Mr. Wenker's main concern was that the rules were not uniform throughout the state, that is, while certain practices were prohibited within special control areas these same practices were permitted outside special control areas.

I should note for the record that at least Jackson County's main newspaper, The Mail Tribune, did carry the Department's press release regarding the public hearing, so I assume the public did have an opportunity to participate in this rule-making process.

Respectfully submitted,

Richard Reiter  
Hearings Officer

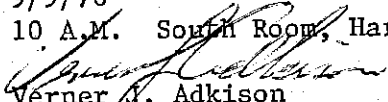
cc: Air Quality Division

pk

TRANSCRIPT  
Public Hearing on  
Proposed Revisions  
to Rules and Regulations  
governing  
Open Burning

9/9/76

10 A.M. South Room, Harris Hall Eugene, Oregon

  
Verner J. Adkison  
Hearings Officer

TRANSCRIPT  
Public Hearing on  
Proposed Revisions  
to Rules and Regulations  
governing  
Open Burning  
9/9/76

Harris Hall, Eugene, Oregon

*rjr*  
Verner Adkison (DEQ Midwest Region Manager-Hearings Officer): This Public Hearing is hereby declared open. Notice is hereby given that the Environmental Quality Commission is considering amendments to the rules for open burning. Amendments being considered will modify the state-wide open burning rules, OAR 23-005 through 23-020; and will consolidate all presently effective special area open burning rules into a single rule. The currently effective rules which will become part of the proposed amendments are the special rules for open burning in the Portland Metropolitan area, OAR 28-005 (1) (4) (5) and (6), 28-010, 28-015 and 28-020, and the open burning sections of the former Mid-Willamette Valley Air Pollution Authority, sections 33-005 through 33-016 and amendments. And, as an amendment, Section 23-045 (7) (6) Within the boundaries of Clackamas, Columbia, Multnomah and Washington Counties, such letter permits shall be issued only for the purpose of disposal of waste resulting from emergency occurrences including but not limited to floods, windstorms or oil spills, provided that such waste cannot be disposed of by any other reasonable means.

Please sign in, if you haven't already done so and if you wish to testify before this hearing.

Virginia Ruf.

Virginia Ruf      830 "G" Street      Springfield, Oregon: I suppose all I can say is I am much interested in how this is going to be handled because of my own personal problems, but, it's because they developed in an area where... well, I lived in Los Angeles for several years and I see this area developing into what Los Angeles became....and, which is unliveable, as far as I am concerned. I have allergies which I didn't have before, one of which is smoke. Smoke never bothered me until after I lived in Los Angeles. Well, for instance, in the field burning when the wind shifts and suddenly we find ourselves full of smoke....and within two hours I am so completely sick I can't even take care of my family. Slash burning also....I've noticed.... is (a) considerable problem. Burning in general....we...we are....if we don't do something we are going to end up like Los Angeles. And I know that's been said many times, but I'm saying it first hand, as one who has suffered the consequences. I'm unable to....I'm a registered nurse, but I'm unable

to work as a nurse anymore, with the exception of.....in order to get out the valley during field burning season I do volunteer work for the Camp for the Deaf. They can't pay a nurse, and....it not only gives them a nurse, it gives me a chance to get out of the valley. Unfortunately, this year the burning came a little late, and I was back to the time.....we... got the worst of it. If we don't curb burning now, we're going to be another Los Angeles. We're going to be unliveable, and I'm sure no one in Oregon wants that to happen, farmers included. I feel that our towns and cities are too quick to blame the farmers and not to look at their own responsibilities, both in working for it and financing the solutions to the problems, and working with the farmer in solutions to the problem instead of fighting. That's about all I have to say.

Adkison: Thank you very much Ms. Ruf.

Marty Douglass (Public Information Representative-Lane Regional Air Pollution Auth.):

If anyone else wishes to testify, they should sign in first. Is there anyone at this time?

Bill Rogers State Representative District 44: I have a question I would like to ask. On page 6, Vern, 23-040 #3, any person who owns or controls, and going on to read there, shall be considered the person responsible, for the open burning. Now, what would be your action in a case where there is an owner, someone has leased the property or has rented the property and there is an owner who is not anywhere in the area. Would you take action against this owner or just against the person who violated the burning rules?

Adkison: The primary....this is my own interpretation.....primarily we have worked with the owner of the property, because we do not know if the subject of the lease agreement and/or the responsibility that the owner has subjected to by a lease agreement, sale, purchase.....we do not know of the intent of the owner, so we specifically work with the owner until legally we are subjugated to some other recourse.

Rogers: I'm concerned about a situation where someone might be an absentee owner, and someone would do some burning and be in violation and then the owner,

himself, might be held responsible.

Adkison: Well, I....this is only a personal interpretation....it would have to go to the legal officer of the Department of Environmental Quality, or regional authority who is in jurisdiction. But, we have specifically maintained our contact with the owner, and, until such time that we were subjugated to some other direction. That's been the, as far as I'm concerned the last 20-years, the historic way that we have dealt with the problem.

Anyone else wishing to testify?

We'll have about a ten-minute recess.

(Following the ten-minute recess, no witnesses appeared to testify. The Public Hearing was declared closed.)

