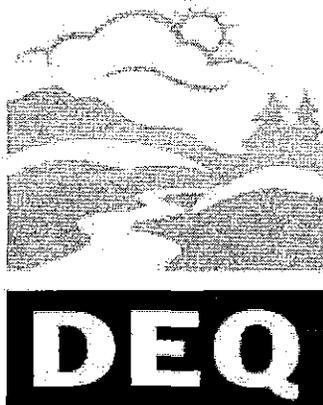


9/21/1973

**OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS**



**State of Oregon
Department of
Environmental
Quality**

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AGENDA

Environmental Quality Commission Meeting

September 21, 1973

Second Floor Auditorium, Public Service Building

920 S. W. Sixth Avenue, Portland, Oregon

9:00 a.m.

- A. Minutes of July 26, 1973, EQC Meeting
- B. Project Plans for the Months of July and August (Weathersbee)
- C. PGE Harborton Facility, Staff Report and Proposed Permit (Burkitt)
- D. Approval of Appointment of Deputy Director,
Department of Environmental Quality (O'Scannlain)
- E. Position of Secretary to the Environmental Quality Commission (O'Scannlain)
- F. Oregon CUP (Cleaning Up Pollution) Award Renewal Applications (Seymour)
- G. Unified Sewerage Agency of Washington County, Consideration of Proposal
for Expansion of Interim Treatment Facilities (Sawyer)

10:00 a.m.

- H. Public Hearing to Consider Adoption of Rules Pertaining to Procedures for
Issuance of National Pollutant Discharge Elimination System (NPDES)
Permits (Ashbaker)
- I. Continuous Planning for Water Quality Management in Oregon, Status Report
(Sawyer)

2:00 p.m.

- J. Noise Control, Proposed Rules and Authorization for Public Hearing (Sandberg)
- K. Subsurface Sewerage Disposal, Promulgation of Emergency Rules (Sawyer)
- L. North Albany Service District, Application for Sewerage Planning Advance
Loan (Bolton)
- for Oct* M. Environmental Status Report on Jefferson County (John Borden)
- N. Parking Facilities (Downs)
 - a. Washington Square Parking Facility
- O. Highways in Urban Areas (Downs)
 - a. Kruse Way (I-5 to Boones Ferry Road)
- see Gilman* P. Tax Credit Applications (Skirvin)
 - a. Roseburg Lumber Company, Flakeboard Division
 - b. Boise Cascade Corporation, Paper Group
 - c. Boise Cascade Corporation, Paper Group
 - d. Boise Cascade Corporation, Paper Group
 - e. Boise Cascade Corporation, Paper Group
 - f. Boise Cascade Corporation, Paper Group
 - g. Linnton Plywood Association
 - h. Publishers Paper Company, Molalla Division
 - i. Publishers Paper Company, Portland Division



State of Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: Division Administrators, District Offices Date: September 27, 1973
From: Shirley Shay
Subject: Environmental Quality Commission Meeting, September 21, 1973

For your information, actions taken by the EQC at the September meeting are noted below:

- letter written 1-5-74*
1. ~~PGE Harborton Facility~~--air contaminant discharge permit granted
 2. Ron Myles' appointment as Deputy Director, DEQ--approved
 3. Position of Secretary to the EQC--approved
 4. American Can and Publishers Paper, Oregon CUP Awards--renewed for 1974
 5. USA of Washington County, Proposal for Expansion of Interim Treatment Facilities--approved with modifications
 6. Rules pertaining to procedures for issuance of NPDES Permits--adopted with amendment
 - ok* 7. Noise Control Proposed Rules--hearings authorized
 8. Temporary Rules for Subsurface Sewerage Disposal--adopted
 9. North Albany Service District, Application for Sewerage Planning Advance Loan--approved with modifications
 10. Washington Square Parking Facility--approved
 11. Tax Credit Applications approved for the following:
 - a. Roseburg Lumber Company, Flakeboard Division
 - b. Boise Cascade Corporation, Paper Group
 - c. Boise Cascade Corporation, Paper Group
 - d. Boise Cascade Corporation, Paper Group
 - e. Boise Cascade Corporation, Paper Group
 - f. Boise Cascade Corporation, Paper Group
 - g. Linnton Plywood Association
 - h. Publishers Paper Company, Molalla Division
 - i. Publishers Paper Company, Portland Division

The Environmental Status Report on Jefferson County and the Kruse Way application were deferred to the October EQC meeting.

cc: Jack Weathersbee
Ken Spies
Wayne Hanson
Ray Underwood

ENVIRONMENTAL QUALITY COMMISSION

Attendance Record

ENVIRONMENTAL QUALITY COMMISSION MEETING

Meeting of September 21, 1973 in Portland

| <u>Name</u> | <u>Organization</u> | <u>Address</u> |
|---------------------|-----------------------|-------------------------------------|
| It ID Phillips | PGE | Broodway v Alder |
| D Miller | " | " " |
| GE Breckenrider | " | |
| NH Woolley | " | |
| Sharon Ross | NPCC | 8525 N Lombard |
| Luzanne Scheel | " | 9506 N. Pier Park |
| Al Scheel | " | " " " " |
| ROY C YONGE | City of Portland | City Hall |
| R BRUCE SWOZER | PGE | Edwy & Alder, PDX |
| Bryan Johnson | - | Sylvan Rd. |
| RL Kithman | PGE | 621 SW Alder |
| W. J. MASTERS | Washington County | 1402 American Bank Bldg Portland |
| THOMAS VANDERZANDEN | CRAC | 6400 S.W. CATYON CT. |
| Joseph T Hart | Properas | 10993 S.W. No. Duff |
| Angelica Torres | NEDC, OEC | 2922 NW 53rd Dr. |
| Juan Vlastelina | EPA/OEC | 1234 S.W. Memorial St. |
| Cecil M. Ouellette | " | " |
| Craig Stan | DEQ, Eugene | Rm. 304, STATE OFF. BLDG. |
| Adam Hove | DEQ | Raleigh Hills Lodge |
| Bill LEST | AOT | 1149 COURT NE SALEM |
| Daniel McGredwin | | 5733 SW 45th Portland |
| Phil Rude | | 6619 S.W. HICKMAN LANE |
| Ann H. Boller | City, Standard Ins Co | Portland |

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

NPDES

Neil T. Cobble
(signature)

OSP/RE
(organization)

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

NPDES

John Nelson
(signature)

Oregon Environmental Council
(organization)

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

NDDES

John Neilson
(signature)

OREGON ENVIRONMENTAL COUNCIL
(organization)

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

Wash Cty Sewer Connection Permits

(11) G.

Gregory J. Howe
(signature)

WASHINGTON County Land Use Council
(organization)

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

Item G

John D. Mowen
(signature)

Forchuck/Wald Peyton
(organization)

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

Washington County - U.S.A.

INTERIM Expansion

Bill Masters

Bill Masters
(signature)

County Comm, Washington County
AND (organization)

Member of Bd. Dir. - U.S.A.

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

FANNO CREEK SEWER SYSTEM -
CONNECTIONS -
CITY OF PORTLAND QUOTA,

(DANIEL McGRUDEN)

Daniel McGruden
(signature)

5733 SW 45th Ave

PORTLAND ORE 97221
(organization)

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

USA Wash Co Expansion

Mrs. W^m Cookson
(signature)

Homeowner
(organization)

Witness Registration

I wish to testify before the ENVIRONMENTAL QUALITY COMMISSION on:

Agenda Item no 6
Sept 21, 73 meeting

Joseph Hart
(signature)

(organization)

MINUTES OF THE FORTY-EIGHTH MEETING
of the
Oregon Environmental Quality Commission
July 26, 1973

The forty-eighth meeting of the Oregon Environmental Quality Commission was called to order by the Vice Chairman at 9:00 a.m. on Thursday, July 26, 1973, in the City Council Chambers, City Hall, 411 Eighth Street, Medford, Oregon. The Commission members present were Arnold M. Cogan, Vice Chairman, Paul E. Bragdon, Dr. Morris K. Crothers and Dr. Grace S. Phinney. Chairman B.A. McPhillips was unable to attend because of other commitments.

Participating staff members were Diarmuid F. O'Scannlain, Director; Ronald L. Myles, Assistant to the Director; E.J. Weathersbee and K.H. Spies, Deputy Directors; Harold L. Sawyer, Harold M. Patterson and Warren C. Westgarth, Division Administrators; H.H. Burkitt, F.A. Skirvin and M.J. Downs, Air Quality Control Engineers; B.J. Seymour, Information Director; Ray M. Johnson, AQC Program Executive; Donald K. Neff, Assistant District Engineer; Shirley Shay, Administrative Assistant; and Arnold B. Silver, Legal Counsel.

The Director announced to all persons present at the meeting that pursuant to the requirements of a new state law passed by the 1973 Legislature no smoking would be allowed in the Council Chambers during the meeting.

State Senator L.W. Newbry of Ashland was present and was introduced to the audience.

MINUTES OF THE JUNE 29, 1973 COMMISSION MEETING

It was MOVED by Dr. Phinney, seconded by Dr. Crothers and carried that the minutes of the forty-seventh meeting of the Commission held in Portland on June 29, 1973, be approved as prepared.

PROJECT PLANS FOR JUNE 1973

It was MOVED by Dr. Crothers, seconded by Dr. Phinney and carried that the actions taken by the Department during the month of June 1973 as reported by Mr. Weathersbee regarding the following 78 domestic sewerage, 7 industrial waste, 10 air quality control and 13 solid waste management projects be approved:

Water Quality Division

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|--------------------------------|--------------------------------------|---|---------------|
| <u>Municipal Projects (78)</u> | | | |
| 6-1-73 | Coos Bay | Orchard Avenue sewer | Prov. app. |
| 6-1-73 | Reedsport | 18th Street sewer | Prov. app. |
| 6-1-73 | Keizer Sewer Dist. | Chemawa Park Subd. sewers | Prov. app. |
| 6-1-73 | Portland | S.W. Grover St. sewer | Prov. app. |
| 6-1-73 | Medford | Rogue Valley Industrial Park sewer | Prov. app. |
| 6-4-73 | Deschutes County | Red Oaks Square Apt. complex septic tank, disinfection and drill hole disposal | Prov. app. |
| 6-5-73 | North Roseburg S.D. | Brentwood Manor Subd. sewers | Prov. app. |
| 6-5-73 | Canby | Oliver Addition #7 sewers | Prov. app. |
| 6-5-73 | Gresham | Penny Ridge No. II Subd. sewers | Prov. app. |
| 6-5-73 | Troutdale | Old Sweetbriar Farm-Phase II sewers | Prov. app. |
| 6-6-73 | USA (King City) | Summerfield pump station | Prov. app. |
| 6-11-73 | Hillsboro | Washington County Fairground sewer | Prov. app. |
| 6-12-73 | Clackamas County Service Dist. I | Collection sewers, Phase III Addendum II | Approved |
| 6-12-73 | USA (Forest Grove) | Trevor Downs Subd. sewers | Prov. app. |
| 6-12-73 | Hillsboro (Rock Cr.) | Baumead Subd. sewers | Prov. app. |
| 6-12-73 | USA (Metzger) | S.W. 92nd sewer | Prov. app. |
| 6-12-73 | Portland | N.E. 14th Place and Columbia Blvd. sewer | Prov. app. |
| 6-12-73 | Canby | Sewer to serve Carlson property | Prov. app. |
| 6-12-73 | USA (Tigard) | 2 sanitary sewer projects | Prov. app. |
| 6-12-73 | USA (Aloha) | 3 sanitary sewer projects | Prov. app. |
| 6-12-73 | USA (Sherwood) | April Meadows Subd. sewers | Prov. app. |
| 6-12-73 | Gresham | New Columbia Village #2 sewers | Prov. app. |
| 6-12-73 | Gardiner San. Dist. | 2 change orders for interceptor project | Approved |
| 6-12-73 | Inverness | Change Order #2, Unit 5-C | Approved |
| 6-12-73 | Wilsonville | Change Order #3, sewage treatment plant | Approved |
| 6-14-73 | Scappoose | Bella Vista Subd. sewers | Prov. app. |
| 6-14-73 | East Salem Sewage & Drainage Dist. I | Lancaster Estates #2 Subd. sewers | Prov. app. |
| 6-14-73 | McMinnville | Project No. 1973-3 sewer | Prov. app. |
| 6-14-73 | Bear Creek Valley Sanitary Auth. | TalentPatio Village sewers | Prov. app. |
| 6-14-73 | East Salem Sewage & Drainage Dist. I | Long Acres Subd. sewers | Prov. app. |
| 6-14-73 | Oregon City | Glenwood Subd. sewers | Prov. app. |
| 6-14-73 | Sunriver | Sunriver East-Business Park I sewers | Prov. app. |
| 6-14-73 | Hillsboro (Rock Cr.) | Eastwood Subd. sewers | Prov. app. |
| 6-14-73 | USA (Tigard) | Tigard Street Industrial Park sewer | Prov. app. |
| 6-14-73 | Albany | Sanitary sewer projects-- 73-10, 73-11, 73-15 | Prov. app. |
| 6-14-73 | Eugene | 2 projects: sewer reconstruction 6th & 7th Avenues, san. sewers near I-205 & Coburg Rd. | Prov. app. |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|--------------------------------------|----------------------------------|---|---------------|
| <u>Municipal Projects (78) cont.</u> | | | |
| 6-14-73 | Wilsonville | Charbonneau and Charbonneau II Subd. sewers | Prov. app. |
| 6-14-73 | Bay City | Change Orders #B-4, B-5 and A-5 | Approved |
| 6-18-73 | Bear Creek Valley Sanitary Auth. | Preliminary plans of West Medford trunk sewer | Prov. app. |
| 6-18-73 | Green San. Dist. | Extensions of Main 1 and 2 | Prov. app. |
| 6-18-73 | Tualatin | Navajo Hills II Subd. sewers | Prov. app. |
| 6-18-73 | Gresham | Charming Addition Subd. sewers | Prov. app. |
| 6-18-73 | Salem (Willow Lake) | Jan Ree East, Units 3 & 4 sewers | Prov. app. |
| 6-18-73 | Keizer Sewer Dist. | McLeod Park Subd. sewers | Prov. app. |
| 6-18-73 | Eugene | West Amazon Dr. san. sewer | Prov. app. |
| 6-18-73 | Ashland | Briggs Subd. #2 san. sewers | Prov. app. |
| 6-18-73 | USA (Metzger) | Washington Square Area 7 sanitary sewers | Prov. app. |
| 6-18-73 | Reedsport | Addendum #1, 18th Street sanitary sewer | Approved |
| 6-18-73 | Clackamas County Service Dist. I | Change Order #1 for Phase II interceptors | Approved |
| 6-18-73 | Portland | Change Order #4, Columbia Blvd. sewage treatment plant | Approved |
| 6-19-73 | Inverness | Revised plans, Inverness interceptor, Unit 5-C | Prov. app. |
| 6-20-73 | USA (Tigard) | Clydesdale Subd. sewers | Prov. app. |
| 6-20-73 | Lake Oswego | Greenwood Rd. san. sewer | Prov. app. |
| 6-20-73 | Waldport | Change Order #4, sewage treatment plant | Approved |
| 6-20-73 | Clackamas County Service Dist. I | 2 change orders, Phase II, interceptors | Approved |
| 6-25-73 | Hillsboro | Cornell Place Subd. sewers | Prov. app. |
| 6-25-73 | Oak Lodge San. Dist. | Chapman Woods Subd. sewers | Prov. app. |
| 6-25-73 | USA (Metzger) | McKay Manor Subd. sewers | Prov. app. |
| 6-26-73 | Baker | "B" Street and 15th Street sewer (1973-1974 sewer, Phase I) | Prov. app. |
| 6-28-73 | Halsey | 8 sanitary sewer extensions | Prov. app. |
| 6-28-73 | Salem (Willow Lake) | Nebraska Acres Subd. sewers | Prov. app. |
| 6-28-73 | Warrenton | Villa Del Mar sewers | Prov. app. |

Industrial Projects

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|--|---------------|
| 6-6-73 | Mill City | Pacific Power & Light Co. Filter Backwash Treatment Facilities | Prov. app. |
| 6-6-73 | Albany | Simpson Timber Co. - Northwest Operations Log Pond Dam Modifications | Prov. app. |
| 6-11-73 | Rainier | Rainier Manufacturing Co. Lumber Spray Treatment System | Prov. app. |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|------------------------------------|----------------------------|--|-------------------------------|
| <u>Industrial Projects - cont.</u> | | | |
| 6-11-73 | Corvallis | Oregon Aqua Foods, Inc. Freshwater Rearing Facilities | Prov. app. |
| 6-13-73 | Dallas | Lautenbach (Fast) Dairy Farm Animal Manure Control & Disposal Facilities | Prov. app. |
| 6-13-73 | Dallas | Fast Feedlot - Animal Manure Control & Disposal Facilities | Prov. app. |
| 6-18-73 | John Day River Crossing | Pacific Gas Transmission Co. | Prov. app. |
| <u>Air Quality Control</u> | | | |
| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
| 6-4-73 | Douglas | I-5 Interchange Proposed review for impact upon noise | Req. add. inf. |
| 6-4-73 | Linn | Airport Expansion - Proposed review for impact on noise | Approval |
| 6-6-73 | Jackson | Rogue Valley Plywood, Inc. White City - Installation of Carter-Day baghouse unit and a Turco wooddust handling and firing system | Approved |
| 6-8-73 | Douglas | Permaneer Corporation, Dillard Installation of high pressure air system and modification to the #5 silo system and the elimination of three cyclones | Approved |
| 6-15-73 | Douglas | Drain Plywood Co., Drain Modification of wigwam waste burner and installation of veneer drier emission control system | Approved |
| 6-20-73 | Washington | Washington Square Proposal review for impact on noise | Req. add. control measures |
| 6-21-73 | Curry | Tamco, Inc., Gold Beach Installation of gas fired veneer drier and an emission control system | Approved |
| 6-22-73 | Jackson | Eugene F. Burrill Lumber Co. White City - modification of wigwam waste burner | Approved |
| 6-25-73 | Umatilla | Johns-Manville Products, Corp. McNary - Installation of PVC pipe plant and an emission control system | Approved |
| 6-26-73 | Douglas | Highway Widening - Proposal review for impact on noise | Approved |

Solid Waste Management

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|--|------------------|
| 6-4-73 | Columbia Co. | Mickey's Landfill (existing garbage site) (operational plan for tire disposal) | Prov. app. |
| 6-5-73 | Polk Co. | Valsetz Disposal Site (existing garbage site-modified landfill) | Approved |
| 6-7-73 | Washington Co. | Lakeside Reclamation (existing demolition site)(operational plan for site expansion) | Prov. app. |
| 6-12-73 | Marion Co. | Brown Island Sanitary Landfill (existing garbage site) | Approved |
| 6-12-73 | Yamhill Co. | Whiteson Sanitary Landfill (new garbage site) | Prov. app. |
| 6-15-73 | Curry Co. | Rogge Lumber Co. (existing wood waste landfill) | Approved |
| 6-15-73 | Columbia Co. | Santosh Sanitary Landfill (existing garbage site) | Prov. app. |
| 6-15-73 | Multnomah Co. | Columbia Steel Castings Co. (existing industrial waste site) | Prov. app. |
| 6-15-73 | Columbia Co. | Reichold Chemical Co. (existing industrial waste site) | Prov. app. |
| 6-22-73 | Multnomah Co. | St. Johns Sanitary Landfill (existing garbage site) | Approved |
| 6-20-73 | Morrow Co. | Planning Interim Progress Report | Review & comment |
| 6-25-73 | Grant Co. | Planning Interim Progress Report | Review & comment |
| 6-29-73 | Yamhill Co. | Newberg Sanitary Landfill (existing garbage site) | Approved |

OPEN PUBLIC FORUM

Mr. Cogan pointed out that in view of the fact that the Commission meets infrequently in the Medford area the members of the general public would be given the opportunity at this meeting to voice any environmental concerns they might have directly to the Commission members. It was pointed out further that time might not allow extensive discussion of all individual items but assurance was given that appropriate follow-up actions would be taken regarding questions or problems not answered or resolved at this meeting.

Mr. Harry M. Demaray of 18 North Modoc Ave., Medford, Oregon was the first person to make a statement. He expressed the opinion that there is need for improving the system for receiving public input at hearings. He asked that all hearings be held by the Commission members rather than by hearing officers and that they be held in the vicinity of the subject being heard.

He objected to what he classified as narrowly defined job qualifications for staff positions of DEQ.

Mr. Arthur R. Kraiman, Research Associate and representative of the Regional Development Center at Southern Oregon College, claimed that the lack of an informed citizenry makes both the identification and the solution of environmental problems difficult. He strongly recommended that district offices of DEQ be so located that they will be as close as possible to major community-wide environmental problems. He emphasized the importance of student interest and participation in identifying and solving such problems.

Mr. John Benson said he represented local sanitation but only as a private citizen. He requested information regarding the qualifications of the Commission members and asked about the reasoning for the difference between drain fields or subsurface sewage disposal systems and the requirements for disposal of wastes from animal feed lots and pasture land.

Mr. Weathersbee explained to Mr. Benson the difference in public health significance between the two types of wastes and mentioned briefly the department's program and efforts to control disposal of both domestic sewage and wastes from animals.

Mr. Dennis Allen Adams, resident of Ashland, complained about excessive dust and noise at his residence allegedly caused by the operations of the adjacent Parsons Pine Products and Big Foot Wood Products plants. He was advised by Mr. O'Scannlain that the Department staff would make an inspection to determine appropriate action.

Ms. Colleen Eatherton, who lives in a mobile home on a 2-1/2 acre lot adjacent to the city of Medford, asked if the Commission could do anything about a rock crushing operation on adjoining property. She said a contract had been signed by the owner for the crushing of 100,000 cubic yards of rock and that the crusher would be located only about 100 feet from her home. She did not know if the area had been zoned. She stated that she had not contacted the DEQ previously but had consulted with local authorities. She was assured that the Department staff would do everything within its jurisdiction to protect the environment.

Mr. Sidney M. Jones of Medford expressed concern about proposals set forth by the U.S. Forest Service in that agency's Environmental Draft Statement for the control of roadside and other brush in the Rogue River Basin by the use of herbicides. He asked that a protest be filed with the USFS about the proposed use of 2-4D and 2-4-5T. He claimed that some of the operations would be within the Medford city watershed. He objected to the proposal to maintain a buffer strip of only 10 feet and indicated it should be at least 25 feet. Dr. Westgarth advised Mr. Jones that DEQ is currently reviewing the Environmental Draft Statement and will do everything it can to assure protection of the environment.

Clara Wendt, Jacksonville City Councilwoman, mentioned the sewerage problem that has confronted the city of Jacksonville. She claimed that some of the letters which the city had sent to DEQ had not been answered in enough detail or within a reasonable period of time. Mr. Sawyer explained the background of the sewerage matter and the reason for the delay in getting certain information to the city. Mrs. Wendt also requested that the department make an inspection of the sanitary landfill located adjacent to the city of Jacksonville. She was assured that such an inspection would be made.

Byron Caloz, a young student from the Medford area, made some general comments on the subject of air pollution, recited some costs incurred by the average citizen because of air pollution, advocated the increased development and use of mass transportation and made a plea for more bicycle paths as a means of protecting the environment against pollution.

Mrs. Marie Bosworth expressed the grave concern which she, Thelma M. Thompson, Cornelia Clemens and others in the Medford area, have relative to the use of herbicides as proposed or practiced by the U.S. Forest Service, Bureau of Land Management, the county and others, and particularly the use of the herbicide "Agent Orange" which is a combination of 2-4D and 2-4-5T. She requested that an immediate decision be made to control the use of such materials by injunction or other means. Mr. John Vlastelicia of the Oregon office of EPA stated that no federal permit for experimental or regular use of this herbicide had been granted by EPA. Dr. Westgarth pointed out that the State Department of Agriculture also regulates the use of pesticides in Oregon and to the best of his knowledge no permit has been issued for use of Agent Orange in this state.

Miss Sharon Caloz read a short statement objecting to the practice of clear cutting and pointing out certain disadvantages of this method of timber harvesting such as soil erosion. She strongly recommended selective cutting in place of clear cutting. Mr. Cogan suggested that if she had not already done so she contact the U.S. Forest Service.

Mr. Ray Lamberg of 3619 Ross Lane, Medford, stated that he believes that the air quality in the Rogue Basin has not improved although good progress has been made in reducing the emissions from wigwam burners. He expressed concern about possible health effects of existing pollution and stated that he thinks more investigations should be made of the cumulative effects of particulates and other air contaminants.

Mr. Anthony Netboy, P.O. Box 420, Jacksonville, Oregon claimed that the dam construction by the U.S. Army Corps of Engineers is causing pollution in the Rogue River.

Although invited to do so by the Chairman no other persons asked to be heard during this part of the meeting.

Letters or written statements were received but not read from (1) Mr. and Mrs. O.E. Kellogg of 2180 Sardine Creek Road, Gold Hill, Oregon claiming that much logging does not comply with the requirements of the forest practices act, (2) from Zilla Dueck, 1355 Dutton Road, Eagle Point expressing concern about the supply of ground water and the ban on septic tanks in the Medford suburban area and (3) from Jean Davis of 3572 North Foothills, Medford regarding pesticides, testing of water and fluorides.

Mr. Cogan thanked all of the persons who had taken the time to prepare and submit statements pertaining to their concerns about environmental matters.

IMPACT OF NEW LEGISLATION ON DEQ PROGRAMS

Mr. Spies reviewed briefly a report prepared by the staff regarding the impact of 1973 legislation on DEQ programs. He mentioned specifically the new responsibilities which the department will have concerning sub-surface sewage disposal as a result of the passage of SB77 and alternate sewage disposal systems under HB2786. He discussed the increased authority granted by HB2436 and other bills which it is expected will qualify the DEQ to conduct the NPDES permit program in Oregon. Other bills pertaining to air quality control, solid waste management, pollution control bonds, law enforcement, and land conservation and development were also reviewed.

Although not discussed at the meeting the written report contains information regarding the biennial appropriation ('73-'75) and the authorized staffing for DEQ.

TAX CREDIT APPLICATIONS

Mr. Sawyer presented briefly the Department's evaluations and recommendations regarding the 27 tax credit applications covered by the following motion:

It was MOVED by Dr. Crothers, seconded by Mr. Bragdon and carried that as recommended by the Director Pollution Control Facility Tax Credit Certificates be issued to the following applicants for facilities claimed in the respective applications and with the costs and cost percentages listed being allocable to pollution control:

| <u>Applicant</u> | <u>Appl. No.</u> | <u>Cost</u> | <u>% Allocable to Pollution Control</u> |
|-------------------------------------|------------------|--------------|---|
| Weyerhaeuser Co., North Bend | T-361 | \$ 32,000.00 | 80% or more |
| Weyerhaeuser Co., North Bend | T-407 | 6,192.00 | 80% or more |
| Weyerhaeuser Co., North Bend | T-417 | 273,413.00 | 80% or more |
| Boise Cascade Corp., Joseph | T-419 | 56,500.26 | 80% or more |
| Boise Cascade Corp., Joseph | T-420 | 49,537.19 | 80% or more |
| Oregon Portland Cement, Lake Oswego | T-432 | 12,176.81 | 80% or more |
| Bend Aggregate & Paving Co., Bend | T-434 | 20,342.00 | 80% or more |
| E.R. Holmes, Independence | T-435 | 3,292.07 | 80% or more |
| Menasha Corp., North Bend | T-441 | 5,704.00 | 80% or more |
| Hanna Nickel Smelting Co., Riddle | T-442 | 37,295.63 | 80% or more |
| Hanna Nickel Smelting Co., Riddle | T-443 | 198,997.00 | 80% or more |
| Hanna Nickel Smelting Co., Riddle | T-444 | 1,122,430.13 | 80% or more |
| Hanna Nickel Smelting Co., Riddle | T-445 | 31,727.22 | 80% or more |
| Hanna Nickel Smelting Co., Riddle | T-446 | 29,179.14 | 80% or more |
| Continental Can Co., Portland | T-449 | 3,940.00 | 80% or more |
| Continental Can Co., Portland | T-450 | 19,696.00 | 80% or more |
| Continental Can Co., Portland | T-451 | 18,729.00 | 80% or more |
| Time Oil Co., Portland | T-454 | 60,723.00 | 80% or more |
| Mazama Timber Products, Goshen | T-456 | 23,021.07 | 80% or more |
| Mazama Timber Products, Walker | T-457 | 112,747.22 | 60% or more and less than 80% |
| J.C. Compton Co., McMinnville | T-458 | 156,254.50 | 80% or more |
| Oregon Steel Mills, Rivergate | T-467 | 175,876.29 | 100%* |
| Oregon Steel Mills, Rivergate | T-468 | 92,287.95 | 100%* |
| Oregon Steel Mills, Rivergate | T-469 | 546,525.81 | 100%* |
| Publishers Paper Co., Oregon City | T-472 | 2,475,220.00 | 80% or more |
| Publishers Paper Co., Newberg | T-473 | 616,229.00 | 80% or more |
| International Paper Co., Vaughn | T-475 | 100,283.25 | 80% or more |

*Under 1967 Act

USA INTERIM SEWERAGE PROGRAM

Mr. Sawyer presented the staff report dated July 19, 1973 regarding the interim sewerage program of the Unified Sewerage Agency (USA). He said that because USA and Washington County have been unable to maintain a balance between the growth and development of the area and the capability to provide adequate sewage treatment and disposal, it is now necessary that the Commission (EQC) take immediate action either to maintain the existing interim facility plan and impose a sewer connection ban in the area for a period of perhaps 4 years or to approve a revised interim facility plan and greatly restrict sewer connections and building over the next 2 or more years. He recommended the latter.

In addition to the information contained in his written report, Mr. Sawyer stated that operation of the Oak Hills sewage treatment plant had been taken over by USA on July 5, 1973 and that the improvements to the Primate Center plant are expected to be completed in another month or so. He read into the record of the meeting a telegram from Mrs. Joan M. Brown supporting a continued ban on construction.

Mr. Eldon Hout, Washington County Commissioner, was present to represent USA. He reviewed briefly the history of the program development by USA. He then stated that they are not in disagreement with the basic goals of DEQ as set forth in the report presented by Mr. Sawyer but they question very seriously the particular quota system proposed for sewer connections. He said they do not argue with the figures of 1900 allowable connections for the Aloha system and 900 for Metzger but that the proposed monthly quotas of 65 and 30, respectively, for these two systems would result in a real hardship to the area.

In response to a question by Dr. Phinney Mr. Dan Potter, Washington County Administrative Officer, who was also present said if there were no quota system the remaining allowable connections would probably all be committed in about 1 year. In response to another question from the Commission members Mr. Hout stated that he was confident that the local officials could devise an acceptable alternative quota system proposal within a week. Mr. Sawyer explained the reasoning used in developing the quota system recommended in his report.

Mr. Bruce Clark, Administrator for the city of Tigard, supported the position stated by Mr. Hout. In addition he proposed that consideration be given to installing flow regulation facilities for effecting more uniform

flow to the sewage treatment plants as a way of increasing the number of allowable sewer connections.

Mr. Larry Sprecher, Beaverton City Manager, was the next person to make a statement regarding this matter. He proposed that an annual rather than a monthly quota system be adopted and asked that time be allowed to work out such a compromise. He stressed the value or importance of orderly growth and suggested that it might be advisable in some cases to increase temporarily the level of allowable pollution in order to permit proper planning and development. For example, he believes it necessary to provide housing nearby to the new Washington Square commercial development in Washington County in order to keep automobile travel to a minimum and thereby control air pollution.

Mr. Robert B. Rogers, President of the Home Builders Association of Metropolitan Portland, read a letter dated July 25, 1973 from that organization. He said they appreciate the problem of water quality control and certainly do not advocate the discharge of raw sewage into streams. He requested, however, that if sewer hookups are to be limited (1) local government, in cooperation with the home building industry, be permitted to establish priorities for allocation of the permits, (2) time be allowed to consider interim solutions for presentation to the Commission, and (3) a public hearing be held in the Portland area for presentation of the priority system and interim solutions to the Commission.

Mr. James Moore, attorney for Habitat Sylvan Hills Development and former Beaverton City Mayor, spoke against the proposed monthly quota system. He contended that it would not be equitable to use the last allowable sewer connections only a few days before the Durham plant would be in operation, that early development would make more assessed value of property available for tax purposes, that the monthly quotas would make it impossible for large projects to qualify at all, and that consequently there would be serious effects on the housing industry and supply.

Mr. Hout then suggested that the Commission continue the ban or embargo for another 3 weeks to allow them time to work out a compromise quota system.

After further discussion it was MOVED by Dr. Crothers, seconded by Mr. Bragdon and carried that the Director's recommendations in this matter be adopted but with changes to condition No. 2, namely that the revised interim program proposed by USA for the Beaverton Creek-Rock Creek drainage basins be approved subject to the following conditions:

- (1) No additional connections to the Oak Hills Plant shall be made without specific Department of Environmental Quality approval. The plant shall be modified and operated as necessary to perform within standards. Irrigation disposal of effluent shall be implemented immediately if land can be obtained in the vicinity.
- (2) Until quota bases have been approved by the Commission for permitting additional connections to the sewers tributary to the Aloha Plant and Metzger Plant no additional sewer connection permits shall be issued for any properties served by sewers connected to treatment plants located in the Fanno and Beaverton-Rock Creek drainage basins.
- (3) No additional connections to sewers tributary to the Beaverton sewage treatment plant shall be committed without specific DEQ approval. Connections to sewers in Beaverton tributary to the Aloha plant can be permitted subject to quotas approved by the Commission for the Aloha plant. Connections to sewers tributary to the Metzger system can be permitted subject to quotas approved for that system.
- (4) The expanded Somerset West plant shall be operated and maintained by USA.

The revised interim program proposed by USA and conditionally approved by the above motion is as follows:

- (1) Allow Tektronix to maintain its present plant in operation until 1977.
- (2) Maintain the Oak Hills plant at present loading until 1977.
- (3) Reduce the load on the Sunset plant from the present approximate 1.2 MGD to 0.8 MGD by diverting flow to Aloha via the Cedar Mill trunk sewer which is to be completed this fall and maintain this reduced loading until 1977. Make such other modifications as are necessary to insure that interim effluent quality standards are met.
- (4) Allow continued growth in the area to utilize remaining Aloha plant capacity by late 1975. The remaining capacity, assuming items (1), (2) and (3) above are met, is presently estimated at 1900 single family

unit equivalents. In late 1975 when the Durham plant is completed, an estimated 1.2 MGD of waste flow from Beaverton can be diverted from the Aloha plant to the Durham plant, thus making the equivalent of approximately 3,000 additional connections theoretically available to the Aloha plant.

- (5) Allow the modified and improved Primate Center plant to continue in operation until 1977. (Modifications to this plant will be completed in another month or so for improving effluent quality and eliminating summer discharges.)
- (6) Allow interim expansion of the Somerset West plant to accommodate additional residential development and provide service to two planned new Beaverton School District schools and to the Portland Community College Rock Creek Campus, such expansion to be accomplished with all effluent disposed of by land irrigation during the summer months and with increased flow to Rock Creek only during wet weather months.

It was agreed by the Commission members that if at all possible a decision regarding a compromise quota system would be made by them on August 13, 1973, and if not then at the September Commission meeting.

PARKING FACILITIES

(a) Portland State University 150-space Parking Facility:

Mr. Downs read the staff report dated July 18, 1973 covering the department's review and evaluation of the application submitted by PSU for construction of a 150-space surface parking facility on the block bounded by S.W. 12th, S.W. 13th, S.W. Montgomery and S.W. Market Streets, Portland. He said it is the recommendation of the Director that the proposed 150-space parking facility be approved for construction with the following conditions:

- (1) The 117-space parking facility on Block 239 be closed prior to opening the 150-space facility.
- (2) The modified parking guideline be implemented such that required increases in parking supply be confined to off-campus sites.

It was MOVED by Dr. Crothers, seconded by Mr. Bragdon and carried that the Director's recommendation in this matter be approved.

(b) Valley River Center 872-space Parking Facility:

Mr. Downs presented the staff report dated July 19, 1973 covering the department's review and evaluation of the application submitted by the Valley River Center for construction of an 872-space parking facility at the Valley River Center in Eugene. He said it is the recommendation of the Director that the proposed 872-space facility be approved for construction according to the plans and specifications submitted.

Mr. Wayne Shields was present to represent the applicant. He stated the proposed facility is to serve two department stores and 64 other shops and is based on 5.66 parking spaces/1000 square feet of store area. He said they have the wholehearted support of mass transit, that they would very much prefer to convert part of the 34 acres of parking to other more productive uses, that normally the parking facilities are used only to 50 to 60% of capacity, and that there are about 3 times each year when the facilities are overloaded and some cars have to be parked along the access roads. He estimated that 30% of their trade comes from outside the metropolitan and mass transit area.

Mr. Cogan announced that he was opposed to the Director's recommendation in this matter because it provides no incentive or requirement for mass transit usage and therefore he recommended that it not be adopted until a more balanced approach for mass transit and automobile usage be developed for this project.

It was MOVED by Dr. Crothers and seconded by Dr. Phinney that the Director's recommendation regarding the Valley River Center application be approved. The vote was Dr. Crothers - Aye, Mr. Bragdon - Aye, Dr. Phinney - No, and Mr. Cogan - No. The motion failed to pass because of a tie vote.

Mr. O'Scannlain suggested that the staff review this matter further and that it be resubmitted at the next Commission meeting.

Mr. Cogan thanked the city of Medford for the privilege of holding this meeting in the Council Chambers.

The meeting was then recessed at 12:00 noon and reconvened at 1:30 p.m.

(c) Habitat Sylvan Hills 1422-space Parking Facility:

Mr. Downs reviewed the staff report dated July 19, 1973 covering the department's evaluation of the application submitted by Forchuk/Wold/Peyton Builders and Developers for construction of a 1,422-space parking facility to serve the Habitat Sylvan Hills 1412-person residential development located between Sunset Highway and S.W. Barnes Road near the intersection of S.W. Miller Road in east Washington County. He stated that the Director's recommendation is that the July 9, 1973 application for this parking facility be approved for construction according to the plans and specifications submitted, with the condition that the developers Forchuk/Wold/Peyton, provide the Department with an acceptable transit plan and implementation time schedule to service Habitat Sylvan Hills with mass transit when it opens, such plan and time schedule to be submitted no later than October 25, 1973.

Mr. James Moore, Attorney, was present to represent the applicant. He stated the developers are most agreeable to either of the two alternatives for mass transit that are available.

It was MOVED by Dr. Crothers, seconded by Dr. Phinney and carried that the Director's recommendation in this matter be approved.

(d) Eugene Office Park 385-space Parking Facility:

Mr. Downs presented the staff report dated July 23, 1973 covering the department's review and evaluation of the application submitted by Moran Construction, Inc. for construction of a 385-space parking facility to serve Phase I of a proposed office park development adjacent to the Valley River Center, Eugene, with Phase I consisting of 114,000 square feet of office space with 285 parking spaces and 6,000 square feet of food service center space with 100 parking spaces. He stated that the Director's recommendation is that the Commission authorize the Director to approve the plans and specifications for the 385-space parking facility for construction as soon as an acceptable plan and implementation time schedule have been submitted to the Department providing incentives for employees and tenants of the Eugene Office Park to utilize mass transit.

Mr. Harry Seabold was present to represent the applicant. He said they would want to meet with the DEQ staff as soon as possible to learn about the guidelines for developing such a plan and time schedule.

It was MOVED by Dr. Crothers, seconded by Dr. Phinney and carried that the Director's recommendation in this matter be approved.

ALSEA VENEER

Mr. Burkitt presented the staff report regarding the Alsea Veneer plant located about one mile south of Yachats. He stated that on March 9, 1973 the department had assessed a \$250 civil penalty against the company for violations of wigwam burner emission limitations, that the company subsequently requested a public hearing, that Mr. Silver had been appointed hearings officer, that the company and department had later stipulated to all facts with the exception of consideration of the company's financial circumstances, and that Mr. Silver's report was attached which concluded that the \$250 civil penalty was valid and levied according to law.

It was MOVED by Dr. Crothers, seconded by Dr. Phinney and carried that as recommended by the Director the Hearings Officer's proposed order be adopted and entered by the Commission.

CWAPA VARIANCES

Mr. Patterson reviewed briefly the department's evaluations and recommendations regarding the variances granted by CWAPA and covered by the following three motions:

It was MOVED by Dr. Crothers, seconded by Dr. Phinney and carried that as recommended by the Director the CWAPA variance 73-5 issued to Publishers Paper Company be approved as issued.

It was MOVED by Dr. Crothers, seconded by Mr. Bragdon and carried that as recommended by the Director the CWAPA variance 73-4 issued to Dennis Melstrom for operation of a proposed modified wigwam burner at the Sandy Shake Company mill be approved as issued.

It was MOVED by Dr. Phinney, seconded by Dr. Crothers and carried that as recommended by the Director the CWAPA variance 73-6 to the inhabitants of Columbia County be approved but with item No. 3 amended to require specific application to and written approval from the department prior to conducting land clearing operations in excess of two acres.

Mr. A. Jay Ahlborn, Columbia County Commission, was present and spoke in favor of approval of CWAPA variance 73-6. He stated that the county has an area of 676 square miles and a population of only 30,000, one-third of which has no garbage collection services.

CWAPA TRANSFER TO DEQ

The audit report for the former Columbia Willamette Air Pollution Authority (CWAPA) was not available and so this matter was deferred until the next Commission meeting.

CONTINUATION OF HEARING RE: ALUMINUM PLANT RULES

The Public Hearing held by the Commission on June 29, 1973 was continued on July 26, 1973 beginning at 2:00 p.m. in the Council Chambers of the Medford City Hall with Vice Chairman Arnold M. Cogan presiding and members Paul E. Bragdon, Dr. Maurice K. Crothers and Dr. Grace S. Phinney in attendance. Chairman B.A. McPhillips was unable to attend.

All testimony presented orally at both sessions was recorded on tape.

The first person to appear and be heard was Mr. Jack Doan, Vice President of Martin Marietta and General Manager of that company's Reduction Division. He introduced Dr. Michael Treshow, Professor of Biology, University of Utah, who had been retained by Martin Marietta to evaluate the possible effects on orchard crops of fluoride emissions from the aluminum plant at The Dalles. He said his observations in 1963 revealed typical fluoride symptoms on such sensitive plant species as the "Chinese" apricot, Italian prune and several gladiolus varieties within a two-mile radius of the aluminum plant but that since 1964 fluoride injury to crops, native plant species and ornamental plants in The Dalles area has been negligible and insignificant. He claimed it is now impossible to find any fluoride-induced symptoms on even the most sensitive plants anywhere in The Dalles area.

In response to questions from the Commission members Dr. Treshow stated that humans are roughly 1,000 times more tolerant to fluorides than are sensitive plants, that after fluoride emissions are discontinued plants will resume normal growth and development within a period of weeks or possibly days, that with the controls of fluoride emissions now in effect at The Dalles aluminum plant the production of aluminum and orchard crops in The Dalles area are compatible, that in using the term "negligible" he means less than one-half of one percent of the leaf tissue of the most sensitive species would be affected, and that in his opinion the damages awarded in recent court cases involving The Dalles aluminum plant were not justified.

The next person introduced by Mr. Doan was Dr. Melvin Carter, Professor of Statistics at Brigham Young University. He had been retained by Martin Marietta to evaluate studies conducted by Oregon State University to assess possible effects of fluorides on sweet cherry fruit set and to conduct independent statistical analyses of the data. He said that based on his statistical analysis and review of the work conducted by OSU, the work conducted in the Martin Marietta Orchards and his familiarity with reported ambient air fluoride levels in The Dalles in recent years it is his opinion that the fluoride levels in the orchard area in recent years have not had an adverse effect on sweet cherries.

Following questioning of Dr. Carter by the Commission members, Mr. Doan presented a fairly complete explanation of the aluminum reduction process used by Martin Marietta at The Dalles and described the control systems which have been installed to reduce atmospheric emissions from the plant. He stated that operation and maintenance of the control systems is a big job and requires the full time services of 26 people including engineers and technicians.

He said that Martin Marietta Aluminum Company must oppose adoption of the proposed regulations because neither the need for nor the practicability of obtaining the proposed emission levels has been established. He claimed that it would be impossible for The Dalles plant to comply, that they cannot meet the requirement for submitting an implementation program within 180 days, that they could not meet the compliance deadline of January 1, 1976, and that they do not resist adoption of the proposed regulations in order to avoid expense but because they can not meet them at their plant.

In response to a question by Dr. Crothers Mr. Doan said he feels they could meet a 5 pound standard based on total fluorides but not the proposed one pound standard.

Upon questioning by Mr. O'Scannlain it was brought out that based on samples collected during the past 2 years the long-term average for total fluoride emissions at The Dalles plant has been 2.2 pounds per ton of aluminum produced with monthly values ranging from a low of 0.7 pound to a maximum of 5.8 pounds.

The question of hooding of the cells was brought up by Mr. Cogan. Mr. Doan then introduced Dr. Warren Peterson, manager of reduction technology for Martin Marietta. He presented information supplied by Wesley C.L. Hemeon, a recognized authority on this particular subject. According to Mr. Hemeon it is not only difficult but literally impossible to put a hood on a vertical stud Soderberg cell such as is used at The Dalles.

To answer questions raised by Dr. Crothers regarding the cost and difficulty of getting adequate emission data Mr. Joe Byrne of Martin Marietta was called upon by Dr. Peterson. He described the problems involved in getting representative samples of the extremely large volumes of air which are emitted from the numerous outlets and the problems of analyzing them for minute concentrations of contaminants. This was followed by a discussion by Mr. Skirvin, Mr. O'Scannlain and Mr. Byrne concerning the problem of obtaining meaningful monthly average values for the fluoride emissions from the plant.

The final witness for Martin Marietta was Mr. Douglas Ragen, Attorney with the law firm of Miller, Anderson, Nash, Yerke and Wiener, Portland. He proceeded to analyze and summarize certain of the testimony presented at the hearing on June 29, 1973 and at this continued hearing for the purpose of showing whether or not the proposed rules and standards are practicable, reasonably attainable, and based upon presently available technology. He commented on the oral or written statements made by F.A. Skirvin, Dr. Aaron J. Teller, Joseph Schulein, Wesley C.L. Hemeon, Arden Shenker, representatives of Martin Marietta, representatives of AMAX and Dr. T.T. Facticeau.

He stated that Dr. O.C. Compton, a horticulturist from Oregon State University, who has conducted extensive studies in The Dalles area holds the opinion that the aluminum plant is not causing damage to sweet cherry production. He stated further that Curtis Mumford, an agricultural economist also from OSU, has made a study of production data and has been unable to find any adverse effect on sweet cherry production which he could attribute to the aluminum plant.

Mr. Ragen concluded his statement by saying that he believes it clearly shows the reasons why the proposed amendments to Oregon's regulations governing the primary aluminum industry must be rejected by the company.

Dr. Crothers commented that he was really favorably impressed by what the company has accomplished in reducing its atmospheric emissions and based on the testimony presented he thinks the plant is already meeting a 2 pound/ton standard. He said he was also impressed by the fact that there is probably very little economic damage being done in The Dalles area and obviously no damage to humans.

There was then further discussion regarding the problem of determining "monthly average" emission values.

The final witness at the continued hearing in Medford was Mr. Harry Helton, Plant Manager of the Reynolds Metals Plant at Troutdale. He discussed further the problem of measuring fluoride emissions and expressing them on a basis of monthly average. He pointed out that the proposed standards say specifically that the emissions shall not exceed 1 pound of fluoride per ton of aluminum produced on a monthly average basis which means this value shall not be exceeded in any single month whereas the figure of 2.2 pounds given for The Dalles plant was a long-term arithmetical average for a 26-month period, not for single month. In response to a question by Mr. O'Scannlain Mr. Helton stated that at the Reynolds aluminum plant in Troutdale the corresponding long-term arithmetical average is somewhere in the neighborhood of twelve pounds per ton.

As a result of these discussions Mr. Cogan instructed the staff to review the particular wording of this standard and propose any changes that might be indicated.

Mr. O'Scannlain directed the staff to review all the testimony and analyze all of the presentations and report back at the next meeting of the Commission.

There being no one else who wished to be heard in this matter the hearing was adjourned by Mr. Cogan at 4:45 p.m.

MINUTES OF THE FORTY-NINTH MEETING
of the
Oregon Environmental Quality Commission
September 21, 1973

Pursuant to public notice mailed to the news media, to persons on a mailing list of the Department and to the Commission members, the forty-ninth meeting of the Oregon Environmental Quality Commission was called to order by the Chairman at 9:00 a.m. on Friday, September 21, 1973 in the Second Floor Auditorium of the Public Service Building, 920 S.W. 6th Avenue, Portland, Oregon. The Commission members present were B.A. McPhillips, Chairman, Arnold M. Cogan, Dr. Morris K. Crothers and Dr. Grace S. Phinney. Paul E. Bragdon was unable to attend because of other commitments.

The Department was represented by Director Diarmuid F. O'Scannlain, Ronald L. Myles, E.J. Weathersbee, K.H. Spies, Harold L. Sawyer, Harold M. Patterson, Fred M. Bolton, H.H. Burkitt, C.K. Ashbaker, B.J. Seymour, Shirley Shay, G.K. Sandberg, M.J. Downs, F.A. Skirvin and Chief Legal Counsel, Ray P. Underwood.

MINUTES OF THE JULY 26, 1973 COMMISSION MEETING

It was MOVED by Mr. Cogan, seconded by Dr. Crothers and carried that the minutes of the forty-eighth meeting of the Commission held in Medford on July 26, 1973, be approved as prepared.