PUBLIC HEARING HELD ON SEPTEMBER 9, 1976

For Consideration of Amendments to the Open Burning Regulations

Department Representatives Present:

Russ Fetrow

Harry Demaray

Terri Axell

Fred Skirvin

Guests:

Jim Basting - 2295 N. Fork Rd., Lyons, OR

Darrel Spiesschaert, 22965 N. Fork Rd., Lyons, OR

D.H. Stere, 19034 Old Mehama Rd., Stayton, OR

Leone Timm, 4855 River Rd. N., Salem

Eric Meurer, 565 Union N.E., Salem

Carl Ferris, 1476 Ewald S.E., Salem

Carl Trussell, 4755 Verda Lane, Salem

Bill Peterson, 476 Holmes Court S.E., Salem

Lee R. Moyer, 4241 Alderbrook Ave. S.E., Salem

Russ Fetrow opened the hearing which was held in the Marion Co. Courthouse, Room 129 at 7:30 p.m. on September 9, 1976.

Eric Meurer representing the Salem Home Builders Association testified regarding the rule pertaining to landclearing burning. He encouraged DEQ to issue letter permits at the local levels to Contractors for disposal of landclearing debris on site.



Page 2

Mr. Fetrow questioned Mr. Meurer as to what problems might result if a developer allowed the public to come in and cut any wood usable for firewood. He responded that the main problem would be one of liability as well as timing.

Mr. Bill Peterson of 476 Holmes Court S.E., Salem, stated that he agreed with the testimony presented by Mr. Meurer. He suggested that DEQ provide people in the home building business some training in the art of opacity reading to enable them to comply with the 40% opacity rule.

Carl Trussell testified in behalf of Beaver State Construction. He stated the fuel shortage as a problem in operating the massive equipment necessary to get the debris to the landfill. Also, that landfills were not available and those available are not excited about accepting the material.

Carl Ferris of 1476 Ewald S.E., Salem, said he agreed with all the previous testimony. He said that DEQ must consider the added cost to the home buyers.

At this time Mr. Fetrow read into the record a letter from the Stayton Volunteer Fire Department dated August 25, 1976. The Fire Department noted that the burning period, if adopted as proposed, would push the burning later in the rainy season. The Fire Department felt there would

Page 3

be a problem in informing the public in advance of the six additional burning days proposed. They suggested a procedure for handling the "letter permit" program for burning of construction and demolition wastes.

Hearing no further testimony the public hearing was closed by Mr. Fetrow.

A tape will accompany this report.

Russell Fetrow



State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: Environmental Quality Commission Date: September 20, 1976

From: Peter W. McSwain

Subject: Hearing Report: September 9, 1976 Public Hearing on Rules for  
Open Burning

The hearing convened at 10:00 a.m. in Room 508 of the Department's Offices at 1234 S.W. Morrison Street, Portland, Oregon. Present were approximately 20 persons of whom five offered oral testimony.

The oral testimony was as follows:

ROBERT W. BUSCHO of the Fire Prevention Division of the Portland Fire Bureau: Mr. Buscho was happy that the Bureau was notified of the proposals in time to offer testimony. He urged that the spring and fall burning of yard-cleanup be continued through June of 1979 but that the periods for burning be left undisturbed after their adoption. Mr. Buscho was skeptical of the provision for six random burning days to be selected during the winter. He felt confusion and additional burden for his agency might be the result. Finally, Mr. Buscho objected to the open burning by letter permit of any commercial, industrial, or demolition wastes, unless the burning were the only alternative to a safety or fire hazard situation.

DUANE WAGNER of the State Forestry Department (Molalla): Mr. Wagner favored the proposal to continue open burning of domestic wastes.

DON ANDERSON, Tualatin Rural Fire District. Speaking for Mr. Greulich, his Fire Marshal, Mr. Anderson advised against the proposal to have six random burning days in the winter. Also objectionable to Mr. Anderson was the proposal to permit open burning of commercial, industrial, or demolition wastes by letter permit.

CHARLES ROSS of the Forest Grove Fire Department: Mr. Ross found the proposal to have six random winter burning days would cause undue work and confusion in the fire permit issuing agencies. He proposed that if any days should be allowed at all, the entire winter should be allowed.

GEORGE DWELLE, Fire Marshal of Clackamas County Fire District #1: Representing his own fire district as well as those of Oak Lodge, Happy Valley, the City of Milwaukie, and Clackamas, Mr. Dwelle objected to the proposal to have six random days for open burning of yard cleanup materials. He said that if there was to be time during the winter (which he opposed), it would be extended all through the winter.



## ENVIRONMENTAL QUALITY COMMISSION

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5696

ROBERT W. STRAUB  
GOVERNOR

### Memorandum

To: Environmental Quality Commission

From: Director

Subject: Lahti & Son, Inc. v. Department of Environmental Quality,  
Before the Oregon Court of Appeals

A proposal has been made by attorneys for Lahti to settle this case. This proposal has been reviewed by staff as well as legal counsel. It is felt that the systems as proposed have a reasonable chance of operating successfully.

It is recommended that the proposal be accepted by the Commission. This can be accomplished by the Commission granting variances under ORS 454.657 with the following conditions:

1. Application be made for each parcel as proposed in Dr. William Doak's letter to Mr. Raymond Rask dated September 14, 1976.
2. Detailed plans for each system be submitted with each Application.
3. That the statutory variance fee be paid for each variance granted.

Loren Kramer  
Director

TJO:ak

Attachments

October 14, 1976



Contains  
Recycled  
Materials

RAYMOND M. RASK  
VICTOR C. HEFFERIN  
ALLAN F. KNAPPENBERGER  
EUGENE C. TISH

RASK & HEFFERIN  
ATTORNEYS AT LAW  
HOLLYWOOD PROFESSIONAL BUILDING  
4411 N. E. TILLAMOOK STREET  
PORTLAND, OREGON  
97213

TELEPHONE  
287-1246

September 17, 1976

RECEIVED

SEP 20 1976

ATTORNEY GENERAL  
PORTLAND, OREGON

Mr. Robert L. Haskin  
Assistant Attorney General  
Department of Justice  
Portland Division  
555 State Office Building  
Portland, Oregon 97201

Re: Lahti & Son, Inc., v. Department of Environmental Quality,  
Before the Oregon Court of Appeals

Dear Mr. Haskins:

Consistent with my telephone conversation with you on Monday, the 13th day of September, 1976, be so advised that my client would be willing to accept the division of the lots indicated in your letter of September 8, 1976, on the condition, that the lots would remain as they presently exist, but that there would only be development on the lots as indicated in your letter, and that the utilization of the additional lots, would be done by way of easement, said easement to run, until there was an alternate acceptable method of sewage disposal, or sewer lines shall have been brought into the area, which would then allow my client the utilization of the full lots.

Further, that my clients would provide a capping fill on the land, of 18 to 24 inches, which would meet the requirements of the sub-sewage surface disposal regulations, and would be designed by Dr. Doak, a copy of Dr. Doak's letter is attached hereto, which indicates his opinion that the capping fill on the line of 18 to 24 inches, would suffice in his view.

Also, that this would be done by way of variance, rather than on an experimental basis.

You indicated that you would submit this matter to your client, and advise as soon as possible.

Thank you for your cooperation.

I remain

Very truly yours,

RASK & HEFFERIN

Raymond M. Rask

# WILLIAM H. DOAK

Soil & Land Use Consultant

Soil Scientist • Registered Sanitarian

September 14, 1976

Mr. Raymond Rask  
Rask & Hefferin  
Attorneys-at-Law  
4411 N. E. Tillamook Street  
Portland, OR 97213

RE: Lahti & Son, Inc. v. Dept. of Environmental Quality  
Scott Ridge Subdivision Sewage Disposal Proposal

Dear Mr. Rask:

This confirms our conversation of September 13, 1976 during which Mr. Robert L. Haskins letter of September 8, 1976 was reviewed with Mr. Eldon Lahti.

It is my opinion that satisfactory subsurface sewage disposal systems could be constructed using the following guide lines and construction.

1. Develop a building site on Lot 2, Block 1. Record an easement on Lot 3, Block 1 to Lot 2, Block 1 so that all or any of Lot 3 can be used for subsurface sewage disposal area for the house located on Lot 2.
2. Develop a building site on Lot 4, Block 1 and record an easement on Lot 5, Block 1 for sewage disposal.
3. Develop a building site on Lot 1, Block 2 and record an easement on the northerly 75' of Lot 2, Block 2 for sewage disposal.
4. Develop a building site on Lot 3, Block 2 and record an easement on the southerly 75' of Lot 2, Block 2 for sewage disposal.
5. These easements should be written to be in force until some other approved method of sewage disposal becomes available. This would allow the lots under easement to then be developed using whatever approved sewage disposal system becomes available.

Mr. Raymond Rask  
September 14, 1976  
Page -2-

6. The subsurface sewage disposal systems to serve the houses on Lots 1 & 3, Block 2 and Lots 2 & 4, Block 1 would be constructed in the following manner.
  - a. A site of sufficient size for a three bedroom drainfield and rebuild area (approximately 13,000 Sq. Ft.) will be cleared and rototilled to destroy all sod and vegetative mat.
  - b. Onto this site of approximately 13,000 square feet, a capping fill of silt loam ML, A4 to fine sandy loam GM, A-2-4 will be placed. This fill will contain 625 cubic yards to 900 cubic yards of topsoil. The depth will be 18" or 24" depending on the depth of observed groundwater in Mr. Dick Polson's report which is on file at Clackamas County. In all cases, the trench bottoms will be above the restrictive soil horizon and observed perched groundwater.
  - c. At least 50' of filled area will extend downslope of the original disposal trenches. This area will provide lateral filtration and rebuild area if required.
  - d. All sites will be filled, graded and constructed when the soil moisture content is less than 15% by weight. The sites will be planted to grass after inspection and cover.

It is my opinion that systems constructed in the manner described above will function as a standard approved system on a 30" restrictive layer and a 24" perched groundwater level.

If you have any questions regarding this report, please contact me.