PROJECT PLANS FOR THE MONTHS OF JULY AND AUGUST, 1973

It was MOVED by Mr. Cogan, seconded by Dr. Phinney and carried that the actions taken by the Department during the months of July and August 1973 as reported by Mr. Weathersbee regarding the following 190 domestic sewerage, 17 industrial waste, 70 air quality control, and 26 solid waste management projects be approved:

Water Quality Control - July 1973

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|---------------------------------|-------------------------------------|----------------------------|---------------|
| <u>Municipal Projects (113)</u> | | | |
| 7-2-73 | Eugene | 2 sanitary sewer projects | Prov. app. |
| 7-2-73 | Clackamas County Service Dist. I | Cypress Knoll Subd. sewers | Prov. app. |

Municipal Projects (113) - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|--|--|---------------|
| 7-2-73 | Bunker Hill S.D. | Homecrest Addn. sewers | Prov. app. |
| 7-2-73 | Springfield | 18th & "Q" Sts. san. sewers | Prov. app. |
| 7-2-73 | Bear Creek Valley San. Auth. (Talent) | Pacific Estates No. 1 Subd. sewers | Prov. app. |
| 7-2-73 | USA (Metzger) | Englewood Subd. sewers | Prov. app. |
| 7-2-73 | Oregon City | Hillendale Subd. sewers | Prov. app. |
| 7-2-73 | USA (Fanno) | Pineridge Subd. sewers | Prov. app. |
| 7-2-73 | USA (Tigard) | 2 sanitary sewer projects | Prov. app. |
| 7-2-73 | USA (Metzger) | Fairway Park LID sewers | Prov. app. |
| 7-5-73 | Oregon City | Terra Verdes Subd. san. sewers | Prov. app. |
| 7-5-73 | Portland | S.E. 91st Ave. sewer ext. | Prov. app. |
| 7-5-73 | Gresham | Willowbrook Subd., Phase 1, sewers | Prov. app. |
| 7-5-73 | Gladstone | Sherwood Forest No. 3 sewers (as constructed) | Prov. app. |
| 7-5-73 | Oak Lodge S.D. | Coeur d' Robin Subd. sewers | Prov. app. |
| 7-5-73 | La Grande | Jordan East Subd. sewers | Prov. app. |
| 7-5-73 | Seaside | Sewage treatment plant Change Order 1 - 4 | Approved |
| 7-5-73 | Springfield | Glen Oaks Subd. sewers | Prov. app. |
| 7-5-73 | Salem (Willow Lake) | Lakeside Addition sewers | Prov. app. |
| 7-5-73 | Bear Creek Valley San. Auth. (Talent) | Talent Patio Village sewers | Prov. app. |
| 7-5-73 | USA (Fanno) | Holloway Subd. sewers | Prov. app. |
| 7-5-73 | Lebanon | U.S. Plywood sewer | Prov. app. |
| 7-5-73 | USA (Aloha) | Blackberry Slope Subd. sewers | Prov. app. |
| 7-5-73 | Portland | S.W. 61st Ave. sewer | Prov. app. |
| 7-5-73 | Waldport | Sewage treatment plant time extension | Approved |
| 7-5-73 | Eugene | Honesuckle Lane sewer | Prov. app. |
| 7-6-73 | North Umpqua S.D. | 2 projects | Prov. app. |
| 7-6-73 | Willamina | Willamina Drive sewer | Prov. app. |
| 7-6-73 | Ashland | Fox Street sewer | Prov. app. |
| 7-6-73 | East Salem Sewer & Drainage Dist. I | Briarwood Addition sewers | Prov. app. |
| 7-6-73 | Eugene | Villard & Walnut Sts. sewers | Prov. app. |
| 7-9-73 | Klamath Falls | Lynnewood Subd. sewers | Prov. app. |
| 7-9-73 | Newberg | Crestview sanitary sewer | Prov. app. |
| 7-9-73 | Mt. Angel | Elm Street san. sewer | Prov. app. |
| 7-9-73 | Keizer Sewer Dist. I | Olson Street san. sewer | Prov. app. |
| 7-10-73 | Junction City | Norman Park Subd. sewers | Prov. app. |
| 7-10-73 | Rainier | Fernhill Subd. sewers | Prov. app. |
| 7-10-73 | USA (Sunset) | Meadow Drive LID sewers | Prov. app. |
| 7-10-73 | USA (Fanno) | Knoll Center Subd. sewers | Prov. app. |
| 7-10-73 | Boardman | Faler Addition sewer | Prov. app. |
| 7-11-73 | Eugene | 4 projects | Prov. app. |
| 7-11-73 | North Bend | 2 projects | Prov. app. |

Municipal Projects (113) - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|--|---|---------------|
| 7-11-73 | McMinnville | Rob's Orchard Subd. sewers | Prov. app. |
| 7-11-73 | Dallas | LaLack Addition sewers | Prov. app. |
| 7-11-73 | USA (Aloha) | Windsong II Subd. sewers | Prov. app. |
| 7-13-73 | Hillsboro (Rock Cr.) | Brookwood Area sewers | Prov. app. |
| 7-16-73 | Lake Oswego | Red Fox Hills #3 Subd. sewers | Prov. app. |
| 7-16-73 | Lake Oswego | Oak Knolls Subd. sewers | Prov. app. |
| 7-16-73 | Clackamas County Service Dist. I | Piazza Park Subdivision sewers | Prov. app. |
| 7-16-73 | Klamath Falls | Daggett & Shallock Streets sewers | Prov. app. |
| 7-16-73 | Klamath Falls | Gatewood Subd. sewers | Prov. app. |
| 7-17-73 | USA (Aloha) | 185 St. West Phase II sewer | Prov. app. |
| 7-17-73 | Bear Creek Valley San. Auth. (Talent) | Nerton St. sewer | Prov. app. |
| 7-17-73 | Bear Creek Valley San. Auth. (Talent) | Calver Road sewer | Prov. app. |
| 7-17-73 | Bear Creek Valley San. Auth. | Orr Drive sewer | Prov. app. |
| 7-17-73 | Salem (Willow Lake) | 2 projects | Prov. app. |
| 7-17-73 | Salem (West) | Hope Avenue sewer | Prov. app. |
| 7-17-73 | Salem (Willow Lake) | Jefferson St. sewer lining | Prov. app. |
| 7-17-73 | USA (Aloha) | Brooklawn Subd. sewers | Prov. app. |
| 7-17-73 | Dundee | Beach & Ash Streets sewers | Prov. app. |
| 7-19-73 | Inverness | Sheraton Motor Inn sewer | Prov. app. |
| 7-19-73 | Springfield | 54th Place sewer | Prov. app. |
| 7-19-73 | USA (Forest Grove) | Activated sludge sewage treat- ment plant modification to 5.00 MGD | Prov. app. |
| 7-20-73 | McMinnville | 3-mile Road sewer | Prov. app. |
| 7-23-73 | Springfield | Third Addition to Maylor Subd. sewer | Prov. app. |
| 7-23-73 | Newberg | 2 projects | Prov. app. |
| 7-23-73 | Philomath | Philomath Middle School sewer | Prov. app. |
| 7-24-73 | Eastside | Pump station and force mains to Bunker Hill | Prov. app. |
| 7-24-73 | Medford | Thompson Estates Subd. sewers | Prov. app. |
| 7-24-73 | East Salem Sewer & Drainage Dist. I | Jan Ree East No. 3 Subd. sewers | Prov. app. |
| 7-24-73 | Oregon City | Oaktree Subd. sewers | Prov. app. |
| 7-24-73 | Albany | 4 sewer extensions (1) Columbia Street (2) Pineway Addition (3) College Green -- 2 | Prov. app. |
| 7-24-73 | McNary | Johns-Manville plant sewer | Prov. app. |
| 7-24-73 | Astoria | Maritime Dock sewer | Prov. app. |

Municipal Projects (113) - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|------------------------------|--|---------------|
| 7-25-73 | Hood River | 1973 sanitary sewer project Schedules 1 and 2 | Prov. app. |
| 7-25-73 | Deschutes County | Ward Construction Company project, sewage treatment plant, 0.37 MGD activated sludge treatment and effluent irrigation | Prov. app. |
| 7-27-73 | Hermiston | 5 sanitary sewer projects | Prov. app. |
| 7-27-73 | Wilsonville | Carpenter-Hastay san. sewer | Prov. app. |
| 7-27-73 | Salem (Willow Lake) | Casa Del Vista Addn. sewers | Prov. app. |
| 7-27-73 | Albany | 5 sanitary sewer projects | Prov. app. |
| 7-27-73 | Bear Creek Valley San. Auth. | Jay Walker Mobile Home Park | Prov. app. |
| 7-30-73 | Brookings | Change Order #6, sewage treatment plant contract | Approved |
| 7-30-73 | Yoncalla | Flow measurement facilities | Prov. app. |
| 7-30-73 | Garibaldi | Change Order #2 to sewage treatment plant contract | Approved |
| 7-30-73 | Woodburn | Woodburn Village No. 1 Trailer Subd. sewers | Prov. app. |
| 7-30-73 | Salem (Willow Lake) | Waln Creek, S.E., Phase II, sewers | Prov. app. |
| 7-30-73 | Portland | Change Order No. 5 to the sewage treat. plant contract | Approved |
| 7-30-73 | Gardiner San. Dist. | Change Order No. 1 to the pump station contract | Approved |
| 7-30-73 | St. Helens | Nutrient feed and aeration equipment additions to sewage treatment plant contract | Prov. app. |
| 7-31-73 | Arlington | Revised sewage treatment plant plans | Prov. app. |
| 7-31-73 | Newberg | ADEC Industrial Park sewer | Prov. app. |

Industrial Projects (8)

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|--|---------------|
| 7-9-73 | Nyssa | J.A. Albertson, animal waste facilities | Prov. app. |
| 7-10-73 | La Grande | Boise Cascade Corp., plan for monitoring ground water at La Grande Particleboard Plant | Prov. app. |
| 7-13-73 | Moro | John P. Shipley, animal waste facilities | Prov. app. |
| 7-16-73 | Portland | Willamette Hi-Grade Concrete Company, Swan Island Plant, yard and gravel wash water treatment system | Prov. app. |
| 7-18-73 | Malin | Ore-Cal Feedlots, animal waste facilities | Prov. app. |

Industrial Projects (8) - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|--|---------------|
| 7-18-73 | Newport | Oregon Aqua Foods, Inc., South Beach Rearing Station, waste water control facilities | Prov. app. |
| 7-18-73 | Portland | Oregon Steel Mills, Front Ave. Plant, modifications to melt shop | Prov. app. |
| 7-19-73 | St. Helens | Reichhold Chemicals, Inc., spill contingency plan | Prov. app.. |

Air Quality Control

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|--|--------------------|
| 7-2-73 | Lincoln | Bio-Dry, Inc., Newport, Oregon Installation of a fish, crab and shrimp offal drier and processing facility | Approved |
| 7-6-73 | Jackson | Kogap Mfg. Co., Medford, Ore. Installation of veneer drier, Cleaver-Brooks hog fuel boiler and a lower pressure blower system with a control cyclone | Approved |
| 7-6-73 | Klamath | Klamath Iron Works, Kl. Fall, Ore. Installation of 350,000 btu oil fired furnace | Approved |
| 7-6-73 | Washington | Tigard Jr. High School-96 space parking facility | Approved |
| 7-6-73 | Washington | First State Bank of Oregon 58 space parking facility | Approved |
| 7-6-73 | Multnomah | Jantzen Beach Ice Sports Center 180 space parking facility | Approved |
| 7-6-73 | Multnomah | Sheraton Inn Airport 271 space parking facility | Approved |
| 7-9-73 | Umatilla | St. Anthony Hospital, Pendleton Oregon. Review of proposed specifications for a pathological waste incinerator | Comments submitted |
| 7-9-73 | Josephine | Tim-Ply Co., Grants Pass, Oregon Installation of an Aero-Vac baghouse filter unit to control sanderdust emissions | Approved |
| 7-9-73 | Lincoln | Georgia-Pacific Corp., Toledo, Oregon. Details of heavy black liquor oxidation, inclusion of modified kraft process in non-condensable system | Approved |
| 7-13-73 | Clackamas | Publishers Paper Co., Oregon City, Oregon. Pump-out system for digester blow pit vent control | Approved |
| 7-13-73 | Multnomah | Red Lion Hotel. 880 space parking facility | Req. add. inf. |

Air Quality Control - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|---|-------------------------------------|
| 7-17-73 | Washington | Lincoln Property Co. 317-space parking facility | App. with conditions |
| 7-17-73 | Marion | Boise Cascade Corp., Salem, Oregon. Improved seal for ammonia handling system | Approved |
| 7-18-73 | Multnomah | Portland Adventist Hospital 685-space parking facility | Req. add. inf. |
| 7-18-73 | Multnomah | Homeland, Inc., Apartment 216 space parking facility | Req. add. inf. |
| 7-18-73 | Multnomah | Carter Properties, Westridge Phase Two, Office Bldg. 70 space parking facility | Req. add. inf. |
| 7-19-73 | Multnomah | Portland International Airport Air Cargo Facilities. Re-location of 83 space parking facility | Approved |
| 7-19-73 | Multnomah | Menashe 44-unit Townhouse 105 space parking facility | Approved |
| 7-20-73 | Washington | Killian Commercial Bldg. 64 space parking facility | App. with conditions |
| 7-23-73 | Multnomah | Plush Pippin, Inc., Restaurant 67 space parking facility | Approved |
| 7-23-73 | Multnomah | Northwest Natural Gas Co., Northeast Service Center 83 space parking facility | Approved |
| 7-23-73 | Multnomah | Port of Portland, Terminal No. 4. Longshoreman Parking Parking consolidation 255 space parking facility | Approved |
| 7-23-73 | Multnomah | Mt. Hood National Forest Service Office Bldg. & Technical Center 247 space parking facility | Req. add. inf. |
| 7-23-73 | Washington | Chantrey Village 63 space parking facility | App. with conditions |
| 7-23-73 | Coos | Weyerhaeuser Co., N. Bend Installation of flyash screening system for the hog fuel boilers | Approved |
| 7-24-73 | Multnomah | City of Portland Parking facility of unknown size | Req. add. inf. |
| 7-24-73 | Multnomah | Port of Portland, Portland International Airport, Rent-A-Car Facilities. Parking consolidation 192 space parking facility | Approved |
| 7-24-73 | Washington | Greentree Business Park 150 space parking facility | Req. add. inf. |
| 7-24-73 | Multnomah | St. Vincent Hospital and Medical Center. 728 space parking facility | Req. Environmental Impact Statement |

Air Quality Control - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|--|---------------------------------|
| 7-24-73 | Washington | Ko11 Business Center 662 space parking facility | Req. Env. Impact St. |
| 7-24-73 | Lane | 5th & Q Shopping Center 275 space parking facility | Approved |
| 7-24-73 | Washington | Menlo Square, Condominium 90 space parking facility | Req. add. inf. |
| 7-25-73 | Coos | Roseburg Lumber Co., Coquille Plant, Coquille. Installation of 40,000 PPH Kipper & Sons hog fuel boiler | Approved |
| 7-25-73 | Washington | Deleco Corp. of Oregon 81 space add. parking facility | Req. add. inf. |
| 7-25-73 | Washington | Tanasbourne Shopping Center 825 space parking facility | Req. add. inf. |
| 7-26-73 | Washington | Habitat Sylvan Hills 1422 space parking facility | EQC approved with conditions |
| 7-26-73 | Lane | Valley River Center 872 space parking facility | EQC denied |
| 7-26-73 | Lane | Eugene Office Park 385 space parking facility | EQC req. add. inf. |
| 7-26-73 | Multnomah | Portland State University 150 space parking facility | EQC app. with conditions |
| 7-26-73 | Tillamook | Manzanita Rest Area Sludge incinerator and feed system | Approved |
| 7-30-73 | Klamath | Weyerhaeuser Co., Kl. Falls Installation of hog fuel drying system | Approved |
| 7-30-73 | Multnomah | The Fortniter, Motel 50 space parking facility | Req. add. inf. |
| 7-31-73 | Yamhill | Publishers Paper, Newberg Improved seal for condenser and scrub system for digester blow pit vent control | Approved |
| 7-31-73 | Multnomah | Portland Elementary School of Seventh-Day Adventist 87 space parking facility | Approved |
| 7-31-73 | Multnomah | Gateway BPOE Lodge No. 2411 263 space parking facility | Approved |
| 7-31-73 | Washington | Center Plaza Development Co. Professional Center and Office Bldg. 200 space parking facility | Req. add. inf. |
| 7-31-73 | Multnomah | Multnomah County Exposition Center. To pave a 2250 space parking facility | Approved |
| 7-31-73 | Marion | Vocational Rehabilitation Facility. 117 space parking facility | Approved |

Solid Waste Management

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|--------------------------|--|--------------------|
| 7-5-73 | Columbia County | Jelco, Inc. (Operational Plan for Powerline Land Clearing) | Approved |
| 7-5-73 | Washington County | Hillsboro Landfill (Existing Demolition Landfill-Amendment to Operational Plan) | Prov. app. |
| 7-5-73 | Columbia County | Crown Zellerbach Landfill (Operational Plan for Existing Industrial Wood Waste Disposal Site, Letter Authorization Issued) | Prov. app. |
| 7-10-73 | Lane County | Disston Disposal Site (Garbage Site Replaced by Transfer Station-Final Closure Plan) | Approved |
| 7-10-73 | Polk County | Dallas Disposal Site (Existing Garbage Site-Operational Plan) | Not approved |
| 7-11-73 | Clatsop-Tillamook Region | Action Plan Interim Progress Report | Review and Comment |
| 7-24-73 | Jackson County | Action Plan Interim Progress Report | Review and Comment |
| 7-24-73 | Clackamas County | PGE-Faraday Disposal Site (Operational Plan Existing Industrial Demolition Site Letter Authorization issued) | Prov. app. |
| 7-26-73 | Multnomah County | ESCO Corporation (Operational Plan-Existing Industrial Disposal Site-Letter Authorization Issued) | Prov. app. |
| 7-27-73 | Clackamas County | PGE Oak Grove Disposal Site (Operational Plan-Existing Industrial Garbage Disposal Site-Letter Authorization Issued) | Prov. app. |
| 7-27-73 | Umatilla County | Umapark Corporation (Operational Plan-Demolition Landfill for 2 School Buildings only - Letter Authorization Issued) | Prov. app. |
| 7-30-73 | Lane County | Action Plan - Interim Progress Report | Review & Comment |

Water Quality Control - August 1973

Municipal Projects (77)

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|---|---------------|
| 8-1-73 | Eugene | Urban renewal san. sewer | Prov. app. |
| 8-1-73 | Springfield | Danielle Park, First Addn. sewers | Prov. app. |
| 8-1-73 | Florence | Green Trees Subd. sewers and pumping stations | Prov. app. |
| 8-1-73 | Creswell | City park sewer | Prov. app. |
| 8-2-73 | Bend | Septic tank sludge report | Approved |

Municipal Projects (77) - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|------------------------------|---|---------------|
| 8-2-73 | McNary | Revised plans--Johns-Manville sewer | Prov. app. |
| 8-2-73 | Eugene | Shasta Gardens--Second Addn. sewer | Prov. app. |
| 8-2-73 | Sweet Home | 1.20 MGD activated sludge sewage treatment plant with effluent disinfection and filtration | Prov. app. |
| 8-2-73 | Gresham | Change Order #4, Contract 2, sewage treatment plant | Approved |
| 8-3-73 | Seaside | Areas 2 and 3, East District sanitary sewers | Prov. app. |
| 8-3-73 | Gold Beach | Revised plans--sewage treatment plant project | Prov. app. |
| 8-8-73 | McMinnville | Seventh Street section--west-southwest interceptor sewer | Prov. app. |
| 8-8-73 | Bly San. Dist. | Sewerage system and sewage treatment plant--10.6 acre sewage lagoon and effluent irrigation | Prov. app. |
| 8-8-73 | Wilsonville | Eilers Bend and Hood Bend sewers | Prov. app. |
| 8-8-73 | Hood River | Sewage treatment plant expansion--3.50 MGD activated sludge plant--industrial and municipal | Prov. app. |
| 8-8-73 | Multnomah County (Inverness) | Sheraton-PIA sanitary sewer | Prov. app. |
| 8-8-73 | Wasco | Sewage treatment lagoon and percolation pond | Prov. app. |
| 8-10-73 | Rainier | Change Order #6, sewage treatment plant contract | Approved |
| 8-10-73 | Port Orford | Port interceptor project | Prov. app. |
| 8-10-73 | Seneca | Sewage collection and treatment--5.0 acre lagoon, disinfection and irrigation | Prov. app. |
| 8-10-73 | Gladstone | Lateral B-14 | Prov. app. |
| 8-10-73 | St. Helens | Addendum #1, sewage treatment plant contract | Approved |
| 8-10-73 | Troutdale | Change Orders #1 and 2, West Columbia trunk sewer | Approved |
| 8-13-73 | Umatilla | Change Order #3, sewage treatment plant contract | Approved |
| 8-13-73 | Astoria | Change Order #2, Contract C, sewage treatment plant contract | Approved |
| 8-13-73 | Riverview Heights | Three-day holding pond | Prov. app. |
| 8-15-73 | Forest Grove | Lavina Drive and Sills, Plat 10 Subd. sewers | Prov. app. |
| 8-16-73 | Seneca | Addendum #2, sewage treatment plant contract | Approved |

Municipal Projects (77) - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|------------------------------|--|---------------|
| 8-20-73 | Pleasant Valley Sch. | 40,000 gpd holding pond | Prov. app. |
| 8-21-73 | Sweet Home | Addendum #1, sewage treatment plant contract | Approved |
| 8-21-73 | Bay City | Change Order #B-6, sewage treatment plant contract | Approved |
| 8-22-73 | Hillsboro (Rock Cr.) | Cedar Oak Park Subd. sewer | Prov. app. |
| 8-24-73 | Ashland | Luna Vista St. sewer | Prov. app. |
| 8-24-73 | Hillsboro (Rock Cr.) | Addendum #1, sewage treatment plant contract | Approved |
| 8-27-73 | Salem (Willow Lake) | North N.D.P. area sewer | Prov. app. |
| 8-27-73 | Lake Oswego | Green Tree Slope Subd. sewers | Prov. app. |
| 8-27-73 | Keizer Sewer D. #1 | Parkview Subd. sewers | Prov. app. |
| 8-27-73 | Seneca | Addendum #3, sewage treatment plant project | Approved |
| 8-27-73 | Newport | Crestview Lane sewer | Prov. app. |
| 8-28-73 | East Suburban Sanitary Dist. | Country Green Subd. sewers | Prov. app. |
| 8-28-73 | Rogue River | Addenda #1, 2 and 3, sewage treatment plant project | Approved |
| 8-28-73 | Wilsonville | Change Orders #1-4, sewer project | Approved |
| 8-28-73 | Rainier | Change Orders #4-7, sewage treatment plant project | Approved |
| 8-28-73 | USA (Sherwood) | Treehill Subd. sewers | Prov. app. |
| 8-28-73 | USA (King City) | Summerfield Townhouses, Phase I, sewers | Prov. app. |
| 8-28-73 | Coos Bay | Final plans for sewage treatment plant No. 1 expansion | Prov. app. |
| 8-28-73 | USA (Forest Grove) | Addenda #1, sewage treatment plant contract | Approved |
| 8-28-73 | Salem (West) | College Heights sewers | Prov. app. |
| 8-28-73 | Inverness | PIA project | Approved |
| | | Change Order #4, Unit 5A-1 | |
| | | Change Order #2, Unit 5B-1 | |
| | | Change Order #2, Unit 5A-2 | |
| 8-28-73 | USA (Aloha) | 1. Charlene Terrace sewers 2. Cottage Grove sewers 3. Carolwood II sewers 4. Tanasbrook sewers 5. Hilldowns sewers | Prov. app. |
| 8-28-73 | USA (Aloha) | 1. Augusta Lane sewers 2. Tee Jay II sewers 3. Farmington West IV sewers 4. Shadowood No. 3 sewers | Prov. app. |
| 8-29-73 | Gresham | Camelot Plat 2 Subd. sewers | Prov. app. |
| 8-29-73 | Oregon City | Arista Heights #2 Subd. sewers | Prov. app. |
| 8-29-73 | West Linn (Will.) | DeBok Road sewer | Prov. app. |

Municipal Projects (77) - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|---------------------|--|---------------|
| 8-29-73 | Coos Bay #1 | Addenda #2-4, sewage treatment plant contract | Approved |
| 8-29-73 | Gresham | 205th Avenue sewer | Prov. app. |
| 8-29-73 | USA (Metzger) | Greenway Crossing Subd. sewers | Prov. app. |
| 8-29-73 | Troutdale | Change Order Nos. 1 and 2, West Columbia sewer | Approved |
| 8-29-73 | Eugene | St. Paul's Park Subd. sewers | Prov. app. |
| 8-29-73 | USA (Metzger) | Los Pinos Subd. sewers | Prov. app. |
| 8-29-73 | Oregon City | Hillendale Phase II Subd. sewers | Prov. app. |
| 8-30-73 | St. Helens | Change Order #E-2, sewage treatment plant contract | Approved |
| 8-30-73 | Gresham | Sunderland Heights Subd. sewers | Prov. app. |
| 8-30-73 | Baker | Two sewer projects, 1973-74 Phase 2 and 3 | Prov. app. |
| 8-30-73 | Salem (Willow Lake) | Hidden Lakes, Phase 1, sewers | Prov. app. |
| 8-30-73 | USA (Forest Grove) | Addendum #2, sewage treatment plant contract | Approved |
| 8-30-73 | Springfield | Northridge Subd. sewers | Prov. app. |
| 8-30-73 | Medford | Greenbrook Subd. sewers | Prov. app. |
| 8-31-73 | Roseburg | Watters Street and Beaumont Street sewers | Prov. app. |

Industrial Projects (9)

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|---|---------------|
| 8-1-73 | Lebanon | Pacific Power & Light Co. water treatment plant waste water control facilities | Prov. app. |
| 8-9-73 | Portland | Publishers Paper Company, Portland Division, drainage system alterations | Prov. app. |
| 8-10-73 | Klamath Falls | Thys De Hoop, animal waste facilities | Prov. app. |
| 8-15-73 | Hopmere | Kenneth Moisan, animal waste facilities | Prov. app. |
| 8-16-73 | White City | Reichhold Chemicals, Inc., Pacific Northwest Div., modified waste disposal system | Prov. app. |
| 8-17-73 | Timber | Empire-Lite Rock, water pollution abatement program | Prov. app. |
| 8-17-73 | Alicel | Loren Fleet, animal waste facilities | Prov. app. |
| 8-17-73 | La Grande | Clyde E. White, animal waste facilities | Prov. app. |
| 8-27-73 | Scottsburg | Robert Burt, animal waste facilities | Prov. app. |

Air Pollution Control

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|---|----------------------------------|
| 8-1-73 | Josephine | SWF Plywood Company Installation of Carter-Day baghouse filter unit to control sawdust emissions | Approved |
| 8-2-73 | Multnomah | Westridge Phase Two Office Complex - 70-space parking facility | Cond. app. |
| 8-3-73 | Washington | Edwards Industries, Inc. Apartment Complex - 218-space parking facility | Req. add. inf. |
| 8-7-73 | Washington | Greenwood Gardens Office Bldg. 244-space parking facility | Req. modifi- cations of appl. |
| 8-7-73 | Multnomah | North Pacific Lumber Co. 60-space parking facility | Req. add. inf. |
| 8-9-73 | Washington | Center Plaza Development Co. Professional Bldg. - 200-space parking facility | Cond. app. |
| 8-15-73 | Washington | Deleco Corp. of Oregon 81-space parking facility | Req. add. inf. |
| 8-16-73 | Coos | Weyerhaeuser Company Installation of sanderdust fired 3-stage rotary drum particle drier and (2) two baghouse filter units. | Approved |
| 8-17-73 | Multnomah | The Fortniter Motel 50-space parking facility | Approved |
| 8-17-73 | Washington | Menlo Square Condominium 90-space parking facility | Cond. app. |
| 8-20-73 | Multnomah | American Plaza Condominiums 289-space parking facility | Cond. app. |
| 8-21-73 | Multnomah | Mt. Hood National Forest Service Office Bldg. - 247-space parking facility | Cond. app. |
| 8-21-73 | Washington | Weigel Apartment Complex 110-space parking facility | Cond. app. |
| 8-22-73 | Washington | Greentree Business Park 150-space parking facility | Req. add. inf. |
| 8-22-73 | Washington | Tanasbrook Plat A Condominium 85-space parking facility | Req. add. inf. |
| 8-24-73 | Curry | Brookings Plywood Corp. Installation of baghouse filter unit to control sanderdust emissions | Approved |
| 8-27-73 | Multnomah | Foster Drive-in Theater 1560-space parking facility modified to 1185-space facility | Approved |
| 8-27-73 | Lane | Ramada Inns, Inc. 187-space parking facility | Approved |

Air Pollution Control - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|---|-------------------|
| 8-28-73 | Multnomah | Water Tower Building 80-space parking facility | Req. add. inf. |
| 8-28-73 | Lane | West 11th Twin Drive-In Theater 734-space parking facility | Approved |
| 8-29-73 | Multnomah | Silver Skate Ice Rink 112-space parking facility | Approved |

Solid Waste Management

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|------------------|---|---------------|
| 8-1-73 | Lane County | Bohemia Inc.-Coberg; Letter Authorization; Short-term Wood Waste Disposal site; operational plan | Prov. app. |
| 8-3-73 | Coos County | Weyerhaeuser - North Bend; Letter Authorization; Wood Waste Disposal Site; operational plan | Prov. app. |
| 8-6-73 | Klamath County | Odessa Transfer Station; replace existing disposal site; construction and operational plan | Approved |
| 8-6-73 | Jackson County | Kogap - Medford; Letter Authorization; Wood Waste Disposal Site; operational plan | Prov. app. |
| 8-9-73 | Multnomah County | Oregon Steel Mills; letter Authorization; Foundry Waste Disposal Site; operational plan | Prov. app. |
| 8-10-73 | Jackson County | South Stage Disposal Site; existing garbage disposal site; operational plan for industrial waste sludge lagoon | Prov. app. |
| 8-13-73 | Lane County | Rattlesnake Disposal Site; existing garbage site; operational plan | Approved |
| 8-13-73 | Lane County | Veneta Disposal Site; existing garbage site; operational plan | Approved |
| 8-15-73 | Multnomah County | LaVelle & Yett Sanitary Landfill; existing demolition landfill; gas venting plans | Approved |
| 8-16-73 | Douglas County | Sun Studs, Inc.; new wood waste disposal site; construction & operational plans | Prov. app. |
| 8-17-73 | Lane County | Erbs Disposal Site; existing garbage site; closure plan | Approved |
| 8-22-73 | Clackamas County | LaVelle Sanitary Landfill; existing demolition landfill; gas venting plans | Approved |

Solid Waste Management - continued

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------------------------|-----------------------|--|------------------|
| 8-29-73 | Benton County | Monroe Demolition & Transfer Station; existing demolition & transfer station; operational plan | Approved |
| 8-31-73 | Josephine County | Grants Pass Sanitary Landfill; existing garbage site; operational plan | Prov. app. |
| <u>Project Plans Planning</u> | | | |
| 8-7-73 | Wallowa County | Action Plan Interim Progress Report | Review & Comment |
| 8-10-73 | Lane County | Phase I: Preliminary Plan-Final Report | Review & Comment |
| 8-15-73 | Lane County | Phase II: Action Plan Interim Progress Report | Review & Comment |
| 8-22-73 | Central Oregon Region | Action Plan Interim Progress Report | Review & Comment |
| 8-22-73 | Klamath County | Action Plan Interim Progress Report | Review & Comment |
| 8-22-73 | Mid-Columbia Region | Action Plan Interim Progress Report | Review & Comment |
| 8-28-73 | Gilliam County | Action Plan Final Report Preliminary Draft | Review & Comment |
| 8-31-73 | Jackson County | Action Plan Interim Progress Report | Review & Comment |
| 8-31-73 | Umatilla County | Action Plan Interim Progress Report | Review & Comment |

PGE HARBORTON FACILITY, STAFF REPORT AND PROPOSED PERMIT

Mr. Burkitt presented the Department's report covering the public hearing which had been held by the Commission from 9:00 a.m. to 5:30 p.m. on Monday, August 13, 1973, in Room 680 of the Multnomah County Court House, 1021 S.W. 4th Avenue, Portland, Oregon in the matter of a proposed air contaminant discharge permit for operation by Portland General Electric Company of the Harborton turbine power plant. Proper notice having been given as required by statute and administrative rules the August 13 hearing had been called to order by Vice-Chairman Arnold M. Cogan with other Commission members Dr. Morris K. Crothers and Dr. Grace S. Phinney and DEQ Director Diarmuid F. O'Scannlain present. Chairman B.A. McPhillips and Paul E. Bradon were unable to attend that hearing.

At the August 13 hearing 5 representatives of PGE had presented statements in support of the company's application for an air contaminant discharge permit, 18 persons including representatives of OEC, OSPIRG, N.W. Environmental Defense Center and other environmental groups and residents of the area spoke in opposition to the proposed permit, 4 witnesses testified in support of the proposed permit, and 3 other persons presented general statements.

The record of the August 13 hearing had been kept open for an additional 14 days for receipt of further written comments from the public. Mr. Burkitt in his report reviewed the comments which had been received during that period. He also reported on a special technical meeting held by the Department on September 6, 1973 with representatives of turbine manufacturers and others regarding the feasibility of retrofitting the existing turbines for NO_x control.

Mr. Burkitt pointed out further that as a result of the testimony which had been received at the hearing several permit conditions had been modified and one new condition limiting the total annual hours of operation of the plant had been added to the proposed permit. He said that with these changes and in view of the critical need for interim electrical energy generation capacity to meet the immediate demands of the public it is the recommendation of the Director that the proposed permit be issued which provides for:

1. An overall limit on operating hours subject to approval by the Department.
2. Restriction of fuel to natural gas to the maximum extent.
3. A limitation on operating hours using distillate oil as fuel.
4. A further restriction of operation on oil to only those periods where meteorological conditions are favorable to good ventilation and good diffusion of emissions.
5. Curtailment of operations when necessary to prevent violation of air quality standards.
6. Cessation of operation at the Harborton location after the Trojan nuclear power plant becomes commercially operational or by September 1, 1975, whichever first occurs.

After a brief discussion of the Department's report and proposal by the Commission members, Chairman McPhillips announced that although the hearing record in this matter had been closed additional testimony would be received if it constituted new information.

Brief statements were then made by Howard Galbraith, Sharon Roso and Alton Scheel of the North Portland Citizens Committee, and Dr. George Tsongas of the Northwest Environmental Defense Council, all of whom had previously submitted testimony at the August 13, 1973 hearing in this matter.

Mr. Galbraith questioned the energy shortage, Ms. Roso expressed concern about the noise problem, Mr. Scheel commented on the shortage of fuel oil, and Dr. Tsongas also referred to the noise problem.

After further discussion by the Commission members it was MOVED by Dr. Crothers, seconded by Mr. Cogan and carried that the permit as proposed by the Department be issued to PGE for the Harborton plant. There was no dissenting vote.

APPOINTMENT OF DEPUTY DIRECTOR

It was MOVED by Dr. Crothers, seconded by Mr. Cogan and unanimously carried that the Director's appointment of Ronald L. Myles as deputy director of the Department of Environmental Quality be approved.

CREATION OF POSITION OF SECRETARY TO COMMISSION

It was MOVED by Dr. Crothers, seconded by Dr. Phinney and unanimously carried that as recommended by the Director the position of Secretary to the Environmental Quality Commission be created. The duties of the position were outlined by Mr. O'Scannlain. He reported that Shirley Shay had been selected to fill the position.

OREGON CUP AWARD RENEWAL APPLICATIONS

The applications which had been received from the American Can Company and Publishers Paper Company for renewal of their Oregon CUP Awards were reviewed for the Commission members by B.J. Seymour.

It was MOVED by Mr. McPhillips, seconded by Mr. Cogan and unanimously carried that the Oregon CUP Awards for both the American Can Company and the Publishers Paper Company be renewed for calendar year 1974.

PUBLIC HEARING RE: PROPOSED RULES OF PROCEDURES FOR ISSUANCE OF NPDES PERMITS

Public notice having been given as required by statutes and administrative rules, the public hearing before the Environmental Quality Commission in the matter of adoption of proposed rules pertaining to the procedures for issuance of NPDES permits was called to order by the Chairman at 10:00 a.m. on Friday, September 21, 1973 in the Second Floor Auditorium of the Public Service Building, 920 S.W. 6th Avenue, Portland, Oregon with Commission members B.A. McPhillips, Dr. Morris K. Crothers, Arnold M. Cogan and Dr. Grace S. Phinney in attendance.

Mr. Ashbaker presented the Departmental report and Director's recommendations dated September 11, 1973 and discussed briefly the proposed rules of procedures which are to replace the temporary or emergency rules adopted by the Commission on May 29, 1973. He stated that with minor modifications set forth in the Departmental report the proposed permanent rules are the same as the emergency rules and it is the recommendation of the Director that they be adopted as modified.

Mr. Ashbaker then read a letter dated September 15, 1973 from Daniel H. Skerritt, Attorney, suggesting a further modification of Subsection (7) of Section 45-035, pertaining to the right of the public to request a public hearing in connection with any NPDES application.

Mr. Neil Robblee was present and made a statement for OSPIRG regarding the proposed rules. He asked that Subsection 9 of Section 45-035 be amended to permit any interested person, not just the applicant, to request a hearing in connection with a proposed NPDES permit. He further suggested that Section 45-055 be amended to provide for public notice and participation in connection with proposed modification of an existing permit.

Mr. John Neilson of OEC asked for a broadening of the requirements in Subsection (4) of Section 45-035 relative to preparation of fact sheets. He supported the changes suggested by Mr. Robblee and also commented regarding certain definitions contained in Section 45-010.

Following a brief discussion by the Commission members of the above comments the staff was directed to give immediate consideration to the points discussed and to propose possible further modifications of the rules. This was done and after the noon recess Mr. Ashbaker reported that it had been agreed with the representatives of OSPIRG and OEC that with certain further modifications to Section 45-055 the proposed rules would be acceptable. The

changes agreed upon were as follows: In the first sentence after the word "mail" insert "and shall at that time issue a public notice announcement in a manner approved by the Director"; in the third sentence after the words "authorized representative" insert "or unless the Director determines that significant public interest merits a public hearing or a change in the proposed modification"; and that the 4th sentence be changed to read "Any request for hearing by the permittee or any person shall be made in writing to the Director and shall state the grounds for the request."

With this further modification it was MOVED by Mr. Cogan, seconded by Dr. Phinney and unanimously carried that the proposed rules as amended covering the procedures for issuance of NPDES permits be adopted.

A copy of the rules as adopted is attached to and made a part of these minutes.

USA PROPOSAL FOR EXPANSION OF INTERIM TREATMENT FACILITIES

At a special meeting of the Commission held in connection with the Harborton public hearing on August 13, 1973 a motion was made by Dr. Crothers, seconded by Dr. Phinney and carried that, as a reasonable alternative to the monthly quota system originally proposed by the Department at the July 26, 1973 Commission meeting in Medford, connection quotas be established as follows for the period ending August 1, 1974:

Single family unit equivalents not to exceed:

| | |
|----------------|--|
| Aloha Plant | 1,200 |
| Metzger Plant | 600 |
| Tigard Plant | 200 |
| Sherwood Plant | 100 (until irrigation farm is complete) |

and that commitment of connections within these quotas shall be subject to the following conditions:

1. If any treatment plant fails to perform in compliance with permit limits, commitment of additional connections to such plant may be terminated until compliance is restored.
2. In addition to monthly plant performance monitoring reports required by permit conditions, a report shall be submitted at the end of each calendar month containing the following information for each plant:

- (a) Number of single family unit equivalents served.
- (b) Number of SFU equivalents committed during the month including a listing identifying individual commitments.
- (c) Total number of SFU equivalents committed but not yet served.

The August 13, 1973 motion also authorized the Department to establish and implement quotas for the Tualatin and King City plants to insure that such plants do not become overloaded but will continue to perform in compliance with permit limits.

Subsequent to August 13, 1973, the Unified Sewerage Agency submitted to the Department a proposal for temporary expansion of existing interim treatment facilities and a request for further modification of the sewer connection quotas.

At this September 21, 1973 Commission meeting Mr. Sawyer presented the Department's report and Director's recommendations dated September 13, 1973 concerning this proposal and request.

Mr. Gregory J. Howe, Attorney, was present to represent the Washington County Land Use Council, an organization of some 200 developers. He stated that at the present time in the area in question there are lots committed for development equivalent to some 4,000 single family units whereas the existing sewerage facilities have capacity for only 2,800 and of this latter amount only 1,800 (1,200 at Aloha and 600 at Metzger) have been allowed by previous Commission action. He claimed emphatically that unless additional connections could be allowed many developers in the area would face serious financial losses.

Mr. John Mosser, Attorney for Forchuk/Wold/Peyton Builders, developers of the Habitat Sylvan Hills residential project in Washington County, also testified regarding the critical financial situation confronting the developers. He stated that unless the project which he represents can be permitted to proceed the developers may possibly lose as much as \$1-1/2 million. He said that in October of 1972 they had been allocated 711 sewer connections for this project and that assurances of the availability of this number had been received from the local authorities as late as January and March of 1973. He said that if they can now get 300 of the 711 sewer connections they can survive.

The meeting was recessed for lunch at 12:15 p.m. and reconvened at 1:35 p.m.

Mr. William Masters, Washington County Commissioner and Board of Directors member for USA, reviewed briefly the history of steps taken to provide adequate sewerage services in the Tualatin Basin by the County of Washington and the Unified Sewerage Agency. He urged EQC to authorize the allocation of the full 2,800 connections (1,900 to Aloha and 900 to Metzger) so that the developments which have already been committed can proceed to the greatest extent possible.

In response to a question from the Chairman he said the County is now in the process of developing a new land use plan and that under it they hope to limit population density and to gear the utilities and other services to the land use plan.

There was then a discussion as to how many sewer connections would actually be needed during the next two years or until the Durham sewage treatment works will be operational. Mr. Gary F. Krahmer, Acting Director of USA, was present and stated that according to his records some 4,300 connections had been requested through July 1, 1974.

Mr. Dan McGoodwin of 5733 S.W. 45th Avenue, Portland reported that since 1971 he was supposed to have permits for 28 connections for lots located in the city of Portland. He asked that any increase in additional sewer connections include his project.

Mrs. William Cookson of 10520 S.W. North Dakota Ave., Tigard said she lives across the street from the Metzger plant. She expressed grave concern about possible odors and bacterial pollution in the adjacent stream if permission were granted to expand on a temporary basis the capacity of the Metzger plant.

Dr. Joseph T. Hart, Physician and Surgeon, Hillsdale Pediatric Center, 6201 S.W. Capitol Highway, Portland protested against the proposed use of aerated lagoons as a means of providing increased capacity at the Metzger sewage treatment plant.

After considerable further discussion by the Commission members it was MOVED by Mr. Cogan, seconded by Dr. Crothers and unanimously carried, in response to the proposals advanced by the Unified Sewerage Agency of Washington

County and the recommendations of the Director of the Department of Environmental Quality, that:

1. The Department consider approval of specific proposals to increase the treatment capability of the existing Metzger and Aloha treatment plants based on irrigation disposal of effluent during the dry weather summer months for the added sewage load and discharge of the highly treated effluent containing less than 20 milligrams per liter BOD and 20 milligrams per liter suspended solids to the stream during the winter months subject to the following conditions:
 - (a) Flow equalization, chemical treatment, process changes, operational changes and other feasible alternative methods for increasing treatment capacity must be properly considered prior to making a choice as to the finally proposed alternative so as to minimize environmental impact.
 - (b) The county shall give adequate notice of any proposed expansion plan and give opportunity for public comment prior to submission of any finally proposed alternative to the Department.
 - (c) Land use questions must be satisfactorily resolved at the local level prior to submission of any finally proposed alternative to the Department.
 - (d) Written approval must be obtained from the Department for any specific proposal prior to construction.
2. The Director of the Department be authorized to adjust the 600 unit connection quota for the Metzger sewage treatment plant service area for the period through August 1, 1974 by releasing the additional 300 requested units.
3. The Director be authorized to adjust the 1,200 unit connection quota for the Aloha sewage treatment plant service area for the period through August 1, 1974 by releasing the additional 700 requested units.
4. The Director be authorized to establish quotas up to a maximum of 5,000 for any additional connections which may result from approved facilities which may be constructed to increase capacity

so as to insure that such facilities do not become overloaded and are continuously operated in compliance with standards.

5. The Unified Sewerage Agency shall submit the following to the Department for review:
 - (a) A management, operation, and maintenance plan (which demonstrates the adequacy of the agency's management program).
 - (b) Details of a connection inventory control system and monthly reports of progress relative to connection commitments and permit issuance.
 - (c) A detailed plan and time schedule for implementation of further interim expansions and phase out of all interim facilities.
6. Authorization for issuance of additional connection permits shall be revoked in the event that treatment plant performance standards are not met.

In addition to the above motion the Commission also clearly expressed its disapproval of the use of package plants or aerated lagoons as a means of providing temporary expanded treatment capacity.

AUTHORIZATION OF PUBLIC HEARING FOR PROPOSED NOISE CONTROL RULES

Mr. Gary Sandberg presented the Department's report dated September 9, 1973 and the Director's recommendation that the Commission authorize the Department to conduct public hearings on proposed noise control rules. The proposed rules pertain to off-road recreational vehicles and motorcycles, to road vehicles, to racing events, to public roads, and to industry and commerce. They also include noise control guidelines for schools.

Mr. Sandberg said that if authorized to do so public hearings would be held in Portland, Eugene, Roseburg, Medford and Pendleton during the latter part of October and first part of November.

It was MOVED by Dr. Crothers, seconded by Mr. Cogan and unanimously carried that as recommended by the Director the Department be authorized to conduct public hearings on the proposed noise control rules.

CONTINUOUS PLANNING FOR WATER QUALITY MANAGEMENT

Mr. Sawyer reviewed the status of the Department's continuous planning process which has been developed to meet requirements of the Federal Water Pollution Control Act. He also discussed briefly the annual water strategy for FY74. It was suggested that any interested persons be invited to comment regarding both the continuous planning process and the annual strategy.

No other action was required regarding this matter.

EMERGENCY RULES FOR SUBSURFACE SEWAGE DISPOSAL

On October 5, 1973 under the provisions of Chapter 835, Oregon Laws 1973, the statutory authority of the State Health Division to promulgate rules relating to subsurface sewage disposal will terminate. The same chapter on January 1, 1974 gives new and special duties and responsibilities over subsurface sewage disposal to the Department. To effect an orderly transfer of duties and responsibilities from the Division to the Department and to cover the interim period from October 5, 1973 to January 1, 1974, it was proposed that the Commission adopt, with minor modifications, as emergency or temporary rules the rules of the State Health Division governing subsurface sewage disposal.

Mr. Sawyer presented the Department's report and reviewed briefly the proposed modifications to the Health Division's rules.

It was MOVED by Dr. Crothers, seconded by Dr. Phinney and unanimously carried that the proposed rules governing the subsurface disposal of sewage be adopted as temporary rules and further that the Director be instructed to negotiate a contract with the State Health Division for the latter to administer and enforce said temporary rules between October 5, 1973 to January 1, 1974.

NORTH ALBANY COUNTY SERVICE DISTRICT SEWERAGE PLANNING LOAN

Mr. Bolton reviewed the staff report and evaluation regarding the request of the North Albany County Service District for an advance loan of \$23,800 from the State Pollution Control Bond Funds for financing a regional sewerage study of the North Albany area.

Benton County Commissioner Jeanette Simerville was present to represent the applicant and to support the request. In response to a question from Mr. Cogan she said they have a plan to restrict or limit the growth of the area until public sewers are available. They require that each residence be located on a lot at least one-half acre in size.

It was MOVED by Mr. Cogan, seconded by Dr. Phinney and unanimously carried that as recommended by the Director the Commission authorize the use of \$23,800 of the State Pollution Control Bond Funds for the purpose of preparing a Regional Sewerage Study for the North Albany area as outlined in the loan application submitted to the Department by the North Albany County Service District of Benton County, that the Department present the loan application in the amount of \$23,800 to the State Emergency Board for funding at the earliest possible time, and further that a ban be imposed on further construction of homes or other developments in the district that would adversely affect the groundwater or other waters under control of the Commission.

ENVIRONMENTAL STATUS REPORT ON JEFFERSON COUNTY

This agenda item was deferred until a subsequent meeting of the Commission.

WASHINGTON SQUARE SHOPPING CENTER PARKING FACILITIES

Mr. Downs discussed the staff report and evaluation of the proposal by the Washington Square Shopping Center of Washington County to install a 3,369-space parking facility. He said that based on thorough consideration of all the factors involved it is the recommendation of the Director that approval be granted for construction of no more than 3,032 additional parking spaces at Washington Square, such approval to be granted as soon as an acceptable transit program can be worked out with Tri-Met, and with the following conditions:

1. The Washington Square transit system be implemented as submitted with appropriate modifications per an acceptable Tri-Met commitment.
2. Washington Square provide the Department with quarterly reports on parking lot occupancy and transit patronage for its system.
3. Washington Square, in cooperation with Washington County and Tri-Met submit a long-term transit and land-use plan in October 1974 for east Washington County and the Washington Square immediate vicinity.

4. The 3,032 parking spaces be reduced in accordance with Tri-Met estimates of ridership on its lines serving Washington Square.
5. Parking at Washington Square be reduced annually in direct proportion to existing and projected annual transit patronage.
6. Noise control program be implemented as submitted.
7. Water quality control program be implemented as submitted.

Mr. Ed Wagner, representative of Tri-Met, was present and confirmed the fact that because at its July 25, 1973 meeting the Tri-Met Board froze its operating budget for this year at the level which prevailed at that time, there will be no opportunity to expand proposed mass transit service to Washington Square.

Mr. O'Scannlain commended the developers of Washington Square for their voluntary cooperation in attempting to comply with all the special requirements established by the Department for their development at Progress.

Mr. Frank Orrico, President of Washington Square Inc., said that their request of 3,369 additional parking spaces (the original project approved at the June 29, 1973 EQC meeting included 1,997 parking spaces) had already been reduced by the appropriate amount based on the estimate of the number of persons that will be using public transit. He therefore asked that the additional reduction proposed in the Department's report not be required.

After considerable discussion it was MOVED by Dr. Crothers, seconded by Mr. Cogan and carried that the Director's recommendation in this matter be approved with the modification that the number of spaces to be allowed be determined by the Director and with the further stipulation that a program must be worked out with Tri-Met before the specific number of allowable parking spaces is determined.

HIGHWAYS IN URBAN AREAS

The agenda item regarding Kruse Way (I-5 to Boones Ferry Road) was deferred at the request of Clackamas County until a subsequent meeting of the Commission.

TAX CREDIT APPLICATIONS

It was MOVED by Mr. Cogan, seconded by Dr. Phinney and unanimously carried that as recommended by the Director Pollution Control Facility Tax Credit Certificates be issued to the following applicants for facilities

claimed in the respective 9 applications with the costs listed being 80% or more allocable to pollution control:

| <u>Applicant</u> | <u>Appl. No.</u> | <u>Claimed Cost</u> |
|---------------------------------|------------------|---------------------|
| Roseburg Lumber Co., Dillard | T-477 | \$1,768,279.79 |
| Boise Cascade Corp., St. Helens | T-459 | 26,016.00 |
| Boise Cascade Corp., St. Helens | T-460 | 90,027.00 |
| Boise Cascade Corp., St. Helens | T-462 | 146,652.00 |
| Boise Cascade Corp., St. Helens | T-463 | 135,771.00 |
| Boise Cascade Corp., St. Helens | T-466 | 140,745.00 |
| Linnton Plywood Assn., Portland | T-474 | 46,175.83 |
| Publishers Paper Co., Liberal | T-478 | 36,435.00 |
| Publishers Paper Co., Portland | T-481 | 34,673.00 |

FUTURE COMMISSION MEETINGS

The Director announced that future meetings of the Commission have been tentatively scheduled as follows:

October 22, 1973 at Pendleton
November 26, 1973 at Portland
December 17, 1973 at Eugene

There being no further business the meeting adjourned at 5:00 p.m.

AMENDMENTS TO OREGON ADMINISTRATIVE RULES

CHAPTER 340, DIVISION 1, SUBDIVISION 4

A new paragraph, which reads as follows, shall be added to OAR Chapter 340, Division 1, Subdivision 4, between Sections 14-005 and 14-010.

14-007 EXCEPTION

The procedures prescribed in this Subdivision do not apply to the issuance, denial, modification and revocation of National Pollutant Discharge Elimination System (NPDES) permits issued pursuant to the Federal Water Pollution Control Act Amendments of 1972 and acts amendatory thereof or supplemental thereto. The procedures for processing and issuance of NPDES permits are prescribed in OAR Chapter 340, Sections 45-005 through 45-065.

AMENDMENTS TO OREGON ADMINISTRATIVE RULES

Chapter 340, Division 4, Subdivision 5

Sections 45-005 through 45-030 or OAR 340 Division 4, Subdivision 5 are hereby repealed and the following are enacted in lieu thereof:

45-005 PURPOSE

The purpose of these regulations is to prescribe limitations on discharge of wastes and the requirements and procedures for obtaining waste discharge permits from the Department.

45-010 DEFINITIONS, AS USED IN THESE REGULATIONS UNLESS OTHERWISE REQUIRED BY CONTEXT:

- (1) "Commission" means the Environmental Quality Commission.
- (2) "Department" means Department of Environmental Quality.
- (3) "Director" means the Director of the Department of Environmental Quality.
- (4) "Discharge or disposal" means the placement of wastes into public waters, on land or otherwise into the environment in a manner that does or may tend to affect the quality of public waters.
- (5) "Disposal system" means a system for disposing of wastes, either by surface or underground methods; and includes sewerage systems, treatment works, disposal wells and other systems.
- (6) "Federal Act" means Public Law 92-500, known as the Federal Water Pollution Control Act Amendments of 1972 and acts amendatory thereof or supplemental thereto.
- (7) "Industrial waste" means any liquid, gaseous, radioactive or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade or business, or from the development or recovery of any natural resources.
- (8) "NPDES permit" means a waste discharge permit issued in accordance with requirements and procedures of the National Pollutant Discharge Elimination System authorized by the Federal Act and of OAR Chapter 340, Sections 45-005 through 45-065.
- (9) "Navigable waters" means all navigable waters of the United States and their tributaries; interstate waters; intrastate lakes, rivers and streams which are used by interstate travelers for recreation or other purposes or from which fish or shellfish are taken and sold in interstate commerce or which are utilized for industrial purposes by industries in interstate commerce.
- (10) "Person" means the United States and agencies thereof, any state, any individual, public or private corporation, political subdivision, governmental agency, municipality, copartnership, association, firm, trust, estate or any other legal entity whatever.
- (11) "Point source" means any discernible, confined and discrete conveyance including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

- (12) "Pollutant" means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.
- (13) "Pre-treatment" means the waste treatment which might take place prior to discharging to a sewerage system including but not limited to pH adjustment, oil and grease removal, screening and detoxification.
- (14) "Public waters" or "waters of the state" include lakes, bays, ponds, impounding reservoirs, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland, or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters) which are wholly or partially within or bordering the state or within its jurisdiction.
- (15) "Regional Administrator" means the regional administrator of Region X of the U. S. Environmental Protection Agency.
- (16) "Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places, together with such ground water infiltration and surface water as may be present. The mixture of sewage as above defined with wastes or industrial wastes, as defined in subsections (7) and (23) of this section, shall also be considered "sewage" within the meaning of these regulations.
- (17) "Sewerage system" means pipelines or conduits, pumping stations, and force mains, and all other structures, devices, appurtenances, and facilities used for collecting or conducting wastes to an ultimate point for treatment or disposal.
- (18) "State" means the State of Oregon.
- (19) "State permit" means a waste discharge permit issued by the Department in accordance with the procedures of OAR Chapter 340, Sections 14-005 14-050 and which is not an NPDES permit.
- (20) "Toxic waste" means any waste which will cause or can reasonably be expected to cause a hazard to fish or other aquatic life or to human or animal life in the environment.

- (21) "Treatment" or "waste treatment" means the alteration of the quality of waste waters by physical, chemical or biological means or a combination thereof such that the tendency of said wastes to cause any degradation in water quality or other environmental conditions is reduced.
- (22) "Waste discharge permit" means a written permit issued by the Department in accordance with the procedures of OAR Chapter 340, Sections 14-005 through 14-050 or 45-005 through 45-065.
- (23) "Wastes" means sewage, industrial wastes and all other liquid, gaseous, solid, radioactive or other substances which will or may cause pollution or tend to cause pollution of any waters of the state.

45-015 PERMIT REQUIRED.

- (1) Without first obtaining a state permit from the Director, no person shall:
 - (a) Discharge any wastes into the waters of the state from any industrial or commercial establishment or activity or any disposal system.
 - (b) Construct, install, modify, or operate any disposal system or part thereof or any extension or addition thereto.
 - (c) Increase in volume or strength any wastes in excess of the permissive discharges specified under an existing state permit.
 - (d) Construct, install, operate or conduct any industrial, commercial or other establishment or activity or any extension or modification thereof or addition thereto, the operation or conduct of which would cause an increase in the discharge of wastes into the waters of the state or which would otherwise alter the physical, chemical or biological properties of any waters of the state in any manner not already lawfully authorized.
 - (e) Construct or use any new outlet for the discharge of any wastes into the waters of the state.

- (2) Without first obtaining an NPDES permit, no person shall discharge pollutants from a point source into navigable waters.
- (3) Any person who has a valid NPDES permit shall be considered to be in compliance with the requirements of Subsection (1) of this section. No state permit for the discharge is required.
- (4) Although not exempted from complying with all applicable laws, rules and regulations regarding water pollution, persons discharging wastes into a sewerage system are specifically exempted from requirements to obtain a state or NPDES permit, provided the owner of such sewerage system has a valid state or NPDES permit. In such cases, the owner of such sewerage system assumes ultimate responsibility for controlling and treating the wastes which he allows to be discharged into said system. Notwithstanding the responsibility of the owner of such sewerage systems, each user of the sewerage system shall comply with applicable toxic and pretreatment standards and the recording, reporting, monitoring, entry, inspection and sampling requirements of the commission and the Federal Act and federal regulations and guidelines issued pursuant thereto.
- (5) Each person who is required by Subsection (1) or (2) of this section to obtain a state or NPDES permit shall:
 - (a) Make prompt application to the Department therefor;
 - (b) Fulfill each and every term and condition of any state or NPDES permit issued to such person;
 - (c) Comply with applicable federal and state requirements, effluent standards and limitations including but not limited to those contained in or promulgated pursuant to Sections 204, 301, 302, 304, 306, 307, 402 and 403 of the Federal Act, and applicable federal and state water quality standards;
 - (d) Comply with the Department's requirements for recording, reporting, monitoring, entry, inspection and sampling, and make no false statements, representations or certifications in any form, notice, report or document required thereby.

45-020 NON-PERMITTED DISCHARGES

Discharge of the following wastes into any navigable or public waters shall not be permitted:

- (1) Radioactive, chemical, or biological warfare agent or highlevel radioactive waste.

- (2) Any point source discharge which the Secretary of the Army acting through the Chief of Engineers finds would substantially impair anchorage and navigation.
- (3) Any point source discharge to navigable waters which the Regional Administrator has objected to in writing.
- (4) Any point source discharge which is in conflict with an areawide waste treatment and management plan or amendment thereto which has been adopted in accordance with Section 208 of the Federal Act.

45-025 PROCEDURES FOR OBTAINING STATE PERMITS

Except for the procedures for application for and issuance of NPDES permits on point sources to navigable waters of the United States, submission and processing of applications for state permits and issuance, renewal, denial, transfer, modification and suspension or revocation of state permits shall be in accordance with the procedures set forth in OAR Chapter 340, sections 14-005 through 14-050.

45-030 APPLICATION FOR NPDES PERMIT

- (1) Any person wishing to obtain a new, modified or renewal NPDES permit from the Department shall submit a written application on a form provided by the Department. Applications must be submitted at least 180 days before an NPDES permit is needed. All application forms must be completed in full and signed by the applicant or his legally authorized representative. The name of the applicant must be the legal name of the owner of the facilities or his agent or the lessee responsible for the operation and maintenance.
- (2) Applications which are obviously incomplete or unsigned will not be accepted by the Department for filing and will be returned to the applicant for completion.
- (3) Applications which appear complete will be accepted by the Department for filing.

- (4) If the Department later determines that additional information is needed, it will promptly request the needed information from the applicant. The application will not be considered complete for processing until the requested information is received. The application will be considered to be withdrawn if the applicant fails to submit the requested information within 90 days of the request.
- (5) An application which has been filed with the U. S. Army Corps of Engineers in accordance with section 13 of the Federal Refuse Act or an NPDES application which has been filed with the U. S. Environmental Protection Agency will be accepted as an application filed under this section provided the application is complete and the information on the application is still current.

45-035 ISSUANCE OF NPDES PERMITS

- (1) Following determination that it is complete for processing, each application will be reviewed on its own merits. Recommendations will be developed in accordance with provisions of all applicable statutes, rules, regulations and effluent guidelines of the State of Oregon and the U. S. Environmental Protection Agency.
- (2) The Department shall formulate and prepare a tentative determination to issue or deny an NPDES permit for the discharge described in the application. If the tentative determination is to issue an NPDES permit, then a proposed NPDES permit shall be drafted which includes at least the following:
 - (a) Proposed effluent limitations,
 - (b) Proposed schedule of compliance, if necessary,
 - (c) And other special conditions.
- (3) In order to inform potentially interested persons of the proposed discharge and of the tentative determination to issue an NPDES permit, a public notice announcement shall be prepared and circulated in a manner approved by the Director. The notice shall tell of public participation opportunities, shall encourage comments by interested individuals or agencies and shall tell of the availability of fact sheets, proposed NPDES permits, applications and other related documents available for public

inspection and copying. The Director shall provide a period of not less than 30 days following the date of the public notice during which time interested persons may submit written views and comments. All comments submitted during the 30-day comment period shall be considered in the formulation of a final determination.

- (4) For every discharge which has a total volume of more than 500,000 gallons on any day of the year, the Department shall prepare a fact sheet which contains the following:
 - (a) A sketch or detailed description of the location of the discharge;
 - (b) A quantitative description of the discharge;
 - (c) The tentative determination required under section 45-035 (2);
 - (d) An identification of the receiving stream with respect to beneficial uses, water quality standards, and effluent standards;
 - (e) A description of the procedures to be followed for finalizing the permit; and,
 - (f) Procedures for requesting a public hearing and other procedures by which the public may participate.
- (5) After the public notice has been drafted and the fact sheet and proposed NPDES permit provisions have been prepared by the Department, they will be forwarded to the applicant for review and comment. All comments must be submitted in writing within 14 days after mailing of the proposed materials if such comments are to receive consideration prior to final action on the application.
- (6) After the 14-day applicant review period has elapsed, the public notice and fact sheet shall be circulated in a manner prescribed by the Director. The fact sheet, proposed NPDES permit provisions, application and other supporting documents will be available for public inspection and copying.
- (7) The Director shall provide an opportunity for the applicant, any affected state, or any interested agency, person, or group of persons to request or petition for a public hearing with respect to NPDES applications. If the Director determines that useful information may be produced thereby, a public hearing will be held prior to the Director's final determination.

- (8) At the conclusion of the public involvement period, the Director shall make a final determination as soon as practicable and promptly notify the applicant thereof in writing. If the Director determines that the NPDES permit should be denied, notification shall be in accordance with section 45-050. If conditions of the NPDES permit issued are different from the proposed provisions forwarded to the applicant for review, the notification shall include the reasons for the changes made. A copy of the NPDES permit issued shall be attached to the notification.
- (9) If the applicant is dissatisfied with the conditions or limitations of any NPDES permit issued by the Director, he may request a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director within 20 days of the date of mailing of the notification of issuance of the NPDES permit. Any hearing held shall be conducted pursuant to the regulations of the Department.

45-040 RENEWAL OR REISSUANCE OF NPDES PERMITS

The procedures for issuance of an NPDES permit shall apply to renewal of an NPDES Permit.

45-045 TRANSFER OF AN NPDES PERMIT

No NPDES permit shall be transferred to a third party without prior written approval from the Director. Such approval may be granted by the Director where the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the NPDES permit and the rules of the Commission.

45-050 DENIAL OF AN NPDES PERMIT

If the Director proposes to deny issuance of an NPDES permit, he shall notify the applicant by registered or certified mail of the intent to deny and the reasons for denial. The denial shall become effective 20 days

from the date of mailing of such notice unless within that time the applicant requests a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department.

45-055 MODIFICATION OF AN NPDES PERMIT

In the event that it becomes necessary for the Department to institute modification of an NPDES permit due to changing conditions or standards, receipt of additional information or any other reason pursuant to applicable statutes, the Department shall notify the permittee by registered or certified mail and shall at that time issue a public notice announcement in a manner approved by the Director of its intent to modify the NPDES permit. Such notification shall include the proposed modification and the reasons for modification. The modification shall become effective 20 days from the date of mailing of such notice unless within that time the permittee requests a hearing before the Commission or its authorized representative or unless the Director determines that significant public interest merits a public hearing or a change in the proposed modification. Any request for hearing by the permittee or any person shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department. A copy of the modified NPDES permit shall be forwarded to the permittee as soon as the modification becomes effective. The existing NPDES permit shall remain in effect until the modified NPDES permit is issued.

45-060 SUSPENSION OR REVOCATION OF AN NPDES PERMIT

- (1) In the event that it becomes necessary for the Director to suspend or revoke an NPDES permit due to non-compliance with the terms of the NPDES permit, unapproved changes in operation, false information submitted in the application or any other cause, the Director shall

notify the permittee by registered or certified mail of his intent to suspend or revoke the NPDES permit. Such notification shall include the reasons for the suspension or revocation. The suspension or revocation shall become effective 20 days from the date of mailing of such notice unless within that time the permittee requests a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department.

- (2) If the Department finds that there is a serious danger to the public health or safety or that irreparable damage to a resource will occur, it may, pursuant to applicable statutes, suspend or revoke an NPDES permit effective immediately. Notice of such suspension or revocation must state the reasons for such action and advise the permittee that he may request a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director within 90 days of the date of suspension and shall state the grounds for the request. Any hearing shall be conducted pursuant to the regulations of the Department.

45-065 OTHER REQUIREMENTS

Prior to commencing construction on any waste collection, treatment, disposal or discharge facilities for which a permit is required by section 45-015, detailed plans and specifications must be submitted to and approved in writing by the Department as required by ORS 449.395; and for privately owned sewerage systems, a performance bond must be filed with the Department as required by ORS 449.400.



DEPARTMENT OF ENVIRONMENTAL QUALITY

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

TOM McCALL
GOVERNOR

Memorandum

DIARMUID F. O'SCANNLAIN
Director

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. B, September 21, 1973, EOC Meeting

Project Plans for July, 1973

During the month of July, 1973, staff action was taken relative to the attached itemized list of plans, specifications and reports. These actions are summarized as follows:

Water Quality Control

1. One hundred thirteen (113) domestic sewage projects were reviewed:
 - a) Provisional approval was given to:
 - 101 plans for sewer extensions.
 - 3 plans for sewage treatment works improvements.
 - 1 plan for sewage lift station.
 - 2 change orders for sewage treatment plant contracts.
 - b) Approval without conditions was given to:
 - 6 change orders for sewage treatment plant projects
2. Eight (8) industrial waste treatment plans were reviewed:
 - a) Provisional approval was given to:
 - 3 Animal waste facilities
 - 5 Miscellaneous projects (listed below)
 - 1) Boise Cascade Corp., La Grande (plan for monitoring ground water at La Grande Particleboard Plant)
 - 2) Willamette Hi-Grade Concrete Company, Swan Island Plant (yard and gravel wash water treatment system)
 - 3) Oregon Aqua Foods, Inc., Newport (fish rearing station waste water control facilities)

- 4) Oregon Steel Mills, Front Avenue Plant (modifications to melt shop)
- 5) Reichhold Chemicals, Inc., St. Helens, (spill contingency plan)

Air Quality Control

1. Forty-Nine (49) Project plans, reports or proposals were reviewed:
 - a) Approval was given to:
 - 15 Parking facilities
 - 12 Miscellaneous projects
 - 1) Kogap Mfg. Co., Medford (Installation of veneer drier, hog fuel boiler and a lower pressure blower system with a control cyclone)
 - 2) Bio-Dry, Inc., Newport (Installation of a fish, crab and shrimp offal drier and processing facility)
 - 3) Klamath Iron Works, Klamath Falls (Installation of 350,000 btu oil fired furnace)
 - 4) Tim-Ply Co., Grants Pass (Installation of an Aero-Vac baghouse filter unit to control sanderdust emissions)
 - 5) Georgia-Pacific Corp., Toledo (Details of heavy black liquor oxidation, inclusion of modified kraft process in non-condensable system)
 - 6) Publishers Paper Co., Oregon City (Pump-out system for digester blow pit vent control)
 - 7) Boise Cascade Corp., Salem (Improved seal for ammonia handling system)
 - 8) Weyerhaeuser Co., North Bend (Installation of fly ash screening system for the hog fuel boilers)
 - 9) Roseburg Lumber Co., Coquille Plant (Installation of 40,000 PPH Kipper & Sons hog fuel boiler)
 - 10) Manzanita Rest Area Sludge Incinerator (Installation of Wasteco sludge incinerator and feed system)
 - 11) Weyerhaeuser Co., Klamath Falls (Installation of hog fuel drying system)
 - 12) Publishers Paper, Newberg (Improved seal for condenser and scrub system for digester blow pit vent control)

- b) Conditional approval was given to:
 - 5 parking facilities
- c) Approval denied 1 project:
 - Parking facility for Valley River Center, Lane County (872 spaces)
- d) Additional information was requested for:
 - 13 parking facilities
- e) Environmental Impact Statement was requested for:
 - 2 parking facility projects
 - 1) St. Vincent Hospital and Medical Center, Multnomah County (728 space parking)
 - 2) Koll Business Center, Washington County (662 space parking)
- f) Comments were submitted for:
 - 1 Pathological waste incinerator (St. Anthony Hospital, Pendleton)

Solid Waste Disposal

- 1. Twelve (12) Project plans were reviewed
 - a) Approval was given to:
 - 1) Transfer Station (Disston Disposal Site, Lane County - Garbage site replaced by transfer station - Final closure plan)
 - 2) Jelco, Inc., Columbia County (Operational plan for powerline land clearing debris disposal)
 - b) Provisional approval was given to:
 - 1) Three (3) Demolition Landfills
 - (a) Hillsboro Landfill (Amendment to operational plan)
 - (b) PGE Faraday Disposal Site, Clackamas County (Operational plan for existing industrial demolition site - letter authorization issued)
 - (c) Umapark Corp., Umatilla County (Operational plan - demolition landfill for 2 school buildings only - letter authorization issued)
 - 2) Three Miscellaneous projects
 - (a) Crown Zellerbach Landfill, Columbia County (Operational plan for existing industrial wood waste disposal site - letter authorization issued)
 - (b) ESCO Corporation, Multnomah County (Operational Plan - existing industrial disposal site - letter authorization issued)

- (c) PGE Oak Grove Disposal Site - Clackamas County
(Operational Plan - existing industrial garbage
disposal site - letter authorization issued)
- c) Approval denied for:
 - 1) Dallas Disposal Site - Polk County (Existing garbage
site - Operational Plan)
- d) Three (3) Action Plan Interim Progress Reports were reviewed
and comments given:
 - 1) Clatsop-Tillamook Region
 - 2) Jackson County
 - 3) Lane County

Director's Recommendation

It is recommended that the Commission give its confirming approval to staff action on project plans and reports for the month of July, 1973.



D. F. O'SCANNLAIN

PROJECT PLANS

Water Quality Division

During the month of July, 1973, the following project plans and specifications and/or reports were reviewed by the staff. The disposition of each project is shown, pending ratification by the Environmental Quality Commission.

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|---------------------------------|--|--|----------------|
| <u>Municipal Projects (113)</u> | | | |
| 7-2-73 | Eugene | 2 sanitary sewer projects | Prov. approval |
| 7-2-73 | Clackamas County Service Dist. I | Cypress Knoll Subd. sewers | Prov. approval |
| 7-2-73 | Bunker Hill San.D. | Homecrest Addn. sewers | Prov. approval |
| 7-2-73 | Springfield | 18th & "Q" Streets san. sewers | Prov. approval |
| 7-2-73 | Bear Creek Valley San. Auth. (Talent) | Pacific Estates No. 1 Subd. sewers | Prov. approval |
| 7-2-73 | USA (Metzger) | Englewood Subd. sewers | Prov. approval |
| 7-2-73 | Oregon City | Hillendale Subd. sewers | Prov. approval |
| 7-2-73 | USA (Fanno) | Pineridge Subd. sewers | Prov. approval |
| 7-2-73 | USA (Tigard) | 2 sanitary sewer projects | Prov. approval |
| 7-2-73 | USA (Metzger) | Fairway Park LID sewers | Prov. approval |
| 7-5-73 | Oregon City | Terra Verdes Subd. san. sewers | Prov. approval |
| 7-5-73 | Portland | S.E. 91st Ave. sewer ext. | Prov. approval |
| 7-5-73 | Gresham | Willowbrook Subd., Phase 1, sewers | Prov. approval |
| 7-5-73 | Gladstone | Sherwood Forest No. 3 sewers (as constructed) | Prov. approval |
| 7-5-73 | Oak Lodge S. D. | Coeur d' Robin Subd. sewers | Prov. approval |
| 7-5-73 | La Grande | Jordan East Subd. sewers | Prov. approval |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|--|--|----------------|
| 7-5-73 | Seaside | Sewage treatment plant Change Order 1 - 4 | Approved |
| 7-5-73 | Springfield | Glen Oaks Subd. sewers | Prov. approval |
| 7-5-73 | Salem (Willow Lake) | Lakeside Addition sewers | Prov. approval |
| 7-5-73 | Bear Creek Valley San. Auth. (Talent) | Talent Patio Village sewers | Prov. approval |
| 7-5-73 | USA (Fanno) | Holloway Subd. sewers | Prov. approval |
| 7-5-73 | Lebanon | U. S. Plywood sewer | Prov. approval |
| 7-5-73 | USA (Aloha) | Blackberry Slope Subd. sewers | Prov. approval |
| 7-5-73 | Portland | S.W. 61st Ave. sewer | Prov. approval |
| 7-5-73 | Waldport | Sewage treatment plant time extension | Approved |
| 7-5-73 | Eugene | Honesuckle Lane sewer | Prov. approval |
| 7-6-73 | North Umpqua S.D. | 2 projects | Prov. approval |
| 7-6-73 | Willamina | Willamina Drive sewer | Prov. approval |
| 7-6-73 | Ashland | Fox Street sewer | Prov. approval |
| 7-6-73 | East Salem Sewer & Drainage Dist. I | Briarwood Addition sewers | Prov. approval |
| 7-6-73 | Eugene | Villard & Walnut Streets sewers | Prov. approval |
| 7-9-73 | Klamath Falls | Lynnewood Subd. sewers | Prov. approval |
| 7-9-73 | Newberg | Crestview sanitary sewer | Prov. approval |
| 7-9-73 | Mt. Angel | Elm Street san. sewer | Prov. approval |
| 7-9-73 | Keizer Sewer Dist. I | Olson Street san. sewer | Prov. approval |
| 7-10-73 | Junction City | Norman Park Subd. sewers | Prov. approval |
| 7-10-73 | Rainier | Fernhill Subd. sewers | Prov. approval |
| 7-10-73 | USA (Sunset) | Meadow Drive LID sewers | Prov. approval |
| 7-10-73 | USA (Fanno) | Knoll Center Subd. sewers | Prov. approval |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|--|--------------------------------------|----------------|
| 7-10-73 | Boardman | Faler Addition sewer | Prov. approval |
| 7-11-73 | Eugene | 4 projects | Prov. approval |
| 7-11-73 | North Bend | 2 projects | Prov. approval |
| 7-11-73 | McMinnville | Rob's Orchard Subd. sewers | Prov. approval |
| 7-11-73 | Dallas | Lalack Addition sewers | Prov. approval |
| 7-11-73 | USA (Aloha) | Windsong II Subd. sewers | Prov. approval |
| 7-13-73 | Hillsboro (Rock Cr.) | Brookwood Area sewers | Prov. approval |
| 7-16-73 | Lake Oswego | Red Fox Hills #3 Subd. sewers | Prov. approval |
| 7-16-73 | Lake Oswego | Oak Knolls Subd. sewers | Prov. approval |
| 7-16-73 | Clackamas County Service Dist. I | Piazza Park Subdivision sewers | Prov. approval |
| 7-16-73 | Klamath Falls | Daggett & Shallock Streets sewers | Prov. approval |
| 7-16-73 | Klamath Falls | Gatewood Subd. sewers | Prov. approval |
| 7-17-73 | USA (Aloha) | 185 St. West Phase II sewer | Prov. approval |
| 7-17-73 | Bear Creek Valley San. Auth. (Talent) | Nerton St. sewer | Prov. approval |
| 7-17-73 | Bear Creek Valley San. Auth. (Talent) | Calver Road sewer | Prov. approval |
| 7-17-73 | Bear Creek Valley San. Auth. | Orr Drive sewer | Prov. approval |
| 7-17-73 | Salem (Willow Lake) | 2 projects | Prov. approval |
| 7-17-73 | Salem (West) | Hope Avenue sewer | Prov. approval |
| 7-17-73 | Salem (Willow Lake) | Jefferson St. sewer lining | Prov. approval |
| 7-17-73 | USA (Aloha) | Brooklawn Subd. sewers | Prov. approval |
| 7-17-73 | Dundee | Beach & Ash Streets sewers | Prov. approval |
| 7-19-73 | Inverness | Sheraton Motor Inn sewer | Prov. approval |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-------------------------------------|--|----------------|
| 7-19-73 | Springfield | 54th Place sewer | Prov. approval |
| 7-19-73 | USA (Forest Grove) | Activated sludge sewage treatment plant modification to 5.00 MGD | Prov. approval |
| 7-20-73 | McMinnville | 3-mile Road sewer | Prov. approval |
| 7-23-73 | Springfield | Third Addition to Naylor Subd. sewer | Prov. approval |
| 7-23-73 | Newberg | 2 projects | Prov. approval |
| 7-23-73 | Philomath | Philomath Middle School sewer | Prov. approval |
| 7-24-73 | Eastside | Pump station and force mains to Bunker Hill | Prov. approval |
| 7-24-73 | Medford | Thompson Estates Subd. sewers | Prov. approval |
| 7-24-73 | East Salem Sewer & Drainage Dist. I | Jan Ree East No. 3 Subd. sewers | Prov. approval |
| 7-24-73 | Oregon City | Oaktree Subd. sewers | Prov. approval |
| 7-24-73 | Albany | 4 sewer extensions (1) Columbia Street (2) Pineway Addition (3) College Green -- 2 | Prov. approval |
| 7-24-73 | McNary | Johns-Manville plant sewer | Prov. approval |
| 7-24-73 | Astoria | Maritime Dock sewer | Prov. approval |
| 7-25-73 | Hood River | 1973 sanitary sewer project Schedules 1 and 2 | Prov. approval |
| 7-25-73 | Deschutes County | Ward Construction Company project, sewage treatment plant, 0.37 MGD activated sludge treatment and effluent irrigation | Prov. approval |
| 7-27-73 | Hermiston | 5 sanitary sewer projects | Prov. approval |
| 7-27-73 | Wilsonville | Carpenter-Hastay san. sewer | Prov. approval |
| 7-27-73 | Salem (Willow Lake) | Casa Del Vista Addn. sewers | Prov. approval |
| 7-27-73 | Albany | 5 sanitary sewer projects | Prov. approval |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|----------------------------------|---|----------------|
| 7-27-73 | Bear Creek Valley Sanitary Auth. | Jay Walker Mobile Home Park | Prov. approval |
| 7-30-73 | Brookings | Change Order #6, sewage treatment plant contract | Approved |
| 7-30-73 | Yoncalla | Flow measurement facilities | Prov. approval |
| 7-30-73 | Garibaldi | Change Order #2 to sewage treatment plant contract | Approved |
| 7-30-73 | Woodburn | Woodburn Village No. 1 Trailer Subd. sewers | Prov. approval |
| 7-30-73 | Salem (Willow Lake) | Waln Creek, S.E., Phase II, sewers | Prov. approval |
| 7-30-73 | Portland | Change Order No. 5 to the sewage treatment plant contract | Approved |
| 7-30-73 | Gardiner San. Dist. | Change Order No. 1 to the pump station contract | Approved |
| 7-30-73 | St. Helens | Nutrient feed and aeration equipment additions to sewage treatment plant contract | Prov. approval |
| 7-31-73 | Arlington | Revised sewage treatment plant plans | Prov. approval |
| 7-31-73 | Newberg | ADEC Industrial Park sewer | Prov. approval |

Water Quality Division

Industrial Projects (8)

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-----------------|--|------------------|
| 7/9/73 | Nyssa | J. A. Albertson, animal waste facilities | Prov. Approval ✓ |
| 7/10/73 | La Grande | Boise Cascade Corp., plan for monitoring ground water at La Grande Particleboard Plant | Prov. Approval |
| 7/13/73 | Moro | John P. Shipley, animal waste facilities | Prov. Approval ✓ |
| 7/16/73 | Portland | Willamette Hi-Grade Concrete Company, Swan Island Plant, yard and gravel wash water treatment system | Prov. Approval |
| 7/18/73 | Malin | Ore-Cal Feedlots, animal waste facilities | Prov. Approval ✓ |
| 7/18/73 | Newport | Oregon Aqua Foods, Inc., South Beach Rearing Station, waste water control facilities | Prov. Approval |
| 7/18/73 | Portland | Oregon Steel Mills, Front Ave. Plant, modifications to melt shop | Prov. Approval |
| 7/19/73 | St. Helens | Reichhold Chemicals, Inc., spill contingency plan | Prov. Approval |

AP-9 PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL
DIVISION FOR JULY, 1973

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT</u> | <u>ACTION</u> |
|-------------|-----------------|--|-----------------------|
| 2 | Lincoln | <u>Bio-Dry, Inc., Newport, Oregon</u> Installation of a fish, crab and shrimp offal drier and processing facility. | Approved |
| 6 | Jackson | <u>Kogap Mfg. Co., Medford, Oregon</u> Installation of veneer drier, Cleaver- Brooks hog fuel boiler and a lower pressure blower system with a control cyclone. | Approved |
| | Klamath | <u>Klamath Iron Works, Klamath Falls, Ore.</u> Installation of 350,000 btu oil fired furnace. | Approved |
| | Washington | <u>Tigard Junior High School--96 space</u> parking facility. | Approved |
| | Washington | <u>First State Bank of Oregon</u> 58 space parking facility. | Approved |
| | Multnomah | <u>Jantzen Beach Ice Sports Center</u> 180 space parking facility | Approved |
| | Multnomah | <u>Sheraton Inn Airport</u> 271 space parking facility | Approved |
| 9 | Umatilla | <u>St. Anthony Hospital, Pendleton, Oregon</u> Review of proposed specifications for a pathological waste incinerator. | Comments submitted |
| | Josephine | <u>Tim=Ply Co., Grants Pass, Oregon</u> Installation of an Aero-Vac baghouse filter unit to control sanderdust emissions. | Approved |
| | Lincoln | <u>Georgia-Pacific Corp., Toledo, Oregon</u> Details of heavy black liquor oxidation, inclusion of modified kraft process in non-condensable system. | Approved |
| 13 | Clackamas | <u>Publishers Paper Co., Oregon City, Oregon</u> Pump-out system for digester blow pit vent control. | Approved |

AP-9 PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL
DIVISION FOR JULY, 1973. (Continued)

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT</u> | <u>ACTION</u> |
|-------------|-----------------|--|-----------------------------|
| 13 | Multnomah | <u>Red Lion Hotel</u> 880-space parking facility | Req. Additional information |
| 17 | Washington | <u>Lincoln Property Company</u> 317-space parking facility. | Approved with conditions. |
| | Marion | <u>Boise Cascade Corp., Salem, Oregon</u> Improved seal for ammonia handling system. | Approved |
| 18 | Multnomah | <u>Portland Adventist Hospital</u> 685-space parking facility | Req. Additional information |
| 18 | Multnomah | <u>Homeland, Inc., Apartment</u> 216 space parking facility | Req. Additional information |
| | Multnomah | <u>Carter Properties, Westridge</u> <u>Phase Two, Office Building</u> 70 space parking facility | Req. Additional information |
| 19 | Multnomah | <u>Portland International Airport</u> <u>Air Cargo Facilities</u> Relocation of 83 space parking facility | Approved |
| | Multnomah | <u>Menashe 44-unit Townhouse</u> 105 space parking facility | Approved |
| 20 | Washington | <u>Killian Commercial Building</u> 64 space parking facility | Approved with conditions |
| 23 | Multnomah | <u>Plush Pippin, Inc., Restaurant</u> 67 space parking facility | Approved |
| | Multnomah | <u>Northwest Natural Gas co.,</u> <u>Northeast Service Center</u> 83 space parking facility | Approved |
| | Multnomah | <u>Port of Portland, Terminal No. 4</u> <u>Longshoreman Parking</u> Parking consolidation 255 space parking facility | Approved |
| | Multnomah | <u>Mt. Hood National Forest Service</u> <u>Office Building and Technical Center</u> 247 space parking facility | Req. Additional information |

AP-9 PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL
DIVISION FOR JULY, 1973 (Continued)

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT</u> | <u>ACTION</u> |
|-------------|-----------------|--|-------------------------------------|
| 23 | Washington | <u>Chantrey Village</u> 63 space parking facility | Approved with conditions |
| | Coos | <u>Weyerhaeuser Co., North Bend</u> Installation of fly ash screening system for the hog fuel boilers | Approved |
| 24 | Multnomah | <u>City of Portland</u> Parking facility of unknown size | Req. Additional information |
| | Multnomah | <u>Port of Portland, Portland International Airport, Rent-A-Car Facilities</u> Parking consolidation 192 space parking facility | Approved |
| | Washington | <u>Greentree Business Park</u> 150 space parking facility | Req. Additional information |
| | Multnomah | <u>St. Vincent Hospital and Medical Center</u> 728 space parking facility | Req. Environmental Impact Statement |
| | Washington | <u>Koll Business Center</u> 662 space parking facility | Req. Environmental Impact Statement |
| | Lane | <u>5th and Q Shopping Center</u> 275 space parking facility | Approved |
| | Washington | <u>Menlo Square, Condominium</u> 90 space parking facility | Req. Additional Information |
| 25 | Coos | <u>Roseburg Lumber Co., Coquille Plant, Coquille</u> Installation of 40,000 PPH Kipper & Sons hog fuel boiler | Approved |
| | Washington | <u>Deleco Corp. of Oregon</u> 81 space additional parking facility | Req. Additional Information |
| | Washington | <u>Tanasbourne Shopping Center</u> 825 space parking facility | Req. Additional information |
| 26 | Washington | <u>Habitat Sylvan Hills</u> 1422 space parking facility | EQC approved with conditions |
| | Lane | <u>Valley River Center</u> 872 space parking facility | EQC Denied |

AP-9 PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL
DIVISION FOR JULY, 1973 (Continued)

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT</u> | <u>ACTION</u> |
|-------------|-----------------|--|---|
| 26 | Lane | <u>Eugene Office Park</u> 385 space parking facility | EQC Requested additional information |
| | Multnomah | <u>Portland State University</u> 150 space parking facility | EQC approved with conditions |
| | Tillamook | <u>Manzanita Rest Area Sludge Incinerator</u> Installation of Wasteco sludge incinerator and feed system | Approved |
| 30 | Klamath | <u>Weyerhaeuser Co., Klamath Falls</u> Installation of hog fuel drying system | Approved |
| | Multnomah | <u>The Fortniter, Motel</u> 50 space parking facility | Req. Additional information |
| 31 | Yamhill | <u>Publishers Paper, Newberg</u> Improved seal for condenser and scrub system for digester blow pit vent control | Approved |
| | Multnomah | <u>Portland Elementary School of Seventh- Day Adventist</u> - 87 space parking facility | Approved |
| | Multnomah | <u>Gateway BPOE Lodge No. 2411</u> 263 space parking facility | Approved |
| | Washington | <u>Center Plaza Development Co., Professional Center and Office Building</u> 200 space parking facility | Req. Additional |
| | Multnomah | <u>Multnomah County Exposition Center</u> To pave a 2250 space parking facility | Approved |
| | Marion | <u>Vocational Rehabilitation Facility</u> 117 space parking facility | Approved |

PROJECT PLANS
SOLID WASTE MANAGEMENT DIVISION

During the month of July 1973, the following ¹² project plans and specifications and/or reports were reviewed by the staff. The disposition of each project is shown, pending confirmation by the Environmental Quality Commission.

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT</u> | <u>ACTION</u> |
|-------------|--------------------------|---|------------------|
| 5 | Columbia County | Jelco, Inc. (Operational Plan for Powerline Land Clearing) | Approved |
| 5. | Washington County | Hillsboro Landfill (Existing Demolition Landfill-Amendment to Operational Plan) | Prov. Approval |
| 5 | Columbia County | Crown Zellerback Landfill (Operational Plan for Existing Industrial Wood Waste Disposal Site Letter Authorization Issued) | Prov. Approval |
| 10 | Lane County | Disston Disposal Site (Garbage Site Replaced by Transfer Station-Final Closure Plan) | Approved |
| 10 | Polk County | Dallas Disposal Site (Existing Garbage Site-Operational Plan) | Not Approved |
| 11 | Clatsop-Tillamook Region | Action Plan Interim Progress Report | Review & Comment |
| 24 | Jackson County | Action Plan Interim Progress Report | Review & Comment |
| 24 | Clackamas County | PGE-Faraday Disposal Site (Operational Plan Existing Industrial Demolition Site Letter Authorization issued) | Prov. Approval |
| 26 | Multnomah County | ESCO Corporation (Operational Plan-Existing Industrial Disposal Site Letter Authorization Issued) | Prov. Approval |
| 27 | Clackamas County | PGE Oak Grove Disposal Site (Operational Plan-Existing Industrial Garbage Disposal Site Letter Authorization Issued) | Prov. Approval |
| 27 | Umatilla County | Umapark Corporation (Operational Plan-Demolition Landfill for 2 School Buildings only - Letter Authorization Issued) | Prov. Approval |
| 30 | Lane County | Action Plan - Interim Progress Report | Review & Comment |



DEPARTMENT OF ENVIRONMENTAL QUALITY

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TOM McCALL
GOVERNOR

DIARMUID F. O'SCANNLAIN
Director

Memorandum

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. B, September 21, 1973, EQC Meeting
Project Plans for August, 1973

During the month of August, 1973, staff action was taken relative to the attached itemized list of plans, specifications and reports as follows. These actions are summarized as follows:

Water Quality Control

1. Seventy-Seven (77) domestic sewage projects were reviewed:
 - a) Provisional approval was given to:
 - 47 plans for sewer extensions
 - 9 plans for sewage treatment works improvements
 - b) Approval without conditions given to:
 - 16 Change orders for sewage treatment plant projects
 - 4 Change orders for sewer systems
 - 1 Septic Tank Sludge Report
2. Nine (9) Industrial waste treatment plans were reviewed:
 - a) Provisional approval was given to:
 - 5 Animal Waste Facilities
 - 4 Miscellaneous projects
 - 1) Publishers Paper Company, Portland Division
(drainage system alterations)
 - 2) Pacific Power & Light Co., Lebanon
(water treatment plant waste water control facilities)
 - 3) Reichhold Chemicals, Inc., White City
(Modified waste disposal system)
 - 4) Empire-Lite Rock, Timber
(water pollution abatement program)

Air Quality Control

1. Twenty-One (21) Project plans, reports or proposals were reviewed.
 - a) Approval was given to:
 - 5 Parking facilities
 - 1) The Fortniter Motel, Mult. Co. (50 space parking)
 - 2) Foster Drive-In Theater, Multnomah County (1560 space modified to 1185 space parking)
 - 3) Ramada Inns, Inc., Lane County (187 space parking)
 - 4) West 11th Twin Drive-In Theater, Lane County (734 space parking)
 - 5) Silver Skate Ice Rink, Mult. County (112 space parking)
 - 3 Miscellaneous Projects
 - 1) SWF Plywood Company, Josephine County (Installation of Carter-Day baghouse filter unit to control saw-dust emissions)
 - 2) Weyerhaeuser Company, Coos County (Installation of sanderdust fired 3-stage rotary drum particle drier and two baghouse filter units)
 - 3) Brookings Plywood Corporation, Curry County (Installation of baghouse filter unit to control sanderdust emissions)
 - b) Conditional approval was given to:
 - 6 Parking facilities
 - 1) Westridge Phase Two Office Complex, Multnomah County (70-space parking facility)
 - 2) Center Plaza Development Co. Professional Bldg. Washington County (200-space parking facility)
 - 3) Menlo Square Condominium, Washington County (90-space parking facility)
 - 4) American Plaza Condominiums, Multnomah County (289-space parking facility)
 - 5) Mt. Hood National Forest Service Office Building Multnomah County (247-space parking)
 - 6) Weigel Apartment Complex, Washington County (110-space parking facility)
 - c) Additional Information was Requested for:
 - 6 Parking facilities
 - 1) Edwards Industries, Inc. Apartment Complex Washington County (218-space parking facility)
 - 2) North Pacific Lumber Co., Multnomah County (60-space parking facility)

- 3) Deleco Corp. of Oregon, Washington County
(81-space parking facility)
 - 4) Greentree Business Park, Washington County
(150-space parking facility)
 - 5) Tanasbrook Plat A Condominium, Washington County
(85-space parking facility)
 - 6) Water Tower Building, Multnomah County
(80-space parking facility)
- d) Modification of the Application was requested for:
- 1 Parking facility - Greenwood Gardens Office Building
Washington County (244-space parking)

Solid Waste Disposal

1. Fourteen (14) Project plans were reviewed:
 - a) Approval was given to:
 - 2 Miscellaneous projects
 - 1) Odessa Transfer Station; Klamath County (Replace existing disposal site; construction and operational plan)
 - 2) LaVelle & Yett Sanitary Landfill; Multnomah County (Existing demolition landfill; gas venting plans)
 - 3 Existing garbage disposal sites:
 - 1) Rattlesnake Disposal Site, Lane County - Operational plan
 - 2) Veneta Disposal Site, Lane County - Operational plan
 - 3) Erbs Disposal Site, Lane County - Closure plan
 - 2 Existing demolition landfill sites:
 - 1) LaVelle Sanitary Landfill, Clackamas County (gas venting plans)
 - 2) Monroe Demolition & Transfer Station, Benton County (operational plan)
 - b) Provisional approval was given to:
 - 4 Wood Waste Disposal Sites
 - 1) Bohemia Inc., Coburg; Lane County; Letter Authorization (Short-term wood waste disposal site, operational plan)
 - 2) Weyerhaeuser, North Bend; Coos County; Letter Authorization (wood waste disposal site, operational plan)
 - 3) Kogap, Medford; Jackson County; Letter Authorization (wood waste disposal site, operational plan)
 - 4) Sun Studs, Inc.; Douglas County (new wood waste disposal site, construction and operational plan)

3 Miscellaneous Projects:

- 1) Oregon Steel Mills, Multnomah County; Letter Authorization (foundry waste disposal site, operational plan)
 - 2) South Stage Disposal Site, Jackson County (existing garbage disposal site, operational plan for industrial waste sludge lagoon)
 - 3) Grants Pass Sanitary Landfill, Josephine County (existing garbage site, operational plan)
- c) Nine (9) Action Plan Interim Progress Reports were reviewed and comments given:
- 1) Wallowa County
 - 2) Lane County - Phase I: Preliminary Plan - Final Report
 - 3) Lane County - Phase II
 - 4) Central Oregon Region
 - 5) Klamath County
 - 6) Mid-Columbia Region
 - 7) Gilliam County - Action Plan Final Report, Preliminary Draft
 - 8) Jackson County
 - 9) Umatilla County

Director's Recommendation

It is recommended that the Commission give its confirming approval to staff action on project plans and reports for the month of August, 1973.


D. F. O'SCANNLAIN

PROJECT PLANS

Water Quality Division

During the month of August, 1973, the following project plans and specifications and/or reports were reviewed by the staff. The disposition of each project is shown, pending ratification by the Environmental Quality Commission.

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|--------------------------------|-----------------|--|----------------|
| <u>Municipal Projects (77)</u> | | | |
| 8-1-73 | Eugene | Urban renewal san. sewer | Prov. approval |
| 8-1-73 | Springfield | Danielle Park, First Addn. sewers | Prov. approval |
| 8-1-73 | Florence | Green Trees Subd. sewers and pumping stations | Prov. approval |
| 8-1-73 | Creswell | City park sewer | Prov. approval |
| 8-2-73 | Bend | Septic tank sludge report | Approved |
| 8-2-73 | McNary | Revised plans--Johns-Manville sewer | Prov. approval |
| 8-2-73 | Eugene | Shasta Gardens--Second Addn. sewer | Prov. approval |
| 8-2-73 | Sweet Home | 1.20 MGD activated sludge sewage treatment plant with effluent disinfection and filtration | Prov. approval |
| 8-2-73 | Gresham | Change Order #4, Contract 2, sewage treatment plant | Approved |
| 8-3-73 | Seaside | Areas 2 and 3, East District sanitary sewers | Prov. approval |
| 8-3-73 | Gold Beach | Revised plans--sewage treatment plant project | Prov. approval |
| 8-8-73 | McMinnville | Seventh Street section--west-southwest interceptor sewer | Prov. approval |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|------------------------------|---|----------------|
| 8-8-73 | Bly San. Dist. | Sewerage system and sewage treatment plant--10.6 acre sewage lagoon and effluent irrigation | Prov. approval |
| 8-8-73 | Wilsonville | Eilers Bend and Hood Bend sewers | Prov. approval |
| 8-8-73 | Hood River | Sewage treatment plant expansion--3.50 MGD activated sludge plant--industrial and municipal | Prov. approval |
| 8-8-73 | Multnomah County (Inverness) | Sheraton-PIA sanitary sewer | Prov. approval |
| 8-8-73 | Wasco | Sewage treatment lagoon and percolation pond | Prov. approval |
| 8-10-73 | Rainier | Change Order #6, sewage treatment plant contract | Approved |
| 8-10-73 | Port Orford | Port interceptor project | Prov. approval |
| 8-10-73 | Seneca | Sewage collection and treatment--5.0 acre lagoon, disinfection and irrigation | Prov. approval |
| 8-10-73 | Gladstone | Lateral B-14 | Prov. approval |
| 8-10-73 | St. Helens | Addendum #1, sewage treatment plant contract | Approved |
| 8-10-73 | Troutdale | Change Orders #1 and 2, West Columbia trunk sewer | Approved |
| 8-13-73 | Umatilla | Change Order #3, sewage treatment plant contract | Approved |
| 8-13-73 | Astoria | Change Order #2, Contract C, sewage treatment plant contract | Approved |
| 8-13-73 | Riverview Heights | Three-day holding pond | Prov. approval |
| 8-15-73 | Forest Grove | Lavina Drive and Sills, Plat 10 Subd. sewers | Prov. approval |
| 8-16-73 | Seneca | Addendum #2, sewage treatment plant contract | Approved |

11 + 8 = 19

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|------------------------------|--|----------------|
| 8-20-73 | Pleasant Valley Sch. | 40,000 gpd holding pond | Prov. approval |
| 8-21-73 | Sweet Home | Addendum #1, sewage treatment plant contract | Approved |
| 8-21-73 | Bay City | Change Order #B-6, sewage treatment plant contract | Approved |
| 8-22-73 | Hillsboro (Rock Cr.) | Cedar Oak Park Subd. sewer | Prov. approval |
| 8-24-73 | Ashland | Luna Vista St. sewer | Prov. approval |
| 8-24-73 | Hillsboro (Rock Cr.) | Addendum #1, sewage treatment plant contract | Approved |
| 8-27-73 | Salem (Willow Lake) | North N.D.P. area sewer | Prov. approval |
| 8-27-73 | Lake Oswego | Green Tree Slope Subd. sewers | Prov. approval |
| 8-27-73 | Keizer Sewer D. #1 | Parkview Subd. sewers | Prov. approval |
| 8-27-73 | Seneca | Addendum #3, sewage treatment plant project | Approved |
| 8-27-73 | Newport | Crestview Lane sewer | Prov. approval |
| 8-28-73 | East Suburban Sanitary Dist. | Country Green Subd. sewers | Prov. approval |
| 8-28-73 | Rogue River | Addenda #1, 2 and 3, sewage treatment plant project | Approved |
| 8-28-73 | Wilsonville | Change Orders #1-4, sewer project | Approved |
| 8-28-73 | Rainier | Change Orders #4-7, sewage treatment plant project | Approved |
| 8-28-73 | USA (Sherwood) | Treehill Subd. sewers | Prov. approval |
| 8-28-73 | USA (King City) | Summerfield Townhouses, Phase I, sewers | Prov. approval |
| 8-28-73 | Coos Bay | Final plans for sewage treatment plant No. 1 expansion | Prov. approval |
| 8-28-73 | USA (Forest Grove) | Addenda #1, sewage treatment plant contract | Approved |

13 + 6 = 19

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|-------------------|--|----------------|
| 8-28-73 | Salem (West) | College Heights sewers | Prov. approval |
| 8-28-73 | Inverness | PIA project Change Order #4, Unit 5A-1 Change Order #2, Unit 5B-1 Change Order #2, Unit 5A-2 | Approved |
| 8-28-73 | USA (Aloha) | 1. Charlene Terrace sewers 2. Cottage Grove sewers 3. Carolwood II sewers 4. Tanasbrook sewers 5. Hilldowns sewers | Prov. approval |
| 8-28-73 | USA (Aloha) | 1. Augusta Lane sewers 2. Tee Jay II sewers 3. Farmington West IV sewers 4. Shadowood No. 3 sewers | Prov. approval |
| 8-29-73 | Gresham | Camelot Plat 2 Subd. sewers | Prov. approval |
| 8-29-73 | Oregon City | Arista Heights #2 Subd. sewers | Prov. approval |
| 8-29-73 | West Linn (Will.) | DeBok Road sewer | Prov. approval |
| 8-29-73 | Coos Bay #1 | Addenda #2-4, sewage treatment plant contract | Approved |
| 8-29-73 | Gresham | 205th Avenue sewer | Prov. approval |
| 8-29-73 | USA (Metzger) | Greenway Crossing Subd. sewers | Prov. approval |
| 8-29-73 | Troutdale | Change Order Nos. 1 and 2, West Columbia sewer | Approved |
| 8-29-73 | Eugene | St. Paul's Park Subd. sewers | Prov. approval |
| 8-29-73 | USA (Metzger) | Los Pinos Subd. sewers | Prov. approval |
| 8-29-73 | Oregon City | Hillendale Phase II Subd. sewers | Prov. approval |
| 8-30-73 | St. Helens | Change Order #E-2, sewage treatment plant contract | Approved |
| 8-30-73 | Gresham | Sunderland Heights Subd. sewers | Prov. approval |
| 8-30-73 | Baker | Two sewer projects, 1973-74, Phase 2 and 3 | Prov. approval |

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|---------------------|--|----------------|
| 8-30-73 | Salem (Willow Lake) | Hidden Lakes, Phase 1, sewers | Prov. approval |
| 8-30-73 | USA (Forest Grove) | Addendum #2, sewage treatment plant contract | Approved |
| 8-30-73 | Springfield | Northridge Subd. sewers | Prov. approval |
| 8-30-73 | Medford | Greenbrook Subd. sewers | Prov. approval |
| 8-31-73 | Roseburg | Watters Street and Beaumont Street sewers | Prov. approval |

Water Quality Division

Industrial Projects (9)

| <u>Date</u> | <u>Location</u> | <u>Project</u> | <u>Action</u> |
|-------------|------------------|--|----------------|
| 8/1/73 | Lebanon | Pacific Power & Light Co., water treatment plant waste water control facilities | Prov. Approval |
| 8/9/73 | Portland | Publishers Paper Company, Portland Division, drainage system alterations | Prov. Approval |
| 8/10/73 | Klamath Falls | Thys De Hoop, animal waste facilities | Prov. Approval |
| 8/15/73 | Hopmere | Kenneth Moisan, animal waste facilities | Prov. Approval |
| 8/16/73 | White City | Reichhold Chemicals, Inc., Pacific Northwest Div., modified waste disposal system | Prov. Approval |
| 8/17/73 | Timber | Empire-Lite Rock, water pollution abatement program | Prov. Approval |
| 8/17/73 | Alicel | Loren Fleet, animal waste facilities | Prov. Approval |
| 8/17/73 | La Grande | Clyde E. White, animal waste facilities | Prov. Approval |
| 8/27/73 | Scottsburg | Robert Burt, animal waste facilities | Prov. Approval |

AP-9 PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL
DIVISION FOR AUGUST, 1973.