Sincerely,

*W. H. Doak*

W. H. DOAK  
Soil Scientist  
Registered Sanitarian

/ld

cc: Mr. Eldon Lahti

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
**RECEIVED**  
OCT 6 - 1976  
ENFORCEMENT PROGRAM

**RECEIVED**  
OCT 08 1976  
Subsurface Sewage Division  
Dept. of Environmental Quality



## RESOLUTION

WHEREAS the City of John Day under the direction of Mayor John Moreau has undertaken the task of planning for the construction of new sewerage facilities to serve the cities of John Day and Canyon City; and

WHEREAS the City has completed facility planning and has approved bonds for local share financing of the needed design and construction; and

WHEREAS further timely progress is dependent on prompt processing of the City's applications for Environmental Protection Agency grant funds; and

WHEREAS federal grant award procedures are complex, time consuming, and contain many opportunities for delay, thus causing frustration to both applicant cities and DEQ, and causing escalation of construction costs:

### THEREFORE BE IT RESOLVED

- (1) That the City of John Day and its Mayor, John Moreau, be commended for their efforts to achieve construction of needed and required sewerage facilities.
- (2) That the Environmental Protection Agency be strongly urged to simplify grant requirements, reduce paperwork, and accelerate the processing of grant awards to the City of John Day and all other cities in Oregon so that costs do not increase solely due to delays.

The above resolution was adopted by the Environmental Quality Commission on October 15, 1976.

Testimony for Agenda Item #G, October 15, 1976  
Hearing of EQC by Phyllis Wright

My remarks pertain only to economic factors that should be weighed in making the decisions pertaining to changes in the pollution control equipment at Martin Marietta plant in The Dalles. It is my understanding that the rules require you to evaluate your decisions from the standpoint of requiring the best available technological devices to control pollution that are economically feasible and practicable.

My request is that the EQC obtain economic data and analysis for The Dalles area that is comparable to the expert testimony it solicits from scientific experts on pollution. Economists have been developing techniques to evaluate the total costs and benefits of industries on the communities in which they are located. The external benefits on the economies of communities have been known for a long time, though measurement techniques were often crude. More recently, research has been going on to assess the external costs that industries impose on communities, especially through pollution. Such information is needed if the commission is to fairly evaluate the economic impact of its decisions not only on the industry itself, but also upon the community's economy. The point is that not just the economic implications on the industry itself to meet environmental standards should be considered. All external costs, as well as benefits, to the industry, to the orchardists, and to the remainder of the community also need to be analyzed. So far, it appears ~~only~~ that consideration is being taken<sup>only</sup> of the first two economic interests. I concede that these are important and deserve consideration, but that it is the commission's job to protect the public interest. To do so, requires a broader economic analysis, using the best available methodology and expertise in the field of economics. To my knowledge this has not been done.

The report of the Director to the Commission does not include such information. On what data is the conclusion reached on page 7 of the report based, which reads as follows: "Even with the increment usage projected, this would not appear to pose any great restraint to future industrial growth in the area. If Martin Marietta

is permitted to use 36% of the Federal Prevention of Significant Air Quality Deterioration increment for sulphur dioxide, would this also not limit by 36% the use by any other existing or new business or industry. Since the effects of sulphur dioxide is largely unknown upon our economically important agricultural industry, should the company be allowed to jeopardize the public interest by substituting a larger emission of this until it has proven conclusively that there will be no damage? The company has imposed external costs already with fluoride emissions, whose effects were also unknown in previous times. Can we rely on trusting that these new emissions will not also create unanticipated problems?

Until a thorough economic analysis that includes all external costs and benefits is available and until the potential effects of the higher sulphur dioxide emissions are researched, I believe the EQC has the duty to protect the public interest by not allowing additional emissions of any kind. I recommend Alternative 5 if it can be shown that this will be 95% efficient and hold pollution levels of all kinds at least to their present status, until technology allows them to be reduced.

WASCO COUNTY FRUIT AND PRODUCE LEAGUE

October 14, 1976

Wasco County Fruit League requests that fruit orchards be protected from an increase in presently occurring air pollution damage by not allowing further degradation of atmosphere. Recommend that since present technology could prevent such degradation by a 95% SO<sub>2</sub> removal, that this be required of the aluminum reduction plant of Martin Marietta, under proposed change in pollution control system. We further strongly support a request to EPA thru DEQ for financial aid in a research project to determine the effect of the combination of air pollutants in this area - specifically SO<sub>2</sub> and HF.

STATEMENT OF MAYOR AL TROUTMAN

October 15, 1976

The City of Maupin operates with a volunteer council and mayor. They have one paid maintenance man.

In 1964 the City built a sewer plant with 50% grant and a bond issue for the balance. Upon recommendation of the Oregon State Sanitary Authority a Chicago Pump package plant was installed. This plant was one of four such plants authorized for use in the State of Oregon and the only plant that did not have major modification. Within two years of installation, OSSA was requesting expansion and upgrading of the plant which was only operating at approximately 50% of rated capacity. Chicago Pump personnel made numerous modifications to the plant at extensive expense to the City of Maupin. All of which were to no avail.

In 1971, seven years after the original installation, the City realized there was no feasible way to satisfactorily modify this existing plant. A decision was made at that time that the only way the City could finance such a project, with only seven years of the original bond issue paid off, was to annex two additional areas into the City.

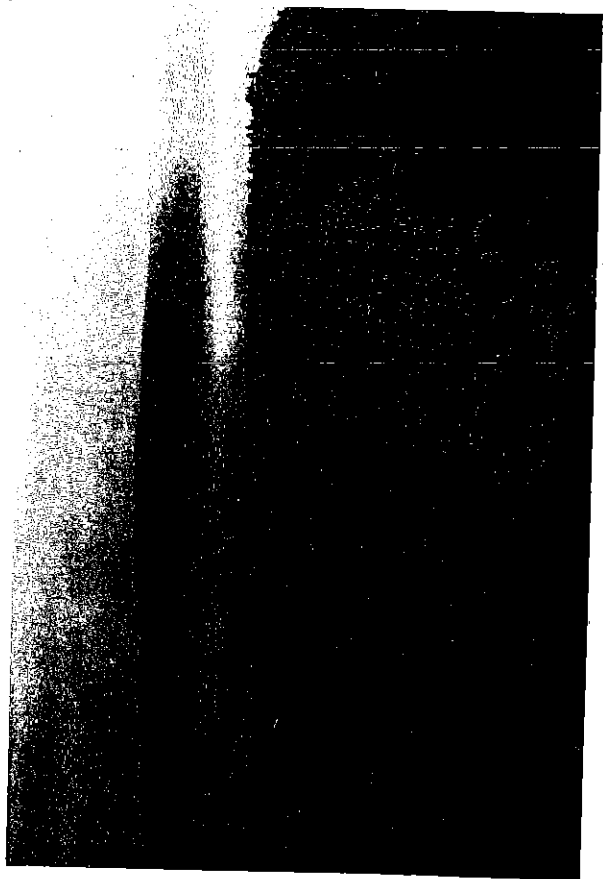
After many HOTLY CONTESTED meetings and an extended period of time, the annexations were completed in late 1973. During 1974 a series of meetings were held to select the best possible site for a new sewer plant. After the site was selected five meetings were held with the property owners, which involved five individuals. Also at this time, meetings were held on bond elections regarding the sewer project and the bond was overwhelmingly approved May 29, 1975. The engineer was then given authority to proceed with the necessary engineering to bring the project to a bid stage. But this was short lived. In July, 1975, we were notified that all engineering work would cease, by the City Engineer, J. Val Toronto. The City was then notified that a meeting was to be held in Bend, Oregon to review the required guidelines to prepare a facility plan. This meeting held with DEQ. Meeting the requirements of the facility plan was a complete duplication of a process we had been through the year before, and increased expense to Federal Government and the City of Maupin.

At this same time the DEQ presented the City of Maupin with another ultimatum! SOLID WASTE. With the closure of the main waste disposal site in the southern half of Wasco County, another financial burden was placed on the residence of the City of Maupin. So, we closed the waste site, satisfied the DEQ's regulations BUT we have in no way solved the solid waste problem which exists in our area. To add to the confusion ANOTHER ultimatum was presented to us from the State LCDC and it's problems. Many meetings ensued on this matter.

I have only included the last two items, solid waste and LCDC to emphasize the extra work load, other than normal City business placed by the State of Oregon on the City of Maupin's volunteer council, all of whom have other full-time employment. Solving the many, many problems encountered to bring us to the position we are currently facing with the obstacles we as a very small community have encountered, should prove to the Department of Environmental Quality that the people of this community are more than willing to meet the demands placed on them by your department.

It is my understanding that DEQ grant funds will not be available before approximately April 15, 1977. I would like to know how this project could be completed in approximately fifty working days??