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT</u> | <u>ACTION</u> |
|-------------|-----------------|---|--|
| 1 | Josephine | <u>SWF Plywood Company</u> Installation of Carter-Day baghouse filter unit to control sawdust emissions. | Approved |
| 2 | Multnomah | <u>Westridge Phase Two Office Complex</u> 70-space parking facility. | Conditional Approval |
| 3 | Washington | <u>Edwards Industries, Inc. Apartment Complex</u> 218-space parking facility | Requested Add'l Information |
| 7 | Washington | <u>Greenwood Gardens Office Building</u> 244-space parking facility | Requested Modifica- tion of application |
| 7 | Multnomah | <u>North Pacific Lumber Co.</u> 60-space parking facility | Requested Additional Information |
| 9 | Washington | <u>Center Plaza Development Co. Professional Bldg.</u> - 200-space parking facility | Conditional Approval |
| 15 | Washington | <u>Deleco Corp. of Oregon</u> 81-space parking facility | Requested Additional Information |
| 16 | Coos | <u>Weyerhaeuser Company</u> Installation of sanderdust fired 3-stage rotary drum particle drier and (2) two baghouse filter units. | Approved |
| 17 | Multnomah | <u>The Fortniter Motel</u> 50-space parking facility | Approved |
| 17 | Washington | <u>Menlo Square Condominium</u> 90-space parking facility | Conditional Approval |
| 20 | Multnomah | <u>American Plaza Condominiums</u> 289-space parking facility | Conditional Approval |
| 21 | Multnomah | <u>Mt. Hood National Forest Service</u> Office Building - 247 space parking facility | Conditional Approval |
| 21 | Washington | <u>Weigel Apartment Complex</u> 110-space parking facility | Conditional Approval |

AP-9 PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL
DIVISION FOR AUGUST, 1973 (Continued)

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT</u> | <u>ACTION</u> |
|-------------|-----------------|---|--------------------------------|
| 22 | Washington | <u>Greentree Business Park</u> 150-space parking facility | Requested Add'l Information |
| 22 | Washington | <u>Tanasbrook Plat A Condominium</u> 85-space parking facility | Requested Add'l Information |
| 24 | Curry | <u>Brookings Plywood Corporation</u> Installation of baghouse filter unit to control sanderdust emissions | Approved |
| 27 | Multnomah | <u>Foster Drive-In Theater</u> 1560-space parking facility modified to 1185-space facility. | Approved |
| 27 | Lane | <u>Ramada Inns, Inc.</u> 187-space parking facility | Approved |
| 28 | Multnomah | <u>Water Tower Building</u> 80-space parking facility | Requested Add'l |
| 28 | Lane | <u>West 11th Twin Drive-In Theater</u> 734-space parking facility | Approved |
| 29 | Multnomah | <u>Silver Skate Ice Rink</u> 112-Space parking facility | Approved |

PROJECT PLANS
SOLID WASTE MANAGEMENT DIVISION

During the month of August 1973, the following project plans and specifications and/or reports were reviewed by the staff. The disposition of each project is shown, pending confirmation by the Environmental Quality Commission.

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT PERMITS</u> - 14 | <u>ACTION</u> |
|-------------|------------------|--|----------------|
| 1 | Lane County | Bohemia Inc.-Coberg; Letter Authorization; Short-term Wood Waste Disposal site; operational plan | Prov. Approval |
| 3 | Coos County | Weyerhaeuser - North Bend; Letter Authorization; Wood Waste Disposal Site; operational plan | Prov. Approval |
| 6 | Klamath County | Odessa Transfer Station; replace existing disposal site; construction and operational plan | Approved |
| 6 | Jackson County | Kogap - Medford; Letter Authorization; Wood Waste Disposal Site; operational plan | Prov. Approval |
| 9 | Multnomah County | Oregon Steel Mills; Letter Authorization; Foundry Waste Disposal Site; operational plan | Prov. Approval |
| 10 | Jackson County | South Stage Disposal Site; existing garbage disposal site; operational plan for industrial waste sludge lagoon | Prov. Approval |
| 13 | Lane County | Rattlesnake Disposal Site; existing garbage site; operational plan | Approved |
| 13 | Lane County | Veneta Disposal Site; existing garbage site; operational plan | Approved |
| 15 | Multnomah County | LaVelle & Yett Sanitary Landfill; existing demolition landfill; gas venting plans | Approved |
| 16 | Douglas County | Sun Studs, Inc.; new Wood Waste Disposal Site; construction & operational plans | Prov. Approval |

PROJECT PLANS
SOLID WASTE MANAGEMENT DIVISION

During the month of August 1973, the following project plans and specifications and/or reports were reviewed by the staff. The disposition of each project is shown, pending confirmation by the Environmental Quality Commission.

| <u>DATE</u> | <u>LOCATION</u> | <u>PROJECT PERMITS</u> | <u>ACTION</u> |
|-----------------------------------|-----------------------|--|------------------|
| 17 | Lane County | Erbs Disposal Site; existing garbage site; closure plan | Approved |
| 22 | Clackamas County | LaVelle Sanitary Landfill; existing demolition landfill; gas venting plans | Approved |
| 29 | Benton County | Monroe Demolition & Transfer Station; existing demolition & transfer station; operational plan | Approved |
| 31 | Josephine County | Grants Pass Sanitary Landfill; existing garbage site; operational plan | Prov. Approval |
| <u>PROJECT PLANS PLANNING - 9</u> | | | |
| 7 | Wallowa County | Action Plan Interim Progress Report | Review & Comment |
| 10 | Lane County | Phase I: Preliminary Plan-Final Report | " " |
| 15 | Lane County | Phase II: Action Plan Interim Progress Report | " " |
| 22 | Central Oregon Region | Action Plan Interim Progress Report | " " |
| 22 | Klamath County | Action Plan Interim Progress Report | " " |
| 22 | Mid-Columbia Region | Action Plan Interim Progress Report | " " |
| 28 | Gilliam County | Action Plan Final Report Preliminary Draft | " " |
| 31 | Jackson County | Action Plan Interim Progress Report | " " |
| 31 | Umatilla County | Action Plan Interim Progress Report | " " |



DEPARTMENT OF ENVIRONMENTAL QUALITY

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TOM McCALL
GOVERNOR

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Agenda Item No. C , September 21, 1973

PGE, Harborton Gas Turbine Air Contaminant Discharge Permit Public Hearing - Continued

Background

On August 13, 1973, the Commission convened a public hearing in room 680 of the Multnomah County Courthouse to hear testimony regarding the Proposed Air Contaminant Discharge Permit for Portland General Electric Company's Harborton facility. As a result of this hearing, several permit conditions were modified for the sake of clarity and one new condition was added to limit total annual hours of operation. Basically, the proposed permit places very stringent operating requirements upon the applicant, PGE, by limiting emissions of particulates, sulfur dioxide, carbon monoxide, and nitrogen dioxide, as well as a condition to limit noise from the facility. Conditions are also included limiting quantities and types of fuels that may be consumed. Operation for 95% of the total operating hours must be on natural gas. All start-ups must be on natural gas and all shut-downs must also be on natural gas to the extent natural gas is available. The only other fuel authorized for use is distillate oil, and it may be

utilized for a total of 170 hours of operation only when the Department determines meteorological conditions are favorable. In order to ensure against violations of the ambient standards, provisions are included in the permit to cease operation of the turbines when ambient concentrations of suspended particulates, sulfur dioxide or nitrogen dioxide, reach 95% of the maximum adopted ambient air standards at any affected monitoring site operated or required by the Department in the Portland metropolitan area. Resumption of power production will not be allowed until the Department is assured that ambient air conditions are acceptable or the air stagnation period has passed.

Two other conditions required the Company to proceed with a program of retro-fit for nitrogen dioxide emission control. And, finally, the proposed permit requires PGE to cease operation of the Harborton facility when the Trojan nuclear plant becomes commercially operational or by no later than September 1, 1975, whichever time first occurs.

At the conclusion of the public hearing on August 13, 1973, the Commission directed that the record remain open for a period of fourteen (14) days for submission of written comments.

A copy of a letter dated May 31, 1973, which was received by the Department of Environmental Quality on August 17, 1973, and originally addressed to Commissioner Lloyd Anderson from Ms. Lynn O'Brien requested that the PGE Air Contaminant Discharge Permit be denied because of the already polluted downtown air. Attached to this letter is a petition with nineteen signatures opposing the facility.

By letter dated August 24, 1973, Mr. H. H. Phillips, Vice-President and Corporate Counsel for PGE, advised the Department that PGE would accept the conditions imposed upon the Company in the Proposed Air Contaminant Discharge Permit dated August 17, 1973, "without further comment but under protest, and with reservation of rights."

The Democratic Precinct Committee, 15th Legislative District, by letter dated August 24, 1973, supported the issuance of the PGE Air Contaminant Discharge Permit.

Mr. Richard W. Sabin, the Public Utility Commissioner of Oregon, by letter dated August 27, 1973, explains the energy crisis and that present estimates indicate a shortage of 7% even with the Harborton facility on-line.

Mr. Donald Paul Hodel, Administrator, Bonneville Power Administration, by letter dated 28 August 1973, states -- based on a current survey, the Northwest area will be short approximately 13 billion kilowatt-hours because of low water in most reservoirs and if Harborton does not operate the shortage will be increased by nearly 3 billion kilowatt-hours over a twenty and a half-month critical period.

The Department appeared at public hearings before the City of Portland Planning Commission on August 29, 30 and September 5, 1973, to present testimony and supply any information that might assist the Planning Commission in its decision regarding the required building permit.

On September 5, 1973, the Portland Planning Commission recommended a conditional use permit be issued to PGE with six conditions which included provisions of the proposed DEQ Air Contaminant Discharge Permit dated August 17, 1973, including a condition that PGE will irrevocably waive any right to apply for a new or an extension of the conditional use approval for the Harborton site beyond September 1, 1975. Other conditions related to landscaping requirements, a six-month reporting system concerning other site locations, other possible power sources and a requirement that no new wharf facilities be constructed for unloading the oil to be used were adopted.

The Department has also assisted Mr. Leon Jourolmon, a consultant for the City of Portland, in the preparation of his report presented to the City Council on September 18, 1973. In

general, Mr. Jourolmon's report concluded the power generated by the Harborton facility is needed by the people of Portland and that the Proposed Air Contaminant Discharge Permit contained adequate conditions to safeguard the environment and the record would not justify a finding that emission from the facility could injure public health and/or public welfare.

On September 6, 1973, the Department conducted a technical informational meeting regarding retro-fit to reduce NO_x emissions from gas turbines with representatives from the various turbine manufacturers as well as individuals representing both wet and dry control technology. The meeting was open to all persons desiring to ask questions of those present. Basically, little or no new technical information was presented. The Environmental Protection Agency is proposing new source emission standards for turbines, but are not expected to be published for possibly one or two years. Manufacturers' representatives described their technical development programs for NO_x control which are geared to coincide with the Environmental Protection Agency proposed emission standards and the present Southern California regulations. The staff proposes to continue to pursue this matter with the Company as outlined in Condition 3.2 of the proposed permit in a manner to ensure development and implementation of a practicable system of NO_x reduction in the shortest practicable time.

Director's Recommendation

In view of the critical need for interim electrical energy generation capacity to meet the immediate needs of the people, it is the Director's recommendation that the attached permit be issued which provides for:

1. An overall limit on operating hours subject to approval by the Department.
2. Restriction of fuel to natural gas to the maximum extent.

3. A limitation on operating hours using distillate oil as fuel.
4. A further restriction of operation on oil to only those period where meteorological conditions are favorable to good ventilation and good diffusion of emissions.
5. Curtailment of operations when necessary to prevent violation of air quality standards.
6. Cessation of operation at the Harborton location after the Trojan nuclear power plant becomes commercially operational or by September 1, 1975, whichever first occurs.



DIARMUID F. O'SCANNLAIN

HHB:en

Attachments

September 13, 1973



DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5301

TOM McCALL
GOVERNOR

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Supplement to Agenda Item No. C, September 21, 1973
EQC Meeting

PGE, Harborton Gas Turbine Air Contaminant
Discharge Permit Public Hearing - Continued

The technical meeting conducted by the Department on September 6, 1973, confirmed the data already on hand and merely restated that EPA was evaluating a standard to limit emissions from gas turbines. These limitations would only be applicable to installations made after EPA promulgated the new standard. Data used in proposing NO_x emissions limitations were obtained from engine manufacturers employing a water injection control system. However, the engine manufacturers represented at this technical meeting both stated that all research was directed at dry-fix NO_x control systems and water or steam injection no longer commanded any development priorities. It is not certain that a suitable NO_x control system will be available and installed on these turbines prior to cessation of operation.

As a result of the news release in the press regarding the natural gas shortages and the effects on the PGE Harborton facility, the Department met with representatives of both PGE and Northwest Natural Gas at 11:00 a.m. on September 20, 1973. Both PGE and the Department were informed that the gas utilities learned of the gas shortage situation at 0900 on Tuesday, September 18, 1973. Since that time they have pieced together the following information.

1. Major technical problems have arisen in two (2) gas fields in Canada resulting in the decision of the Canadian Resources Board to curtail gas production at the field to prevent damage to the producing wells and/or the field itself.

2. The U. S. receives 62% of the gas production which is equivalent to 800,000,000 cubic feet of natural gas per day. (8,000,000 therms)

3. It is expected that a cut-back of 120,000,000 cubic feet per day (1,200,000 therms) will be necessary.

4. No decision has been made by the Canadian Resources Board as to how the deficiencies will be pro-rated. Two (2) choices exist:

- a. Pro-rate all consumers (U. S. and Canadian).
- b. Pro-rate only U. S. Consumers.

5. It was stated that, at this time, no curtailment has been projected until November 1, 1973.

6. A possibility exists that some firm gas could be obtained from B-C Hydro on Burrard Inlet to off-set the expected deficit.

It is concluded that PGE can operate within the limitations of the proposed permit until the extent of the gas shortage is defined and further, whether or not it affects the PGE fuel usage schedule.

PROPOSED
 August 17, 1973

AIR CONTAMINANT 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 449.727

| <p>ISSUED TO: PORTLAND GENERAL ELECTRIC CO. Power Resources 621 S. W. Alder Portland, OR 97205</p> <p>PLANT SITE:</p> <p>Harborton Plant One Mile North of Linnton off St. Helens Road</p> <p>ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY</p> <p>_____ Diarmuid F. O'Scannlain Director</p> <p>_____ Date</p> | <p>REFERENCE INFORMATION</p> <p>Application No. <u>0222</u></p> <p>Date Received <u>3 July 73</u></p> <p>Other Air Contaminant Sources at this Site:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%;">Source</th> <th style="width: 10%;">SIC</th> <th style="width: 10%;">Permit No.</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>_____</td> <td></td> <td></td> </tr> <tr> <td>(2)</td> <td>_____</td> <td></td> <td></td> </tr> </tbody> </table> | | Source | SIC | Permit No. | (1) | _____ | | | (2) | _____ | | |
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| | Source | SIC | Permit No. | | | | | | | | | | |
| (1) | _____ | | | | | | | | | | | | |
| (2) | _____ | | | | | | | | | | | | |

SOURCE(S) PERMITTED TO DISCHARGE AIR CONTAMINANTS:

| | |
|---------------------------------------|---|
| Name of Air Contaminant Source | Standard Industry Code as Listed |
|---------------------------------------|---|

Permitted Activities

Until such time as this permit expires or is modified or revoked, PORTLAND GENERAL ELECTRIC CO. is herewith permitted in conformance with the requirements, limitations and conditions of this permit to discharge treated exhaust gases containing air contaminants from its eight (8) Pratt and Whitney (FT4C-1 combustion turbines) fuel burning devices located at the Harborton substation approximately one (1) mile north of Linnton, Oregon, including emissions from those processes and activities directly related or associated thereto.

Compliance with the specific requirements, limitations and conditions contained herein shall not relieve the permittee from complying with all rules and standards of the Department and the laws administered by the Department.

1. Performance Standards and Emission Limits

- 1.1 The permittee shall at all times maintain and operate all air contaminant generating processes and all contaminant control equipment at full efficiency and effectiveness such that the emission of air contaminants are kept at the lowest practicable levels.
- 1.2 When the turbines are fired with natural gas, emissions of air contaminants shall not exceed any of the following:
 - 1.2.1 An opacity (as defined by OAR, Chapter 340 Section 21-005(4)) equal to or greater than ten percent (10%) for a period or periods aggregating more than three (3) minutes in any one (1) hour from any single turbine plume or combination of turbine plumes,
 - 1.2.2 The maximum allowable emission rates of particulate matter from any single combustion turbine shall be a function of heat input as determined from Figure 1 of this permit for new sources,
 - 1.2.3 3.13 pounds per hour of particulate matter for any single turbine,
 - 1.2.4 188 pounds per hour of Nitrogen Oxide (NO_x) for any single turbine,
 - 1.2.5 1.3 pounds per hour of Sulfur Dioxide (SO_2) for any single turbine, or
 - 1.2.6 15.6 pounds per hour of Carbon Monoxide (CO) for any single turbine.
- 1.3 When the turbines are fired with distillate fuel oil, emissions of air contaminants shall not exceed any of the following:
 - 1.3.1 An opacity equal to or greater than ten percent (10%) for a period or periods aggregating more than three (3) minutes in any one (1) hour, for any single turbine plume or combination of turbine plumes,
 - 1.3.2 The maximum allowable emission rates of particulate matter from any single combustion turbine shall be a function of heat input as determined from Figure 1 of this permit for new sources,
 - 1.3.3 31.3 pounds per hour of particulate matter for any single turbine,
 - 1.3.4 355 pounds per hour of Nitrogen Oxide (NO_x) for any single turbine,
 - 1.3.5 105 pounds per hour of Sulfur Dioxide (SO_2) for any single turbine,
 - 1.3.6 15.2 pounds per hour of Carbon Monoxide (CO) for any single turbine, or
 - 1.3.7 Smoke spot number 2 as measured by the American Society for Testing Material procedure D2156-65 for any single turbine.

AIR CONTAMINANT DISCHARGE PERMIT PROVISIONS

Issued by the

Department of Environmental Quality for

Appl. No.: 0222File No.: 26-2499

PORTLAND GENERAL ELECTRIC CO. (Harborton)

1. Performance Standards and Emission Limits (continued)

- 1.4 Sound pressure levels emitted from the turbines shall not exceed the limitations specified in Table I of this condition, when measured at any location 400 feet from the geometric center of the turbine engine installation. Sound pressure levels may be measured at a distance other than 400 feet and corrected, according to the inverse square law, to a reference distance of 400 feet.

Table IMaximum Sound Pressure Levels at 400 Feet

| <u>Frequency - Center of Octave Band, Hz</u> | <u>Sound Pressure Level-db</u> |
|--|------------------------------------|
| 31.5 | 79 |
| 63 | 73 |
| 125 | 67 |
| 250 | 59 |
| 500 | 54 |
| 1,000 | 50 |
| 2,000 | 48 |
| 4,000 | 46 |
| 8,000 | 44 |
| Overall | 81 |

2. Special Conditions

- 2.1 Fuel usage shall conform to the following:

2.1.1 In no event shall permittee operate the Harborton facilities in excess of the total projected annual hours illustrated in Table II.

2.1.2 Without obtaining prior written approval from the Department the permittee shall not operate its turbines using natural gas as fuel for more hours per month than that listed as "projected operation" "gas hours" on Table II.

2.1.3 Fuels other than natural gas shall not be used without prior specific approval by the Department. In no event shall the Department approve operation of turbines using distillate fuel oil, or any other fuel other than natural gas, for more hours per month than that listed as "projected operation" "oil hours" on Table II.

2.1.4 Natural gas shall be utilized to the maximum extent possible. In no event shall the Department approve use of distillate fuel oil in any month until the natural gas quota for that month, as shown in Table II of this permit, is either first used or is clearly forecasted, by the permittee and agreed to by the Department, to be totally used.

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- 2.1.5 The Department and the permittee shall limit usage of distillate fuel oil to periods of most favorable ventilation and dispersal of air contaminants and use of fuels other than natural gas is prohibited during actual or forecasted periods of poor ventilation and poor dispersal of air contaminants.
- 2.1.6 Any fuel oil used shall be the lowest sulfur content distillate fuel oil available, but in no case shall distillate fuel oil with a sulfur content greater than 0.3% be used.
- 2.1.7 The permittee shall always start the combustion turbines on natural gas regardless whether sustained operation will be on oil or gas. To the extent that natural gas is available the permittee shall shut the turbines down utilizing natural gas.
- 2.1.8 The permittee shall cease operation of all combustion turbines on oil when notified by the Department that adverse meteorological conditions are forecasted or particulate or sulfur dioxide (SO₂) air quality levels at any affected monitoring site operated or required by the Department in the Portland metropolitan areas has reached or is expected to reach 142 micrograms of suspended particulate matter per cubic meter of air (24 hour average), 247 micrograms of sulfur dioxide (SO₂) per cubic meter of air (24 hour average) or 1,235 micrograms of SO₂ per cubic meter of air (3 hour average) and the permittee shall not resume operation on oil until specifically authorized by the Department.
- 2.2 No combustion turbine shall be operated for more than 1 hour in any 24 hour period, on any fuel at a power output greater than 30 megawatts or less than 15 megawatts (30°F. ambient basis) except for start-up or shut-down operation.
- 2.3 The permittee shall cease operation of all combustion turbines whether oil or gas fired when notified by the Department that photochemical oxidant air quality levels at any affected monitoring site operated or required by the Department has reached or is expected to reach 152 micrograms per cubic meter of air (1 hour average), 268 micrograms of nitrogen dioxide (NO₂) per cubic meter of air (24 hour average), or 1,075 micrograms of NO₂ per cubic meter of air (1 hour average), and the permittee shall not resume operation of the turbines on oil or gas until specifically authorized by the Department.
- 2.4 The permittee shall submit plans to the Department for review and approval of easily accessible facilities for obtaining fuel oil samples in the turbine fuel oil feed lines. These plans must be approved and facilities installed prior to operation of the combustion turbines.
- 2.5 The permittee shall submit plans to the Department for review and approval of easily accessible smoke spot sample ports for each combustion turbine. These plans must be approved and facilities installed prior to operation of the combustion turbines.

- 2.6 The permittee shall file with the Department by no later than January 1, 1974, a detailed schedule (similar to Table II of this permit) of the projected operating time and fuel use for the period July 1, 1974 until the P.G.E. Trojan nuclear power facility become operational, or September 1, 1975, whichever time first occurs.
- 2.7 Following a public hearing on the projected future operational schedule referred to in condition 2.6, the Department shall modify this permit by issuing an addendum thereto, which shall specify an approved operating schedule and such other conditions as may be determined to be appropriate.
- 2.8 The permittee shall not operate the combustion turbine facilities at the Harborton site after the P.G.E. Trojan nuclear power facility becomes commercially operational or after September 1, 1975, whichever time first occurs.

3. Compliance Schedule

- 3.1 The permittee shall submit test data demonstrating compliance with the emission limits set forth in conditions 1.2, 1.3 and 1.4 of this permit by no later than December 1, 1973. Should any of these test data or tests or observations made by the Department indicate non-compliance the permittee shall take immediate steps, including but not limited to, curtailment of operation to bring the facility into compliance.
- 3.2 The permittee shall as soon as practicable, as determined by the Department, retro-fit a system to reduce nitrogen oxide (NO_x) emissions from each combustion turbine to no more than 55 ppm by volume NO_x (expressed as NO_2) referenced to 15 percent oxygen, when firing gas and to no more than 75 ppm by volume NO_x (expressed as NO_2), referenced to 15 percent oxygen, when firing oil. Reports of progress regarding development of NO_x reduction systems shall be submitted to the Department at least quarterly.
- 3.3 The permittee shall submit plans and specifications to the Department for review and approval for NO_x control hardware prior to retro-fitting each turbine.

4. Monitoring and Reporting

- 4.1 The permittee shall effectively monitor the operation and maintenance of each combustion turbine. Unless otherwise specified in writing information shall be collected and submitted for each turbine in accordance with procedures filed by the permittee and approved by the Department and shall include, but not necessarily be limited to, the following parameters and testing frequencies:
- Time of operation,
 - Quantities and types of fuel used related to time of operation,
 - Electrical output related to time of operation,
 - Fuel additives used related to time of operation,
 - Smoke spot, daily when operated on oil,
 - Nitrogen Oxides (NO_x): continuous when operating, and
 - Carbon Monoxide (CO): continuous when operating.
- 4.2 The permittee shall document to the Department, by type, in a manner that will permit accurate computation of SO_2 emissions resulting from turbine operations, the sulfur content of all fuel oils utilized.

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- 4.3 The permittee shall install and operate in the Harborton area an ambient air monitoring program, that has been approved by the Department, to continuously determine ground-level concentrations of particulates, SO₂, CO, oxides of nitrogen and meteorological parameters. The program shall be in operation prior to commercial operation.
- 4.4 The permittee shall conduct other emission tests and report the results thereof as may be specified in writing by the Department.
- 4.5 Unless otherwise specified in writing by the Department the permittee shall at all times maintain available for inspection at the site and shall submit all data required to be collected under conditions 4.1, 4.2 and 4.3 not later than fifteen (15) days after the end of each calendar month of operation.
- 4.6 The permittee shall notify the Department by telephone or in person within one (1) hour of any scheduled maintenance, malfunction of pollution control equipment, upset or any other conditions that cause or may tend to cause a significant increase in emissions or violation of any conditions of this permit. Such notice shall include:

The nature and quantity of increased emissions that have occurred or are likely to occur,

The expected length of time that any pollution control equipment will be out of service or reduced in effectiveness,

The corrective action that is proposed to be taken, and

The precautions that are proposed to be taken to prevent a future recurrence of a similar condition.

5. General Conditions

- 5.1 The permittee is prohibited from conducting any open burning at the plant site.
- 5.2 The permittee is prohibited from causing or allowing discharges of air contaminants from source(s) not covered by this permit so as to cause the plant site to exceed the standards fixed by this permit or rules of the Department of Environmental Quality.
- 5.3 The permittee shall at all times conduct dust suppression measures to meet the requirements set forth in "Fugitive Emissions" and "Nuisance Conditions" as defined in OAR, Chapter 340, Section 21-050.
- 5.4 (NOTICE CONDITION) The permittee shall dispose of all solid wastes or residues in manners and at locations approved by the Department of Environmental Quality.

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- 5.5 The permittee shall allow Department of Environmental Quality representatives access to the plant site and record storage areas at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit.
- 5.6 The permittee is prohibited from altering, modifying or expanding the subject facilities so as to affect emissions to the atmosphere without prior notice to and approval by the Department.
- 5.7 The permittee shall be required to make application for a new permit prior to substantial modification, alteration, addition or enlargement of the subject facilities which would have a significant impact on air contaminant emission increases or reductions at the plant site.
- 5.8 This permit is subject to revocation for cause, as provided by law, including:
- Misrepresentation of any material fact or lack of full disclosure in the application including any exhibits thereto, or in any other additional information requested or supplied in conjunction therewith;
 - Violation of any of the requirements, limitations or conditions contained herein; or
 - Any material change in quantity or character of air contaminants emitted to the atmosphere.
- 5.9 The permittee shall submit the Annual Compliance Determination Fee to the Department of Environmental Quality according to the following schedule:

Amount Due

\$200.00

Date Due

October 1, 1974

AIR CONTAMINANT DISCHARGE PERMIT PROVISIONS
 Issued by the
 Department of Environmental Quality for
 PORTLAND GENERAL ELECTRIC CO. (Harborton)

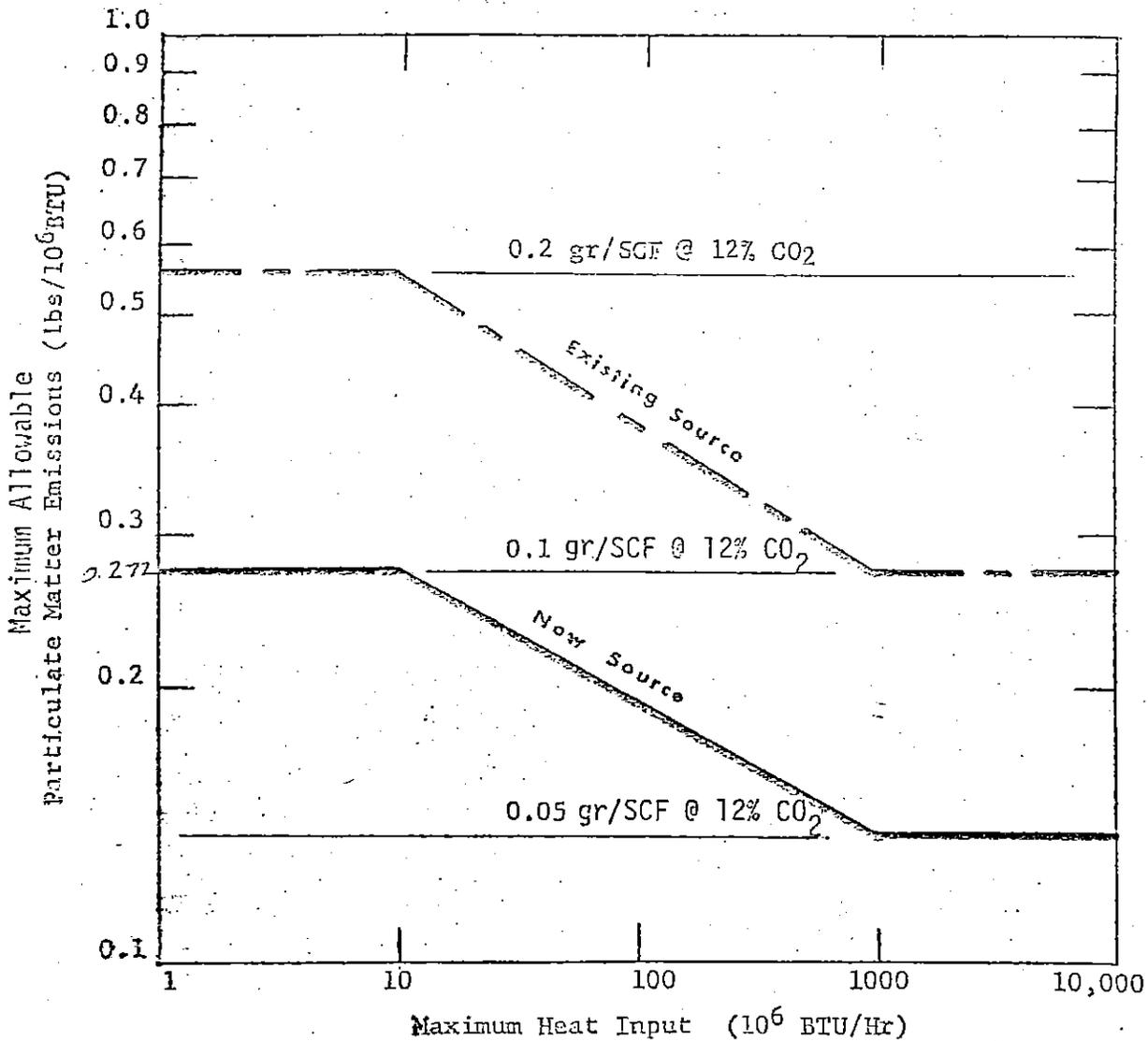
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Table II

PORTLAND GENERAL ELECTRIC COMPANY
 HARBORTON COMBUSTION TURBINE OPERATING ESTIMATE
 1973-1974

| | <u>JUL</u> | <u>AUG</u> | <u>SEP</u> | <u>OCT</u> | <u>NOV</u> | <u>DEC</u> | <u>JAN</u> | <u>FEB</u> | <u>MAR</u> | <u>APR</u> | <u>MAY</u> | <u>JUN</u> | <u>TOTAL</u> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| Base Load Rating, MW | 207 | 203 | 212 | 220 | 228 | 232 | 234 | 231 | 227 | 222 | 217 | 212 | |
| PROJECTED OPERATION | | | | | | | | | | | | | |
| Gas, MW | - | - | 169 | 175 | 160 | 117 | 121 | 107 | 130 | 51 | 20 | 21 | 1041 |
| Oil, MW | - | - | - | - | - | 13 | 13 | 13 | 13 | 2 | - | - | 54 |
| Gas, % of Base | - | - | 79.7 | 79.5 | 70.2 | 50.4 | 51.7 | 45.8 | 44.1 | 23.0 | 9.2 | 9.9 | 45.3 |
| Oil, % of Base | - | - | - | - | - | 5.6 | 5.5 | 5.6 | 5.7 | 0.9 | - | - | 2.3 |
| Gas Hours | - | - | 570 | 590 | 510 | 330 | 330 | 310 | 330 | 160 | 70 | 70 | 3370 |
| Oil Hours | - | - | - | - | - | 40 | 40 | 40 | 40 | 10 | - | - | 170 |
| Total Hours | - | - | 570 | 590 | 510 | 420 | 420 | 350 | 370 | 170 | 70 | 70 | 3540 |
| FUEL USE | | | | | | | | | | | | | |
| Gas - B x 10 ⁵ | - | - | 15.2 | 16.3 | 14.4 | 10.9 | 11.2 | 9.0 | 9.3 | 4.6 | 1.8 | 1.9 | 94.6 |
| Oil - Bbl x 10 ³ | - | - | - | - | - | 19.8 | 20.0 | 17.8 | 19.4 | 2.7 | - | - | 79.7 |

FIGURE I



PARTICULATE MATTER EMISSION STANDARDS FOR FUEL BURNING EQUIPMENT

SERVICE AGREEMENT

THIS AGREEMENT between NORTHWEST NATURAL GAS COMPANY, an Oregon Corporation, with its principal offices at Portland, Oregon, hereinafter called "Company," and PORTLAND GENERAL ELECTRIC COMPANY, an Oregon Corporation, with its principal offices at Portland, Oregon, hereinafter called "Buyer," WITNESSETH:

In consideration of the mutual covenants and agreements herein set forth, the parties hereto agree as follows:

Section 1. DEFINITIONS

| Term | Definition |
|---------------------------------------|---|
| Operating Year | Any 12-month period commencing at two o'clock (2:00) p.m. on July 1 except that the initial Operating Year shall commence on June 1, 1973 and extend through the Operating Day of June 30, 1974. |
| Operating Day | Any 24-hour period commencing at two o'clock (2:00) p.m. |
| High Load Factor Service . | Service provided by Company on the basis that Buyer must take and pay for, or pay for if not taken, 95% of the total volumes made available by Company over the period within the Operating Year during which such service is rendered. |
| Minimum-and-Standby Service | Service provided by Company on the basis that Buyer may vary its takes from a specified monthly minimum to a specified monthly maximum without a take-or-pay requirement except for a monthly standby charge. |
| Service Classification . . | Either High Load Factor Service or Minimum-and-Standby Service, as may be applicable in the context in which the term appears. |
| Harborton Plant | Buyer's combustion turbine electric generating plant located on St. Helen's Road, Portland, Oregon. |

Equivalent Hydrocarbons . . . Any hydrocarbons, other than natural gas, including synthetic natural gas, usable by Buyer as a fuel for its turbines at the Harborton Plant and acceptable for use under regulations of governmental authorities having jurisdiction in force at the time of delivery.

Curtailment Volume For the month, or series of months, as may be applicable, the amount by which the aggregate number of therms authorized for delivery by Company in the period falls short of (i) the maximum volumes, or aggregate thereof, specified for the same period in Exhibit A or (ii) the aggregate number of therms requested by Buyer for delivery in such period, whichever deficiency may be smaller.

Average Daily Supply. . . . For each Service Classification in each Operating Year, the average number of therms obtained by dividing the number of calendar days in the period into the maximum number of therms the Company may be called upon to supply over such period as set forth in the applicable Exhibit A.

Delivery Authorization. . . Volume in therms Company estimates it will make available to Buyer during an Operating Day to supply Buyer's request for delivery during such day.

Section 2. SALE AND PURCHASE OF GAS

Subject to the terms, conditions and limitations hereof, Company shall sell and deliver to Buyer, and Buyer shall purchase and receive from Company, the fuel requirements of Buyer's Harborton Plant to the extent made available by Company up to the volumes in therms of firm natural gas or Equivalent Hydrocarbons specified in the applicable Exhibit A hereto.

Buyer may purchase from Company volumes in excess of the maximums specified in the applicable Exhibit A upon prior request to and approval by Company.

Section 3. TYPE OF SERVICE

Service provided by Company under this agreement shall be firm, but subject to the demands of Company's residential, firm commercial and other firm industrial customers. At Buyer's option, High Load Factor Service, Minimum-and-Standby Service, or both, will be provided by Company.

For the purpose of administering this agreement, the "Order of Priorities" specified in paragraph 14 of the General Rules and Regulations of the Company's Tariff, P.U.C. Or. 19, shall be deemed to accord to service rendered by Company under this agreement the same relative position as if such service were incorporated by specific reference therein as classification (10) of said Order of Priorities.

Section 4. TERM OF AGREEMENT

This agreement shall become effective when it is accepted as part of Company's Tariff, P.U.C. Or. 19 by the Public Utility Commissioner of Oregon and continue in effect through the Operating Day of June 30, 1974, and from Operating Year to Operating Year thereafter until terminated pursuant to Section 5 hereof.

Section 5. EXHIBIT A AND PROCEDURE RELATED THERETO

An Exhibit A shall be agreed upon and affixed hereto by the parties for each Operating Year of the term hereof. Exhibit A shall specify, for each month of the Operating Year: (i) the Maximum Daily Delivery Volume, which shall be 600,000 therms (the maximum hourly requirement of 30,000 therms times 20 hours) unless a different maximum hourly requirement is determined from equipment test results or equipment operating experience, and an appropriately adjusted volume substituted by agreement of the parties; (ii) the volume in therms to be made available in such month by Company at the request of Buyer on a High Load Factor basis; and, (iii) the minimum and maximum volumes in therms to be made available by Company at request of Buyer on a Minimum-and-Standby basis.

The Maximum Day Delivery Volume shall constitute the Company's maximum obligation to make deliveries to Buyer in any one Operating Day. The monthly volume set forth pursuant to (ii) above, or the maximum monthly volume set forth pursuant to (iii) above, as may be applicable, shall constitute the Company's maximum obligation to make deliveries in such month.

Exhibit A for the initial Operating Year is affixed hereto simultaneously with the execution hereof. Exhibit A for each subsequent Operating Year shall be formulated as follows:

- (a) Prior to April 1 preceding the commencement of the Operating Year, Buyer shall submit to Company a proposed Exhibit A for such year incorporating Buyer's best estimate of its total fuel requirements for the Harborton Plant;
- (b) Prior to May 1 preceding the commencement of the Operating Year, Company shall submit to Buyer a revision of said proposed Exhibit A for such year which shall reflect such portion or all of the volumes specified in Buyer's proposed Exhibit A as Company, in its sole judgment, estimates it will be able to make available to Buyer; and
- (c) Prior to the commencement of the Operating Year, a final Exhibit A for such year shall be agreed upon, executed and affixed hereto by the parties; provided, however, that if the parties fail to agree upon said final Exhibit A, or if either party fails to make the submissions required by paragraphs (a) and (b) above, this agreement shall be deemed terminated as of the end of the then current Operating Year; provided further, that irrespective of the preceding proviso each party shall give the other the maximum notice practicable in the event of an intent to terminate the agreement.

Section 6. APPLICABLE RATES

A. For High Load Factor Service:

Monthly Rate:

The monthly rate shall be the rate specified in the then effective Schedule 5 of Tariff P.U.C. Or. 19.

Minimum Monthly Bill:

The minimum monthly bill shall be 90% of the volumes specified for the month in Exhibit A, less the Curtailment Volume, if any, for the month, times the per-therm charge specified under "Monthly Rate" in such Schedule 5.

Minimum Bill for Months Served on a High Load Factor Basis:

The minimum bill in each Operating Year for service provided on a High Load Factor basis shall be 95% of the sum of the monthly volumes specified in Exhibit A to be provided on such basis, less the Curtailment Volume, if any, for such months, times the per-therm charge specified under "Monthly Rate" in such Schedule 5.

B. For Minimum-and-Standby Service:

Monthly Rate:

The monthly rate shall be the schedule of charges specified in the then effective Schedule 4 of Tariff P.U.C. Or. 19.

Minimum Monthly Bill:

The minimum monthly bill shall be the charge for "each 1000 Btu of maximum hourly input capacity of equipment" specified under the "Minimum Annual Bill" provision of said Schedule 4, times 100, times the maximum hourly requirement of the fuel-using equipment in Buyer's Harborton Plant. Such maximum hourly requirement shall be 30,000 therms unless a different requirement is determined from equipment test results or equipment operating experience, and agreed upon by the parties.

C. For Approved Excess Volumes:

Volumes delivered in any month in excess of the maximums specified in the applicable Exhibit A, as requested by Buyer and approved by Company, shall be billed at the Monthly Rate for the Service Classification under which service has been rendered in such month, as an addition to the Exhibit A volumes.

D. For Equipment Testing Service (initial Operating Year):

Monthly Rate:

The monthly rate shall be the schedule of charges specified in the then effective Schedule 4 of Tariff P.U.C. Or. 19.

Minimum Monthly Bill:

None.

E. Curtailement Discount:

If service to Buyer is curtailed pursuant to Section 3 hereof, Buyer shall receive a "Curtailement Discount" on bills for volumes taken during the Operating Year within which such curtailement occurs.

Separately, for curtailement of service in each Service Classification, the Curtailement Discount shall be equal to (a) the difference between (i) the sum of the monthly bills actually rendered for service in the applicable Service Classification in the Operating Year and (ii) the sum of the bills which would have been rendered for the same months in such year had Buyer been served under Schedule 23 of Tariff P.U.C. Or. 19 and received identical monthly quantities, multiplied by (b) the ratio of (i) the number of "100% Equivalent Days" of curtailement experienced by Buyer in such months to (ii) the average number of 100% Equivalent Days of curtailement experienced by Schedule 23 customers in the same months.

For the purpose of the above calculation, a 100% Equivalent Day of curtailement of Buyer for each of the Service Classifications shall be curtailement equal to the terms of one day of Average Daily Supply for such classification. The total number of 100% Equivalent Days of curtailement of Buyer for each of the Service Classifications shall be equal to the fraction having the Curtailement Volume for such classification as the numerator and the Average Daily Supply for such classification as the denominator.

The Curtailement Discount shall be applied as a credit until extinguished on Buyer's bills commencing with the terminal month of the Operating Year, if this agreement remains in effect beyond such month; otherwise, any balance in Buyer's favor shall be paid in full by Company concurrently with rendering the bill for such terminal month.

The Curtailement Discount shall not be granted for curtailments arising from force majeure conditions.

F. Charges for Unauthorized Takes:

Gas taken by Buyer in any day in excess of the Delivery Authorization for such day, or as such Delivery Authorization may be modified under a Curtailement Notice, or in excess of the limitation of Section 7. C. hereof, is unauthorized, and Buyer shall pay for such excess at the rate specified for "Unauthorized Use" in paragraph 14 of the General Rules and Regulations of Tariff P.U.C. Or. 19. Payment of an overrun charge shall not be considered as giving Buyer the right to take unauthorized overrun gas.

Section 7. SCHEDULING OF DELIVERIES

A. Procedure:

- (a) Not less than 52 hours prior to the commencement of each Operating Day, Buyer will advise Company of its best estimate of the volume in therms it expects to request for delivery during such day;
- (b) Not less than 28 hours prior to the commencement of each Operating Day, Company will advise Buyer of its best estimate of the volume in therms it expects it will be able to make available to Buyer during such day to supply Buyer's estimate;
- (c) Not less than 4 hours prior to the commencement of each Operating Day, Buyer will advise Company of the volume in therms it requests Company to deliver during such day on an hourly basis;
- (d) Not less than 2 hours prior to the commencement of each Operating Day, Company will advise Buyer of the Delivery Authorization for such day on an hourly basis;
- (e) In determining the Delivery Authorization, Company shall not be required (i) to include as part of its gas supply any capability, purchased or owned, normally utilized for peaking purposes or (ii) to purchase, or to have purchased, for the purpose of rendering the services provided for herein, an additional supply of gas or Equivalent Hydrocarbons at a per-therm cost higher than the per-therm cost of its basic gas supply. For the purpose of this provision, the per-therm cost of the Company's basic gas supply shall be its current cost for large volume high load factor contract demand purchases (as of the date of execution hereof, purchases made under its pipeline supplier's ODL-1 rate schedule);
- (f) During each Operating Day, upon not less than 30 minutes prior notice, Company may, by issuing a "Curtailment Notice," reduce the volumes specified in the Delivery Authorization and limit the quantities which Buyer may take during the remainder of such Operating Day, to the extent necessary, in Company's sole judgment, to permit the Company to supply in full during such day priorities (1) through (9) of paragraph 14 of the General Rules and Regulations of Tariff P.U.C. 19, or to

avoid jeopardy to the Company's ability to serve such priority requirements in the future. A Curtailment Notice shall remain in effect for the remainder of the day unless superseded by a Resumption Authorization;

(g) By mutual agreement, the authorized representatives of the parties may substitute an abbreviated or compacted procedure for the scheduling of deliveries to be made over predesignated periods, including weekends and holidays;

(h) All advances, authorizations and notices specified above may be given by telephone. Telephonic communications will be recorded and logged by Company, to which recording Buyer hereby gives its consent.

B. Consistency with Exhibit A:

Daily quantities requested by Buyer and authorized by Company shall be consistent with and limited by and to the daily and monthly volumes specified in the applicable Exhibit A.

C. Limitations on Changes in Volumes:

In any half hour period, changes up or down in rate per hour of deliveries or takes shall not exceed 7,500 therms; provided, however, that this limitation shall not apply to emergency conditions on Buyer's System where downward changes in the rate of takes are uncontrollable.

Buyer may substitute liquid fuel for use in one or more of the units of its Harborton Plant under operating conditions on its system where if natural gas were used in such units the foregoing limitation on upward changes in the rate of takes might be exceeded.

D. Designation of Authorized Representatives:

Buyer and Company each shall designate in writing, by name or title or both, its personnel having authorization to represent it in carrying out the above procedure.

Section 8. APPLICABLE TARIFF AND RULES AND REGULATIONS

This agreement shall be filed by Company with the Public Utility Commissioner of Oregon as part of its Tariff P.U.C. Or. 19, and in all respects shall be and remain subject to the applicable provisions of such Tariff and the Rules and Regulations of the Public Utility Commissioner of Oregon, and any amendments or

revisions of such Tariff or Rules and Regulations, whether initiated by Company or the Commissioner, which may become effective from time to time, all of which by this reference are made a part hereof.

Section 9. NOTICES

Except as otherwise specified herein, all notices and communications shall be in writing and either delivered in person or sent prepaid mail to the addresses stated below or at such other addresses as may be designated in writing.

COMPANY: 123 N. W. Flanders Street. BUYER: 621 S. W. Alder Street.
Portland, Oregon 97209 Portland, Oregon 97205

Section 10. SUCCESSORS AND ASSIGNS

This agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed this agreement by their duly authorized officials this 3/8 day of May, 1973.

NORTHWEST NATURAL GAS COMPANY

PORTLAND GENERAL ELECTRIC COMPANY

By *Robert H. Cwikling*
Title Vice President

By *A. J. Porter*
Title Senior Vice President

EXHIBIT A
for
Initial Operating Year Commencing June 1, 1973

| <u>Month</u> | <u>Maximum Day Delivery Volume (therms)</u> | <u>Monthly Volumes in Millions of Therms of Firm Natural Gas or Equivalent Hydrocarbons</u> | | |
|--------------|---|---|----------------|--------------------------------|
| | | <u>High Load Factor Service</u> | <u>Minimum</u> | <u>Standby Service Maximum</u> |
| <u>1973</u> | | | | |
| *June | 180,000 | Testing Requirements | | |
| *July | 180,000 | Testing Requirements | | |
| *August | 600,000 | Testing Requirements | | |
| September | | 15.2 | | |
| October | | 16.3 | | |
| November | | 14.4 | | |
| December | | 10.9 | | |
| <u>1974</u> | | | | |
| January | | 11.2 | | |
| February | | | 1.0 | 10.9 |
| March | | | 1.0 | 15.2 |
| April | | | 0.2 | 16.0 |
| May | | | 0.2 | 16.0 |
| June | 600,000 | | 0.2 | 15.3 |

*Equipment testing period, applicable to initial operating year only.

NORTHWEST



NATURAL GAS COMPANY

735 S.W. Morrison Street Portland, Oregon 97205

ROGER L. CONKLING
Vice President

May 31, 1973

Mr. Arthur J. Porter
Senior Vice President
Portland General Electric Company
621 S. W. Alder Street
Portland, Oregon 97205

Dear Mr. Porter:

You have inquired as to whether, under the proposed agreement with us for service to your Harborton Plant, Portland General would be obligated to pay minimum bills in the event that commencement of operation of such plant as presently scheduled were to be delayed by reason of a lack of required governmental permits. Under this circumstance you would have no obligation to make minimum bill payments to us. Section 10 of the General Rules and Regulations of our Tariff P.U.C. Or. 19, which is applicable to the proposed agreement, protects our customers as well as ourselves against situations where a plant cannot be operated by reason of "governmental action or authority."

A copy of the General Rules and Regulations is attached for your information.

Sincerely,

Roger L. Conkling

RLC/bt
Attachment

Not Approved

NORTHWEST



NATURAL GAS COMPANY

123 N.W. Flanders

Portland, Oregon 97209

(503) 226-4211
ROGER L. CONKLING
Vice President

September 14, 1973

Mr. Arthur J. Porter
Senior Vice President
Portland General Electric Company
621 S. W. Alder Street
Portland, Oregon 97205

Dear Mr. Porter:

Our letter agreement of August 29, 1973 provides for interim service to your Bethel and Station L generating facilities, as well as testing service for Harborton, in lieu of the operational service to Harborton covered by the Harborton Service Agreement.

Subsequent to the execution of our letter agreement of August 29, 1973, the Department of Environmental Quality, by letter of its Director dated September 7, 1973, has restricted the hours of operation of the Bethel plant so that modifications in the service arrangements for Bethel are required. To accommodate such changes, we have agreed that "Revised Interim Exhibit A" attached hereto shall be substituted for "Interim Exhibit A" attached to said letter agreement of August 29.

This agreement shall become effective immediately, but will be subject to such revisions, if any, as may be directed by the Public Utility Commissioner of Oregon.

If the above and the attached "Revised Interim Exhibit A" express our agreement, please indicate your concurrence by affixing your signature below.

Sincerely,

Roger L. Conkling
Vice President

Northwest Natural Gas Company

Accepted and agreed to this 14th day of September, 1973.