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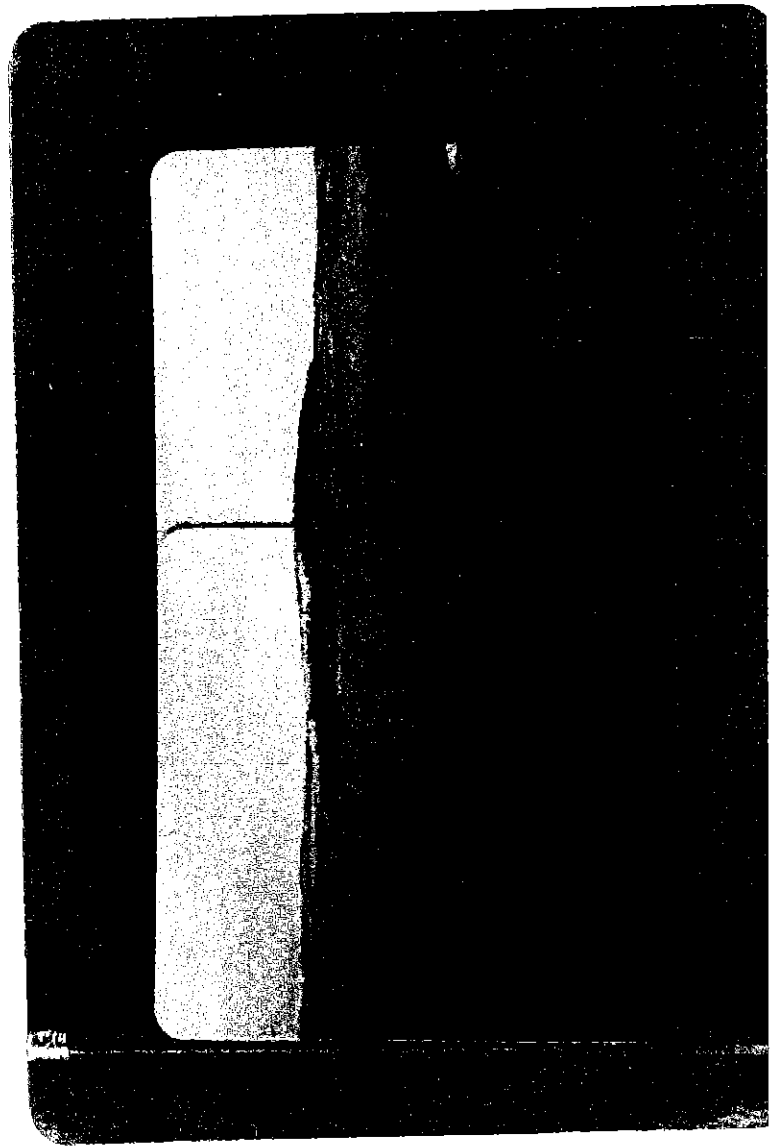
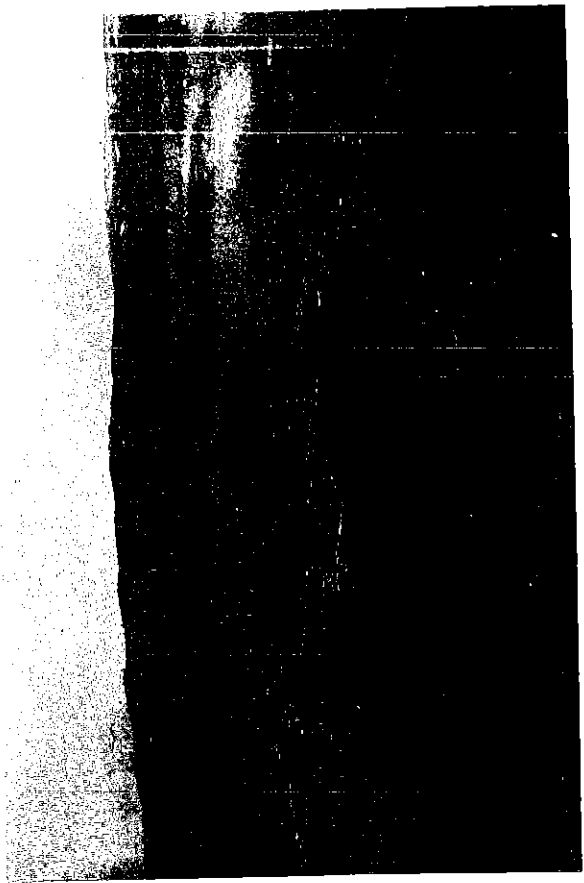
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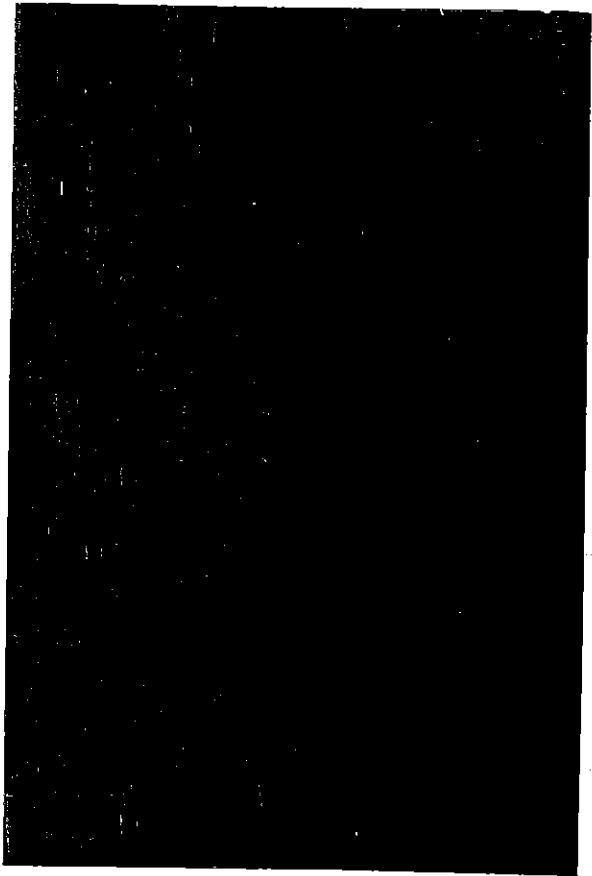
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Department of Environmental Quality  
 811 SW SIXTH AVENUE  
 PORTLAND OREGON 97204

Oct 15, 1976 EQC Meeting  
 Agenda Item # G

Composite picture taken by Edna Bailey  
 from bus roof on Skyline Road showing  
 pollution in lower Mill Creek area, The Dalles  
 Oregon

Submitted by Don W. Bailey

Pictures taken Nov. 1974

Early Morning Inversion

Pictures taken at Elevation 740' near Sea Level



Compare

1976 Cherry Crops at The Dalles, Ore.

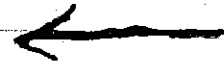
Between High Air Pollution Area (Lower  
Mill Creek) - and Lesser Air Pollution Area

(Upper Dry Hollow) pictures taken June 22, 1976

4 days before Harvest by Don W. Bailey



High Air Pollution Area

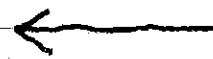


Lower Mill Creek

District



Less Air Pollution  
Area

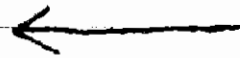


Upper Dry Hollow

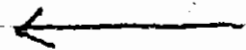
District.



High Air  
Pollution  
Area



Less Air  
Pollution  
Area



High Air Pollution  
Area  
The Dalles, Oregon  
CHERRY CROP →

Lower Mill Creek

6-22-76

Don W. Bailey



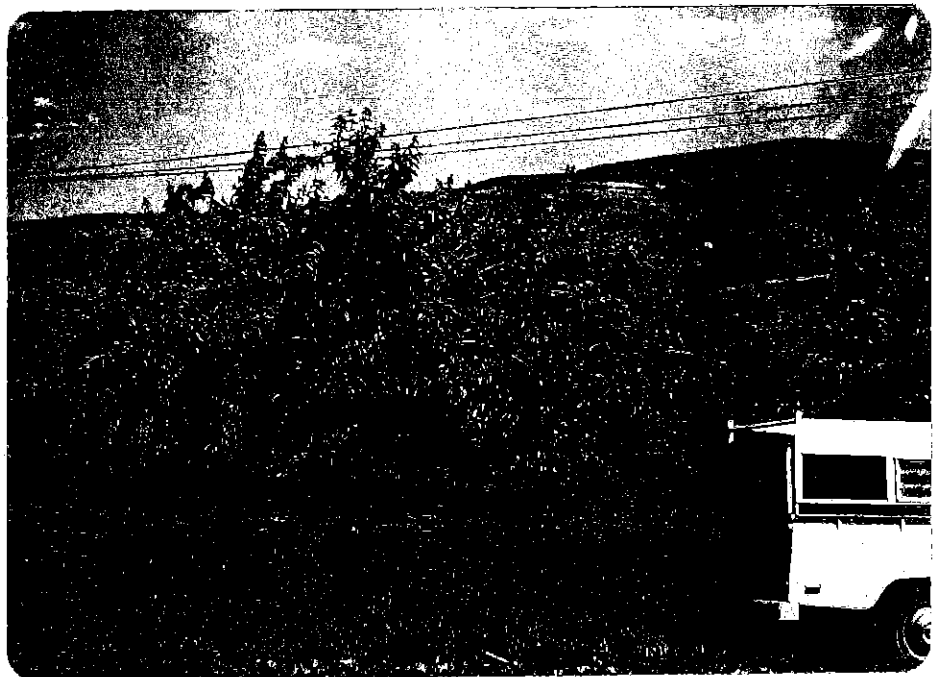
Less Air Pollution  
CHERRY CROP

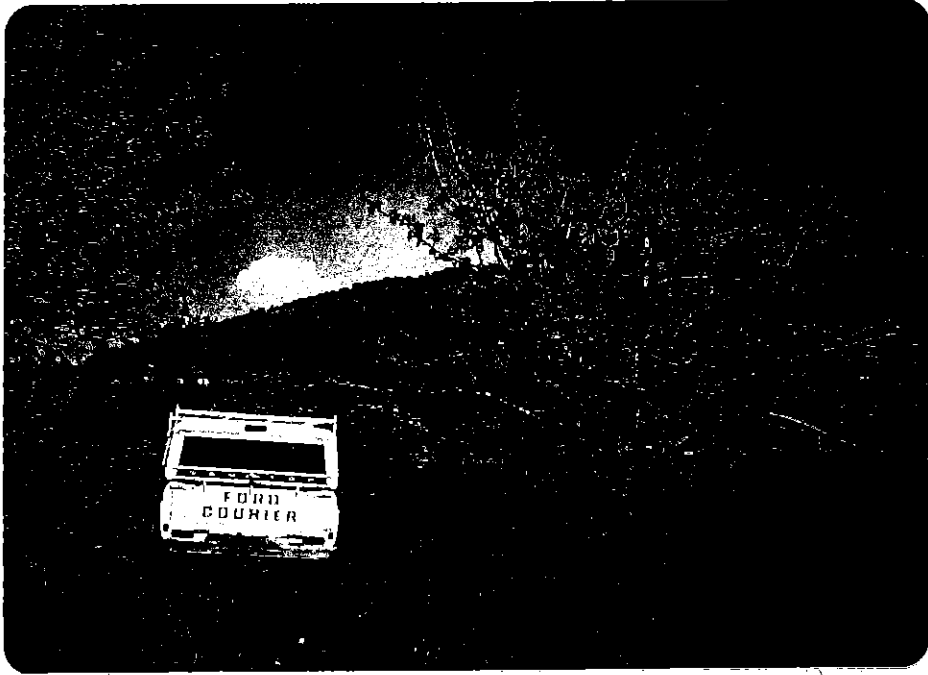


Upper Dry Hollow

6-22-76

Don W. Bailey





High Air Pollution  
Area



Less Air  
Pollution  
Area



High Air Pollution  
Area

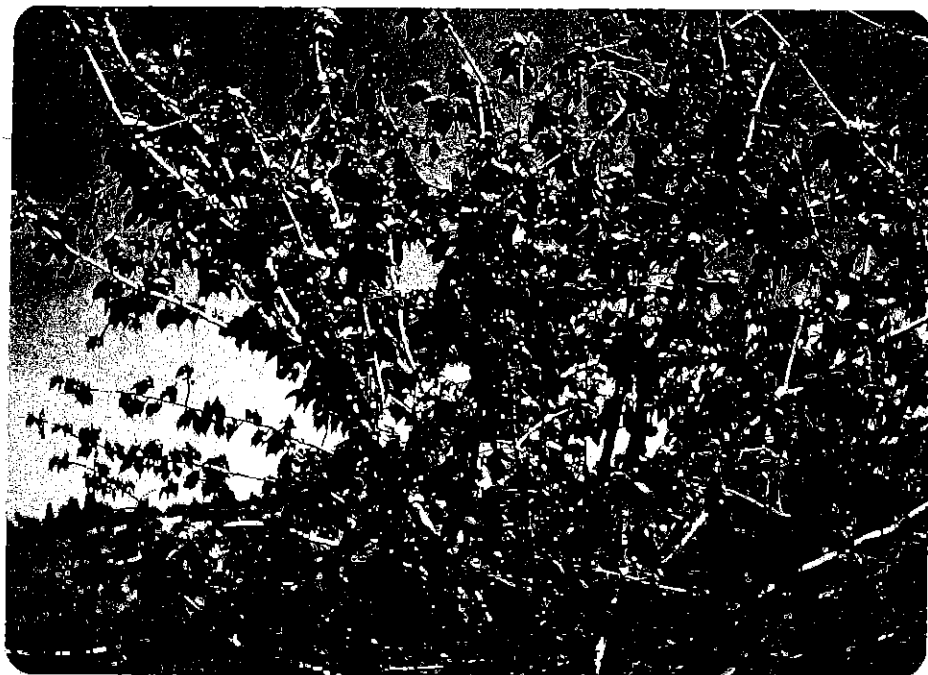
The Dalles, Oregon

Cherry Crop →

Lower Mill Creek

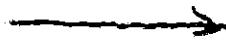
6-22-76

Don W Bailey



Less Air Pollution  
Area

Cherry Crop



Upper Dry Hollow

6-22-76

Don W Bailey



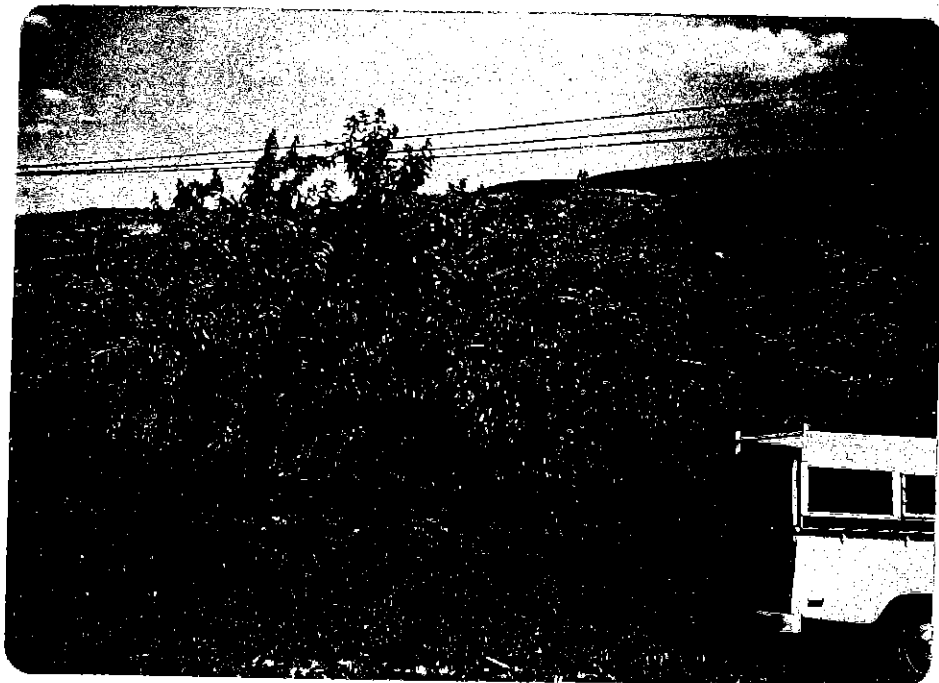


High Air  
Pollution  
Area

←  
Cherry Crop

6-22-76

Don W Bailey



Less Air  
Pollution

←  
Cherry Crop

6-22-76

Don W Bailey