Arthur J. Porter, Senior Vice President
Portland General Electric Company

REVISED INTERIM EXHIBIT A

| Month or Other Period, 1973 | Maximum Day Delivery Volume (therms) | Monthly Volumes in Millions of Therms of Firm Natural Gas | |
|---------------------------------------|--|--|---|
| | | High Load Factor Service | Minimum-and-Standby Service Minimum Maximum |
| <u>For Service to Harborton Plant</u> | | | |
| During Testing | 600,000 | ----- Testing Requirements ----- | |
| <u>For Service to Bethel Plant</u> | | | |
| August | Such volume up to 240,000 therms as is practicable in Northwest Natural's judg- ment under the limitations of its delivery capability in- to the Bethel plant | ----- Testing Requirements ----- | |
| September | | 0 | 5.8 |
| October | | 0 | 3.5 |
| November | | 0 | 1.1 |
| December | | 0 | 0.4 |
| <u>For Service to Station L</u> | | | |
| September | 100,000 | 0 | 3.0 |
| October 1/23 | 100,000 | 0 | 2.3 |
| October 24/31 | 100,000 ^{1/} | 0 | 0.8 |
| November | 100,000 ^{1/} | 0 | 3.0 |
| December 1/23 | 100,000 ^{1/} | 0 | 2.3 |

^{1/} If permit extension sought and granted

NORTHWEST  NATURAL GAS COMPANY

735 S.W. Morrison Street Portland, Oregon 97205

ROGER L. CONKLING
Vice President

August 29, 1973

Mr. Arthur J. Porter
Senior Vice President
Portland General Electric Company
621 S. W. Alder Street
Portland, Oregon 97205

Dear Mr. Porter:

In view of the impending critical shortage of firm electric energy created by the reservoir deficiencies of the Northwest Power Pool systems, on the basis of which impending shortage the Governor of Oregon has declared an "energy emergency," we have agreed that it would be in the public interest to compensate to the maximum extent possible for the non-operational status of Portland General's Harborton plant, which plant would have alleviated such shortage if operational on the schedule contemplated by the Service Agreement executed May 31, 1973 by our respective companies for the provision of natural gas as plant fuel and made effective as part of Northwest Natural's tariff P.U.C. Or. 19 as of July 2, 1973.

To accomplish the above purpose, we have agreed that Northwest Natural will provide interim gas supplies to Portland General for its Bethel combustion turbine electric generating plant and its Station L thermal power plant, as well as the testing requirements of its Harborton plant, in lieu of a portion of the gas supply which Northwest Natural otherwise would have provided for the operational requirements of the Harborton plant.

Such interim gas supplies will be provided under the same terms and conditions as contained in the Harborton Service Agreement except that:

- (1) Section 4 shall be deemed inapplicable;
- (2) The attached "Interim Exhibit A" is substituted for "Exhibit A for Initial Operating Year Commencing June 1, 1973" and Section 5 shall be deemed inapplicable to the extent it is inconsistent with or not required for the implementing of "Interim Exhibit A;"

- (3) The provisions of Section 6 shall be applied separately to the Harborton plant, the Bethel plant and Station L in computing the charges for the services provided hereunder; and Subsection 6E shall be implemented by appropriate proration treating the period during which service is rendered hereunder to each plant in the same fashion as if it were an Operating Year;
- (4) Subsection 7C is expanded to provide that in any half-hour period, changes up or down in rate per hour of deliveries or takes at Bethel shall not exceed 3750 therms, and at Station L, 5000 therms, except under emergencies where downward changes are uncontrollable.

Provision by Northwest Natural of the interim service specified herein shall commence and terminate as follows:

| | Commencement of Interim Service | Termination of Interim Service |
|-----------|---|---|
| Harborton | When Harborton plant is ready for testing | When Harborton plant is ready for or commences full operations |
| Bethel | On or before September 1, 1973 | Same as above |
| Station L | On or before September 1, 1973 | October 23, 1973 or such later date as may be permitted under any extension of the special operating permit, or when Harborton plant is ready for or commences full operations. |

If the period during which service is to be rendered hereunder for the Bethel plant or Station L extends beyond the periods provided for in "Interim Exhibit A," we will agree upon an extension thereof so that service hereunder may be continued.

Mr. Arthur J. Porter

- 3 -

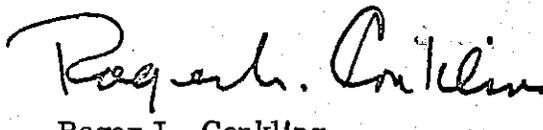
August 29, 1973

"Exhibit A for Initial Operating Year Commencing June 1, 1973," shall be reinstated upon the termination of service hereunder, and thereafter be in full force and effect.

This agreement shall not become effective until approved by the Public Utility Commissioner of Oregon.

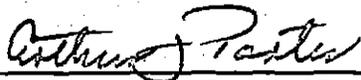
If the above and the attached "Interim Exhibit A" express our agreement, please indicate your concurrence by affixing your signature below.

Sincerely,



Roger L. Conkling
Vice President
Northwest Natural Gas Company

Accepted and agreed to this 29th day of August, 1973.



Arthur J. Porter, Senior Vice President
Portland General Electric Company

RLC/bt

INTERIM EXHIBIT A

| Month or Other Period, 1973 | Maximum Day Delivery Volume (therms) | Monthly Volumes in Millions of Therms of Firm Natural Gas | |
|---------------------------------------|--|--|---|
| | | High Load Factor Service | Minimum-and-Standby Service Minimum Maximum |
| <u>For Service to Harborton Plant</u> | | | |
| During Testing | 600,000 | ----- Testing Requirements ----- | |
| <u>For Service to Bethel Plant</u> | | | |
| August | Such volume up to 240,000 therms as is practicable in Northwest Natural's judg- ment under the limitations of its delivery capability in- to the Bethel plant | ----- Testing Requirements ----- | |
| September | | 5.8 | |
| October | | 3.5 | |
| November | | 1.1 | |
| December | | 0.4 | |
| <u>For Service to Station L</u> | | | |
| September | 100,000 | 0 | 3.0 |
| October 1/23 | 100,000 | 0 | 2.3 |
| October 24/31 | 100,000 ^{1/} | 0 | 0.8 |
| November | 100,000 ^{1/} | 0 | 3.0 |
| December 1/23 | 100,000 ^{1/} | 0 | 2.3 |

^{1/} If permit extension sought and granted

NORTHWEST NATURAL GAS COMPANY

SCHEDULE 4 LARGE FIRM SERVICE

Available:

In all territory served by the Company under the tariff of which this schedule is a part, provided that: (i) adequate gas volumes for such service are available; (ii) adequate capacity exists in the Company's distribution system; (iii) the Buyer agrees to purchase his entire firm fuel requirements of specified facilities of Buyer's Plant; and (iv) the Buyer has executed a formal service agreement with the Company.

Applicable:

To firm gas, no portion of which shall be resold, supplied at one point of delivery through one meter to commercial, institutional and industrial establishments up to an agreed upon maximum daily volume (which is the Company's maximum responsibility) designated as the Maximum Day Delivery Volume.

No monthly or seasonal alternation will be permitted during the year between this and other rate schedules for all or any portion of the service to be supplied.

Billing Unit:

Rates for gas service are expressed in units of therms, one therm being the equivalent of 100,000 Btu.

Monthly Rate:

12.0¢ per therm, first 4000 therms
9.5¢ per therm, next 6000 therms
8.1¢ per therm, all additional therms
Minimum monthly bill— \$240.00

Minimum annual bill—The minimum annual bill shall be the sum of the monthly minimum bill and \$.05 for each 1000 Btu of maximum hourly input capacity of equipment used for protection of equipment or commodities during cold weather, or for standby purposes, times 12.

Term of Contract:

Not less than a one-year period with monthly payments for service taken. No seasonal or temporary disconnection of service permitted.

Special Conditions:

Gas for space heating and for other purposes may be separately metered, at the Company's option, but gas supplied through all meters will be combined for billing purposes.

Equipment to be served under this rate and the required maximum daily and hourly demands and pressures will be specified in the service agreement.

The Btu of maximum hourly input of customer's equipment for the purpose of applying this schedule is determined from manufacturer's rating or by test at Company's option.

General Rules and Regulations:

Service under this schedule is subject to the General Rules and Regulations contained in this tariff and to those prescribed by regulatory authorities.

Issued March 30, 1973

Effective with service
on and after April 1, 1973

NORTHWEST NATURAL GAS COMPANY

SCHEDULE 5 HIGH LOAD FACTOR LARGE FIRM SERVICE

Available:

In all territory served by Company under the tariff of which this schedule is a part, provided that: (i) adequate gas volumes for such service are available; (ii) adequate capacity exists in Company's distribution system; (iii) Buyer agrees to purchase the entire firm gas requirements of Buyer's plant; (iv) Buyer has executed a service agreement with Company for firm gas specifying a Maximum Day Delivery Volume of 2,000 therms or more; and (v) Buyer has in effect a service agreement with Company for interruptible gas specifying a Maximum Day Delivery Volume of 1,000 therms or more.

Applicable:

To firm gas, no portion of which shall be resold, supplied at a single point of delivery through one meter to industrial, institutional or commercial establishments up to an agreed upon Maximum Day Delivery Volume (which is Company's maximum responsibility).

Billing Unit:

Rates for gas service are expressed in units of therms, one therm being the equivalent of 100,000 Btu.

Monthly Rate:

6.26¢ per therm

Minimum Annual Bill:

The minimum annual bill shall be applicable for each calendar year beginning with the first January 1 following the date of initial delivery of gas, and shall be 95 percent of the Maximum Day Delivery Volume times 6.26¢, times 365 days.

Minimum Monthly Bill:

The minimum monthly bill shall be 90 percent of the Maximum Day Delivery Volume times 6.26¢, times the number of days in the billing cycle.

Penalty for Unauthorized Takes:

Buyer shall pay for all gas taken under this Rate Schedule in excess of the Maximum Day Delivery Volume on any day (unauthorized overrun) at the rate of \$0.50 per therm. Payment of an overrun penalty shall not be considered as giving Buyer the right to take unauthorized overrun gas.

Special Provisions:

Company reserves the right to limit the hourly flow of gas delivered under this Rate Schedule to not more than 12.5 percent of the Maximum Day Delivery Volume.

General Rules and Regulations:

Service under this Rate Schedule is subject to the General Rules and Regulations contained in this tariff and to those prescribed by regulatory authorities.

Issued March 30, 1973

Effective with service
on and after April 1, 1973

NORTHWEST NATURAL GAS COMPANY

GENERAL RULES AND REGULATIONS

1. No gas will be furnished to anyone without previously signing application and making a cash deposit, if deemed necessary by the Company, for payment of gas supplied at the Company's regular published rates. The amount of deposit is at the discretion of the Company, but will not exceed the amount of reasonable estimate of the customer's bill for 60 days use. The deposit shall be returned after the customer's credit has been established. Such deposits shall accumulate interest at the rate of 4% per annum compounded annually if the deposit is held for more than one year. The deposit shall draw interest until it is paid or tendered to the customer at his last known address.

2. Regular monthly gas bills are due when rendered and become delinquent upon expiration of the date stamped on the bill. If, by so specifying in the contract, the Company requires the payment of weekly, semi-monthly or monthly bills upon presentation of bill on the customer's premises at the time the meter is read, bills are due and payable at such time and become delinquent if not so paid. The supply of gas to any delinquent customer may be discontinued upon not less than five (5) days' written notice, in which case an additional payment of five dollars (\$5.00) will be required to re-establish service between the hours of 8 a.m. and 5 p.m. on weekdays, and an additional payment of ten dollars (\$10.00) will be required to re-establish service after 5 p.m. on weekdays and on Sundays and holidays. The right is reserved to refuse to supply with gas, or to discontinue service or the supply of gas to, any customer whose account is delinquent.

The charge for re-establishment of service at the same address for the same party taking service under a rate schedule specifying a yearly contract if service has been discontinued at customer's request for less than six (6) months shall be ten dollars (\$10.00) or the minimum monthly bill during the period of discontinuance, whichever is the lesser.

The rates in this tariff, for each class of service, contemplate the supply of service to a single consumer unit, on a single premise, through one delivery and metering point; and customer's piping must all be brought to this point.

4. For the purpose of determining the amount of gas used, a meter will be installed by the Company upon the customer's premises at a point to be determined by and most convenient for the Company. For larger customers, the Company may install orifice meters or additional displacement type meters. Any orifice meters installed shall be operated in accordance with the specifications of "American Gas Association Gas Measurement Committee Report No. 3, April 1955" with an assumed atmospheric pressure of 14.73 psia. Such meter or meters so installed shall be the sole medium of measurement of all gas supplied hereunder and the measurement of gas as indicated by said meter or meters shall be conclusive between the customer and the Company. In the event any meter fails to register the actual amount of gas supplied, the proper amount shall be determined by either accepting the reading of any other meter or meters so placed as to indicate the actual consumption, or by previous consumption in a corresponding month, or by an estimate based on the average consumption of gas appliances and fixtures installed on the premises. When said bill is rendered it shall be deemed and considered a stated account unless objection is made to the amount thereof at the office of the Company in writing ten days from the date of such bill.

5. The meters supplied by the Company shall at all times remain the property of the Company, and customer will be responsible to the Company for their protection from damage or theft. Interference by anyone, except employees of the Company, with the meter or its connections, services, mains or other property of the Company, shall be unlawful.

6. Free access to meters and other property of the Company located on the premises of the customer must be given to all employees of the Company at all reasonable times, for inspection, removal and other purposes. If for any reason whatsoever the Company's employees cannot gain access to the meter for the purpose of reading the index thereof, an estimated bill will be rendered and the same will be considered a stated account, the payment of which is subject to Rule 2.

7. The customer will indemnify and save the Company harmless from any claims for trespass or injury to buildings or property that may be caused in the installation or maintenance of the service pipe and appurtenances to serve the customer, unless caused by the negligence of the Company.

8. The gas to be supplied hereunder shall conform to standard requirements of the applicable state regulatory authority with respect to purity and shall have a heating value of approximately 1050 Btu per cubic foot but with a permissible variation of not more than 10 percent (10%) and provided that gas supplied permits satisfactory appliance operation. On each day on which meters are read, the average heating value for the period since the last previous meter reading shall be calculated and the average heating value used in converting measurements in cubic feet to thermal units.

The determination of total heating value of the gas shall be based upon the equipment and method of testing recommended in "A.G.A. Gas Measurement Manual." This manual defines total heating values (total calorific value) as follows:

Issued January 5, 1971

Effective February 4, 1971

Issued by NORTHWEST NATURAL GAS COMPANY

Roger L. Conkling, Vice President

735 S. W. Morrison Street, Portland, Oregon 97205

NORTHWEST NATURAL GAS COMPANY

GENERAL RULES AND REGULATIONS

(continued)

"The number of Btu produced by combustion, at constant pressure, of the amount of gas which will occupy a volume of one cubic foot at 60F, at the reference base pressure, with air at the same temperature and pressure as the gas, when the products of combustion are cooled to the initial temperature of the gas and air, and when the water formed by combustion is condensed to the liquid state."

9. All gas appliances, installation thereof, vents and connections, safety devices and pipefittings of customer-owned gas piping and equipment on customer's premises shall conform to the specifications of regulatory authorities, applicable standards of the American National Standards Institute, Inc., and the Company's Standard Practices covering regulators, safety shut-off valves, flame safety devices and other equipment and gas system requirements. The Company reserves the right to refuse or discontinue service in the event such standards are not met. Applicable publications of the American National Standards Institute, Inc. are: Standards Z21.30, "Installation of Gas Piping and Gas Appliances"; Standards Z21.33, "Installation of Gas Equipment in Large Boilers"; Standards Z21.8, "Requirements for Installation of Domestic Gas Conversion Burners"; and Z83.1, "Installation of Gas Piping and Equipment on Industrial Premises."

10. In case the supply of gas shall be temporarily interrupted, or fail, by reason of accident, or otherwise, the Company, upon notice, will make reasonable efforts to restore such supply, but shall not be liable for damages by reason of such failure to supply. The Company shall be exempt from all liability or damage caused by unavoidable accident or casualty, extraordinary action of the elements, strikes, interruptions caused by government action or authority, litigation or by any cause beyond its control, or which the Company could not reasonably have foreseen and guarded against, or when such interruptions are necessary for repairs or changes in the Company's generating equipment or distributing system.

If at any time during the term of any service agreement, under which Company is to supply customer with gas, customer is compelled to shut down its operation at its plant by reason of unavoidable accident or casualty, extraordinary action of the elements, strikes, governmental action or authority, litigation, or by any cause beyond its control or which customer could not reasonably have foreseen and guarded against, Company will not apply or collect from customer the minimum bill established under Company's rate schedules as filed with regulatory authorities during the period customer's plant shall remain so shut down.

11. In case of a leak, notice should be given to the Company, without delay. No flames should be taken near the leak and the premises must be freely ventilated at once and kept so until leak is found and repaired. The Company's responsibility ceases at the meter. No deduction will be made from the amount registered by meter, nor will the Company be held responsible for any injury to persons or property caused by or in any way resulting from the negligent installation or maintenance of customers' gas pipes, appliances and appurtenances.

12. The Company will construct distribution main extensions to serve one or more bona fide prospective permanent residential or commercial customers provided that the estimated gross revenue therefrom for a period of three years shall equal or exceed the cost of construction. If the cost of construction exceeds this amount, the prospective customers must contribute such excess prior to the commencement of construction. Exceptions to this expenditure limitation may be made where the Company considers it to be in the public interest.

Subsequent customers requesting service from an extension for which previous customers have contributed any portion of the cost shall pay a reasonable allocated portion of the originally contributed amount which shall be distributed proportionately to the previous contributors.

An annual recalculation will be made of the gross revenue received from the extension compared with the estimated revenue at the time the extension was made, and the excess over the latter amount for such three-year period returned proportionately to the customers previously contributing, up to the full amount of the contribution. After 5 years any resulting balance shall remain with the Company.

13. The contract between residential and commercial customers and the Company, created by the acceptance of the customer's application for gas service, shall continue in full force and effect until terminated by the customer's giving three days' notice in writing to the Company at its office of such intention so to terminate the contract, unless otherwise provided therein, and the customer shall be liable for all gas supplied to the premises named in said application until such notice is received.

Issued January 5, 1971

Effective February 4, 1971

NORTHWEST NATURAL GAS COMPANY

GENERAL RULES AND REGULATIONS (continued)

14. LIMITED GAS SUPPLY CONDITIONS

GENERAL

In the event Company's firm gas supply is insufficient at any time to meet in full the requirements of all customers served under firm rate schedules, curtailment by Company of firm service shall be in the inverse order of the priorities specified herein.

Company shall not be liable in damages or otherwise to any customer for failure to deliver gas curtailed pursuant to this system of priorities; provided, that Company shall have the continuing obligation to use reasonable diligence to purchase from its supplier gas supplies necessary to satisfy present and future requirements of customers served under firm rate schedules.

ORDER OF PRIORITIES

The order of priorities shall be as follows:

- (1) All requirements of residential customers.
- (2) All requirements of small commercial and institutional customers with demands not exceeding 1,000 therms per day.
- (3) All requirements of larger institutional customers.
- (4) All requirements of small industrial customers with demands not exceeding 1,000 therms per day.
- (5) Incidental spaceheating and alternate-fuel pilot requirements of intermediate and large commercial and industrial customers not exceeding 1,000 therms per day.
- (6) General use and limited steam generating requirements of intermediate commercial and industrial customers with aggregate demands for all types of use not exceeding 10,000 therms per day.

Steam generating demands of customers in this classification shall be entitled to this priority provided that customer's total requirements for steam generating do not exceed 1,000 therms per day. If such requirements are in excess of 1,000 therms per day, such demands shall be considered separate from the Customer's other load and be included in Priority 9.

- (7) General use requirements of large commercial and industrial customers with aggregate demands for all types of use in excess of 10,000 therms per day, in the following order of types of use:
 - (a) Direct-fired pollution control.
 - (b) Feedstock.
 - (c) Direct-fired applications.
 - (d) Other.

No steam generating demands of customers in this classification shall be entitled to this priority. Such demands shall be considered separate from the customer's other load and be included in Priority 9.

- (8) Requirements of regulated utility customers for steam-heat utility use, in such volumes as are specified by the state regulatory authority having jurisdiction.
- (9) Steam generating requirements not entitled to higher priorities of commercial and industrial customers:
 - (a) With aggregate steam generating demands not exceeding 10,000 therms per day.
 - (b) With aggregate steam generating demands in excess of 10,000 therms per day.

When only partial curtailment in any category or sub-category of the order of priorities is required, such partial curtailment shall be apportioned to the extent practicable pro-rata among the customers in the category or sub-category.

Company shall have the right to make such inspections of customer's gas-using facilities and operating schedules as may be necessary to determine customer's requirements for such facilities and the proper priority or priorities thereof.

Issued January 21, 1972

Effective February 21, 1972

NORTHWEST NATURAL GAS COMPANY

GENERAL RULES AND REGULATIONS

(continued)

For the purposes of applying the above priorities, customer classes are defined as follows:

Residential Customers: Single family dwellings; separately metered apartments or flats; and centrally metered multiple dwellings or apartments where provision for standby fuel is impracticable.

Institutional Customers: Facilities of municipal, state and federal governments and agencies thereof, except those leased or rented for non-governmental purposes; public and private schools; hospitals and other medical care facilities; and churches.

Commercial Customers: Customers primarily engaged in providing services, wholesale trade, retail trade, agriculture, forestry, fisheries, transportation, communications, utilities, finance, insurance, real estate, clubs and hotels. Customers not included directly in other definitions shall be classified in this category.

Industrial Customers: Customers engaged primarily in a process which creates or changes raw or unfinished materials into another form or product including mining and manufacturing.

CURTAILMENT DISCOUNT

If firm service to any customer is curtailed pursuant to the above priorities, such customer shall receive a "Curtilment Discount" on bills for gas taken during the twelve billing months ending June (the Annual Period) within which such curtilment occurs.

The Curtilment Discount shall be equal to (a) the difference between (i) the sum of the bills actually rendered in the Annual Period and (ii) the sum of bills which would have been rendered in such Annual Period had customer been served under Schedule 23 and received identical monthly quantities, multiplied by (b) the ratio of (i) the number of "100% Equivalent Days" of curtilment experienced by customer in such Annual Period to (ii) the average number of 100% Equivalent Days of curtilment experienced by Schedule 23 customers in the same period.

For the purpose of the above calculation, a 100% Equivalent Day of curtilment is defined as a 24-hour period during which customer's supply under the applicable rate schedule is curtailed in its entirety. If customer's supply is curtailed in its entirety for a partial day, this partial curtilment will equal such fractional part of a 100% Equivalent Day as the number of hours of curtilment bears to 24 hours. If customer's supply is curtailed in part for a full day, this partial curtilment will equal such fractional part of a 100% Equivalent Day as the volume of gas remaining available to the customer during such day bears to customer's (i) Maximum Day Delivery Volume/Contract Demand for firm customers or (ii) average daily use during the most recent fifteen days of uncurtailed deliveries preceding the commencement of the month in which the curtilment occurs for interruptible customers.

The Curtilment Discount shall be applied as a credit, until extinguished, on customer's bills commencing with the terminal month of the Annual Period.

The Curtilment Discount shall not be granted for curtilments arising from force majeure conditions.

CURTAILMENT NOTICES

Not later than the commencement of each Annual Period, Company shall endeavor to the best of its ability to give notice of possible curtilment to customers whose position in the order of priorities makes it likely that their firm service may be curtailed thereunder in such period.

Company further shall endeavor to give as much notice as possible with respect to each instance of curtilment under such priorities, but in no event less than two hours, unless prevented by force majeure conditions. In each instance of curtilment, Company's curtilment and restoration notices, respectively, shall specify the quantities to be curtailed or restored, and the time curtilment or restoration is to be instituted. Such notices need not be in writing, but shall be given only to a designated representative of the customer.

UNAUTHORIZED USE

Customers shall be obligated to limit their receipts of gas to the quantities permitted under curtilment notices. Any quantity taken in excess of that permitted by the notice is unauthorized. Company shall bill and customer shall pay for unauthorized quantities at the rate of \$0.50 per therm.

Issued January 21, 1972

Effective February 21, 1972

LIST OF TESTIMONY RECEIVED FOR THE PUBLIC HEARING FOR AN
AIR CONTAMINANT DISCHARGE PERMIT FOR PORTLAND GENERAL
ELECTRIC, HARBORTON TURBINE PLANT

Testimony Received after the Public Hearing (as of September 20, 1973)

| <u>INDIVIDUAL</u> | <u>REPRESENTING</u> | <u>TESTIMONY RECEIVED</u> |
|---------------------|------------------------------|--|
| 1. Lynn O'Brien | Petitioners, Self | Letter and petition to Portland City Council |
| 2. H. H. Phillips | Portland General Electric | Letter of Acceptance of Permit Conditions |
| 3. Jake Benshoof | 15th Legislative Dist. | Letter Supporting Permit |
| 4. Richard W. Sabin | P.U.C. | Letter on Power Crisis |
| 5. Donald P. Hodel | B.P.A. | Letter and Report on Power Shortage |
| 6. David Kabat | Univ. of Oregon | Letter with Additional Comments on Permit Conditions |

May 31, 1973

Commissioner Lloyd Anderson
Portland City Council
City Hall
Portland, Oregon

Dear Commissioner Anderson:

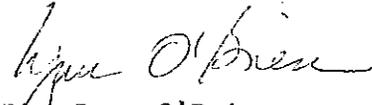
This note is to represent me in writing in lieu of body. I work fulltime during the day and am therefore unable to attend hearings held by the City Council or County Commissioners.

This note is in regard to the PGE Harborton "pollution" plant. Please accept my stand on this as a negative one. I attended a public meeting last evening, Wednesday, May 30, at Trinity Episcopal Church at which a Mr. Philips from PGE "answered" questions from those in attendance, regarding Harborton. I put "answered" in quotes because his response to at least 50% of the inquiries were either "I don't have that information" or "I'm the wrong person to ask; I don't know." Anyway, I live in Portland, southwest to be exact, and I already feel our air is too dirty to begin with. I cannot comprehend allowing PGE to make it even more so. I wrote you approximately 9 months ago regarding the air pollution problem. At that time you responded with a copy of the downtown plan. How can you expect people, and businesses, to cooperate when one industry is allowed to pollute far above others? I find it difficult also to understand why PGE has not tried to search out alternative power sources; if work was in the mill re Harborton as far back as 1971 why do we find ourselves where we are at this point in time? When PGE is trying to get permission to operate a plant which would only be 20% efficient, it seems that the amount of energy consumed to create the electrical power far outweighs the return. I have been led to believe by the various media, that we are also facing a shortage of gas and oil. If this is true, where is PGE going to get the fuel to burn to run Harborton? Why are we here now when we have had approximately 2 years to be somewhere else, especially when the air pollution problem in Portland is certainly not a new one and when Congress passed a Clean Air Act a few years back? I sincerely ask you to vote no on granting PGE a permit to operate Harborton when the second hearing is scheduled. As for the money which PGE has already spent on the site, that has to be their loss (which I'm sure we as consumers will ultimately bear). I hold no sympathy for companies which go ahead and build and then seek approval - I truly believe it is a ploy to aid getting approval. Since we are an economic oriented society money seems to be more important than anything else, but I think you will agree that the time finally does come when we have to start thinking about people and I believe the time is now.

May 31, 1973

In summary, since I cannot physically attend council meetings, please accept this letter in place of me. Please vote no on granting PGE the Harborton permit. I believe we have to come up with a better energy source. I find it difficult to think that once one source of power is put into effect, it will ever change. I believe we now must seek out a more healthful and efficient system.

Thank you,



Ms. Lynn O'Brien
8425 SW 7th
Portland, Oregon
97201

cc: Mildred Schwab
Ben Padrow
Neil Goldschmidt

We the undersigned are opposed to the granting of a permit to PGE to operate a plant at Harborton (or elsewhere) to create electrical energy while also creating pollution at a totally unacceptable level.

Louise C. Mezger
Robert Meads

8914 S.W. Oakway
2079 S.W. Elm

David Green
Carol Hermann
Marilyn J. Ruff

831 SW VISTA #205
1035 SW Bertha Blvd #3
4 Touchstone, #10 Lake Oswego

Juni Lee McCullough

3638 Council Crest Drive

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16636 S.W. Maple Circle, Lake Oswego, OR 97034

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~~Robert Green - 19580 SW Joyce Ave OR 97005~~

~~Ed Engstrom - 1536 SW Highland Hwy. 97221~~

~~Jamira Ely - 13270 SW Allen Beaverton 97005~~

Michael J. Norman 1608 NE Knott Portland, Oregon 97212

Leslie Wyckoff 3414 N.E. 25TH PORTLAND, OR 9712

William Star 45 Eagle Crest Lake Oswego, OR 97034

Fran Halton 6016 N. DENVER Portland, OR 97217

Erica Cross 1231 SW Thompson St

RECEIVED

AUG 28 1973

PORTLAND GENERAL ELECTRIC COMPANY

621 S.W. ALDER ST.

PORTLAND, OREGON 97205

OFFICE OF THE DIRECTOR

August 24, 1973

H. H. PHILLIPS
VICE PRESIDENT AND
CORPORATE COUNSEL

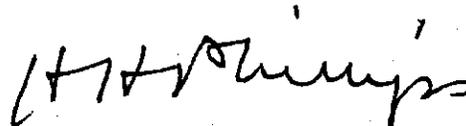
Mr. Diarmuid O'Scannlain, Director
Department of Environmental Quality
1234 S. W. Morrison
Portland, Oregon 97205

Dear Mr. O'Scannlain,

Portland General Electric Company has reviewed the Form of Proposed Permit mailed August 17 and received August 18. Many of the conditions seem unnecessarily burdensome; we do not agree with all of the computations; and the overall conclusion that as conditioned the plant will comply with all standards, appears to be inconsistent with the condition requiring that operations cease in about two years.

However, in view of the extremely critical power shortage and the urgent need to commence operation of the Harborton plant as soon as possible, we are prepared to accept the permit at this time without further comment but under protest, and with reservation of rights.

Very truly yours,



DEMOCRATIC EXECUTIVE COMMITTEE
15TH LEGISLATIVE DISTRICT

P.O. BOX 03181 • PORTLAND, OREGON 97203
PHONE (503) 286-3453



JAKE BENSHOOF DISTRICT LEADER WILLIE MAY PRICE TREASURER JAMES MOON ASS'T LEADER DONALD STROMQUIST SECRETARY

August 24, 1973

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED

AUG 28 1973

OFFICE OF THE DIRECTOR

Mr. Diarmuid F. O'Scannlain
Director of Environmental Quality
1234 S. W. Morrison St.
Portland, Oregon

Dear Mr. O'Scannlain:

It is respectfully requested that approval be given for the operation of Portland General Electric's Harborton generating plant. Testimony of experts, clearly indicates, this plant is not a detriment but rather an asset to the City of Portland. The presented facts illuminate the economic need for its existence and that the energy it supplies helps to alleviate pollution in other areas.

History of pollution these past ten years has strongly suggested that "common sense" is needed in the approach to its solution. It specifically points out that we must develop controlled pollution until the training of personnel in technology along with public education, development and research programs and realistic financing can catch up with the pollution problem. In no way can we allow idealistic environmentalism to bankrupt our business complex, our residential and governmental establishments. We also need progress to flow forward not stop.

Portland General Electric Company has an excellent record in the protection of the environment. It has a magnificent list of accomplishments in meeting the needs of our city by its planning and implementation of electrical energy output. This has been a great factor in the upgrading of community life and moving our country forward. It is therefore respectfully submitted, Portland General Electric Co. has served faithfully in the public good. Until such time, the facts and not hysteria determine the questionable elements of the generating plant is harmful to the public, they should be allowed to operate the plant. It is further submitted this can only be done by actual operation, not hearings.

The case of Union Carbide Corporation vs St. Johns Peninsula Area reveals, that if same hysteria had prevailed, that plant would have been closed. Today, almost ten years later, this plant plays a very important part in the economic growth of our great city. It also has emphasized the fact that "common sense", time, money, patience and knowledge even with a skeptical faith in governmental action, can and does overcome many of our pressing problems. It is believed that not only will Portland General Electric Company keep faith with our people but our governmental agencies as well in operating this plant for the public's welfare. The people have everything to gain and nothing to lose by this approach to the problem. Therefore it is again respectfully requested that approval be given for the operation of Portland General Electric's Harborton generating plant.

Thank you for your consideration. Best wishes for your continued success in keeping Portland a wonderful city to live in.

Very truly yours,

Jake Benshoof
Jake Benshoof, District Leader

JB:mb

BE WISE: REGISTER AND WORK FOR THE DEMOCRATIC PARTY





**PUBLIC UTILITY COMMISSIONER
OF OREGON**

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
AUG 28 1973

OFFICE OF THE DIRECTOR

PUBLIC SERVICE BUILDING • SALEM, 97310 • Telephone (503) 378-

TOM McCALL
GOVERNOR

RICHARD W. SABIN
Commissioner

August 27, 1973

Mr. Diarmuid F. O'Scannlain, Director
Department of Environmental Quality
1234 S. W. Morrison Street
Portland, Oregon 97205

Dear D,

This letter is in response to yours of August 15th pertaining to the Harborton facility and the energy situation.

As you will recall, when you held this office it was becoming apparent that a "crisis" was in the making due to a lack of snow pack in the Northwest. The situation has since deteriorated due to below average precipitation. In short, the power supply picture hasn't improved since you changed jobs, but rather has become more serious.

To give perspective to Harborton, the Northwest has about 23,000 megawatts of electric generation capacity. Harborton at 254 megawatts constitutes about 1% of the total.

Present estimates of the severity of this year's "crunch" indicate a shortage of 7% with Harborton on line. Heavy fall rains could reduce the shortage, while less than normal rainfall could compound the shortage. Similarly, a successful conservation effort could eliminate the projected shortage.

You also inquired as to the situation through September 1, 1975, "before which the Trojan plant should be on line." It is quite possible that the Trojan plant will not be on line in 1975, and for that reason I give you estimates for both 1974-75 and 1975-76.

Diarmuid F. O'Scannlain
August 27, 1973
Page 2

For 1974-75 at peak, the shortage is projected at 1,782 megawatts (with Harborton), with an average deficiency of 678 megawatts.

For 1975-76, assuming Trojan goes on line on schedule, the peak shortage is projected at 1,075 megawatts but on average there should be a 204 megawatt surplus. The Trojan plant has a design capacity of about 1,000 megawatts.

The above figures assume no schedule delays with respect to new generating facilities. Based on industry experience, there will be schedule delays. For example, the Centralia coal fired units were planned for September, 1971 and September, 1972. It is now planned that additional precipitators will be operational in May, 1974. While the two units are producing power, it is doubtful that they will be allowed to operate at full capacity (1,400 megawatts) until the precipitators are installed.

Assuming delays that are average to the industry, the 1975-76 shortage is estimated to be 2,141 megawatts at peak with an average shortage of 769 megawatts.

You know, of course, that these numbers have no real validity, but are based on average conditions, both precipitation and temperature, and average conditions rarely occur. Hence the situation may be considerably better or worse than these estimates indicate.

Neither do these figures take into consideration the effects of a possible heating oil shortage. Such a shortage could result in widespread use of electric space heaters with a consequent increase in residential use of electricity. Such increased use could well be at times of peak use with accompanying problems.

To summarize, as I am sure you already know, there is no certain way to predict what the problems will be, or even if there will be problems. However, it is probable, based on historical averages, that there will be a 7% shortage of electricity with Harborton on line, and 8% without Harborton. A successful conservation program could eliminate the shortage. Heavy fall rains could do the same. A good snow pack this winter could solve next year's shortage.

We are going ahead with the program you initiated in 1971 for involuntary curtailment. While the statute authorizing

Diarmuid F. O'Scannlain
August 27, 1973
Page 3

the PUC to prescribe curtailment priorities is not effective until January 1, 1974, last April I asked the privately owned utilities to propose tariff provisions for curtailment, and have been assured by representatives of both PP&L and PGE that such provisions will be submitted by the end of this month or immediately after Labor Day. Thus if the anticipated problem materializes, we hope to be able to cope with it. It should be understood that to cope adequately there must be cooperation on the part of Idaho and Washington and, importantly, Bonneville Power Administration and its customers.

Let me know if there is any further assistance I may render.

Yours truly,



RICHARD W. SABIN
Commissioner

RWS:cj



United States Department of the Interior

BONNEVILLE POWER ADMINISTRATION

P.O. Box 3621, PORTLAND, OREGON 97208

OFFICE OF
THE ADMINISTRATOR

In reply refer to: **PR**

AUG 28 1973

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED

AUG 29 1973

OFFICE OF THE DIRECTOR

Mr. Diarmuid F. O'Scannlain
Director, Department of Environmental Quality
1234 S.W. Morrison Street
Portland, Oregon 97205

Dear Mr. O'Scannlain:

In your letter of August 15, 1973, you inquire about the power situation and the combustion turbines at Harborton. The Pacific Northwest Area has been going through one of the driest periods of record. Snow-pack averaged about 70 percent of normal and as a result runoff during the spring high flow period was insufficient to replenish the reservoirs used for power generating purposes. Our most recent survey of reservoir contents and assuming continued adverse water conditions indicates the area will be short nearly 13 billion kilowatt-hours because most reservoirs are at an all time low for this time of year. If Harborton does not operate the shortage could be increased by nearly 3 billion kilowatt-hours over a 20 $\frac{1}{2}$ month critical period.

The new Harborton gas turbines of Portland General Electric Company are a very important addition to the capacity and energy resources of the area. The Portland General Electric Company itself is short on energy for both this winter and next. The unavailability of the Harborton units would more than double their energy deficiencies and at the same time leave them with inadequate peaking capability to meet loads in cold winter days.

The Pacific Northwest Area utilities operate together under a Coordination Contract Agreement. Utilities cooperate with each other to meet the loads in the most efficient and effective manner. Whenever there is a deficiency in one part of the area, all systems cooperate to reduce or eliminate it, or it becomes a coordinated system deficiency.

We are enclosing a detailed fact sheet on the power situation, some of which may be more cryptic than you would desire. If so, please do not hesitate to ask for clarification of any points contained in it.

Letter to Mr. Diarmuid F. O'Scannlain, Subject: Request for summary of the energy picture for use in testimony for Harborton facility

Also, in view of our efforts for a regionwide energy conservation and curtailment program and especially the excellent efforts of the State of Oregon under Governor McCall, you may be interested in the copy of the enclosed paper relating some aspects of the Swedish experience in 1969-1970. Please excuse the quality of the copy. We hope to have some cleaner copies prepared for further use.

If we can be of further assistance, please let us know.

Sincerely,



Administrator

2 Enclosures:

Fact sheet on power situation
Paper relating some aspects of
the Swedish experience in 1969-1970

Fact Sheet
Power Situation
August 24, 1973

LOADS AND RESOURCES: For the 20½ month critical period, firm load requirements of the Coordinated System are estimated at about 200 billion kWh or about 14,000 average MW. In the operating program it was forecasted that with adverse hydro, 60 percent of the load would be met by natural streamflow, 25 percent by storage, and 15 percent by thermal generation.

PRECIPITATION: For October 1972 through July 1973, Revelstoke, B.C., which is representative of the upper Columbia River, had 20.58 inches--a new low--average is 37.36 inches. Grangeville, Idaho, which is representative of the Snake River, had 11.59 inches--a new low--average 18.74 inches.

SNOW PACK: Throughout Basin averaged about 70 percent of average.

STREAMFLOWS: Runoff measured at The Dalles for period January 1 through July 31, 1973, 70.7 million acre feet; 1972, 151.4 million acre feet; median - 106.1 million acre-feet.

1972 was second highest of 95 years of record.

1973 was lowest since 1944 and tenth lowest of 95 years of record. As a result of low streamflows, draft of storage started on July 17, 1973, as compared with August 16 in operating program.

RESERVOIRS: Reservoir capacity of the Coordinated System is equivalent to 46 billion kWh. Forecast for September 1, 1973, is for reservoirs to lack 13 billion kWh. Reservoir storage is forecasted for use over 20½ month critical period (August 16, 1973, through April 30, 1975).

The Federal reservoirs contain an equivalent of about one billion kWh of storage of utilities in the Coordinated System and about 350 million kWh of interchange energy.

DEFICIENCY: Over this 20½ month critical period with 1943-45 streamflows, the area would lack 13 billion kWh of meeting firm loads. This is nearly 7 percent of the firm energy requirements for the period.

With 1936-37 streamflows and projected firm loads, the reservoirs would be empty by early March 1974. Streamflows under those conditions and other available resources would be about 3 million kW short of meeting area firm loads at that time. The area would be 3.5 billion kWh short through June 30, 1974. Streamflows are now below 1936-37 levels.

With water equivalent to the lowest of record over a 20½ month critical period and projected firm loads, the area would run short during the winter of 1974-75.

The probability of not meeting firm loads based on 40 years of historical records is about 10 to 15 percent.

OTHER CAUSES OF DEFICIENCY: Centralia produced 4.0 billion kWh in 1972-73. In the operating program it was projected at 7.3 billion kWh or a shortage of 3.3 billion kWh. This represents 25 percent of the current projected shortage. Some energy was lost through outages of generators at Dworshak Dam. The cold weather last year resulted in spill at Grand Coulee and Chief Joseph Dams of 630 million kWh (equivalent to about 1.8 million acre-feet of storage).

In July and August of this year, largely as a result of low flows on the Snake River, we spilled approximately one million acre-feet of water past Grand Coulee Dam. This is equivalent to 13 feet of storage in that Dam, and if it were put through Grand Coulee generators would have provided 250 million kWh.

INTERRUPTIBLE INDUSTRY: Interruptible power for industries was curtailed October 1, 1972. Except for short periods during December 1972 and January 1973, from October 1, 1972, until April 11, 1973, the industrial interruptible operations were supplied with combinations of provisional energy, purchases of energy from utilities outside the Pacific Northwest, and firm energy the industries acquired under Hanford contracts. On April 11, industries interruptible operations were curtailed from 1140 to 520 MW; on July 20 such capacity was reduced to 260 MW and later to 220 MW. These reductions were required because energy could not be obtained from other sources, and BPA was experiencing serious problems in delivering the Hanford energy entitlements.

As a result of the lack of power, industries directly served by BPA are employing about 1070 fewer workers than if power were available. Industries estimate that employment would decline by another 2740 workers if the remaining capacity dependent upon interruptible power and one-fourth the modified firm power were cut back.

By September 1, 1973, industries will have used about 538 million kWh of Hanford energy and will have remaining about 960 million kWh of Hanford and Centralia energy.

PROVISIONAL ENERGY: Bonneville may recall one billion kWh of provisional energy, plus losses, delivered in 1972-73 to the industrial customers if such energy is needed to meet BPA's firm obligations. If this energy is recalled, industry would have to further curtail operations. This provisional energy is included as about one billion kWh of the 13 billion kWh storage deficiency. Probability of requiring return of the provisional energy is about 8 in 30 years of record.

CHANGES IN FIRM LOADS: On September 1, 1973, 197.6 MW of industrial load at four plants is changed from interruptible power to modified firm power. On October 1, 1973, 110.5 MW of power temporarily curtailed by Reynolds is restored as modified firm power.

The 20-year private utility contracts expire on August 31, 1973. Our firm power deliveries to the private utilities will decline by about 968 MW on September 1.

POWER FROM OUTSIDE THE REGION: Considerable energy has been imported particularly from outside the region. Since October 1, 1972, about 4 billion kWh has been imported principally from B.C. Hydro. Of this total the industrial customers purchased 2 billion kWh, the utilities in the area 1.3 billion kWh, and deliveries for Mica storage were nearly 700 million kWh. BPA has purchased under the Continuing Fund through August 21, 1973, nearly 50 million kWh at a cost of about \$250,000.

Div. of Power Management
August 24, 1973

The Swedish State Power Board
S-162 87 Vällingby
Sweden

S U M M A R Y
OF
EXPERIENCES OF
ELECTRICITY CONSUMPTION LIMITING MEASURES
IN SPRING OF 1970
IN SWEDEN

Stockholm in October, 1970

20 000 00 0000

Electricity Consumption Limiting Measures in Spring of 1970 in Sweden

1. Background to energy shortage occurring in spring of 1970

a' la
PNW

Sweden's supply of electrical energy is based primarily on domestic water power supplemented by thermal power and imported power. During the operational year 1967/68, a recent and relatively normal year, water power accounted for 89 % of the electrical energy produced, thermal power for 7 % and imported power for 4 %.

It is evident from the above figures for the operational year 1967/68 that water power supplies the lion's share of Sweden's electrical energy. As a result, the supply of electrical energy is highly dependent on the amount of precipitation that can be utilized in the power producing rivers. Statistical information about the flow conditions in these rivers has been kept since 1929/30.

To avoid serious disturbances in the supply of electricity caused by variations in precipitation, plans for expanding the available production resources - water power, thermal power and imported power - were based on two factors: the rate of increase in consumption and the statistically ascertained minimum river flow volume.

The energy shortage occurring during the spring of 1970 was caused by the very dry weather conditions that characterized the operational year 1968/69. The river flow volume during the autumn of 1968 was less than the lower limit on which expansion plans were based. In spite of this situation and severe breakdowns at thermal power plants during the peak-load season, no limitations had to be imposed on the consumption of electrical energy. However, the percentage of electrical energy supplied by water power during 1968/69 dropped to 70 %, while the amount contributed by thermal power rose to 20 % and imported power rose to 10 %.

The situation at the beginning of the operational year 1969/70 was caused, to a large extent, by the low volume of river flow during spring and early summer in 1969. On 1st July 1969 the reservoirs were filled to 59 %, as compared with the year-earlier figure of 83 %. This difference was equivalent to 5,000 GWh or 8 % of the electricity demand anticipated during the year 1969/70. However, it was felt that this shortage could be alleviated by additional thermal power resources equivalent to about 8,000 GWh which could be put into operation during the winter. Consumption limiting measures were therefore considered unnecessary at the start of the operational year.

During early autumn of 1969, new power balance estimates for the winter of 1969/70 indicated, in spite of the above-mentioned considerations, that a certain shortage could occur if the extremely dry weather conditions were to continue. The thermal power resources of the various power companies were thus mobilized as a preventive measure. Early in September it was ascertained that there would be a 6 % shortage in energy for the remainder of the peak-load season. However, there was a simultaneous improvement in river flow volume, and the Central Operat

2
Management (CDL) decided to await the heavy autumn runoff before taking any drastic steps. Runoff results were favourable, and in November the previously predicated shortage was replaced by a predicted surplus. Moreover, previous experience indicated that an autumn runoff of this magnitude would probably not be followed by an extremely low winter runoff. Consequently it appeared at that time that there was little risk that special consumption limiting steps would have to be taken for the remainder of the operational year.

However, this favourable autumn runoff was followed by a period of extremely low river flow volume. Moreover, the winter was very severe and this entailed an increase in electricity consumption (among other things). The situation deteriorated further as a result of breakdowns at some of the largest thermal power plants, and operating disturbances in the power link with Denmark that limited the amount of Danish energy that could be imported. Imports from Norway and Finland were also reduced due to the fact that in these countries, just as in Sweden, river flow volume was abnormally low. In January of 1970, it became evident that the previously predicted surplus would have to be replaced by an energy balance shortage for the remainder of the winter load period as a result of these unfavourable conditions. Any rapid improvement in the extremely low river flow conditions was no longer probable. Against this background, a meeting of CDL was thus called on 3rd February to discuss the ominous situation in detail.

2. Position taken by CDL in response to the spring energy shortage

109 KWH =
1000 GWh = 6111 MWh
At a meeting held on 3rd February, CDL ascertained that the energy balance shortage for the remainder of the winter load period would reach 1,000 GWh or 6 % of anticipated consumption. It seemed very probable that the extremely low river flow volume would continue. Risk for a late spring runoff was also anticipated. It was decided that consumption would have to be adapted to the available resources by introducing compulsory restrictions. This appeared to be the best way to master the impending shortage.

However, as an alternative to compulsory restrictions on consumption, it seemed that there was some possibility of limiting electricity consumption voluntarily by undertaking an energetic power-savings campaign. This measure was recommended and undertaken, but CDL also decided to ask the Swedish Government for special legislation that would empower them to introduce - if it became necessary - compulsory restrictions on electricity consumption. Moreover, CDL decided to investigate the possibilities of draining certain lakes in the watershed beneath previously permissible limits, thus acquiring an extra production reserve in the event of a long delay in the spring runoff.

109 KWH =
6111 MWh
In order to rapidly initiate the necessary propaganda campaign for voluntary power savings, a savings-campaign committee was set up and assigned the task of persuading users to save as much power as possible until the start of the spring runoff. A press release informed the public that the objective of the power savings campaign was to save 1 milliard kWh or 5 - 10 % of normal consumption until the middle of May

3

3. CDL savings-campaign committee

The savings-campaign committee set up by CDL comprised a supervising group and a working group.

The supervising group met 12 times. The energy balance situation and the results of the savings campaign were followed continuously at these meetings, and the various members of the working group reported on measures that had been taken. New directives were issued for the ensuing work of the working group and various sub-groups. When the Swedish Electricity Rationing Board (SERN) was established on 12th March, close collaboration was set up between the savings-campaign committee and SERN.

At an early stage, the working group assigned various tasks to individual members or sub-groups. These tasks included:

- Follow-up of consumption developments and savings results
- Press, radio and TV contacts
- Advertisements, brochures and printed matter
- Contacts with electricity distributors
- Information to retail users
- Contacts with large companies and trade associations
- Collaboration with SERN

The following paragraphs present the work carried out by the savings-campaign committee from 3rd February to 30th June 1970 in greater detail.

4. Steps taken centrally

4.1 Informative letter

GRAC

The first step decided on by the savings-campaign committee was to send out an informative letter to approximately 2,400 recipients comprising commercial and industrial leaders and trade association leaders. A second informative letter was sent out to approximately 150,000 companies. These letters were followed by a letter to the heads of governmental and municipal companies and agencies. This letter contained information about the consumption of electricity within public buildings such as schools, hospitals, libraries and the like, as well as street and highway lighting, playgrounds, recreational facilities, etc. A letter was also sent to company executives. This letter dealt with electricity consumption in offices, department stores, shops, hotels, restaurants, small factories, service facilities, etc. Other letters were also sent to executives in major industrial firms. "Savings-advice" information adapted to the various recipient groups was enclosed in these letters. Various informative items such as posters, etc. were also sent along.

UNION'S
Assoc
clubs

Agreements were entered into with trade union organizations, association clubs and the like whereby they agreed to send out letters appealing for the cooperation of their members. The necessary letters were produced by CDL - some 35,000 copies.

4

During the course of the power savings campaign, companies controlled by CDL and companies that were members of the Swedish Association of Electricity Supply Undertakings (SEF) were kept up to date with regard to developments by "CDL letters" and "SEF Bulletins". When the need for savings passed, letters were sent to these companies, the authorities concerned, the trade organizations, etc. expressing appreciation for their efforts.

4.2 Informative meetings

During the initial stages of the power savings campaign informative meetings with representatives of industrial trade organizations were held. The various steps that could be taken to save power were discussed at these meetings, and they provided an opportunity to establish direct, personal contact between executives of companies controlled by CDL. At these meetings it was emphasized that the savings-campaign committee planned to mount immediately a propaganda campaign beamed at the Swedish households to awaken this important category of users to the seriousness of the situation.

4.3 Contacts with authorities, trade organizations and companies

Groups of people employed by several power companies were assigned the task of following up informative efforts by making personal visits and holding personal discussions with authorities, trade organizations and companies. Each group included one member from the State Power Board (Vattenfall) and one member from a company belonging to the Swedish Power Association.

For the most part, these visits took place in the latter part of February. General background information about the energy situation at the moment was presented but details about production engineering problems were not given. Rather than going into these problems in detail, the discussions that were held emphasized the savings efforts, and relatively moderate requirements were set forth. As a rule it was the heads of the various organizations that were contacted.

These visits showed that personal contact was valued very much by those visited. Their interest was aroused and they adopted a plainly positive attitude towards the task of passing along the acquired information within their organizations.

4.4 Advertising campaigns

Advertisements in the press

To provide swift, nationwide information about the prevailing energy situation and emphasize how important it was that everyone pitch in and do his bit to save electricity, an advertising campaign was started on 10th February. Advertisements were run on five different occasions spaced about one week apart, and the campaign was concluded on 30th April

5

The overall theme for the campaign was "Save electricity now! - until spring runoff". Each successive advertisement stepped up the urgency of the message in both text and pictures, and the last advertisement proclaimed, "Spring runoff arrives. Let there be light. Thank you for your cooperation". These advertisements were run in between 115 and 130 newspapers throughout the country.

These straightforward advertisements were supplemented by a series of five cartoons showing examples of how to save electricity in the home.

Information about increases in accident risks resulting from reductions in outdoor lighting

Handwritten: King Letter

Nationwide advertisements carrying a "Things look a little dark" theme were run in collaboration with the National Swedish Council on Road Safety Research. This information warned of the increased risk to all road users caused by reduced street and highway lighting. These advertisements were run in some 120 newspapers from 13th to 21st March.

4.5 Radio and TV utilization

TV newscasts on both of Sweden's two channels presented continuous resumés of the CDL power savings campaign.

After an agreement was entered into with the programme managers for TV channel 1 and channel 2, some ten TV trailers of varying length (10 - 60 seconds) were produced under the auspices of Vattenfall. These trailers advised viewers to save power, and they were broadcast from 1 to 4 times.

The CDL "weekly slogan" was read 10 times daily on all radio stations by the regular announcer, and even during programmes the public was often advised to save electricity.

On both radio and TV, the public was advised to observe caution during the period from 6th to 25th March because of the reduced street and highway lighting (Drivers - turn on dipped headlights in populated areas. Pedestrians - don't fail to wear or carry reflective strips. Etc.).

Regional radio stations throughout the entire country were used frequently by large electricity distributors - interviews were held with heads of power plants, etc. Radio programmes intended for automobile radios also carried propaganda for saving electricity (at recreational cottages etc.) in addition to information about reduced street and highway lighting and the risk it entailed for road users.

4.6 Press contacts

The press quite naturally was very much interested in the electricity situation and the power savings campaign, and their coverage in articles, interviews, etc. probably contributed a great deal towards arousing and maintaining a willingness to save electricity.

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Trade papers within the various branches of industry also provided general information about the background and objectives of the power savings campaign. However, since these were issued at relatively long intervals, difficulties were encountered in providing up-to-date information. The possibilities for CDL to reply to critical articles were also limited due to the relatively long intervals between issue dates.

4.7 Information supplied directly to homes

Household leaflet

At its first meeting, the savings-campaign committee decided that as soon as possible CDL should print a leaflet for distribution to all Swedish homes. This leaflet was to supplement, in some suitable manner, the advertising campaign already under way, provide a summary of the background of the electricity shortage and also provide specific saving advice for households.

3.3 million copies of the household leaflet were printed and distributed as bulk mail. It arrived in most Swedish homes between 20th and 27th February.

Information disseminated via loudspeaker systems in shops and stores

In order to send continuous, effective and repetitive information about the savings campaign to consumers, loudspeaker systems within the major chain stores and department stores throughout the country were pressed into service.

4.8 Other measures

In addition to the steps taken centrally (described in sections 4.1 through 4.7) a contest was announced in a magazine entitled "Ny Teknik" (12th February issue) published by the Swedish Association of Engineers and Architects. A prize of SKr 15,000 was to be awarded to the participant submitting the best proposal for saving electricity.

A poster of size A3 carrying the slogan "SAVE ELECTRICITY NOW - until spring runoff" intended for bulletin boards, doors, windows etc. within office, factory and commercial premises or in public areas was printed under the auspices of the savings-campaign committee. 800,000 copies were printed and distributed together with a "postage-stamp poster" (5 by 5 cm, 3 million copies) carrying the same text. The postage-stamp poster was intended for electric switches, etc. Both the large and small posters were sent to authorities, trade organizations, companies, etc. (approximately 150,000 addresses).

A checklist for heads of power companies was drawn up in collaboration with SEF and sent along as an enclosure with the SEF Bulletin dated 5th March. A stenciled leaflet entitled "Electricity restrictions and savings advice for factories, offices, department stores, shops, hospitals, schools, blocks of flats and households" was drawn up in

collaboration with SERN in connection with the introduction of electricity restrictions. It was distributed to member companies as an enclosure that accompanied the 12th March SEF Bulletin. These companies were advised to reproduce the leaflet themselves and send it to their customers. No follow-up was made to ascertain the extent to which these companies followed the urging of SEF and the savings-campaign committee to see that the folder was sent to all customers. However, certain electric power companies distributed it quickly to their major customers.

5. Regional and local measures

5.1 Electricity districts

Steps taken within the individual electricity districts were reported at CDI meetings by the heads of the various districts.

5.2 Major energy producers

The information presented in this section is intended primarily to serve as examples of the steps taken by major energy producers. Vattenfall and Sydkraft, a Southern Swedish power company, have been chosen to represent this category of company.

Vattenfall

In addition to steps taken internally within the company to realize substantial electricity savings at construction sites, operation sites (including residential areas), local offices and the main office buildings in the Stockholm suburb of Räcksta, Vattenfall initiated an electricity saving contest on 20th February for subsidiary distributors who purchase all or parts of their bulk power from Vattenfall. A second contest was initiated between the various retail distribution areas set up within Vattenfall. Participants in these contests tried to outdo each other with regard to percentage reduction in electricity consumption during the month of March. Reduction percentages were to be based on consumption during November of 1969. These contests aroused considerable interest. 400 companies were invited to participate. 160 replied that they were interested and, of these, 140 participated until the close. For the most part, it was the smaller distribution companies who declined participati-

Participating companies achieved surprising savings by disseminating intensified propaganda among their customers. The table below shows the results achieved by companies whose savings amounted to more than 10 %.

| Percentage of savings | Number of companies | | | |
|--|---------------------|---------|---------|------|
| | 10-15 % | 15-20 % | 20-30 % | 30 % |
| Companies with more than 5,000 customers | 13 | 16 | 7 | |
| Companies with from 1,000 to 5,000 customers | 16 | 8 | 5 | 1 |
| Companies with less than 1,000 customers | 1 | 3 | 4 | 2 |

In the contest conducted for outsiders, the first prize was awarded for 37 % savings, the best result achieved among all companies. Second prize was awarded for 31 % savings among companies having more than 1,000 customers. Third prize was awarded for 30 % savings among companies having more than 5,000 customers.

In the in-house contests conducted for Vattenfall distribution areas, the best result achieved was a 26 % saving.

The results of these contests reflect the intensity of the power savings propaganda campaign conducted by large, medium and small distribution companies. These companies served both densely populated areas (cities etc.) and purely rural areas (associations etc.) and the consistent performance of certain technical measures (reduction of voltage throughout the distribution network, disconnection of certain street lights, reductions in the time interval throughout which lights were turned on, etc.).

Vattenfall supported the efforts of the participants by supplying posters (flame-coloured, luminous paper with black text and the logotype of the company doing the posting). The posters carried the following text

"YOUR ELECTRIC POWER COMPANY

URGES YOU TO

Press, radio and TV have informed you that there is a shortage of power in Sweden just now. In order to avoid or reduce the serious consequences for the community and the individual that the rationing of electrical power could entail, everyone must do his and her bit to save electricity.

Vattenfall, from whom we purchase our electric power, has arranged a contest between electricity distributors. The company whose customers save the most electricity during the month of March will be awarded first prize which consists of a substantial discount on electric power purchased from Vattenfall - a discount that will also benefit the customers.

You are a participant in this save-electricity contest. The outcome depends on you and the other customers. Let's all pull together to win this contest - and help our country alleviate this vexing electricity shortage in the bargain.

SAVE ELECTRICITY NOW

until the spring runoff

AB LIDINGÖ ELVERK"

Sydskraft

Voltage was reduced directly in the distribution network (introduced generally at major Sydkraft transformer stations for 130/20, 50/20 and 50/10 kV). These voltage drops were on the order of magnitude of 2 - 2.5 % calculated on the 20 kV side.

Sydskraft asked the superintendents of schools within the areas where Sydskraft retails power for the support of their schools throughout the power savings campaign. Simultaneously, towns, cities and major subsidiary distributors were urged to establish similar contacts with schools on the local level.

All of the municipalities and street/highway lighting associations that purchase power directly from Sydskraft were advised to limit their lights-on time by making overnight disconnections, to cite one example.

5.3 Electricity utilities

The information presented in this section is intended to serve as examples of the steps taken by city electricity utilities (and other similar agencies). The Stockholm City Electricity Utility has been selected as representative of the large electricity utilities because of the variety of activities undertaken there. As a rule, other electricity boards carried out their power savings activities along the same lines, although the number of activities undertaken had to be adapted to the personnel resources available. However, it is safe to say that the electricity utilities participated in the savings campaign enthusiastically and achieved results beyond expectations.

Stockholm City Electricity Utility

The first step taken was to turn off the Utility's advertising signs and the exterior flood-lighting at the main office. It was felt that this action would set an example for others in this critical situation.

Throughout the city of Stockholm, with a few exceptions such as residential areas consisting of old houses in the Western and Southern suburbs, the voltage underwent a two-stage reduction: 3 % in the first stage and 2 % in the second.

Public lighting was turned on later and turned off sooner from the outset of the campaign. The change in time amounted to 2 1/4 hours in the first stage and 2 1/2 in the second. More lights were turned off as time went by, and the situation bottomed out around the 20th March when street lighting was reduced by more than 50 %. Moreover, all maintenance work was carried out after dark so that the current would not have to be turned on during daylight hours. A total of 80,000 manual disconnections/connections were made at the same time as the overall turn-out plan.

Customers having their own stand-by electrical power generating equipment were urged to start it as early as 1st February. In addition to the kWh thus acquired, a number of companies benefited from the fact that their stand-by equipment was tested under realistic conditions.

Within the offices, shops, storerooms and other installations operated by the Stockholm City Electricity Utility, a total of 60 men were appointed to see that no electricity was wasted. Within the various sub-boards in the city an additional 50 savings managers were appointed. They were supplied with information and materials by the Electricity Utility to be used in the campaign to save kWh.

230 high-voltage customers throughout the city were contacted personally and supplied with information (factories, hospitals, large department stores). The 3,000 largest low-voltage customers were given savings tips via a personal letter from the President of the Electricity Utility.

Taxi advertisements were carried by 600 taxis during the last week in February and the first week in March. Cars, lorries and vans operated by the Electricity Utility also carried advertisements promoting the power savings campaign.

During the last week in February, a circular prepared in collaboration with the merchants' retail trade association in Stockholm was sent to all members of the association recommending that they voluntarily turn out electric signs and lighting in display windows. Their response was very favourable. Early in March, before the Electricity Utility had obtained legislative backing, an extensive campaign was undertaken in which consultants working for the Stockholm City Electricity Utility made personal visits to help shopkeepers turn out signs via fire-emergency switches. In public conversations it was emphasized repeatedly that a lighted sign was a poor advertisement for its owner; this was further emphasized by adopting the slogan "A lighted sign is a negative advertisement".

The Stockholm House Property Owners' Association was also given information about different ways to save electricity. The Stockholm Electricity Utility placed articles in the Association's bulletins. Tenant-owners' building associations were similarly informed.

In the Stockholm underground, electricity was saved by reducing the amount of lighting at the stations, reducing the heat supplied to the coaches and reducing the number of trains per hour. (However, the public reaction to the shut-down of the escalators was so negative that they had to be started again).

Active collaboration among school, home and community was tried. The Electricity Utility collaborated with School Board inspectors and consultants in the preparation of campaign material intended to create enthusiastic elementary and intermediate school youngsters who would find ways to save additional kWh. There are 45,000 such students in Stockholm. In addition to providing information about how to save electricity, the campaign provided some valuable subject matter for the students. The assignment could easily be associated subjects such as civics, history and geography. The campaign programme was arranged in four sections:

Dissemination of information about the electricity situation and homework on materials prepared to illustrate the situation.

Group work in classes or combined classes. Results of the group work were reported to the class or classes.

Large exhibitions, one for each headmaster division, of the various group activities (75 headmaster divisions).

Combined exhibition arranged for the entire city of Stockholm.

The campaign was concluded by a prize-awarding ceremony at which the prize of honour was awarded to a school that had given an excellent account of itself during the save-electricity campaign. The prize comprised playground equipment.

Another contest was held in which students sent proposed slogans to the information service office at the Stockholm City Electricity Utility. The first prize was awarded to a third-grade girl for the slogan "Electricity - our best servant; Save - or you'll have to do without". (In Swedish this made a very neat little rhyme that was lost in the translation).

Week by week, the Stockholm Electricity Board kept tabs on how the electricity savings campaign was progressing relative to predicted results. The campaign was called off during the week commencing 26th April, by which time 62 GWh had been saved, a figure which was somewhat better than the objectives set up when the campaign started early in February. The following is a breakdown of load reductions:

Seems low, may be for just 1 week.

| | | |
|-------------------|---------------|---------------|
| Rationing | 1 GWh | 1.6 % |
| Underground | 2 GWh | 3.2 % |
| Public lighting | 2 GWh | 3.2 % |
| Voltage reduction | 12 GWh | 19.5 % |
| Restrictions | 12 GWh | 19.5 % |
| Voluntary savings | <u>33</u> GWh | <u>53.0 %</u> |

In Stockholm, voluntary savings accounted for a surprising percentage of the total load reduction - 33,000,000 kWh or more than half. It was clearly evident that, "Many hands make light work". On the average, every household saved 33 kWh and each commercial customer saved 10 times this amount.

The Stockholm City Electricity Utility was also active on the regional radio in a program called "Stockholm quarter-hour". Information about traffic developments in connection with the turning out of street lighting was broadcast on these programmes along with warnings about impostors masquerading as electrical consultants to gain entry into Stockholm homes. These broadcasts were also used to arouse interest in the savings leaflet when it was distributed throughout Stockholm.

Other electricity utilities and distribution companies

Electricity distributors, for the most part, followed the centrally issued directives, and in some cases undertook other special measures such as savings contests incorporating savings premiums. These measures were undertaken in spite of the fact that they involved certain expenses and the fact that, for many distribution companies, the savings realized actually led to reduced revenues that were only partially compensated for by reduced costs.

This situation was sometimes pointed out, and suggestions about compensation were made. The results of the savings campaign were good - in some cases surprisingly good - and part of this can be attributed to local loyalty.

Most of the savings activities undertaken can be included under the following main headings:

- o Company installations and municipal installations

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Savings measures taken within the installations operated by the electricity utility and other municipal installations - largely electric lighting and heating facilities - were mostly of a general nature. Collaboration with municipal organizations and agencies was good. The recommendations made by the Swedish National Union of Local Government Offices to its members must be given considerable credit here.

o Voltage reductions

Many distribution companies followed the urgings of CDL to reduce loads by reducing voltage. In certain cases, electricity distributors were forced to reduce voltage by the suppliers from whom they purchase bulk power. However, SEF advised caution in connection with voltage reductions. A number of electricity distributors avoided the policy of replacing the quantitative shortage with qualitative deterioration.

The fact that voltage reductions could be carried out extensively and contribute actively to the reduction in consumption without immediate or noticeable difficulties could, to a large extent, be attributed to the lack of significant attention given to this measure by the consumers and the mass media.

o Public lighting

After establishing contact with the Street and Highway Department and the Road Safety Department, SEF recommended that its members introduce certain restrictions in public lighting. However, the importance of cooperation with local authorities was also pointed out.

Later, when orders were issued centrally (SERN) to reduce lighting, more drastic steps were taken and certain difficulties were encountered, particularly with regard to maintaining order in heavily populated areas. Consequently, some public lighting was turned on again, but by this time the days were growing longer (an important factor in Scandinavian latitudes), thus improving the situation.

The turning off of public lighting did not contribute to the total savings result to the extent anticipated. Its chief contribution was the psychological support that it gave the general public in their efforts to save. The negative effects with regard to maintaining order caused certain minor public relations difficulties for the electricity companies.

o Electricity restrictions

The savings campaign did not call for mandatory disconnection of certain loads such as electric advertising, electric engine pre-heaters for automobiles and electric heaters in recreational cottages - only recommendations were issued. Nonetheless, the support given these recommendations by the merchants' retail trade association, the Swedish Cooperative Union and Wholesale Society, the nationwide chain stores and others meant that substantial savings were realized by turning off electric advertising during the early, voluntary-saving stage of the campaign.

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After the SERN restrictions were introduced, the distribution companies were swamped with complaints about violations. As a rule, when those responsible for these violations were contacted, the situation was corrected immediately. The electricity distributors had very little chance to check up on electric heaters in recreational cottages.

o Savings by the general public

The major contribution to electricity savings was made by households and other small consumers. The electricity distributors attempted to supplement the centrally organized savings campaign as much as they could. Steps taken included making contact with the local press and radio stations and conducting campaigns in schools and at workplaces.

In certain cases, electricity distributors could not - on such short warning - produce and distribute all of the savings advice that had been drawn up and recommended within CDL. Certain measures were crossed off the list locally when they seemed poorly planned. In certain cases, centrally distributed savings instructions (extra issue of the publication EL) caused certain difficulties when, because of delayed distribution, they contradicted subsequent regulations established by SERN.

o Other measures

Active measures taken at the local level varied widely with regard to both type and extent. In many cases they made very important contribution to the total result, but their importance relative to the centrally organized CDL campaign conducted via the mass media should not be exaggerated. No complete record of all local measures was compiled.

6. Results of the power savings campaign

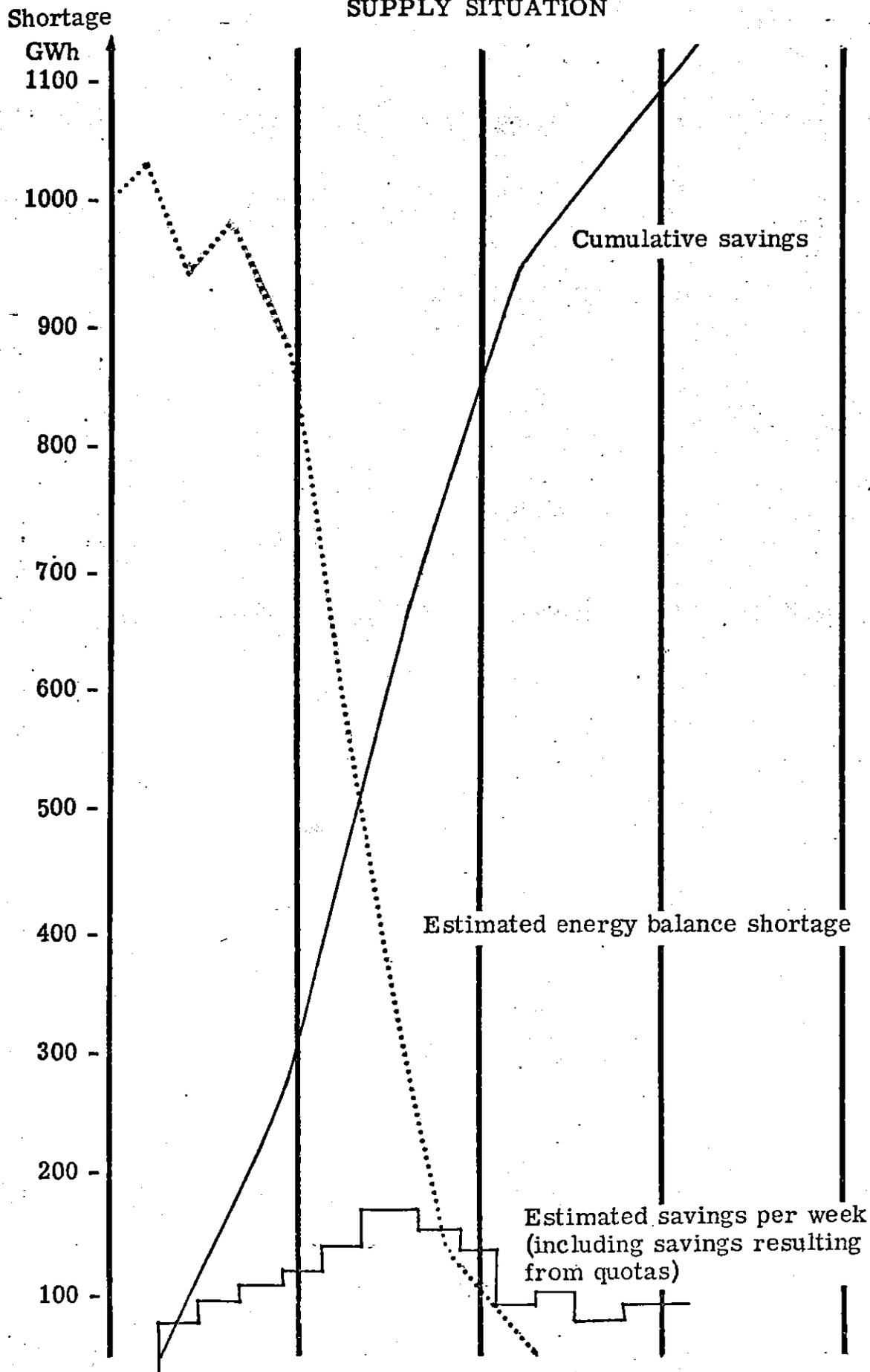
As mentioned in section 2, it was estimated at the beginning of February that the power shortage during the remainder of the peak-load season would amount to 1,000 GWh, and that this shortage would have to be alleviated during the approximately 100 days remaining until the time when the spring runoff was expected.

The savings-campaign committee kept a close watch on the day-to-day situation during this period. Fig. 1 on page 14 shows the effect of the power-savings campaign on the power supply situation throughout Sweden. The curve showing estimated amount saved per week shows that savings accelerated rapidly during week 7 after making a modest start in week 6. Loads rose due to the fact that the sub-zero weather continued, and this meant that the cuts in electricity consumption were reduced, although actual savings continued to increase. Savings culminated in the introduction of restrictions during week 12.

The very low temperatures experienced during February counteracted, to a large extent, the effects of savings in electricity consumption. The fact that savings dropped during weeks 13 and 14 can be attributed to the Easter holidays. Quotas were cancelled during these holidays and restrictions (electric heaters in recreational cottages) were relaxed. Poorer performances after the Easter holidays were the result of less stringent quotas, and the fact that the lengthening days offered less opportunity to save electricity.

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Figure 1
EFFECT OF POWER SAVINGS CAMPAIGN ON POWER SUPPLY SITUATION



15

"In spite of the fact that both rationing and restrictions were done away with at the beginning of week 16 (14th April), CDL requested that voluntary saving continue. This request resulted in the savings realized during weeks 16 and 17. And although it was proclaimed that voluntary savings could cease at the beginning of week 18, the evidence indicates that there was a residual savings effect during week 18. The evidence also indicates that this residual savings effect influenced, to some extent, the loads encountered even after the spring runoff commenced.

The cumulative savings during week 16 (12th April - 18th April) amounted to 1,000 GWh, an amount sufficient to cover the shortage present at the beginning of February. As a result of the fact that the spring runoff had commenced in the Southern and Central parts of Sweden, the energy situation showed a positive balance starting in this week.

It has been estimated that the shortage of 1,000 GWh was alleviated by imposing 100 GWh quotas on certain factories and by imposing 100 GWh restrictions. The remaining 800 GWh can be attributed to voluntary saving (including voluntary saving at major factories before and during the rationing periods).

7. Reactions of the public and the trade organizations and reactions appearing in the mass media

To follow public reaction to the power-savings campaign, the department of public surveys of the Swedish Broadcasting Association was assigned the task of conducting a continuing series of interviews. These were carried out on seven occasions, starting in late January and continuing until 22nd May. 980 interviews (approximately 200 per day) were conducted on the first six occasions, and 730 persons were interviewed on the 7th occasion.

The table on page 16 shows the dates of the interviewing occasions, the questions, a breakdown of the answers and the trends in attitude towards participation in the power savings effort.

Trade organizations

The reaction of the trade organizations to the appeals of the savings-campaign committee and their participation in savings propaganda proved to be very positive. Even private companies which were asked to participate in the savings-campaign by their own trade organization, or directly through CDL's informative letters realized for the most part how serious the situation was and energetically implemented a variety of savings measures. However, in individual cases at the beginning of the campaign, criticism was levelled at the lack of foresight on the part of the power industry. Critical letters were received at CDL and critical articles appeared in the press. After the background to the precarious situation was explained by CDL on radio and TV programmes and in the press (both daily newspapers and trade papers) and in personal letters sent out from CDL, the more exaggerated complaints about the power industry quieted down as the campaign progressed. There can be no doubt that the personal contacts established by the savings-campaign committee contact groups with leaders of commerce, industry and the community, with the authorities, trade organizations and companies contributed to the good reception given to CDL urgings to reduce electrical consumption.

15

Day/month
 31/1-2/2 15-19/2 4-9/3 4-6/4 7-8/4 4-8/4 19-22/5
 % % % % % %

| | 31/1-2/2 | 15-19/2 | 4-9/3 | 4-6/4 | 7-8/4 | 4-8/4 | 19-22/5 |
|--|----------|---------|-------|------------------|-------|-------|---------|
| a) Save any electricity? | | | | | | | |
| Yes | 70 | 92 | 85 | 85 | 85 | | |
| No | 29 | 7 | 13 | 14 | 14 | | |
| b) How? | | | | | | | |
| Lights | 98 | 98 | 97 | 98 | 97 | | |
| Stove | 5 | | 16 | 13 | 15 | | |
| Refrig/freezer | | | 3 | 5 | 4 | | |
| Washing/ironing | | | 7 | 5 | 6 | | |
| Other | | | (21) | (23) | (21) | | |
| c) Preference for heating <u>detached house?</u> | | | | | | | |
| Electricity | 41 | 35 | 30 | 38 ¹⁾ | 33 | 36 | |
| Oil | 45 | 55 | 57 | 53 | 55 | 53 | |
| d) Preference for heating <u>blocks of flats?</u> | | | | | | | |
| Electricity | 17 | 15 | 15 | 15 | 15 | | |
| Oil | 27 | 25 | 27 | 27 | 27 | | |
| District heating | 44 | 45 | 44 | 45 | 45 | | |

1) Surprising change starting on 7th April (it was announced on radio and TV on the evening of 6th April that the power situation had improved considerably so that restrictions and rationing could be done away with on 14th April. Dissemination of this information commenced on 7th April).

For the most part, contacts with the mass media can be divided up into three categories:

1. Press conferences and official communiqués
2. Private contacts
3. Requests for help in disseminating information

At the press conferences arranged by CDL (and SERN), the mass media showed lively interest. Since the heads of many companies participated in these press conferences, pertinent questions were cleared up to full satisfaction. Press, radio and TV ran well-balanced presentations of what was said.

Communiqués were issued from smaller conferences held within CDL (and SERN), all of which were correctly passed along to the public with one exception - a TV report about the SERN decision to return to normal conditions within certain areas. This report had been partially misunderstood.

Private contacts with the press were used extensively both by CDL and by the companies involved. Unfortunately, certain misunderstandings arose, and conflicting statements occurred. In two cases these were the direct cause of some public confusion. More effective coordination of press contacts are necessary in a situation of this type, since the power industry must appear united in its efforts to alleviate a precarious situation.

From the time when contacts were first established, those in charge of the Swedish Radio Corporation took a very positive approach to collaboration in the campaign. This positive attitude was also evident in efforts to implement the steps agreed on.

There is some question as to whether the power savings campaign conducted using editorial matter gained the attention of the general public more effectively than the campaign conducted using advertisements and mailed leaflets.

Survey

In May and June a survey was conducted under the auspices of SERN among approximately 1,500 factories and 1,000 electricity distributors who were involved in the spring electricity rationing, and among approximately 500 companies or organizations not directly involved in rationing, but who undertook voluntary savings and restrictions.

The answers obtained from this survey indicate that 84 % of the answering factories engaged in voluntary saving considered the various activities of CDL and the power suppliers to be satisfactory ("OK" and "Quite good" were the answers). 79 % found that the information received had been satisfactory and 75 % said that good savings advice had been issued ("very good" and "quite good" were the answers). Only 5 % of the factories considered the activities, information and saving advice to be less than satisfactory.

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Among electricity distributors, 77 % thought that the information they received was satisfactory and only 6 % considered it unsatisfactory. On the other hand, only 63 % of the distributors thought that the informative source material and information sent on to sub-distributors was satisfactory, while 8 % found it unsatisfactory.

It should be noted that 31 % of the factories and 16 % of the electricity distributors thought that the campaign for voluntary savings should have been initiated earlier.

8. Costs and personal efforts devoted to steps taken centrally

The costs of central activities comprising informative letters, advertisements, posters, etc. (not including personnel costs) reached about SKr 2.5 million. Unfortunately, the total costs cannot be specified exactly. There were no doubt many concealed costs for companies whose representatives were members of the savings-campaign committee. Similarly, it is impossible to obtain accurate information about the time spent by the members of the savings-campaign committee and those engaged in the central savings propaganda campaign. The personnel costs represented by this time are thus also impossible to assess.

In addition to the extent of the steps taken centrally, it should be remembered that a large number of people throughout the entire country - those working directly for the power industry and electricity users who ranged from company executives to individual householders - invested both time and energy in the promotion of the power savings campaign.

9. Experience gained and final evaluation

A decision was made by CDL on 3rd February to attempt to alleviate the existing power shortage during the period remaining until the spring runoff was expected to start - the middle of May - through voluntary, consumption-limiting steps alone in order to meet (primarily) the industrial needs of the nation. The steps taken as a result of this decision did not wholly alleviate the shortage. Certain restrictions introduced by SERN from 12th March to 14th April improved the situation considerably, however. Consequently, the quotas that SERN had also found necessary to introduce during the same period for factories consuming more than 1 GWh annually (1969 load) could be effectively limited.

Consumption during the period from 12th March until 26th March was judged, on the whole, to be 93 % of company consumption during November 1969, and during the period from 31st March to 14th April it was evaluated as 100 % of the November consumption. During the Easter holidays from 27th March to 30th March, quotas were abandoned. The voluntary savings supplemented by the restrictions that had been introduced were estimated (until middle of April) to have alleviated 90 % of the 1,000 GWh shortage that had been present at the first of February. It was estimated that the remaining 10 % of this shortage was alleviated by rationing (quotas).

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Taking as point of departure the response to CDL appeals for voluntary limitation of consumption, the power savings campaign results must be adjudged excellent. It seems evident that an energetically mounted propaganda campaign can achieve, at the very least, limited goals throughout a limited period. There can be no doubt that the restrictions imposed by SERN augmented the savings effect, particularly since they were introduced at a psychologically favourable time.

There is some question as to whether the same good results could have been achieved if the savings propaganda campaign had been initiated earlier when there was considerable uncertainty about the seriousness of the shortage. This would also have meant that power savings measures would have had to be kept in force throughout a longer interval. The intensive campaign, covering a reasonable length of time, was characterized by infectious enthusiasm among all hands - both consumers and those who worked within the power industry. This enthusiasm can very well be attributed to the fact that the objectives set up for the campaign were fully reasonable and within reach.

19

PORTLAND CITY PLANNING COMMISSION
Minutes of Meeting

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED
SEP 11 1973

AIR QUALITY CONTROL

ACTION

5 September 1973

ACTION: Mr. Rose' moved that the Planning Commission approve a Conditional Use for the applicant, Portland General Electric Company, under application CU 66-73, for the operation of gas turbine power generators at the Harborton site with these conditions:

- 1) the issuance of a DEQ Air Contamination Discharge Permit containing all the provisions of the proposed August 17, 1973 permit;
- 2) that this use would terminate as of September 1, 1975, or when the Trojan nuclear plant comes on line, whichever occurs first, and that the Portland General Electric Company will irrevocably waive any right otherwise existing to apply for a new or an extension of the Conditional Use approval for this use of this site;
- 3) that this approval be revocable by City Council or by the Planning Commission at any time for cause;
- 4) that no wharf facilities will be constructed and oil for the generating plant must be unloaded at existing facilities elsewhere;
- 5) that the applicant provide extensive landscaping for the generating site with final approval of the landscaping proposal to be made by the Design Committee;
- 6) that the applicant agree in writing that it will begin planning to replace the Harborton facility with another site and other possible power sources, with written progress reports to be presented to the Planning Commission at six month intervals, the last of such reports to be on or before September 1, 1975.

Seconded by Mr. Trotter. Motion carried unanimously.
(Eckton, Sheldon, Rose', Trotter, Myers)

Area Code 503 225-7781

University of Oregon Medical School

DEPARTMENT OF BIOCHEMISTRY



State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

August 20, 1973

RECEIVED

AUG 22 1973

OFFICE OF THE DIRECTOR

Mr. Darmuid F. Scannlain, Director
Department of Environmental Quality
1234 S. W. Morrison Street
Portland, Oregon 97205

Dear Mr. Scannlain:

Following my testimony at the Public Hearing (on August 13, 1973) on the proposed PGE plant at Harborton, you requested that I describe in writing the conditions of plant use which I would consider necessary for safeguarding the air quality and health of our community. I have carefully examined the Proposed Air Contaminant Discharge Permit for Portland General Electric Company, draft dated August 16, 1973. Although this draft of the permit seems quite reasonable, I would add for your consideration the following points:

(1) Item 2.8 of the draft, which specifies that the Harborton plant must cease operation when the Trojan facility begins its operations, seems to me an essential and excellent condition. I commend you and your staff for making this a condition of approval for the Harborton plant.

(2) I would urge you to further restrict combustion at Harborton in September and in October. The combustion scheduled for these months could be partially shifted to December and to January. It would be preferable if the combustion schedule was September (Gas, 40% of time), October (Gas, 40% of time), November (Gas, 70.2% of time), December (Gas 80.0% of time), January (Gas, 81.3% of time). The amount of photochemical smog produced would thereby be reduced without reduction of total fuel combustion.

(3) After carefully considering this matter, I believe that the health hazard caused by the nitrogen oxide emissions could be reduced considerably if the permittee were urged to limit combustion during the hours from two hours preceding daylight until one hour preceding sundown, especially during the months from May-October.

(4) I believe that the permittee should strive to schedule maximal combustion on days when rain is forecast. Indeed, as suggested above (item 2), it would be preferable to arrange the combustion schedule in order to maximize plant use during the rainy season.

I hope that these recommendations are of some use to you.

Sincerely yours,

David Kabat

David Kabat, Ph.D.

Associate Professor of Biochemistry

DK/nc

August 22, 1979

David Kabat, Ph.D.
Associate Professor of Biochemistry
University of Oregon Medical School
3181 S. W. Sam Jackson Park Road
Portland, Oregon 97201

Dear Dr. Kabat:

This will acknowledge and thank you for your letter of August 20th, and it shall be made a part of the permanent file of testimony relative to the proposed PGE plant operation at Harborton. Your comments shall be considered prior to finalizing the proposed permit for PGE.

Very truly yours,

DIARMUID F. O'SCANNLAIN
Director

H. M. Patterson, Administrator
Air Quality Control Division

HMP:h

August 22, 1973

David Kabat, Ph.D.
Associate Professor of Biochemistry
University of Oregon Medical School
3181 S. W. Sam Jackson Park Road
Portland, Oregon 97201

Dear Dr. Kabat:

This will acknowledge and thank you for your letter of August 20th, and it shall be made a part of the permanent file of testimony relative to the proposed PGE plant operation at Harborton. Your comments shall be considered prior to finalizing the proposed permit for PGE.

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DIARMUID F. O'SCANNLAIN
Director

H. M. Patterson, Administrator
Air Quality Control Division

HMP:h

Oregon Industry ^{9/20} to face shortage of natural gas

Oregon industrial customers are faced with a reduction in natural gas supplies of as much as 9 per cent this winter as a result of drilling problems in Canadian gas fields.

This was disclosed Wednesday with the announcement from Westcoast Transmission Co. Ltd., of Vancouver, B.C., that it will curtail its natural gas sales to all customers on a pro-rata basis during the 1973 and 1974 winter heating season.

Frances F. Hill, president of Northwest Natural Gas Co., said this would affect two classes of industrial customers beginning Nov. 1 but would not affect residential, commercial and small institutional customers "who will continue to receive supplies as usual."

Hill said, "The reduction they're talking about depends on one of two possible assumptions. The first is that the whole impact would fall on the American customers. On that assumption we would face a cutback on our contract demand of about 9 per cent.

"The other assumption is that the Canadian customers would share in the deficiency. If this happens, the reduction would amount to about 3½ per cent."

Westcoast Transmission is the Canadian company which supplies gas to El Paso Natural Gas Co., which transmits it to Northwest customers, including Northwest Natural Gas.

Hill said, "What it means to our customers, assuming the worst should happen and there is no way to get alternate supplies, is that two classes would be adversely affected and they are major industrial users."

He said one class would be the interruptible customers, users who "have to get off the line" when supplies become short.

"These have already been notified that they would have to be off the line from 140 to 170 days beginning Nov. 1," he explained. "This will be increased to as much as 190 days and they will have to use oil, for which they have standby capacity."

The Portland General Electric facility at Harborton also will be affected, Hill said. "We had anticipated that the plant will be on stream by Nov. 1," he added, "and from then until the end of June it will have to go without gas, in whole or in part, for as much as 60 days. With this new curtailment, this will be increased to as much as 105 whole days."

Sharing not expected

Hill indicated it was likely that the full reduction of about 9 per cent would be felt because of reports the British Columbia attorney general has stated that Canadians would not be expected to share in the curtailment. He emphasized that the utility is exploring alternate sources of supply.

Westcoast Transmission reported it had been advised of the problems in the gas fields by Amoco Canada Ltd., which is drilling in Beaver River, B.C., and Pointed Mountain, Northwest Territories.

"Operational problems," the announcement said, "require that production from the fields be reduced to a lower daily rate until all remedial work is complete and additional wells are drilled by the producer."

This will "materially reduce the supply of gas available from those fields," the company added. The proven gas reserves remains unchanged, however, according to Westcoast.

List of those testifying at the Public Hearing for an Air Contaminant Discharge Permit for Portland General Electric, Harborton Turbine Plant. Multnomah County Commission Chambers, Room 608, Multnomah County Courthouse, Portland, Oregon, August 13, 1973.

Chronological List of Those Testifying

| <u>Individual</u> | <u>Representing</u> | <u>Written Statement Provided</u> |
|--------------------------|---|-----------------------------------|
| 1. H. M. Patterson | DEQ | yes, Exhibit 1 |
| 2. H. H. Phillips | Portland General Electric | no |
| 3. Alan Webber | City of Portland | no |
| 4. John Haugh | Attorney for Petitioning Organizations | yes, Exhibit 2 |
| 5. Ray Underwood | Attorney General's Office | no |
| 6. H. H. Phillips | Portland General Electric | no |
| 7. A. J. Porter | Portland General Electric | no |
| 8. Joseph L. Williams | Portland General Electric | yes, Exhibit 3 |
| 9. Ronald Kathren | Portland General Electric | no |
| 10. Gary Sandberg | DEQ | no |
| 11. R. B. Snyder | Portland General Electric | no |
| 12. Charles M. Grossman | Multnomah County Democratic Central Committee | yes, Exhibit 4 |
| 13. Irwin S. Adams | North Clackamas County | yes, Exhibit 5 |
| 14. George Tsongas | Northwest Environmental Defense Council | yes, Exhibit 6 |
| 15. Peter Schnell | Publishers Paper Co. | no |
| 16. John C. Platt | NEDC | no |
| 17. Joseph Heinz | Terminal Ice and Cold Storage | no |
| 18. J. H. (Jack) Fellman | Self | no |
| 19. David Kabat | Self | yes, Exhibit 7 |
| 20. John Wilson | Multnomah County Labor Council | no |
| 21. Larry Williams | Oregon Environmental Council | yes, Exhibit 8 |
| 22. Donald Benz | Benz Air Engineering Co. | no |
| 23. Sharon Roso | North Portland Citizens Committee | yes, Exhibit 9 |
| 24. Alton Scheel | NPCC | no |
| 25. Howard Galbraith | NPCC | no |
| 26. H. H. Burkitt | DEQ | no |
| 27. Sam Oakland | The Bicycle Lobby | no |
| 28. Ernst Massey | Self | no |
| 29. Brian Lightcap | Forest Park Committee of 50 | yes, Exhibit 10 |
| 30. Mary Ann Campbell | St. Johns Day Care Center | yes, Exhibit 11 |
| 31. Ted Scheinman | OSPIRG | yes, Exhibit 12 |
| 32. Sarah Lessing | Peninsula Project ABLE | no |
| 33. Christine Lightcap | Self | yes, Exhibit 13 |
| 34. Mary Pedersen | NWDA | yes, Exhibit 14 |
| 35. Ernst Massey | R. G. Bowen | yes, Exhibit 15 |
| 36. James Sleeper | Portland General Electric (Turbo-power & marine) | no |

Testimony presented for inclusion in the record, but not read at the hearing:

Testimony

Received From

Letter

Precision Castparts Corp., Portland, Oregon Exhibit 16

DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 2295301



TOM McCALL GOVERNOR

MEMORANDUM

DIARMUID F. O'SCANNLAIN Director

To: Environmental Quality Commission
From: Director
Subject: Staff Report for August 13, 1973 Public Hearing
PGE Harborton Turbine Generator Installation
Application for an Air Contaminant Discharge Permit

BACKGROUND

In March, 1973, Portland General Electric Company filed an application with the Columbia Willamette Air Pollution Authority (CWAPA) for a permit to construct and operate a 254 megawatt combustion turbine electric generation facility to be located at Harborton, a community on the Willamette River about 8 miles northwest of downtown Portland.

The Harborton facility is quite large having a power generating capacity about equal to one-half that of Bonneville Dam and when operating on oil, the 8 aircraft-type jet engines would consume approximately 20,000 gallons of distillate fuel oil per hour. The engines are also capable of operating on natural gas and operation on gas is proposed to the maximum extent that gas is available. The facility was originally proposed and is designed as a peaking plant and operation was projected initially at approximately 1,000 hours per year primarily on gas.

Due to delays in the completion of the Trojan nuclear power plant, aggravated by unprecedented low run-off and attendant low power production from the Columbia River system, PGE's power supply situation has become quite critical. This has resulted in greater proposed use of the Harborton installation for partial base load and back-up power generation at least until Trojan is completed.

The CWAPA board formally considered the PGE Harborton proposal at public hearings on April 27, May 7, May 18, May 24, June 15 and June 22, 1973. There was considerable public objection to location of the turbine generators at the Harborton site and at its May 24, 1973, hearing the CWAPA board took formal action to deny PGE a permit. The company appealed the CWAPA decision and appeal hearings were held on June 15 and June 22, 1973, with Northwest Environmental Defense Center; Oregon Environmental Council; N.W.D.A., the community association of Northwest Portland, Inc.; Linnton Community Center; North Portland Citizens Committee; Western Environmental Trade Association, and others, participating as intervenors.

Before the matter of a permit for the Harborton facility could be finally resolved, the CWAPA program jurisdiction was assumed by the DEQ by order of the EQC issued on May 29, 1973 and reaffirmed on June 29, 1973.

On July 3, 1973, PGE submitted an application to the DEQ for a permit to operate the Harborton facility, the construction of which was by then almost completed. The application submitted to DEQ differs from the application previously submitted to CWAPA as follows:

1. Expected hours of operation were decreased from 3888 hours to 3540 hours for the period September 1, 1973 through June 30, 1974.
2. Expected hours of operation on oil were decreased from 452 hours to 170 hours for the period September 1, 1973, through June 30, 1974.
3. Nitrogen oxide emissions were estimated approximately 10% greater than previous estimates, while other air contaminant emission estimates were the same.

A reassessment of air quality impact of the PGE turbine facility at Harborton has been made based on information submitted by PGE to DEQ.

EVALUATION

The calculated maximum effects on air quality that are expected to result from the proposed operation of PGE's turbine generation facilities at Harborton are shown in Tables I and II, attached.

Projected impacts are shown for the most significant emission/contaminants for the most critical locations for both average and worst meteorological conditions.

Particulate Impact

On an annual basis expected particulate emissions from the PGE turbines would increase the suspended particulate annual geometric mean in the Guilds Lake area (most critical location) by 0.4% (.2 ug/m³). Particulate air quality in Guilds Lake in 1976 after completion of the Oregon Clean Air Plan, is projected to be reduced to 55 ug/m³ annual geometric mean which is 5 ug/m³ less than the Federal secondary air quality standard. Therefore, the PGE turbines are not expected to cause a violation of the annual particulate air quality standard based on expected operating conditions.

On the worst ventilation day the PGE turbines could degrade particulate air quality by as much as 15% (20 ug/m³) at Linnton (most critical location) when oil fired and 1% (2 ug/m³) when gas fired. Projected maximum particulate air quality at Linnton by 1976 is projected as 137 ug/m³ (24 hour average). This is 13 ug/m³ below the state standard of 150 ug/m³ not to be exceeded more than once per year. The PGE turbines when oil fired could cause violation of the 24 hour average particulate ambient air standard. Permit conditions have been proposed which would prohibit operation of the turbines on oil on poor ventilation days and when particulate air quality reaches 95% of the ambient air standard.

Sulfur Dioxide Impact

On an annual basis sulfur dioxide (SO₂) emissions from the PGE turbines are calculated to increase the annual geometric mean SO₂ concentrations in the Willbridge area (most critical area) by 2% (1 ug/m³). Based on 8 months data, the annual ambient SO₂ standard may be exceeded at the Willbridge sampling station even without the PGE Harborton installation. This station is located within 1 mile of 8 major SO₂ sources and the results obtained at the Willbridge sampling station are considered to reflect local SO₂ levels and are not considered representative of areawide SO₂ levels. In any event, it appears that

an SO_2 control program, requiring highest and best practicable control of all sources, will be required to achieve and maintain ambient SO_2 standards in the Willbridge area.

On the worst ventilation day the PGE turbines could degrade sulfur dioxide air quality by 15% (40 ug/m^3) at Willbridge (most critical location) when oil fired and .4% (1 ug/m^3) when gas fired.

Again proposed permit conditions would require PGE to burn natural gas to the maximum extent possible (projected to be more than 95% of operating hours for the next 10 months) and would prohibit use of oil on days when ventilation is not favorable.

Oxides of Nitrogen Impact

On an annual basis expected oxides of nitrogen emissions from the PGE turbines would increase the nitrogen dioxide annual geometric mean in the downtown area (most critical area) by 25%. This increase would not cause violation of the annual nitrogen dioxide ambient standard.

Photochemical Oxidants Impact

On the worst ventilation day the PGE turbine emissions as a result of nitrogen oxide emissions reacting with sunlight could increase photochemical oxidant in downtown (most critical area) by 44% (64 ug/m^3) when oil fired and 30% (40 ug/m^3) when gas fired. This could cause a violation of the 1 hour ambient air standard for photochemical oxidants in 1976. Permit conditions have been proposed to lessen nitrogen oxide emissions by retrofitting the turbines as soon as practicable as determined by the Department. In addition curtailment of operation of the facility whether oil or gas fired is proposed when photochemical air quality reaches 95% of the ambient air standard.

CONCLUSIONS

Based on the staff's analysis of the information in PGE's permit application, available ambient air data and utilizing best available predictive techniques, it is concluded that:

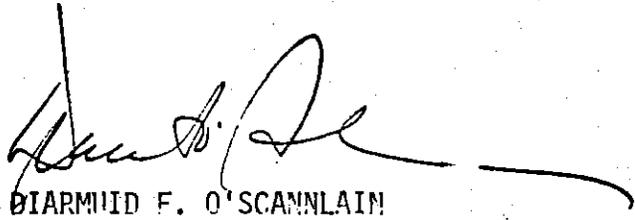
1. The PGE Harborton turbine generation station should not cause significant ambient air quality degradation or violation of air quality standards when operated on natural gas under any reasonably predictable meteorological conditions except for oxides of nitrogen emission impact on photochemical air quality. This effect would be limited to summertime periods of maximum solar radiation and temperature when the demand for electricity is minimal.
2. The Harborton installation should not cause significant ambient air quality degradation or violation of air quality standards when operating on distillate oil under meteorological conditions which provide good ventilation and good diffusion of emissions.
3. Significant air quality degradation and violation of air quality standards could occur if the facilities are operated on oil under conditions of poor ventilation and poor diffusion of emissions.
4. The PGE Harborton turbine installation is a very large fuel combustion source which will add large quantities of particulates, SO_2 , and NO_x emissions to the atmosphere. It should not be permanently located in the Portland metropolitan area where emissions in general are already too great and an overall reduction program is not yet clearly defined or assured of success in meeting and maintaining air quality standards.

DIRECTOR'S RECOMMENDATION

In view of the critical need for interim electrical energy generation capacity to meet the immediate needs of the people it is the Director's recommendation that the attached permit be issued which provides for:

1. An overall limit on operating hours subject to approval by the Department.
2. Restriction of fuel to natural gas to the maximum extent.
3. A limitation on operating hours using distillate oil as a fuel.

4. A further restriction of operation on oil to only those periods where meteorological conditions are favorable to good ventilation and good diffusion of emissions.
5. Curtailment of operations when necessary to prevent violation of air quality standards.
6. Cessation of operation at the Harborton location after the Trojan nuclear power plant becomes commercially operational or by September 1, 1975 whichever first occurs.



DIARMIUD F. O'SCANNLAIN

Attachment - Proposed Permit

TABLE 1

PGE Turbines
 Expected Average Annual Impact Under
 Average Annual Ventilation Conditions
 3540 Hours Operation per year - 95% gas fired, 5% oil fired
 (concentrations - $\mu\text{g}/\text{m}^3$)

| Pollutant | Secondary Air Quality Standard | Critical Location | Present Maximum | Projection (1976) | PGE Turbines Emission Impact on Air Quality | | PGE Turbines Effect on 1976 Levels(% increase) | |
|-----------------|--------------------------------------|----------------------|--------------------|----------------------|---|-----------|--|-----------|
| | | | | | Gas Fired | Oil Fired | Gas Fired | Oil Fired |
| Particulate | 60 ^A | Guilds Lake | 68 (1972) | .55 | 0.2 | | 0.4 | |
| SO ₂ | 60 ^A | Willbridge | 66 ^B | No change | 1 | | 2 | |
| NO _x | 100 ^A | Downtown | 47 (1972) | No change | 12 | | 25 | |

^A Annual Geometric Mean

^B Estimate based on 8 Months Data starting October 1972

TABLE 2

PGE Turbines
 Air Quality Impact - Worst Ventilation Day - 24 Hour Average
 (concentrations - $\mu\text{g}/\text{m}^3$)

| Pollutant | Secondary Air Quality Standard | Critical Location | Present Maximum | Projection (1976) | PGE Turbines Emission Impact on Air Quality | | PGE Turbines Effect on 1976 Levels (%increase) | |
|--------------------------|--------------------------------------|----------------------|--------------------|----------------------|---|-----------------|--|-----------|
| | | | | | Gas Fired | Oil Fired | Gas Fired | Oil Fired |
| Particulate | 150 ^C | Linnton | 302 (1972) | 137 | 2 | 20 | 1 | 15 |
| SO ₂ | 260 ^C | Willbridge | 269 (1972) | No change | 1 | 40 | 0.4 | 15 |
| Photochemical Oxidant | 160 ^C | Downtown | 323 (1972) | 145 | 40 ^D | 64 ^D | 30 | 44 |

^C 24 Hour Average Not to be exceeded more than once per year

^D Estimate based on all NO_x Emissions from turbines converting to NO₂

PROPOSED

AIR CONTAMINANT 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 449.727

| <p>ISSUED TO: Portland General Electric Co. Power Resources 621 S.W. Alder Portland, Oregon 97205</p> <p>PLANT SITE: Harborton Plant One Mile North of Linnton off St. Helens Road</p> <p>ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY</p> <p>_____ Diarmuid F. O'Scannlain Date Director</p> | <p>REFERENCE INFORMATION</p> <p>Application No. 0222</p> <p>Date Received 3 July 73</p> <p>Other Air Contaminant Sources at this Site:</p> <table border="1"> <thead> <tr> <th>Source</th> <th>SIC</th> <th>Permit No.</th> </tr> </thead> <tbody> <tr> <td>(1) _____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>(2) _____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table> | Source | SIC | Permit No. | (1) _____ | _____ | _____ | (2) _____ | _____ | _____ |
|---|--|------------|-----|------------|-----------|-------|-------|-----------|-------|-------|
| Source | SIC | Permit No. | | | | | | | | |
| (1) _____ | _____ | _____ | | | | | | | | |
| (2) _____ | _____ | _____ | | | | | | | | |

SOURCE(S) PERMITTED TO DISCHARGE AIR CONTAMINANTS:

| Name of Air Contaminant Source | Standard Industry Code as Listed |
|--------------------------------|----------------------------------|
|--------------------------------|----------------------------------|

Permitted Activities

Until such time as this permit expires or is modified or revoked, Portland General Electric Co. is herewith permitted in conformance with the requirements, limitations and conditions of this permit to discharge treated exhaust gases containing air contaminants from its eight (8) Pratt and Whitney (FT4C-1 combustion turbines) fuel burning devices located at the Harborton substation approximately one (1) mile north of Linnton, Oregon, including emissions from those processes and activities directly related or associated thereto.

Compliance with the specific requirements, limitations and conditions contained herein shall not relieve the permittee from complying with all rules and standards of the Department and the laws administered by the Department.

AIR CONTAMINANT DISCHARGE PERMIT PROVISIONS

Issued by the

Department of Environmental Quality for

Portland General Electric Co. (Harborton)

1. Performance Standards and Emission Limits

- 1.1 The permittee shall at all times maintain and operate all air contaminant generating processes and all contaminant control equipment at full efficiency and effectiveness such that the emission of air contaminants are kept at the lowest practicable levels.
- 1.2 When the turbines are fired with natural gas, emissions of air contaminants shall not exceed any of the following:
 - 1.2.1 An opacity (as defined by OAR, Chapt. 340 Section 21-005(4)) equal to or greater than ten percent (10%) for a period or periods aggregating more than three (3) minutes in any one (1) hour from any single turbine or combination of turbines,
 - 1.2.2 The maximum allowable emission rates of particulate matter from any single combustion turbine shall be a function of heat input as determined from Figure 1 of this permit for new sources,
 - 1.2.3 3.13 pounds per hour of particulate matter for any single turbine,
 - 1.2.4 188 pounds per hour of Nitrogen Oxide (NO_x) for any single turbine,
 - 1.2.5 1.3 pounds per hour of Sulfur Dioxide (SO_2) for any single turbine, or
 - 1.2.6 15.6 pounds per hour of Carbon Monoxide (CO) for any single turbine.
- 1.3 When the turbines are fired with distillate fuel oil, emissions of air contaminants shall not exceed any of the following:
 - 1.3.1 An opacity equal to or greater than ten percent (10%) for a period or periods aggregating more than three (3) minutes in any one (1) hour, for any single turbine or combination of turbines,
 - 1.3.2 The maximum allowable emission rates of particulate matter from any single combustion turbine shall be a function of heat input as determined from Figure 1 of this permit for new sources,
 - 1.3.3 31.3 pounds per hour of particulate matter for any single turbine,
 - 1.3.4 355 pounds per hour of Nitrogen Oxide (NO_x) for any single turbine,
 - 1.3.5 105 pounds per hour of Sulfur Dioxide (SO_2) for any single turbine,
 - 1.3.6 15.2 pounds per hour of Carbon Monoxide (CO) for any single turbine, or
 - 1.3.7 Smoke spot number 2 as measured by the American Society for Testing Material procedure D2156-65 for any single turbine.

PROPOSED
AIR CONTAMINANT DISCHARGE PERMIT PROVISIONS

Expiration Date Sept. 1, 1975

Page 3 of 9

Appl. No.: 0222

File No.: 26-2499

Issued by the
Department of Environmental Quality for
Portland General Electric Co. (Harborton)

1. Performance Standards and Emission Limits (continued)

1.4 Sound pressure levels emitted from the turbines shall not exceed the limitations specified in Table I of this condition, when measured at any location 400 feet from the geometric center of the turbine engine installation. Sound pressure levels may be measured at a distance other than 400 feet and corrected, according to the inverse square law, to a reference distance of 400 feet.

Table I

Maximum Sound Pressure Levels at 400 Feet

| <u>Frequency - Center of Octave Band, Hz</u> | <u>Sound Pressure Level-db</u> |
|--|------------------------------------|
| 31.5 | 79 |
| 63 | 73 |
| 125 | 67 |
| 250 | 59 |
| 500 | 54 |
| 1,000 | 50 |
| 2,000 | 48 |
| 4,000 | 46 |
| 8,000 | 44 |
| Overall | 81 |

2. Special Conditions

2.1 Fuel usage shall conform to the following:

2.1.1 Without obtaining prior written approval from the Department the permittee shall not operate its turbines using natural gas as fuel for more hours per month than that listed as "projected operation" "gas hours" on Table II.

2.1.2 Fuels other than natural gas shall not be used without prior specific approval by the Department. In no event shall the Department approve operation of turbines using distillate fuel oil, or any other fuel other than natural gas, for more hours per month than that listed as "projected operation" "oil hours" on Table II.

2.1.3 Natural gas shall be utilized to the maximum extent possible. In no event shall the Department approve use of distillate fuel oil in any month until the natural gas quota for that month, as shown in Table II of this permit, is either first used or is clearly forecasted, by the permittee and agreed to by the Department, to be totally used.

- 2.1.4 The Department and the permittee shall limit usage of distillate fuel oil to periods of most favorable ventilation and dispersal of air contaminants and use of fuels other than natural gas is prohibited during actual or forecasted periods of poor ventilation and poor dispersal of air contaminants.
- 2.1.5 Any fuel oil used shall be the lowest sulfur content distillate fuel oil available, but in no case shall distillate fuel oil with a sulfur content greater than 0.3% be used.
- 2.1.6 The permittee shall always start the combustion turbines on natural gas regardless whether sustained operation will be on oil or gas.
- 2.1.7 The permittee shall cease operation of all combustion turbines on oil when notified by the Department that adverse meteorological conditions are forecasted or particulate or sulfur dioxide (SO₂) air quality levels at any downwind monitoring site operated or required by the Department in the Portland metropolitan area has reached or expected to reach 142 micrograms of suspended particulate matter per cubic meter of air (24 hour average), 247 micrograms of sulfur dioxide (SO₂) per cubic meter of air (24 hour average) or 1,235 micrograms of SO₂ per cubic meter of air (3 hour average) and the permittee shall not resume operation on oil until specifically authorized by the Department.
- 2.2 No combustion turbine shall be operated for more than 1 hour in any 24 hour period, on any fuel at a power output greater than 30 megawatts or less than 15 megawatts (30° F. ambient basis) except for start-up or shut-down operation.
- 2.3 The permittee shall cease operation of all combustion turbines whether oil or gas fired when notified by the Department that photochemical oxidant air quality levels at any affected monitoring site operated or required by the Department has reached or is expected to reach 152 micrograms per cubic meter of air (1 hour average), and the permittee shall not resume operation of the turbines on oil or gas until specifically authorized by the Department.
- 2.4 The permittee shall submit plans to the Department for review and approval of easily accessible facilities for obtaining fuel oil samples in the turbine fuel oil feed lines. These plans must be approved and facilities installed prior to operation of the combustion turbines.
- 2.5 The permittee shall submit plans to the Department for review and approval of easily accessible smoke spot sample ports for each combustion turbine. These plans must be approved and facilities installed prior to operation of the combustion turbines.

PROPOSED

AIR CONTAMINANT DISCHARGE PERMIT PROVISIONS

Issued by the
Department of Environmental Quality for
Portland General Electric Co. (Harborton)

Expiration Date Sept. 1, 1975
Page 5 of 9
Appl. No.: 0222
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- 2.6 The permittee shall file with the Department by no later than January 1, 1974, a detailed schedule (similar to Table II of this permit) of the projected operating time and fuel use for the period July 1, 1974 until the P.G.E. Trojan nuclear power facility becomes operational.
- 2.7 Following a public hearing on the projected future operational schedule referred to in condition 2.6, the Department shall modify this permit by issuing an addendum thereto, which shall specify an approved operating schedule and such other conditions as may be determined to be appropriate.
- 2.8 The permittee shall not operate the combustion turbine facilities at the Harborton site after the P.G.E. Trojan nuclear power facility becomes commercially operational or after September 1, 1975, whichever time first occurs.

3. Compliance Schedule

- 3.1 The permittee shall submit test data demonstrating compliance with the emission limits set forth in conditions 1.2, 1.3 and 1.4 of this permit by no later than December 1, 1973. Should any of these test data or tests or observations made by the Department indicate non-compliance the permittee shall take immediate steps, including but not limited to, curtailment of operation to bring the facility into compliance.
- 3.2 The permittee shall as soon as practicable, as determined by the Department, retro-fit a system to reduce nitrogen oxide (NO_x) emissions from each combustion turbine to no more than 55 ppm by volume NO_x (expressed as NO_2) referenced to 15 percent oxygen, when firing gas and to no more than 75 ppm by volume NO_x (expressed as NO_2), referenced to 15 percent oxygen, when firing oil. Reports of progress regarding development of NO_x reduction systems shall be submitted to the Department at least quarterly.
- 3.3 The permittee shall submit plans and specifications to the Department for review and approval for NO_x control hardware prior to retro-fitting each turbine.

4. Monitoring and Reporting

- 4.1 The permittee shall effectively monitor the operation and maintenance of each combustion turbine. Unless otherwise specified in writing information shall be collected and submitted for each turbine in accordance with procedures filed by the permittee and approved by the Department and shall include, but not necessarily be limited to, the following parameters and testing frequencies:

Time of operation,
Quantities and types of fuel used related to time of operation,
Electrical output related to time of operation,
Fuel additives used related to time of operation,
Smoke spot, daily when operated on oil,
Nitrogen Oxides (NO_x): continuous when operating, and
Carbon Monoxide (CO): continuous when operating.

- 4.2 The permittee shall document to the Department, by type, in a manner that will permit accurate computation of SO_2 emissions resulting from turbine operations, the sulfur content of all 2 fuel oils utilized.

PROPOSED
AIR CONTAMINANT DISCHARGE PERMIT PROVISIONS
Issued by the
Department of Environmental Quality for
Portland General Electric Co. (Harborton)

Expiration Date Sept. 1, 1975
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- 4.3 The permittee shall install and operate in the Harborton area an ambient air monitoring program, that has been approved by the Department, to continuously determine ground-level concentrations of particulates, SO₂, CO, oxides of nitrogen and meteorological parameters. The program shall be in operation prior to commercial operation.
- 4.4 The permittee shall conduct other emission tests and report the results thereof as may be specified in writing by the Department.
- 4.5 Unless otherwise specified in writing by the Department the permittee shall at all times maintain available for inspection at the site and shall submit all data required to be collected under conditions 4.1, 4.2 and 4.3 not later than fifteen (15) days after the end of each calendar month of operation.
- 4.6 The permittee shall promptly notify the Department by telephone or in person of any scheduled maintenance, malfunction of pollution control equipment, upset or any other conditions that cause or may tend to cause a significant increase in emissions or violation of any conditions of this permit. Such notice shall include:

The nature and quantity of increased emissions that have occurred or are likely to occur,

The expected length of time that any pollution control equipment will be out of service or reduced in effectiveness,

The corrective action that is proposed to be taken, and

The precautions that are proposed to be taken to prevent a future recurrence of a similar condition.

5. General Conditions

- 5.1 The permittee is prohibited from conducting any open burning at the plant site.
- 5.2 The permittee is prohibited from causing or allowing discharges of air contaminants from source(s) not covered by this permit so as to cause the plant site to exceed the standards fixed by this permit or rules of the Department of Environmental Quality.
- 5.3 The permittee shall at all times conduct dust suppression measures to meet the requirements set forth in "Fugitive Emissions" and "Nuisance Conditions" as defined in OAR, Chapter 340, Section 21-050.
- 5.4 (NOTICE CONDITION) The permittee shall dispose of all solid wastes or residues in manners and at locations approved by the Department of Environmental Quality.

Issued by the
Department of Environmental Quality for
Portland General Electric Co. (Harborton)

- 5.5 The permittee shall allow Department of Environmental Quality representatives access to the plant site and record storage areas at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit.
- 5.6 The permittee is prohibited from altering, modifying or expanding the subject facilities so as to affect emissions to the atmosphere without prior notice to and approval by the Department.
- 5.7 The permittee shall be required to make application for a new permit prior to substantial modification, alteration, addition or enlargement of the subject facilities which would have a significant impact on air contaminant emission increases or reductions at the plant site.
- 5.8 This permit is subject to revocation for cause, as provided by law, including:
 - Misrepresentation of any material fact or lack of full disclosure in the application including any exhibits thereto, or in any other additional information requested or supplied in conjunction therewith;
 - Violation of any of the requirements, limitations or conditions contained herein; or
 - Any material change in quantity or character of air contaminants emitted to the atmosphere.
- 5.9 The permittee shall submit the Annual Compliance Determination Fee to the Department of Environmental Quality according to the following schedule:

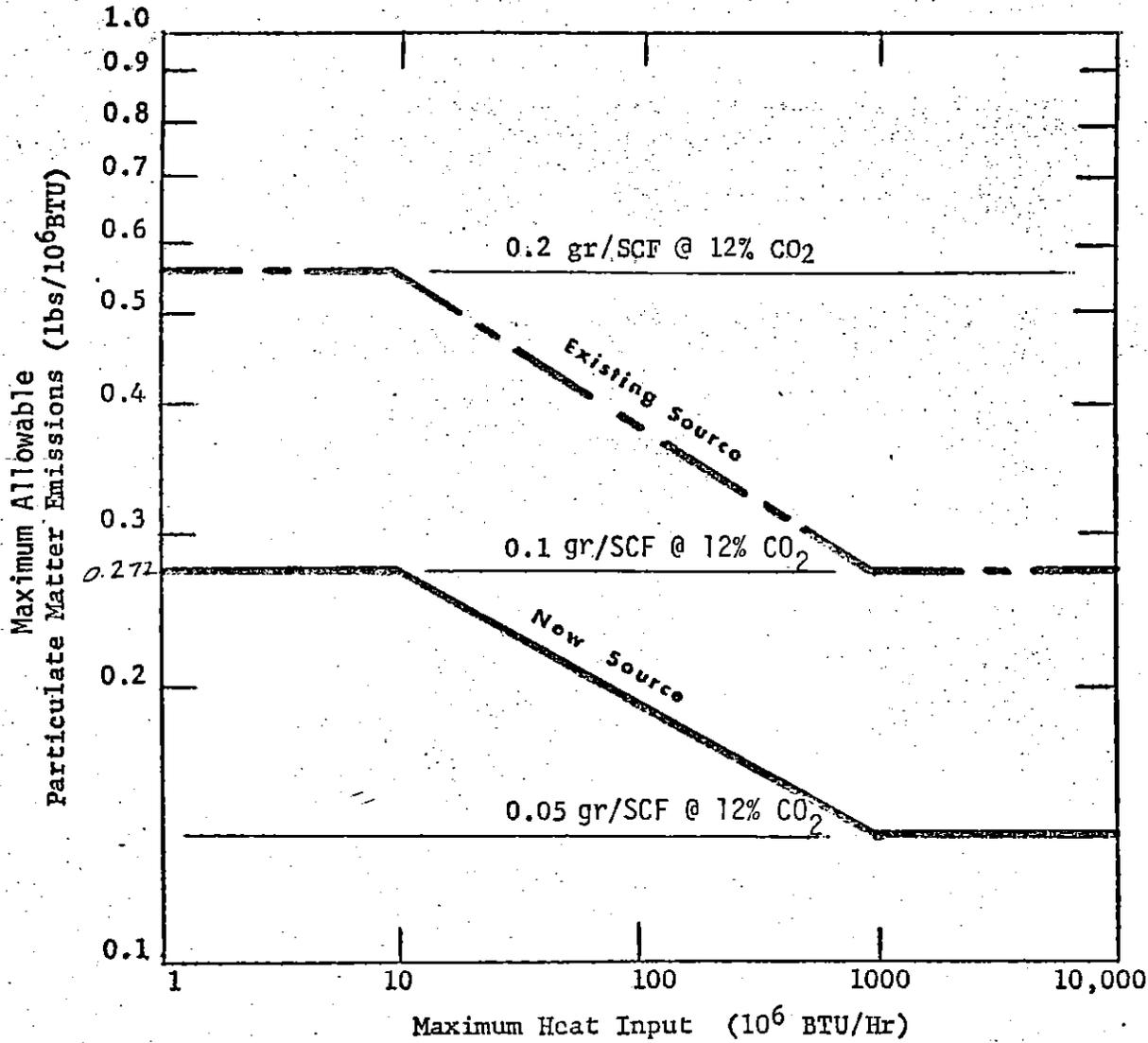
| <u>Amount Due</u> | <u>Date Due</u> |
|-------------------|-----------------|
| \$200.00 | July 1, 1974 |
| 200.00 | July 1, 1975 |

Table II

PORTLAND GENERAL ELECTRIC COMPANY
 HARBORTON COMBUSTION TURBINE OPERATING ESTIMATE
 1973-1974

| | <u>JUL</u> | <u>AUG</u> | <u>SEP</u> | <u>OCT</u> | <u>NOV</u> | <u>DEC</u> | <u>JAN</u> | <u>FEB</u> | <u>MAR</u> | <u>APR</u> | <u>MAY</u> | <u>JUN</u> | <u>TOTAL</u> |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| Base Load Rating, MW | 207 | 208 | 212 | 220 | 228 | 232 | 234 | 231 | 227 | 222 | 217 | 212 | |
| PROJECTED OPERATION | | | | | | | | | | | | | |
| Gas, MW | - | - | 169 | 175 | 160 | 117 | 121 | 107 | 100 | 51 | 20 | 21 | 1041 |
| Oil, MW | - | - | - | - | - | 13 | 13 | 13 | 13 | 2 | - | - | 54 |
| Gas, % of Time | - | - | 79.7 | 79.5 | 70.2 | 50.4 | 51.7 | 46.3 | 44.1 | 23.0 | 9.2 | 9.9 | 46.3 |
| Oil, % of Time | - | - | - | - | - | 5.6 | 5.6 | 5.6 | 5.7 | 0.9 | - | - | 2.3 |
| Gas Hours | - | - | 570 | 590 | 510 | 380 | 380 | 310 | 330 | 160 | 70 | 70 | 3370 |
| Oil Hours | - | - | - | - | - | 40 | 40 | 40 | 40 | 10 | - | - | 170 |
| Total Hours | - | - | 570 | 590 | 510 | 420 | 420 | 350 | 370 | 170 | 70 | 70 | 3540 |
| FUEL USE | | | | | | | | | | | | | |
| Gas - T x 10 ⁶ | - | - | 15.2 | 16.3 | 14.4 | 10.9 | 11.2 | 9.0 | 9.3 | 4.6 | 1.8 | 1.9 | 94.6 |
| Oil - bbl x 10 ³ | - | - | - | - | - | 19.8 | 20.0 | 17.8 | 19.4 | 2.7 | - | - | 79.7 |

FIGURE I



PARTICULATE MATTER EMISSION STANDARDS FOR FUEL BURNING EQUIPMENT

O'CONNELL, GOYAK & HAUGH, P. C.

ATTORNEYS AT LAW

404 OREGON NATIONAL BUILDING
SIX TEN SOUTHWEST ALDER STREET
PORTLAND, OREGON .97205

AREA CODE 503
TELEPHONE 227-1681

JOHN J. HAUGH
NICK IVAN GOYAK
KEVIN O'CONNELL
ROBERT J. GAUGHRAN

July 26, 1973

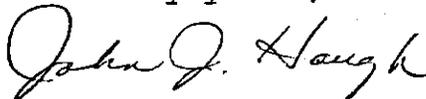
Mr. Diarmuid O'Scannlain
Director
Department of Environmental Quality
Terminal Sales Building
Portland, Oregon

Re: Portland General Electric's
Application for Permit in
Connection with Harborton Plant

Dear Diarmuid:

I am enclosing herewith a petition for intervention in
the above matter.

Sincerely yours,



John J. Haugh

JJH:mw

Enclosures

cc: H. H. Phillips

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

STATE OF OREGON

In the Matter of PORTLAND GENERAL)
ELECTRIC COMPANY, INC.'s Request)
for a Permit to Operate Eight)
Combustion Turbine Generators at)
Harborton,)

Applicants,)

NORTHWEST ENVIRONMENTAL DEFENSE)
CENTER, OREGON ENVIRONMENTAL)
COUNCIL, N.W.D.A., the community)
association of Northwest Portland,)
Inc., LINNTON COMMUNITY CENTER, and)
NORTH PORTLAND CITIZENS COMMITTEE, INC.)

Petitioners - Intervenors,)

PETITION FOR INTERVENTION

John J. Haugh
O'Connell, Goyak & Haugh, P.C.
404 Oregon National Building
610 SW Alder
Portland, Oregon 97205

Of Attorneys for Petitioning
Organizations

PETITION FOR INTERVENTION

1. Petitioners request the issuance of an order granting them leave to intervene as a full party to proceedings before this Agency for the purpose of considering a permit request previously filed by Portland General Electric Company Incorporated.

2. The names of petitioners, and their interest in this matter, is as follows:

a. Petitioner, NORTHWEST ENVIRONMENTAL DEFENSE CENTER (NEDC), is a non-profit, incorporated coalition of approximately 110 attorneys, scientists and educators concerned with the environmental problems of Oregon and the Northwest. Organized in 1969, the fundamental purpose of NEDC is to integrate the legal and scientific disciplines in an active and pragmatic manner in order that the judicial and legislative systems can be more effectively utilized in improving and protecting the natural environment. The specific functions of the NEDC are to aid environmental litigants by providing scientific and legal expertise and to institute litigation on its own behalf, to develop and promote legislative and regulatory reforms in the area of environmental quality and to educate the public as to environmental problems.

b. Petitioner, OREGON ENVIRONMENTAL COUNCIL (OEC), is a non-profit membership corporation organized under the laws of the State of Oregon. Organized in 1968, OEC is the largest private conservation group in the State of Oregon. It has members and

contributors of various classes totaling approximately 150,000 including the members of 47 affiliate organizations. The purposes of the OEC are: 1) to create a more effective voice in conservation matters through cooperative effort; 2) to stimulate an increased understanding and awareness of the impact of modern society and man on his environment; 3) to encourage citizen, legislative and administrative actions for the protection and restoration of our natural and historic heritage, and 4) to create communities which reflect these values through creative planning, education and wise stewardship.

c. Petitioner, N.W.D.A., the community association of Northwest Portland, Inc. (NWDA) is a non-profit corporation formed by the citizens of Northwest Portland for the purpose of improving the environment of Northwest Portland, Oregon, enhancing the livability of Northwest Portland, Oregon, and protecting and improving the quality of life of the residents of Northwest Portland, Oregon.

d. Petitioner LINNTON COMMUNITY CENTER, is a voluntary unincorporated association of individuals living in and around the suburban community of Linnton, within the city limits of Portland, Oregon. The purpose of this voluntary unincorporated association is to protect and improve the quality of life in the Linnton area of Portland, Oregon.

e. Petitioner NORTH PORTLAND CITIZENS COMMITTEE, INC. is an incorporated non-profit association of citizens and residents of North Portland, Oregon, formed for the purpose of protecting

and improving the quality of life for citizens and residents of North Portland, Oregon

3. Each of the petitioning organizations set forth above, and all of the petitioning organizations set forth above, have members who reside in North Portland, Oregon, Northwest Portland, Oregon, and the community of Linnton.

4. It is the express intent of the appellant, Portland General Electric Company Incorporated, to construct and operate eight combustion turbine generators for the purpose of producing electricity in Harborton, within the city limits of Portland, Oregon. As a result of the operation of PGE's proposed complex in Harborton, it is undisputed that large quantities of noxious chemicals and other pollutants will necessarily be produced and emitted. Each of the petitioning organizations, having members who live within the immediate area affected by PGE's proposed new facility, is deeply concerned over the impact of the proposed new facility on the quality of life in and around the area in which the plant is proposed to be built. It is the understanding of the petitioning organizations that PGE's proposed facility would be the largest single producer of air contaminants within the entire county of Multnomah. It is the understanding of the petitioning organizations that PGE does not dispute this fact. The members of the petitioning organizations, and particularly those members who reside in areas near to the proposed new facility, are opposed to PGE's proposed new facility as planned. The petitioning organizations believe the plant is not necessary, and that PGE's assertions to the contrary are ill-founded, and based on unsupported and incorrect data. Further, the petitioning organizations believe that PGE has failed

as required by applicable state, regional and federal statutes and ordinances, to design and plan the facility in question in such a way as to minimize pollutants and their contaminants.

5. Each of the petitioning organizations set forth above, and all of them, have appeared before other agencies at informal meetings and informal public hearings to express their objections to the facility in question. Each of the organizations set forth above, and all of them, have expended a great deal of time and energy, and resources, investigating the proposed new facility, conferring with experts regarding data, statistics, waste emissions and the like, and would be able (if this petition to intervene is granted) to aid this agency in reaching a fair and equitable decision regarding the appeal in question.

6. Through members who reside in areas immediately adjacent to the proposed new facility, each of the petitioning organizations has a direct, personal, pecuniary, and health interest in the proposed new facility. Furthermore, the proposed new facility would directly affect the interests of members of each of the petitioning organizations.

7. As the result of this petition for intervention, each of the petitioning organizations hereby requests leave to intervene in all proceedings before this body, and requests the right to appear, present testimony, subpoena records, cross-examine witnesses, and do each and every other thing which the rules and regulations of this body and the rules and regulations of the administrative procedure act of the State of Oregon allows to

full parties to this and other similar administrative proceedings.

8. Petitioners hereby request, pursuant to Oregon Revised Statute, Chapter 183, pursuant to the Administrative Procedure Act, and pursuant to due process of Administrative Law, that this Commission order a full adversarial-type hearing, and that th- hearing be conducted in accordance with applicable rules of evidence, and that the hearing be held before an impartial, experienced hearing officer trained in the law of Administrative Procedure and Evidence, with no prior connection to the matter.

CONCLUSION

For the reasons stated above, this petition for intervention should be granted.

Respectfully submitted,

O'CONNELL, GOYAK & HAUGH, P.C.

By:


John J. Haugh
Of Attorneys for Petitioning
Organizations
404 Oregon National Building
610 SW Alder
Portland, Oregon 97205
Telephone: (503) 227-1681

STATE OF OREGON)
) ss.
County of Multnomah)

I, JOHN PLATT, being first duly sworn, say that I am
Executive Director for the Northwest Environmental Defense Center,

one of the petitioning organizations herein, and that the foregoing petition is true as I verily believe.



John Platt

Subscribed and sworn to before me this 26th day of July, 1973.



Notary Public for Oregon
My Commission expires: 4-13-74

I hereby certify that I personally served the original and two copies of the petition for intervention hereon on Department of Environmental Quality at its business office, Terminal Sales Building, Portland, Oregon, on July 26, 1973.

I hereby also certify that I personally served two copies of the petition for intervention attached hereto on Portland General Electric Company, H. H. Phillips, Vice President, on July 26, 1973.



John Platt

STATEMENT OF JOSEPH L. WILLIAMS, VICE PRESIDENT
PORTLAND GENERAL ELECTRIC COMPANY
HARBORTON COMBUSTION GAS TURBINE GENERATING PLANT

My name is Joseph L. Williams. I am employed by Portland General Electric Company as Vice President of Engineering-Construction, a position I have held since July 1971. Prior to that time I was Assistant Vice President, Engineering-Construction.

In late 1969 and early 1970 the Company started preliminary investigation of the use of combustion gas turbines on the system. These preliminary investigations consisted of literature research, discussions with manufacturers, discussions with other utilities, and discussions with regulatory authorities. The objective of this type of preliminary investigation was to obtain knowledge of the capabilities and costs of this type of generation and to learn what regulations regarding air quality would have to be met and which agencies had jurisdiction.

In December 1970, the Company formed an interdisciplinary team reporting to and working under the direction of the Senior Company Officers called the Generation Resources Investigation Team. This team was assigned the responsibility of preliminary investigation and planning of future generation resources required to meet the Company's projected system demand. Ever increasing lead time necessary for site selection, design, licensing and construction of peaking and energy resources required this separate and dedicated planning effort under the guidance of top management. The men selected to serve on this team represented engineering, planning, operations and environmental disciplines within the Company.

This team picked up the work that was previously done on combustion gas turbines and incorporated it into a more comprehensive study aimed at being thoroughly prepared to proceed immediately on a project as soon as a specific need was identified.

Early in 1971 they initiated additional contacts with regulatory agencies seeking further information on regulations and standards and in May 1971 started talking to the Columbia-Willamette Air Pollution Authority Staff regarding specific potential sites.

Gas turbine generating units are excellent generation resources for the following reasons: They are a good source of peaking power, they provide reserves and they are a good backup source during times of energy deficits. In addition, because the units are very compact, can meet strict air quality standards and noise restrictions, they can be sited close to major load centers which increases the reliability of service to the load center and minimizes the transmission requirements.

Looking first at combustion gas turbines as peaking units, they are particularly well suited to the system peaking requirement since their installed capital cost in dollars per kilowatt is considerably lower than the installed cost in dollars per kilowatt for other forms of generation including nuclear and hydroelectric. Therefore, the plant investment sitting idle during off peak hours is minimized. Another characteristic of the turbines that makes peaking application on the PGE system particularly attractive is that their efficiency and power output increases as ambient temperature goes down. The low ambient air temperatures that accompany the PGE peak load periods result in more dense air and higher mass flow rate through the turbine with a resulting higher power output and improvement in operating efficiency.

Looking next at gas turbines for use as system reserves and for improving reliability of service to load centers, two unique characteristics of these units come into the picture, namely, their ability to start fast and pick up load in a very short time and their ability to start without an external source of electricity.

Looking finally at the value of combustion turbines during times of energy deficits, I think it is self-evident that if fuel is available they serve the very important function of providing energy that is not available from other sources at a particular point in time, such as right now.

Having covered the versatility of the combustion gas turbine as a generating resource, I would now like to turn to the question of siting such units and review the site selection process employed by the Generation Resources Investigation Team. The major factors considered were:

1. Air Quality
2. Noise Control
3. Transmission Lines
4. Fuel
5. Service Reliability

Points 1 and 2, Air Quality and Noise Control will be discussed by members of our Environmental Services Department so I will start with Point 3, Transmission Lines and their relation to the siting question.

As previously mentioned, because of the fact that these units are adaptable to siting close to load centers, you can minimize transmission requirements. There are, of course, both economic and environmental incentives for minimizing transmission requirements by siting the units at a location where sufficient transmission lines already exist. If new transmission lines had to be built to carry the output of a generating plant the size of Harboron, it would cost between \$30,000 per mile and \$240,000 per mile depending upon the cost of the right of way. A further economic incentive to locate

staff and subsequently determined that Harborton was the preferred site of the four.

At this time I would like to submit a nine page chronology of contacts between our Company and various regulatory agencies that have taken place since we first started investigation of combustion turbines in February of 1970. The exhibit is titled Exhibit A, "Permit Chronology, Proposed Combustion Gas Turbine Installations, Portland General Electric Company". It lists by dates the agency contacted and the subject matter. Not all of these specifically relate to Harborton but the ones that do can be readily identified. I submit this exhibit for the purpose of showing that during this period of time Federal, State and Local regulations were changing which required constant communication between our technical staff and the CWAPA technical staff so that we would know the standards we would have to meet and so that we could furnish information to the CWAPA staff so they could judge our ability to meet the changing standards.

In order to ensure that our specifications for procurement would be compatible with evolving environmental regulations, our technical staff reviewed the wording of our specifications in detail with the Authority technical staff. Data sheets for the specification requesting technical data from bidders on noise and exhaust emissions were prepared and submitted to the Authority staff for approval to make sure that the data and test methods to be used would be acceptable. The resulting specification was subsequently issued for bid to four suppliers of gas turbine equipment.

Prior to awarding a contract for these units, four Company officers and the members of the Generation Resources Investigation Team visited several installations in the eastern part of the country. The group watched the machines run and talked to the owners to learn first-hand how well they performed. In addition, the group visited

manufacturing facilities, toured plants and had lengthy discussions with design engineers to assure ourselves that the improvements being built into the machines we would be getting were going to perform as required.

The combustion gas turbine generating equipment selected by PGE is being supplied by Turbo Power & Marine Systems, a subsidiary of United Aircraft Corporation. An important criteria for equipment selection was the manufacturer's experience in manufacturing and installing combustion gas turbine equipment. Turbo Power & Marine Systems' record is very good. Their first unit was placed in service May 7, 1962. Today they have over 600 combustion gas turbines in electric utility service for a total of over 13 million kilowatts of capacity with total operating hours nearing 2 million. This record includes installations on 79 electric utility systems located in 31 states and 9 foreign countries.

The units manufactured by Turbo Power & Marine Systems for Portland General Electric Company have the new FT4C-1 engines which incorporate their latest design technology for air pollution control available at the time the units were placed on order in December 1971. We plan to retrofit these machines with improvements to further control emissions as they are developed, if such retrofitting is necessary and practicable. This is specifically covered in the form of permit.

I would like to return now to the Harborton site and review the Harborton site specifically as it relates to some of the factors previously mentioned.

1. There are three existing 115,000 Volt lines from Harborton to the PGE Portland area system so no extensive additional transmission line construction is required.

2. It is close to the load center and therefore transmission losses are minimized.
3. It is ideally situated from the standpoint of fuel deliveries. It is on an oil pipeline and also on a gas pipeline large enough to serve these four units. It is on the waterfront where tanker deliveries of oil can be received.
4. It is in an area where air quality standards and noise control requirements can be met.
5. It is located at a point on our transmission network where we can provide backup protection to critical loads and thus increase the service reliability to the Portland downtown core area.

To more fully explain what is meant by backup protection to critical loads in the downtown Portland area, I would like to submit an exhibit showing the specific area I am referring to. This exhibit is entitled Exhibit B, "Black Start" Area Protection From Harborton Gas Turbine Generating Plant". It is a map of the downtown Portland area and there is a circle on the map which shows the area that could be served from the Harborton installation in the event of a catastrophic event such as the blackout that occurred in the Northeast part of the country in 1965. On the left hand side of the map is a list of the critical facilities to which electric service is essential in time of emergency. The list includes hospitals, police stations, fire stations, Government Buildings, pumping stations, telephone buildings, newspapers, etc.

In an extreme emergency, if power was not available from the regular transmission grid, this area can be isolated from the grid by switching and connected to the Harborton Station. As mentioned previously, these units can be started without

[EXHIBIT A]

Permit Chronology
Proposed Combustion Gas Turbine Installations
Portland General Electric Company

February 20, 1970

Our first contact with CWAPA to determine what air pollution regulations apply to combustion gas turbines. Emission standards existed for visible air contaminant for new sources which was Ringelmann No. 1. The Particulate Matter Weight Standard was Bacharach Smoke Spot No. 4 for distillate fuels. Also, sulfur dioxide and particulate matter emission standards existed.

Ambient standards also existed for particulate matter, odors, and sulfur dioxide.

There were no nitrogen oxide emission or ambient standards.

March 16, 1970

In a meeting with CWAPA we were informed that Rule 5 "Notice of Construction and procedure for Approval" would apply to our gas turbine project. There would be no permit fee and 30 to 60 days maximum would be required for approval to construct. Discussed Station L location and fuel tank vapor recovery system requirement (Sec. 6.9).

February 26, 1971

CWAPA - Air pollution agency contacts which should be made by PGE. Dick Hatchard told us John Kowalczyk should be our contact and he will coordinate with the DEQ.

March 9, 1971

EPA - Notification to Region 10 EPA by PGE on proposed gas turbine installations. Told us to deal with local agency. CWAPA is funded in part by Federal funds which gives EPA direct control. Interstate coordination procedures not yet established, however, EPA will be the liaison.

March 12, 1971

MWVAPA - Initial contact to notify agency of proposed gas turbine installations by PGE at Bethel.

March 16-18, 1971

Day and night ambient sound readings made at Harborton and Bethel sites.

May 27, 1971

CWAPA - Discussion of CWAPA site preferences for gas turbine installations. Among sites considered were Station L & E.

- June 1, 1971 DEQ - Initial contact to notify agency of proposed gas turbine installations by PGE. DEQ informed PGE that Oregon does not have an SO₂ problem.
- June 2, 1971 CWAPA - Letter received from Hatchard opposing Station L & E sites due to high ambient particulate levels already existing in those areas.
- July 28, 1971 MWVAPA - Phone call to Mike Roach to determine if rules and regulations obtained during the visit of March 12, 1971 were still current rules confirmed as being current.
- August 3-4, 1971 Day and night ambient sound readings made at Harborton site.
- October 4, 1971 CWAPA - Determine if preliminary emission data figures supplied by gas turbine vendors would be acceptable to CWAPA for the Rivergate-Harborton areas. CWAPA favored Harborton over Rivergate but expressed concern over high particulate loading at Harborton. They stated NO_x is not a problem for Portland but SO_x could be a problem when particulate levels are high.^x
- October 14, 1971 CWAPA - Meeting to supply additional preliminary emission data figures to CWAPA. Kowalczyk indicated that without detailed study of the data it appeared that the Harborton installation would be acceptable. Subsequent to meeting detailed emission data from TP&M proposal was transmitted to CWAPA.
- October 18, 1971 DEQ - Meeting with L. B. Day and staff members to discuss silencing treatment to be installed on PGE's proposed gas turbine installations.
- October 19, 1971 DEQ - Copies of sound pressure level diagrams of ambient sound level readings at Bethel and Harborton Substations sent to Hal Burkitt along with background technical data.
- October 26, 1971 MWVAPA - Submission of preliminary emission data for gas turbines at the Bethel Substation to obtain an informal opinion on the acceptability of the Bethel turbine installation by MWVAPA.
- October 28, 1971 CWAPA - John Kowalczyk called to inform us that "gas turbines and jet engines" were specifically exempted from registration (Rule 5) but "not necessarily exempt from control requirements."

- November 1, 1971 DEQ - Mailed NEMA Gas Turbine Sound Standard and other technical references to Hal Burkitt in response to phone request.
- November 4, 1971 MWVAPA - Letter from Vic Prodehl indicating that preliminary data submitted by PGE for the proposed gas turbine installation at the Bethel Substation is satisfactory to MWVAPA with the exception of necessary noise survey data.
- November 5, 1971 MWVAPA - Letter from PGE transmitting identical sound pressure level diagrams submitted to DEQ on October 19, 1971.
- November 8, 1971 DEQ - Mailed additional noise technical reference material to Rich Armstrong in response to phone request.
- November 9, 1971 DEQ - Letter from L. B. Day transmitting staff review of PGE combustion turbine noise control program. Review confirmed that PGE has come close to the goal of no noticeable increase in ambient sound pressure levels at the residences nearest the sites.
- November 23, 1971 City of Portland - Conditional Use Permit No. 76-71 granted for Harborton site dredge fill.
- December 21, 1971 MWVAPA - Submission of completed form of Registration of Air Pollution Emission Sources by PGE to MWVAPA.
CWAPA - Submission of completed form of Notice of Construction and Application for Approval of Proposed Gas Turbine Peaking Plant by PGE to CWAPA.
- January 10, 1972 MWVAPA - Correspondence submitting additional sound performance information to MWVAPA as requested by them on January 6, 1972.
- January 18, 1972 CWAPA - Sound simulation tests performed by TP&M at Harborton. Tests were witnessed by representatives from DEQ, CWAPA, TP&M & PGE.
MWVAPA - Sound simulation tests performed by TP&M at Bethel. Tests were witnessed by representatives from MWVAPA, TP&M & PGE.
- February 1, 1972 CWAPA - Correspondence by PGE supplying exhaust gas flow rates at specific temperatures for one gas turbine installation.

- February 2, 1972 CWAPA - Meeting to discuss air monitoring equipment at the Harborton gas turbine site.
- February 7, 1972 DEQ, CWAPA, MWVAPA - Submitted a complete copy of TP&M sound demonstration report of January 18 tests.
- February 24, 1972 MWVAPA - Approval granted for PGE to construct a proposed gas turbine installation at the Bethel Substation based on exhaust emission data and noise levels previously supplied by PGE. Notice that PGE would have to file for an operating permit prior to commencing commercial production.
- March 1, 1972 CWAPA - Meeting to further discuss sulfur dioxide emission data of proposed gas turbine installation at the Harborton site. Kowalczyk stated PGE will be required to monitor ambient air quality, particulate emission, fuel analysis, and notify CWAPA when plant is operated.
- March 16, 1972 CWAPA - Letter from Kowalczyk stating that a construction permit is not required by PGE for gas turbine installation at the Harborton site. Letter stated they find no major objection and listed extensive requirements to be placed on operation.
- May 24, 1972 Night ambient sound readings made at Bethel site.
- May 30, 1972 PUC - Meeting with Dave Piper to review PGE plans for gas turbine installation.
- July 1, 1972 CWAPA rules revised to include new ambient air standards for sulfur dioxide, particulate matter, odors, and added standards for carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen dioxide.
- Revision of emission standards changed the Particulate Matter Weight Standard to Bacharach Smoke Spot No. 2 for distillate fuels and added Smoke Spot No. 4 restrictions for residual fuels. (Note, this was after Harborton turbines had been purchased).
- The sulfur dioxide emission standard was also changed and an "Other Emissions" category was added to cover "any emission...which causes or is likely to cause injury, detriment or nuisance to the public....business or property."

Sulfur content of fuels was also added to regulations restricting No. 1 distillate fuel to 0.3 percent sulfur and No. 2 fuel to 0.5 percent sulfur.

- July 3, 1972 Sound buffer zone recommended at Bethel in anticipation of noise control regulations.
- July 24, 1972 City of Portland - Building Permit No. 472136 issued for Harborton site grading.
- July 27, 1972 DEQ - Adoption of air contaminant discharge permit regulations by the Environmental Quality Commission.
- August 3, 1972 CWAPA - Meeting to clarify certain requirements of their March 16 letter. CWAPA requested more data to back up the A-9 test described in a Truesdail Lab report also submitted at this meeting.
- August 9, 1972 MWVAPA - Request from Prodehl for Bethel data on plant arrangement, plume rise and diffusion calculations, and MW output curves. Data sent by return mail.
- August 15, 1972 CWAPA - Letter from Kowalczyk clarifying data requests of their March 16 letter and August 3 meeting.
- September 7, 1972 MWVAPA, CWAPA, PGE - Trip to Wisconsin Power & Light, Edgerton, Wisconsin.
- September 14, 1972 City of Portland - Building Permit issued for turbine and switchyard foundations including piling.
- September 22, 1972 DEQ - Memo received from Jim Welch, Managing Editor, Capitol Journal to DEQ describing visit to Wisconsin.
- October 17, 1972 DEQ - Letter from Gary Sandberg referencing Welch's memo and requesting information on low frequency noise and noise abatement procedures. Questions were subsequently answered on November 3 in meeting with Sandberg and November 7 phone conversation.
- October 27, 1972 By letter CWAPA notified PGE that "an application for an air contaminant discharge permit must be filed with CWAPA for new fuel burning equipment burning distillate oil at the Harborton gas turbine facility." This was to be in compliance with new CWAPA regulations effective November 10, 1972.

November 8, 1972 MWVAPA - Letter received from Prodehl with questions resulting from Wisconsin visit. Answers requested for PUC hearing and preparation for discharge permit review.

November 9, 1972 CWAPA - Meeting to discuss preparation of discharge permit application and PUC hearing.

November 10, 1972 MWVAPA - Meeting to answer questions raised in November 7 letter and discuss PUC hearing.
CWAPA - Truesdail Lab test report and procedures on A-9 engine sent to Kowalczyk.

November 16, 1972 PUC-DEQ Public Hearing - Salem.

January 17, 1973 CWAPA - Notice of Construction and application for approval of Harborton fuel tanks sent to CWAPA staff.

January 29, 1973 CWAPA - Application for Harborton fuel tank construction approval.

January 30, 1973 MWVAPA - Authority to construct Bethel fuel tanks granted.

February 13, 1973 Marion County Building Permit No. 73-265 issued for Bethel fuel tanks.
City of Portland - Building Permit issued for Harborton site fencing.

February 20, 1973 City of Portland - Letter and fee sent requesting permission to construct Harborton fuel tanks.

February 23, 1973 CWAPA - Air contaminant discharge permit application submitted.

February 26, 1973 DEQ - Letter from D. F. O'Scannlain requesting plans for Harborton noise control and stating "acceptable" maximum sound pressure levels.

March 13, 1973 MWVAPA - Application for Bethel Air Contaminant Discharge Permit received for filing.

- March 15, 1973 DEQ - Letter to D. F. O'Scannlain from PGE describing plans for Harborton noise control and agreeing "to ensure that community noise levels are kept within satisfactory bounds."
- March 28, 1973 CWAPA - Air contaminant discharge permit accepted for filing.
- April 12, 1973 Portland City Council - Council consideration of emergency ordinance to allow construction of Harborton fuel storage tanks. Erroneously referred to City Planning Commission.
- City of Portland - PGE first informed that Planning Commission may require M-1 conditional use permit.
- April 17, 1973 MWVAPA - Public hearing on proposed Air Contaminant Discharge Permit - Council Chamber, Salem, p.m.
- DEQ - Letter from D. F. O'Scannlain approving Bethel noise control plans conditioned on: 1) continuation of PGE-DEQ monitoring, and 2) corrective action if low frequency community noise problem occurs.
- April 23, 1973 City of Portland - Building Permit No. 477510 issued for Harborton substation control house.
- April 24, 1973 MWVAPA - Authority to construct Bethel combustion gas turbines granted.
- April 27, 1973 CWAPA - Public informational hearing on proposed air contaminant discharge permit - City Hall annex, a.m.
- May 2, 1973 MWVAPA - Continuation of April 17 hearing - Civic Center, Salem, a.m.
- May 3, 1973 Portland City Council - Consideration of emergency ordinance to allow construction of Harborton fuel storage tanks.
- City of Portland - Applied to Planning Commission for M-1 Conditional Use Permit for Harborton plant.
- May 7, 1973 Marion County Building Permit No. 73-867 issued for Bethel maintenance building.
- CWAPA - Continuation of April 27 hearing - Roosevelt High School, evening.

May 10, 1973

State Fire Marshall - Applied for approval of Bethel fuel tanks and issuance of permit.

Portland City Council - Continuation of May 3 hearing. Emergency Ordinance No. 136486 passed to allow Harborton fuel tank construction.

May 11, 1973

MWVAPA - Second continuation of April 17 hearing - Council Chambers, Salem, a.m. Action deferred giving a temporary permit until final action taken by MWVAPA Board.

City of Portland - Building Permit No. 477627 issued for Harborton maintenance building. Also, Building Permit No. 477694 issued for Harborton fuel tanks.

May 14, 1973

DEQ - Letter to D. F. O'Scannlain from PGE agreeing to conditions of 4/17/73 DEQ letter.

May 18, 1973

CWAPA - Continuation of May 7 hearing - Water Bureau Bldg., a.m.

May 22, 1973

CWAPA - Technical meeting with vendors, intervenors, CWAPA staff and PGE - CWAPA offices, a.m.

May 24, 1973

CWAPA - Special meeting of Board to rule on permit application - Board voted to direct staff to deny permit - City Council Chambers, a.m.

May 25, 1973

CWAPA - Letter from Hatchard advising PGE of CWAPA intent to deny Application for Air Contaminant Discharge Permit.

May 29, 1973

CWAPA - Letter to Hatchard from PGE requesting re-hearing or permit issuance.

May 31, 1973

MWVAPA - Technical meeting with intervenors, MWVAPA staff, City of Salem Councilwoman Lowe, and PGE - MWVAPA offices, a.m.

June 4, 1973

City of Portland - Withdrew application for M-1 Conditional Use Permit from Planning Commission due to lack of CWAPA decision.

June 8, 1973 State Fire Marshall - Permit to handle, store and distribute flammable liquids and/or liquified petroleum gas issued for Bethel fuel tanks.

June 15, 1973 CWAPA - Hearing on appeal by PGE of CWAPA intent to deny an air contaminant discharge permit.

June 19, 1973 MWVAPA - Meeting of MWVAPA to consider granting permanent air contaminant discharge permit.

June 22, 1973 CWAPA - Continuation of June 15 hearing. Hearing was recessed indefinitely.

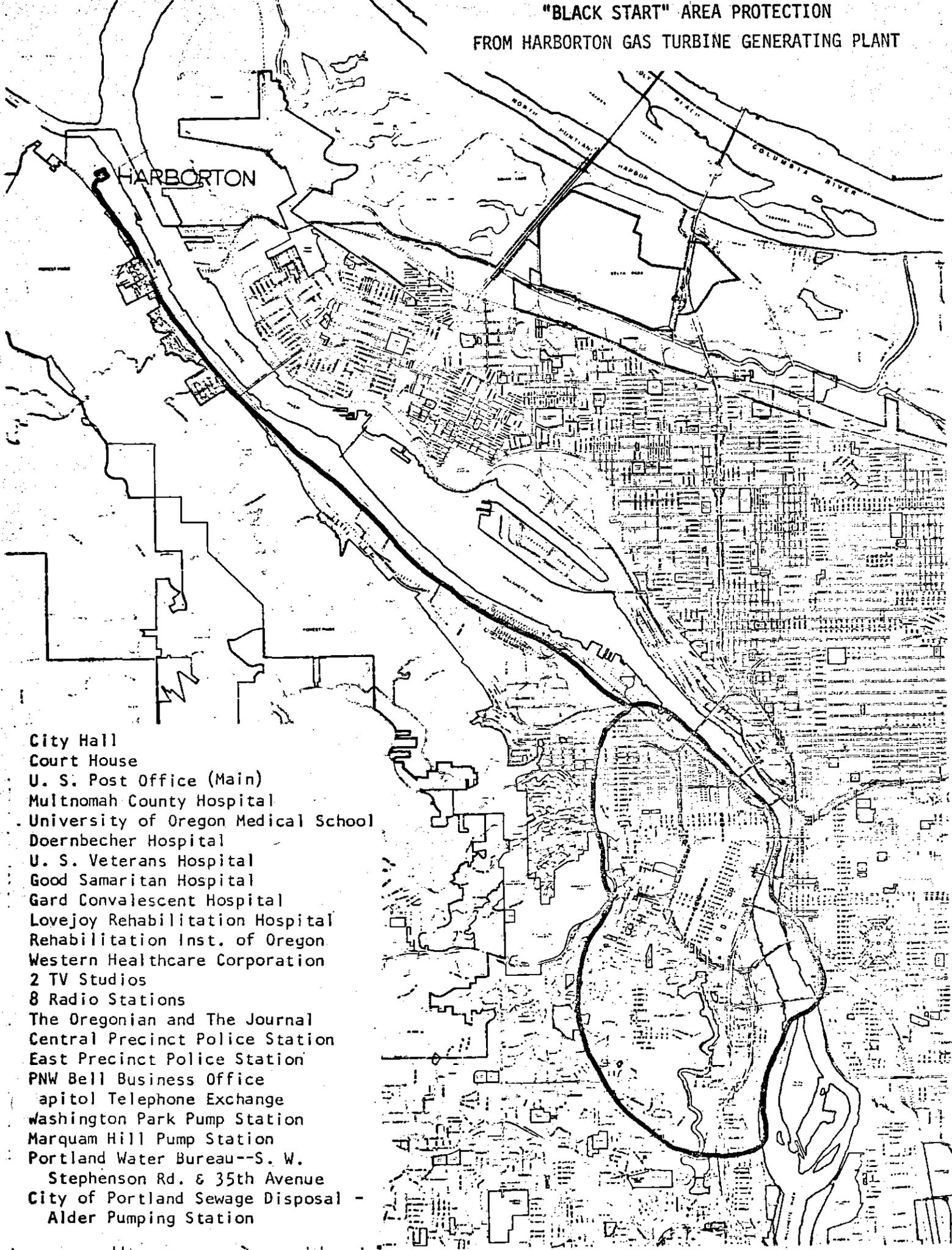
June 30, 1973 CWAPA dissolved.

July 2, 1973 DEQ - Application filed for Harborton air contaminant discharge permit.

July 6, 1973 MWVAPA - Air Contaminant Discharge Permit No. 242318 expiring August 1, 1974 issued.

July 11, 1973 City of Portland - Re-applied to Planning Commission for M-1 Conditional Use Permit.

"BLACK START" AREA PROTECTION
FROM HARBORTON GAS TURBINE GENERATING PLANT



- City Hall
- Court House
- U. S. Post Office (Main)
- Multnomah County Hospital
- University of Oregon Medical School
- Doernbecher Hospital
- U. S. Veterans Hospital
- Good Samaritan Hospital
- Gard Convalescent Hospital
- Lovejoy Rehabilitation Hospital
- Rehabilitation Inst. of Oregon
- Western Healthcare Corporation
- 2 TV Studios
- 8 Radio Stations
- The Oregonian and The Journal
- Central Precinct Police Station
- East Precinct Police Station
- PNW Bell Business Office
- Capitol Telephone Exchange
- Washington Park Pump Station
- Marquam Hill Pump Station
- Portland Water Bureau--S. W.
- Stephenson Rd. & 35th Avenue
- City of Portland Sewage Disposal - Alder Pumping Station

Comparative Sound Pressure Levels

100 FEET FROM GEOMETRIC CENTER OF THE SOURCE INSTRUMENT

| DETAILED SOUND PRESSURE & FREQUENCY RANGE | ORIGINAL PLS DATA LEVEL 2/71 | DEQ REQUIREMENTS 11/72 | DEQ REQUIREMENTS 2/75 & 4/73 | ESTIMATE BASED ON RETINA SITE MEASUREMENTS |
|---|------------------------------|------------------------|------------------------------|--|
| < 22 Hz | — | — | — | 63 .. |
| 31.5 Hz | 74 | 70 | 67 | 73 |
| 63 Hz | 69 | 64 | 61 | 60 |
| 125 Hz | 59 | 58 | 55 | 51 |
| 250 Hz | 52 | 52 | 47 | 43 |
| 500 Hz | 47 | 47 | 42 | 39 |
| 1000 Hz | 44 | 44 | 38 | 32 |
| 2000 Hz | 41 | 41 | 34 | 33 |
| 4000 Hz | 38 | 38 | 30 | 23 |
| 8000 Hz | 36 | 36 | 22 | 20 |
| Overall (A wt) | 52 dBA | 51 dBA | 46 dBA | 42 dBA |

NOTES

ALL UNITS DECIBELS (dB) UNLESS OTHERWISE NOTED

CHARLES M. GROSSMAN, M. D.

PHYSICIAN

301 OREGON NATIONAL BUILDING
PORTLAND, OREGON 97205

PRACTICE LIMITED TO
DIAGNOSIS AND INTERNAL MEDICINE

TELEPHONE
333-2018

August 13, 1973

Mr. Chairman, Members of the Commission -

My name is Charles M. Grossman, and my address is 9507 N. W. Roseway Avenue, Portland. I am a Physician, Specialist in Internal Medicine, and also a member of the American Chemical Society and on the Faculty of the Chemistry Department at the University of Portland.

I appear here both as a private citizen and also as Chairman of the Health and Welfare Task Force of the Multnomah County Democratic Central Committee. The Task Force supports this statement.

There is more than ample evidence to indicate the serious dangers of air pollution to health. You have heard, or will hear, from Dr. Miles Edward of the University of Oregon Medical School and the statement of the American Thoracic Society.

Studies in many cities have shown that sickness and death occur much more frequently in cities, compared to rural areas, and in the more polluted areas of the same cities (where the poor usually live) compared to the less polluted areas of the same cities, where the well-to-do live. Evidence is overwhelming with respect to lung conditions, namely bronchitis, asthma, emphysema, and cancer. The evidence is quite strong with respect to heart disease. When pollutants like nitrogen oxides and carbon monoxide are increased, as they will be even if PGE is fortunate enough to obtain enough gas and run exclusively on gas, sickness and death rates are certain to increase.

(more)

When Mr. O'Scanlain states, "The restrictions we impose will ensure the protection of air quality and the protection of the public," he either does not understand the scientific data or he is deliberately not giving the public the complete truth. One wonders if he is caught up in the power "game." The facts are clear. No nitrogen oxides, none, is the quantity that makes for healthy air. As nitrogen oxides are added to the air, this air becomes more and more dangerous. The present air quality in Portland is already poor and no longer the delight it was some 30 years ago when my wife and I first came here from the east coast. To add pollutants can only increase the numbers of citizens who will be harmed and even killed. We in Medicine like to talk about and teach Preventive Medicine. Measures to prevent ailments are certainly far more desirable than making people sick and then trying to treat them.

There is now an oft-repeated slogan, "The Surgeon General of the United States has determined that cigarette smoking is dangerous to your health." It took many years to make this warning a slogan. How many years will it take to make everyone, including PGE officials, accept the fact that air pollution does injure the health of many people?

There is absolutely no doubt that the way to prevent all the sickness effects of this type of air pollution is to eliminate or reduce the poisonous materials. The only way this can be done is by having no dirty, polluting plant. There is one other way of diminishing the effects of the poison, namely dilution. Distance is the factor which permits dilution of undesirable pollutants in air. For each mile away from the metropolitan area PGE puts its plant, the danger to Portland residents decreases several fold. At 5 or 10 miles away from concentrations of people the dilution effects would be very much greater and only then will the protection of the metropolitan population be somewhat ensured.

Thank you for permitting me to speak.

#

Remarks of Irwin S. Adams before the Department of Environmental Quality, State of Oregon, Public Hearing concerning the issuance of an Air Contaminant Discharge Permit to Portland General Electric Company on August 13, 1973 at 9:00 A.M. in Room 680 of the Multnomah County Court House, 1021 S.W. Fourth, Portland, Oregon.

I am Irwin S. Adams, Executive Vice President of the North Clackamas County Chamber of Commerce, residing at 2453 Lake Road, Milwaukie, Oregon. I appear here pursuant to formal Board Authorization of the North Clackamas County Chamber of Commerce on behalf of a membership of 551, generally, and on specific authorization by the following specific entities:

- Oregon Worsted Company
- Northwest Pipe & Casing Company
- Cornell Manufacturing Co.
- Production Parts Mfg. Co.
- Mail-Well Envelope Co.
- Pak-Well Paper Products Co.
- Gem-Top Manufacturing, Inc.
- Oak Lodge Sanitary District
- Clackamas Water District
- Estacada Area Chamber of Commerce
- City of Estacada
- Brod & McClung-Pace Co.
- Sunset Service
- Milwaukie Convalescent Hospital

We understand that the purpose of PORTLAND GENERAL ELECTRIC COMPANY'S gas turbine generating plant now being assembled at Harborton is to provide an essential source of electrical energy during periods of peak loads, when normal generation is not adequate. It is further understood that denial of the permit will make likely curtailment of delivery of electric power to our manufacturers, distributors and other business users of electrical energy. If such occurred, it would translate into diminished employment--a most unwelcome consequence. The maintenance of a viable economic climate requires an adequate power resource. Further, various of our members, in government as well as business, have expressed their concern about the continuance of their essential activities.

To our knowledge it has not been represented that the individual user of electrical energy is apt to suffer because that is a first priority. However, in the eastern United States this summer and in the past, power shortages of the kind

calling for the use of supplemental energy have been experienced. Lacking additional provision for supplemental peak load power, it would seem that the some 2,000,000 Oregonians served by Portland General Electric Company would definitely be running an unnecessary risk.

I would like to quote from a letter submitted herewith from the Oak Lodge Sanitary District:

"We would also like to remind you that sewage treatment plants are major users of power in their efforts to cooperate in cleaning up the rivers of Oregon.

The Oak Lodge Sanitary District is using at present in a typical month 152,496 kilowatt hours of electricity to do its job. When the addition to our plant is completed in October, 1973 it is estimated that we will be using an additional 216,000 kilowatt hours per month. When you add to this all the treatment plants in various stages of construction in the urban and suburban areas surrounding Portland it is apparent that any projected curtailment of power is of major concern to us."

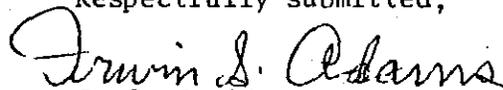
Also I wish to quote several paragraphs from a letter from the Clackamas Water District as follows:

"The recent denial of the permit to P.G.E. for their proposed combustion turbine plant is of great concern to us. We are a municipal corporation supplying to our accounts and through our wholesale customers, water to approximately 40,000 people. To move water from our filter plant to various reservoirs and customers requires pumping. During the past year the district consumed 3,581,221 kilowatt hours of electric power. Should a curtailment in electric power result from denial of this permit, we would be faced with insufficient power, particularly during peak demand periods to provide the pumping capacity needed to meet our system demands."

Within the service area of the North Clackamas County Chamber of Commerce there is strong support for approval of the Portland General Electric Company's Harborton proposal. It is our settled conviction, after careful evaluation of the matter, that the interests of our citizenry will be best served by the grant of the Air Contaminant Discharge Permit to Portland General Electric Company.

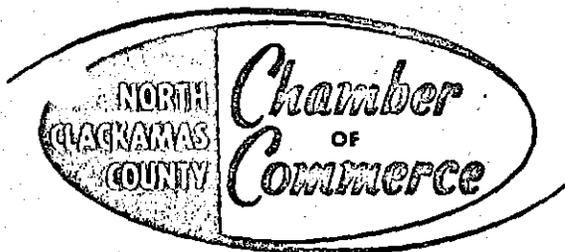
Thank you for the opportunity to be heard.

Respectfully submitted,



Irwin S. Adams
Executive Vice President

North Clackamas County Chamber of Commerce



15010 S.E. McLOUGHLIN BLVD.—MILWAUKIE, OREGON 97222
telephone 654-7777

August 10, 1973

INDEX OF AUTHORIZATION COMMUNICATIONS BY NUMERICAL REFERENCE:

1. Oregon Worsted Company
2. Northwest Pipe & Casing Co.
3. Cornell Manufacturing Co.
4. Production Parts Mfg. Co.
5. Mail-Well Envelope Co.
6. Pak-Well Paper Products Co.
7. Gem-Top Manufacturing Inc.
8. Oak Lodge Sanitary District
9. Clackamas Water District
10. Estacada Area Chamber of Commerce
11. City of Estacada
12. Brod & McClung-Pace Co.
13. Sunset Service
14. Milwaukie Convalescent Hospital

Your measure of quality yarns ®

(1)

OREGON WORSTED CO.

P. O. Box 02098

8300 S.E. McLOUGHLIN BLVD., PORTLAND, OREGON 97202, U.S.A.

Phone 236-2128

Area Code: 503

DATE REC'D.

8-10-73

August 9, 1973

TO WHOM IT MAY CONCERN -

We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the hearing of an appeal by the Portland General Electric Co. before the Department of Environmental Quality to be held at 9 A.M. on August 13, 1973, in Room 680 of the Multnomah County Court House in Portland and at any and all adjournments thereof.

OREGON WORSTED CO.

By

Wm H Bishop

Secretary-Treasurer

NORTHWEST PIPE & CASING CO.

9200 SOUTHEAST LAWNFIELD ROAD
CLACKAMAS, OREGON 97015
TELEPHONE 659-5650

DATE REC'D.

6-11-73

June 8, 1973

North Clackamas County
Chamber of Commerce
15010 S.E. McLoughlin Blvd.
Milwaukie, Oregon 97222

Attention: Mr. Irwin S. Adams
Executive Vice-President

Dear Irwin:

We are in receipt of your letter of June 7, 1973 relative to the Portland General Electric Company hearing for permit to operate their combustion turbine plant in North Portland.

We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the appeal by Portland General Electric Company, scheduled to be heard by CWAPA at 10:30 A.M., Friday, June 15, 1973 in the auditorium of the Water Service Bureau, 1800 S.W. 6th Avenue, Portland, Oregon.

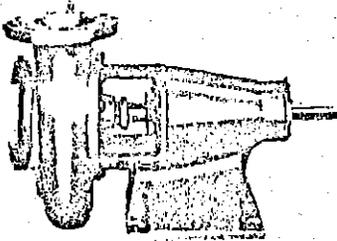
Yours very truly,

NORTHWEST PIPE & CASING COMPANY



Ralph C. Elle
President

RCE/rm



Cornell Manufacturing Co.

MANUFACTURERS OF QUALITY PUMPS

GENERAL OFFICE AND PLANT

2323 HARVESTER DRIVE • PORTLAND, OREGON 97222 • AREA CODE 503 ~~XXXXXX~~ 653-0330



June 11, 1973

DATE REC'D.
6-12-73

Chamber of Commerce
North Clackamas County
15010 S.E. McLoughlin Blvd.
Milwaukie, OR 97222

Attention: Mr. Irwin S. Adams,
Executive Vice President

Dear Mr. Adams:

In reference to your letter of June 7, 1973, we officially authorize the Chamber of Commerce to represent us as spokesman at the appeal by Portland General Electric Company Friday, June 15.

Sincerely,

CORNELL MANUFACTURING CO.

O.B. Winkle, Manager

OBW:BLT

Production Parts Manufacturing Co.

4222 S. E. KEY WAY
PORTLAND, OREGON 97222
(503) 654-9543

DATE REC'D.

6-13-73

June 11, 1973

North Clackamas County
Chamber of Commerce
15010 S. E. McLoughlin Blvd.
Milwaukie, Oregon 97222

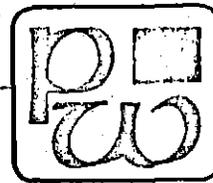
We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the appeal by Portland General Electric Company, scheduled to be heard by CWAPA at 10:30 A.M., Friday, June 15, 1973 in the auditorium of the Water Service Bureau, 1800 S. W. 6th, Portland, Oregon .

Sincerely,


W. J. Freeman

DATE REC'D.

6-14-73



pak-well
CORPORATION

June 12, 1973

Mr. Richard Hatchard, Program Director
Columbia-Willamette Air Pollution Authority
1010 N. E. Couch
Portland, Oregon 97232

Dear Mr. Hatchard:

I am writing on behalf of two of our corporate subsidiaries located in the Milwaukie, Oregon area, and who operate under the names of Mail-Well Envelope Company and Pakwell Paper Products Company.

The purpose of my letter is to strongly urge and recommend your approval of the Portland General Electric application for an air discharge permit to operate their combustion turbine plant at Harberton in North Portland.

The data that has been supplied to me with regard to the efforts put forth by Portland General Electric to meet and conform with the air pollution standards indicate affirmative action and compliance in all their efforts towards the installation of this facility, which in itself should be reason enough to grant a permit for operation of this all-important system, especially in light of these critical power shortage times.

Should there be undue delay in the issuance of this permit, I fear that the economy in the State of Oregon, and particularly the Tri-County area, will adversely be affected at a time when these areas have their greatest opportunity to capitalize on recently developed stabilized economic conditions.

Specifically, I would like to direct attention to the two facilities for which I speak, and which are located in Milwaukie, Oregon -- Mail-Well Envelope Company and Pakwell Paper Products Company. These two facilities operate under a single roof and require 400,000 kilowatt-hours per month of energy to sustain their productivity. This productivity is supported by approximately \$15 million dollars of annual sales which are directed to the retail, commercial and industrial trades of the states west of the Rocky Mountains, of which better than 4/7 are sales dollars that come from



outside the State of Oregon. Should Portland General Electric not be granted a permit that would subsequently result in their having to require an industry cut-back of power consumption, not only would the sales be affected but also the jobs of some 420 employees involved in wealth producing activities for the state, and the combined annual payroll of these two corporate subsidiaries would represent in excess of \$6 million dollars per annum.

So to summarize, we obviously feel quite strongly in our position with regard to the urgency we place upon your affirmative action to approve the Portland General Electric application for the operation of their combustion turbine plant at Harberton, especially since sufficient data is at hand to indicate compliance by Portland General Electric to meet all standards set forth by the Air Pollution Authority in the construction of this facility, and because any action other than affirmative action will directly effect the economy of the State of Oregon, the incomes of our employees, and our image and reputation of our customers both within and outside the State of Oregon at a time when irreparable damage could be sustained in our state's effort to sustain a high level of employment and economic growth. I speak not only on behalf of our own corporate subsidiaries in this previous statement, but on behalf of all wealth producing industry in our state who would be equally affected as would our own two subsidiaries.

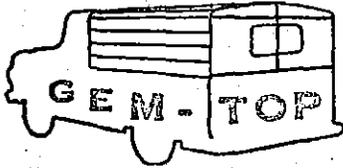
Due to the fact that it will be impossible for me to attend the meeting scheduled for 10:30 a.m. on Friday, June 15, 1973 in the auditorium of the Water Service Bureau at 1800 S. W. 6th Avenue in Portland, Oregon, I am then officially authorizing the North Clackamas County Chamber of Commerce to represent us as spokesmen at the appeal by Portland General Electric Company scheduled to be heard by CWAPA at 10:30 a.m. on Friday, June 15, 1973 in the auditorium of the Water Service Bureau, 1800 S. W. 6th Avenue in Portland, Oregon.

Further, I request that this letter be entered into the record of that meeting.

Again, your positive action in this request will be a positive and continued step forward for both the short and long range well-being of the citizens of the State of Oregon.

Yours sincerely,

W. R. Lake, Jr.
Chairman of the Board



AREA CODE 503 858-3733

GEM-TOP MFG. INC.

8811 S. E. HERBERT COURT
CLACKAMAS, OREGON 97015

DATE RECEIVED

6-14-73

June 13, 1973

North Clackamas County
Chamber of Commerce
15010 S. E. McLoughlin Boulevard
Milwaukie, Oregon 97222Attention: Irwin S. Adams
Executive Vice President

Gentlemen:

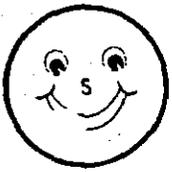
We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the appeal by Portland General Electric Company, scheduled to be heard by CWAPA at 10:30 A. M., Friday, June 15, 1973 in the auditorium of the Water Service Bureau, 1800 S. W. 6th, Portland, Oregon.

Sincerely,

GEM-TOP MFG. INC.

H. O. Geisler
President

HG/jd



OAK LODGE SANITARY DISTRICT

OFFICE: 13707 S. E. FAIROAKS DRIVE
 P. O. BOX 68522
 OAK GROVE, OREGON 97268
 TEL. 654-6862

August 9, 1973

DATE REC'D.

8-10-73

Mr. Irwin Adams, Executive Vice President
 North Clackamas County Chamber of Commerce
 15010 SE McLoughlin Blvd.
 Milwaukie, Oregon 97222

Dear Mr. Adams:

We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the appeal by Portland General Electric Company, scheduled to be heard by Department of Environmental Quality, State of Oregon at 9:00 A.M., August 13, 1973 at the Multnomah County Commission, Room 680, Multnomah County Court House, 1021 S. W. Fourth, Portland, Oregon.

We would also like to remind you that sewage treatment plants are major users of power in their efforts to cooperate in cleaning up the rivers of Oregon.

The Oak Lodge Sanitary District is using at present in a typical month 152,496 kilowatt hours of electricity to do its job. When the addition to our plant is completed in October, 1973 it is estimated that we will be using an additional 216,000 kilowatt hours per month. When you add to this all the treatment plants in various stages of construction in the urban and suburban areas surrounding Portland it is apparent that any projected curtailment of power is of major concern to us.

Very truly yours,

OAK LODGE SANITARY DISTRICT

Jeanette Norman

Jeanette E. Norman
 General Manager

CLACKAMAS WATER DISTRICT

TELEPHONE 658-0668

P. O. BOX 67 • CLACKAMAS, OREGON 97015

August 10, 1973

Irwin Adams
Executive Vice President
North Clackamas County
Chamber of Commerce
15010 S.E. McLoughlin Blvd.
Milwaukie, Oregon 97222

Dear Mr. Adams:

We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the appeal by Portland General Electric Co., scheduled to be heard by D.E.Q. on August 13, 1973.

The recent denial of the permit to P.G.E. for their proposed combustion turbine plant is of great concern to us. We are a municipal corporation supplying to our accounts and through our wholesale customers, water to approximately 40,000 people. To move water from our filter plant to various reservoirs and customers requires pumping. During the past year the district consumed 3,581,221 kilowatt hours of electric power. Should a curtailment in electric power result from denial of this permit, we would be faced with insufficient power, particularly during peak demand periods to provide the pumping capacity needed to meet our system demands.

Should a fire occur we would be unable to supplement our reservoir supply, already marginal, with water pumped from our filter plant.

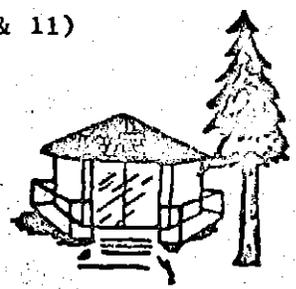
We do not advocate acceptance of an installation that will cause a great deal of air pollution. We do believe that, perhaps an agreement can be worked out which would enable the producer of electricity to minimize discharges into the air and at the same time provide adequate electric energy to meet the basic demands placed on the system. We urge that careful consideration be given to the far-reaching impact of a decision adversely effecting power users such as ourselves.

Sincerely yours,

CLACKAMAS WATER DISTRICT

Fred Whitfield
Fred Whitfield, P.E.
General Manager

FW/cc



Estacada Area Chamber of Commerce

* POST OFFICE BOX 296 *

ESTACADA, OREGON 97023 *

TELEPHONE 630-3483 *

DATE REC'D.

August 9, 1973

8-10-73

Irwin S. Adams, Executive Vice President
North Clackamas County Chamber of Commerce
15010 S. E. McLoughlin Blvd.
Milwaukie, Oregon 97222

Dear Mr. Adams,

We hereby officially authorize the North Clackamas Chamber of Commerce to represent us as spokesman in support of the issuance of an Air Contaminant Discharge Permit to PGE for operation of eight combustion gas turbines at St. Helen's Road, known as the Harborton site.

A hearing to consider this matter will be conducted by the Department of Environmental Quality, State of Oregon, at 9:00 A. M., August 13, 1973 at the Multnomah County Commission, Room 680, Multnomah County Court House, Portland, Oregon.

Duane B. Day, President
Estacada Area Chamber of Commerce

George A. Grant
Mayor of Estacada



BROD & McCLUNG-PACE CO.

9800 S. E. McBrod Avenue
Portland, Oregon 97222
(503) 659-5880

In Reply Refer to:

DATE RECD.

6-15-73

June 13, 1973

North Clackamas County
Chamber of Commerce
15010 S. E. McLoughlin Boulevard
Milwaukie, Oregon 97222

Attention: Irwin S. Adams, executive Vice President

Gentlemen:

We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the appeal by the Portland General Electric Company, scheduled to be heard by CWAPA at 10:30 A.M., Friday, June 15, 1973, in the auditorium of the Water Service Bureau, 1800 S. W. Sixth Avenue, Portland, Oregon.

Very truly yours,

BROD & McCLUNG - PACE CO.

William M. Brod

WMB:mn

SUNSET
SERVICE

8057-8065 S.E. 13th STREET • PORTLAND, OREGON 97202 • 234-7388

June 14, 1973

DATE REC'D.

6-15-73

We hereby officially authorize the North Clackamas County Chamber of Commerce to represent us as spokesman at the appeal by Portland General Electric Company, scheduled to be heard by WAPA at 10:30 A.M. Friday, June 15, 1973 in the auditorium of the Water Service Bureau, 1800 S.W. 6th, Portland, Oregon.



MILWAUKIE CONVALESCENT HOSPITAL

12345 STANLEY AVENUE
MILWAUKIE, OREGON 97222
PHONE: 659-2323

DATE RECD.

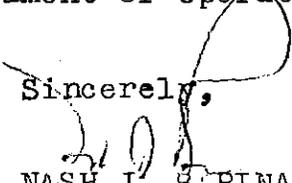
6-16-73

North Clackamas County
Chamber of Commerce
Milwaukie, Oregon

Dear Sirs:

As there is a strong possibility that I will be unable to personally attend the meeting on June 15, 1973, you are hereby requested and authorized as the North Clackamas County Chamber of Commerce to represent us as our spokesman at the appeal by Portland Electric Company scheduled for hearing at 10:30 A.M., Friday June 15, 1973 in the auditorium of the Water Service Bureau, 1800 SW 6th, Portland, Oregon. It is imperative that every effort be directed to avoid curtailment of operations by businesses.

Sincerely,


NASH J. BARINAGA, Admin.

Memorandum
August 13, 1973

TO: Environmental Quality Commission
FROM: Dr. George A. Tsongas (229-4631)
SUBJECT: Air Contaminant Discharge Permit for PGE Harborton Plant

My name is Dr. George A. Tsongas of 2922 N.W. 53rd Drive in Portland. I am an engineer and presently teach at Portland State University. I have been retained as a consultant to make technical comments on the proposed permit and represent the following groups: Northwest Environmental Defense Center, Oregon Environmental Council, Northwest District Association, Linnton Community Center, and North Portland Citizens Committee. I have my Ph.D. in engineering from Stanford University. Part of my expertise includes subjects being considered here today, namely air pollution and its control, energy production and gas turbine engines. I presently teach graduate and undergraduate air pollution control courses as well as courses dealing with energy and its production and utilization; I have also taught a graduate course dealing with the principles and design of gas turbine engines. Thus, I feel qualified to speak to the issues at hand here today. I should add that I have prepared my remarks in consultation with Dr. Frank P. Terraglio who also teaches air pollution courses at Portland State University.

After having examined the proposed permit I would like to address three main subjects. First, I would like to comment on some weaknesses which remain in the permit and suggest some changes that should be made prior to the time the permit is granted. Secondly, I would like to consider the question of the control of the oxides of nitrogen. Lastly, I would like to consider the question of issuance of a permit to discharge contaminants into the air in light of present and anticipated violations of ambient air quality standards.

To begin, then, consider the permit itself. In section 1.2.1, reference is made to opacity and should refer to plume opacity. In order to preclude confusion in making proper opacity measurements, the section should read"from any single turbine plume or combination of turbine plumes."

Sections 2.1.1 and 2.1.2 deal with the hours of turbine operation and type of fuel use and mention is made of possible increase in the total hourly operation after written approval from DEQ. Since the pollution estimates as related to ambient air standards are based on the estimated 3,540 total hours of turbine operation, it would seem that any hourly increase should require new analysis and hence a new permit application. It is thus suggested that the mention of possible written approval be stricken and the requirement for a new permit be added.

Section 2.1.6 deals with startup on natural gas whether sustained operation is on gas or oil. Since the intent of this requirement is apparently to minimize the excessive emissions which occur during startup and shutdown, should not the engines also be stopped using natural gas?

With regard to curtailment of turbine operation during adverse conditions, section 2.1.7 is confusing and incomplete. In that section an emission reduction plan exists for turbine operation on oil but not on gas. While it is less likely that the gas-fired turbine operation might produce a violation of air quality standards, some possibility nonetheless does exist. Hence the emission reduction plan should be extended to include operation with natural gas as well as oil. Furthermore, section 2.1.7 of the permit requires that the turbines cease operation when sulfur dioxide and/or particulate air quality at any downwind continuous monitoring site reaches certain critical levels. First, how is downwind defined? Second, why isn't NO_x included since the facility represents such a large fraction of the total areawide NO_x emissions? If the NO_x air quality were dangerously bad, would it not make sense to curtail operation of the most significant single source of such emissions? Moreover, it is not clear whether shutdown is required when particulate

or sulfur dioxide air quality levels first reach the levels noted in the permit or after the actual levels have exceeded the levels noted in the permit for the appropriate period of time. Further, if for example particulate air quality has exceeded the set levels for 24 hours, then clearly by the time shutdown is ordered, the ambient levels could be well above the standards. In addition, the permit does not address the question of when the shutdown turbines can resume operation. What criteria will DEQ use, and who will make the decision? This needs to be defined. My final comment on this section is that it will allow possible violations of the longer-term ambient air standards. It is quite possible, for example, that the 24-hour or 3-hour particulate standards might not be exceeded and yet the annual standard could be violated. The permit does not consider this real possibility. This whole section needs to be better spelled out.

Section 2.2 states that the turbines shall not be operated at a power output of other than 15 to 30 megawatts for more than 1 hour in any 24 hour period, except for startup or shutdown. That exception should be deleted. In fact, it is startup and shutdown operation that should be restricted to 1 hour in any 24 because of the marked increase of certain pollutant emissions during those periods. If such operation is allowed for extended periods of time, consequent violations of emission standards as well as air quality standards might occur. Moreover, since the turbine emissions are relatively high even at power levels as high as 15 megawatts, that lower power limit for base-load operation should be increased to about 23 megawatts for safety's sake.

Section 2.3 deals with curtailment of operation due to critical oxidant levels. Many of the remarks made regarding section 2.1.7 apply also to section 2.3.

Sections 2.6-2.8 deal with the projected operating time for the second year of operation as well as termination of operation at Harborton after the second year. In section 2.6 reference is made to the "projected operating time ... for the period July 1, 1974 until the PGE Trojan nuclear power facility becomes operational." To be consistent with section 2.8, the following phrase should be added: "or until September 1, 1975, whichever time first occurs."

In section 2.7 mention is made of modifying the permit after consideration of the second year's operating schedule. Yet if any increase in the hours of operation is requested, then should not the effects of the consequent increased pollution be considered at a full public hearing for a completely new permit? In fact, would not a yearly permit be more in order for such a significant source of emissions? Furthermore, if any increase in the use of oil is requested, should not a new permit be required since the use of oil as a fuel has such a marked effect on air quality?

Section 2.8 states that PGE shall not operate the turbines at Harborton after September 1, 1975. If that really is the intent of DEQ at this time, should not that exceedingly important point be more strongly stated in a more legally binding fashion? A statement should be added to the effect that any permit request for operation of any turbines at Harborton beyond September 1, 1975 will automatically be rejected. Furthermore, a plan and schedule for phasing out operation at Harborton and moving to another site should be required at an early date, say by September 1, 1974 to allow proper review by DEQ as well as public input. If the true intent of the DEQ is to later consider the possibility of further Harborton operation beyond 1975, then section 2.8 should be eliminated so that the public is not misled. Otherwise the section should be strengthened.

Sections 3.2 and 3.3 deal with NO_x control and I shall return to consideration of this important area after a few more remarks about the permit.

Section 4.3 deals with a monitoring program installed and operated by PGE to determine the concentration of pollutants in the air around Harborton. Yet I wonder if the State should require PGE to operate the monitors in as much as DEQ has the expertise in this area. Moreover, DEQ is responsible for enforcing the permit requirements.

In section 4.6, PGE is required to promptly notify DEQ of any malfunction or upset in operation that may cause an increase in emissions or violation of any conditions of the permit. However, no mention is made of how long the facility can pollute in an upset or breakdown condition prior to notification of DEQ; the word "promptly" is extremely vague and should be quantified. Furthermore, PGE is not required to shut down operation

when such a condition arises. Thus the facility could pollute in violation of emission standards for a considerable length of time, and there would appear to be no reason for allowing such lengthy violations. In fact, if the upset or breakdown persists for longer than say just one hour, DEQ should be notified and the facility should be shut down.

Section 5.7 requires application for a new permit prior to substantial modification, alteration, addition, or enlargement of the facilities which have a significant impact on air contaminant emissions. The word "substantial" is used twice and is again exceedingly vague. Any facilities which result in any increase in emissions should require a new permit.

Finally, no mention is made in the permit of possible complete curtailment of operation at Harborton prior to September 1, 1975 in view of inadequate progress of the implementation plan for improvement of Portland's air. As I will suggest shortly, an in-depth study should be made of the progress of the implementation plan. If as a result of that study no improvement is found or anticipated for our air quality, then the Harborton facility should be required to cease operation prior to the permit expiration date if the permit is granted at this time.

Having thus concluded my remarks on the permit except for the sections concerning control of oxides of nitrogen, let me suggest that a technical meeting be called prior to issuance of the permit so that the representatives of DEQ, PGE, and the groups I represent can satisfactorily settle these issues. I strongly feel that if these points I have mentioned are not clarified, then PGE could operate in a manner which might not be in the best public interest.

Now let me turn to the control of the oxides of nitrogen (called NO_x for short). The permit is extremely weak in this area and that is both disappointing to the citizens I represent as well as myself and clearly in violation of State law. I hope to be able to show that here today.

In the very first CWAPA permit draft, no NO_x control was required. After both citizen input and technical meetings, and just prior to being taken over by the State, CWAPA required PGE to retrofit an NO_x

control system within roughly one year. And now, in essence, we have no NO_x control required with this proposed DEQ permit.

At this point some further background is perhaps in order. In technical discussions in May with Mr. Eric Noble, an EPA gas turbine authority who was asked to come here by CWAPA, it was brought out that the Pratt & Whitney turbine engines could indeed be retrofitted with water injection NO_x control as I had noted at the first Harborton permit hearing. In an earlier technical meeting, Pratt & Whitney representatives had misleadingly noted problems with one of their gas turbine engines in San Diego which had steam injection for NO_x control. In fact, the problems had nothing to do with NO_x control and the engine was a 1958 model aircraft type engine and not the C-1 engine being installed at Harborton. Furthermore, the C-1 engines would use water injection rather than steam injection. In my discussions with Pratt & Whitney personnel long before the first hearing on this subject or any of the followup technical meetings, I was assured that water injection was indeed feasible and available at that time for the Harborton engines. I cannot help but wonder why they later gave such misleading information to the contrary. In December of 1971, two Pratt & Whitney engineers reported at an American Society of Mechanical Engineer's national technical meeting that NO_x control using water injection had been quite satisfactorily demonstrated in full scale tests of an industrial turbine engine which was the predecessor of the engines presently at Harborton. The report presenting those findings is entered as evidence. Note that the tests reporting achievement of about 85% reduction in NO_x were completed more than two years ago, yet PGE tells us today, two full years later, that they could not retrofit. However, five new Pratt & Whitney C-1 gas and oil-fired turbine engines have been ordered by San Diego Gas & Electric Company and are to be delivered in January 1974 with NO_x control guaranteed to meet the strict California Rule 68. If NO_x control is so impossible, how could they agree to sell engines with guaranteed control that will be delivered in such a relatively short time. In fact, manufacture of the control devices and associated equipment would have to begin about now just to have them ready for delivery. It is quite clear that NO_x control using water injection is feasible, practical, and possible. In fact, in a technical meeting at CWAPA with a gas turbine authority from General Electric, water injection was stated to be common everyday practice with GE engines and reliably in operation for two years

on 18 turbines in San Diego. Furthermore, 9 new Westinghouse gas turbines being installed in Jacksonville, Florida incorporate water injection for NO_x control.

Some further comment on this point is perhaps in order. It appears that it would take six to nine months to complete a retrofit, including a water treatment plant. Actually, water treatment plants have been operating in 60-90 days after order for the San Diego gas turbine engines. However, that should not enter the question. After all, PGE ordered the turbines roughly one and a half years ago. Had they made a more timely permit application, no time problem would exist. Pratt & Whitney reported two years ago that water injection was successful. Moreover, PGE knew over a year and a half ago that the State of Oregon required "the highest and best practicable treatment and control". Thus, PGE should have ordered NO_x control equipment with their engines. Obviously they had no great desire to spend the money for such control equipment. Yet, were the DEQ to grant a permit without NO_x control under these conditions, it would in essence be encouraging applicants to order equipment without controls despite statutory requirements. The applicant could then file a late application and plead urgency and need in order to get by without incorporating the appropriate control devices. That would appear to us to be a rather bad precedent to set and clearly in violation of the spirit and the letter of the law.

Now the apparent reason for the "wait and see" attitude of DEQ on NO_x control is that a new promising technique utilizing catalytic conversion without any water injection might be soon available. In a recent discussion with Dr. Y. C. Lee, the president of the small company that makes the control equipment, it became readily apparent that such control could not be used on the Harbotron engines. First of all, according to Dr. Lee it would take 18-24 months before the devices would be available and usable. By that time the 2-year permit would have expired. Furthermore, these devices were noted by DEQ to be better than water injection in reducing NO_x. This in fact is not so. In small-scale tests on gas turbine engines, the only gas turbine tests run so far, the devices have achieved less than 80% reduction, which is lower than that achievable using water injection. Actually, these devices have never been made for or tested on a full scale gas turbine engine. No one knows exactly how they might work or how soon on a full scale engine, although the company is

optimistic. In addition, use of the devices results in large emissions of ammonia into the air. That too requires further examination and study. In short, as a control engineer these catalytic devices do provide me with some genuine hope for future satisfactory NO_x control, but they certainly are not the best or most practicable control at this time, nor will they be in the near future. Any further consideration of their use for the Harborton facility should be abandoned.

It should be noted that the NO_x control guaranteed for the new San Diego engines might be in the form of a dry control technique, which involves only a relatively simple modification to the combustion chamber. The dry control is as yet not quite as good as water injection, but of course eliminates the need for water. On July 27 San Diego Gas & Electric was told by Pratt & Whitney that they are tooling up for the use of dry control. However, Pratt & Whitney tests of this technique are still incomplete, and they may have to fall back on water injection to meet their guarantee. If the dry technique proves satisfactory and is used in San Diego, it would be available to retrofit the Harborton engines early next year, according to a Pratt & Whitney representative. While this dry technique gives hope for a satisfactory control method, it will nonetheless probably never be as effective as water injection.

One final comment should be made. The State law requires the best practicable treatment and control so as to minimize the emissions of air pollutants. It is quite clear that NO_x control using water injection is and has been available and is the best practicable control method at this time. To not require its use is in clear violation of the intent of the State law. It should be required for the Harborton engines. There is no reason to allow any unnecessary degradation of Portland's air quality prior to retrofit when it is so clear that NO_x control is feasible and available. To not require it will result in an unnecessary increase in haze and smog in Portland with a consequent reduction in visibility. In light of the Supreme Court ruling on non-degradation, coupled with the evidence on the ability to operate with available NO_x control, it is my recommendation that PGE be required to install NO_x control equipment prior to any operation of the Harborton engines. Moreover, the NO_x emissions should be limited to the levels noted in the permit draft, Sections 3.2 and 3.3

requiring a retrofit "as soon as practicable, as determined by the Department"... are vague and essentially of no value.

Lastly, I would like to briefly consider where Portland's air quality stands with regard to the ambient air quality standards. It would appear that EPA and State monthly and 24 hour ambient standards for particulates are frequently being violated in downtown and northwest Portland. In 1972, the CWAPA monthly standard was violated eleven out of twelve months of the year; in the downtown area, the standard was violated every month. In 1973 the standards have been violated almost every month. It should also be pointed out that particulate emissions are not primarily caused by auto emissions but rather are created by industrial, commercial, and household sources. In addition to the particulate standard, the oxidant standard also continues to be violated in the Portland area. What is most noteworthy is that the incidence of such violations for both particulates and oxidants is apparently on the increase. In fact, this problem has been recognized by your own staff, yet somehow they are hesitant to admit it exists. Let me quote from a memorandum dated 16 May 1973 from Wayne Hanson, then the Deputy Program Director of CWAPA to R.E. Hatchard, the Director, at the request of Hal Burkitt, DEQ. The memorandum is with reference to the air quality impact of the proposed oil refinery at Rivergate just across the river from Harborton. I quote: "Particulates - Presently the area exceeds the ambient air particulate standards. Although it is projected compliance will be achieved by 1975 with new industries (example Cook Industries, PGE), the standard may be difficult to achieve if not impossible. All new industries in this area should be evaluated carefully. NO_x - ... based on our analysis concerning P.G.E. there isn't much room left in NW Portland for another NO_x source (ambient air standard). Oxidant - We are experiencing higher than ambient levels on occasion now. SO_x - This potentially could be the worse problem. I gave Hal the arithmetic monthly SO₂ average for our NW Portland station. The station shows excessive levels both for the 24-hour and probable annual ambient air standards. Again, considering PGE and with no roll-back strategy for SO_x, I don't believe we could tolerate another large SO₂ source in NW Portland at this time." There is some question as to the validity of the SO₂ data from the NW Portland station, but the area nonetheless does have rather poor air quality. Of most importance is the fact that the Federal and State air quality standards are presently

being violated, and from the data there appears to be no hope of any reduction in the near future. Addition of the Harborton engines would unquestionably make a sizable further impact on our air quality. How then can an air contaminant discharge permit be issued to allow further emissions when the air quality standards are already being violated?

Of course I realize that the DEQ staff has recommended that a permit be granted because they knew that the State has an implementation plan to reduce pollutant emissions so that ambient air quality violations would not occur by 1975. However, it appears that the implementation plan is in fact not working, as the monitoring data suggest. There certainly was no guarantee that the implementation plan would succeed according to the prescribed schedule. In fact, at this time it would appear that little if any reduction has been attained since the plan began. Moreover, just recently EPA partially disapproved of part of the State-approved reduction plan. EPA contended that the Portland plan was overly optimistic and required that revisions be made. Suffice it to say then that the anticipated results of the reduction plan are uncertain. That uncertainty must then be viewed in light of the present and anticipated violations of the air standards. In order to meet the standards by 1975, large reductions in emissions must take place in the next two years (e.g., approximately 50% reduction in particulate emissions). Yet the control plan is in effect now and has been for some time. Where will these large reductions come from? Such reductions seem clearly impossible by 1975. It is my contention that the progress of the implementation plan has not really been looked at. Is the plan really on schedule? Or is it not working? What will the public say in 1975 if little progress has been made toward clean air? When Mt. Hood is no longer visible, what will we have achieved?

Without an in-depth study of this whole question, how can air contaminant discharge permits be granted to any applicant? It is my strong recommendation to the Commission that no permit be granted until this question is clarified. It must be remembered that the Harborton engines will admittedly be the largest single source of emissions in the Portland area.

Two points should be added at this time. If the Harborton facility is such a significant pollutant source that DEQ recommends moving it in two years when the air will supposedly be better, how can they recommend

the granting of a permit now when the air pollution is so bad. This seems rather inconsistent. Moreover, there is an apparent need for energy, yet the DEQ is authorized by State law to address only questions of air quality - not power production.

Finally, it seems worthwhile to note that Congress set the levels of the ambient air standards in order to protect the health and welfare of the public. The levels were set because they represent the threshold of damage, some of which is irreparable, due to air pollution. It was clearly never the intent, as indicated by recent decisions in the courts, to use the air as a dumping ground and fill it uniformly across the nation with pollution in amounts equivalent to the air quality standards. Clean air is a right we all share for our common good. Do we in Oregon really want to abuse it and become another Los Angeles? The pollution potential in the Willamette Valley has in fact been determined to be higher than that of even the Los Angeles basin. Our future progress towards clean air requires that we recognize and adhere to the present air quality standards.

I respectfully submit that these technical points on the permit itself, on NO_x control, and on Portland's air quality are worthy of your consideration in order to comply with the applicable Federal and State statutes to provide for the best possible air quality in Portland.

COLUMBIA-WILLAMETTE AIR POLLUTION AUTHORITY
1010 N.E. Couch Street, Portland, Oregon 97232

MEMORANDUM

16 May 1973

TO: R. E. Hatchard, Program Director
FROM: Wayne Hanson, Deputy Program Director
SUBJECT: Proposed Oil Refining Process - Rivergate Area

On 9 May 1973 at the request of Hal Burkitt, D.E.Q., I briefly discussed the probable air quality impact of an oil refining process that may be installed in the Rivergate industrial area. Hal needed the information later in the day for an in-hour (D.E.Q.) response.

Although there really wasn't specific data to evaluate, based on the preliminary information he had, one would anticipate significant emissions of SO_2 , NO_x and odors.

While at D.E.Q., I checked with the Port of Portland concerning the possible site location. It appears the area north or northeast of the existing Oregon Steel Plant (Willamette River site of Rivergate) is the area considered (across the river from Harborton).

Based on this information, I told Burkitt I would anticipate the following air quality impact:

Particulates - Presently the area exceeds the ambient air particulate standards. Although it is projected, compliance will be achieved by 1975 with new industries (example Cook Industries, P.G.E.), the standard may be difficult to achieve if not impossible. All new industries in this area should be evaluated carefully.

NO_x - The refining process would be anticipated to be a large emitter of this contaminant. Based on our analysis concerning P.G.E. there isn't much room left in NW Portland for another NO_x source (ambient air standard).

Oxidant - We are experiencing higher than ambient levels on occasion now. A refining process would certainly add to and complicate this problem.

SO_2 - This potentially could be the worse problem. I gave Hal the arithmetic monthly SO_2 average for our NW Portland station. The station shows excessive levels both for the 24-hour and probable annual ambient air standards. Again, considering P.G.E. and with no roll-back strategy for SO_2 , I don't believe we could tolerate another large SO_2 source in NW Portland at this time.

Odors - All refining processes have some odors. The project site location is fortunately not located near any residences; however, it is close to the projected park in Rivergate at the confluence of the Willamette and Columbia rivers. If odors are of sufficient strength, I would have to assume it would be probable to detect them in the public park area (the refining process would be a 24-hour, 7 days a week operation).

Based on these very preliminary considerations, I urged Hal to so inform his people so the concern of air quality is known and could be considered before the proposed project gets too far. Considering only air quality aspects, the proposed facility should not be located in the Rivergate industrial park with the information we now have.

Wayne Hanson

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Nitrogen Oxide Control with Water Injection in Gas Turbines

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Full-scale tests on an FT4 industrial turbine engine using natural gas as a fuel have demonstrated that a large reduction in NO_x emission can be achieved by injecting water directly into the combustion chamber. Supporting tests in a single segment combustion chamber of the same design indicated that essentially similar reductions in NO_x emission can be achieved when operating on liquid fuels. These tests indicated that the injection of water directly into the combustion chamber appears to minimize any deterioration in normal performance or durability.

Contributed by the Gas Turbine Division of The American Society of Mechanical Engineers for presentation at the ASME Winter Annual Meeting, Washington, D. C., November 28-December 2, 1971. Manuscript received at ASME Headquarters August 2, 1971.

Copies will be available until September 1, 1972.

Nitrogen Oxide Control with Water Injection in Gas Turbines

R. D. KLAPATCH

T. R. KOBLISH

Considerable effort is being expended by manufacturers of industrial and aircraft gas turbine engines on the development of combustor systems that will reduce the amount of harmful emissions into the atmosphere. Experiments have indicated that the emission of oxides of nitrogen can be substantially decreased, without excessive engine modifications, by the injection of inert substances, such as water into the incoming charge to the combustion chamber. Substantial analytical and experimental background already exists on the thermochemical effects of inert substances on the formation of oxides of nitrogen in steady-state as well as cyclic combustion processes. This data provided a basis on which to estimate general trends to be expected for a given combustor system. A brief listing of these items is included here (1-4).¹

¹ Numbers in parentheses designate References at end of paper.

A field water injection test was conducted on one of four pairs of an eight-engine Hi-Cap gas turbine generating unit. The engines in this unit incorporate dual-fuel nozzles with alternate passages for liquid fuel and natural gas. Thus, it was possible to operate the engines on natural gas, while utilizing the liquid fuel portions of the nozzles to atomize and inject the water into the primary combustion zone. To determine the effectiveness of water injection in reducing nitrogen oxide emission, tests were conducted with water injection at water-to-fuel ratios of 0.065 to 0.891 at several power levels while monitoring engine performance and exhaust emissions. This field test was conducted after extensive prototype engine tests and burner rig tests with water injection had been conducted at Pratt & Whitney Aircraft's experimental test facilities. The latter included combustion tests in a single segment burner rig at approximately one atmosphere burner inlet pressure. In these tests, burner

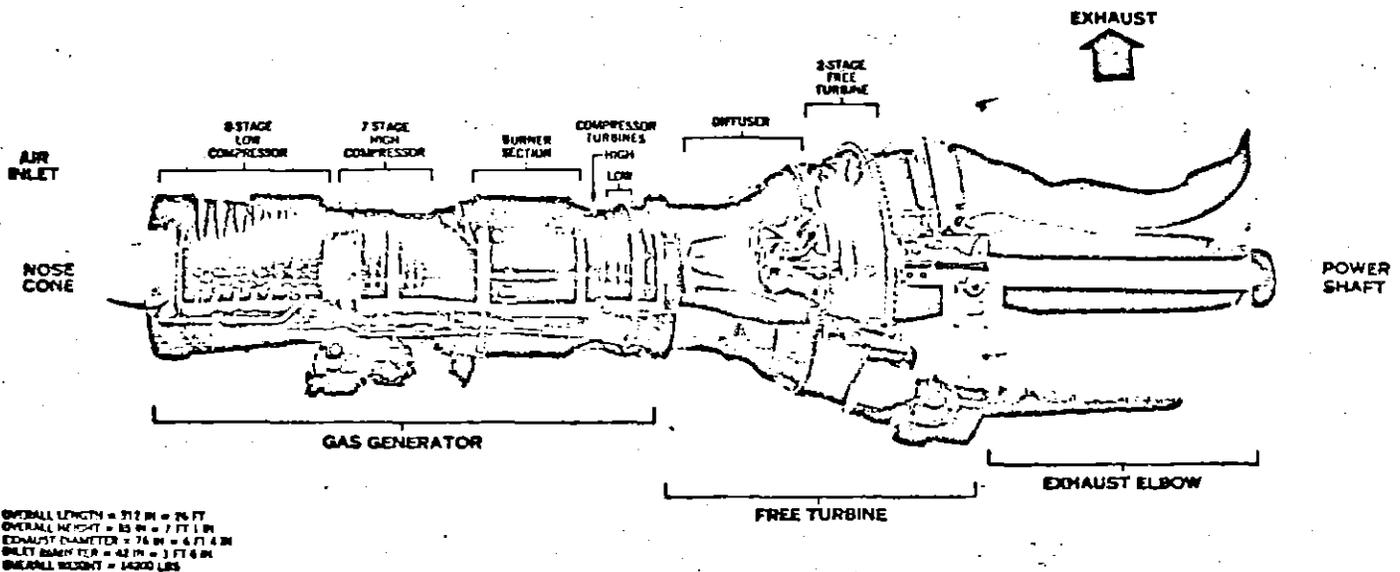


Fig. 1 Cutaway of a typical FT4 gas turbine engine

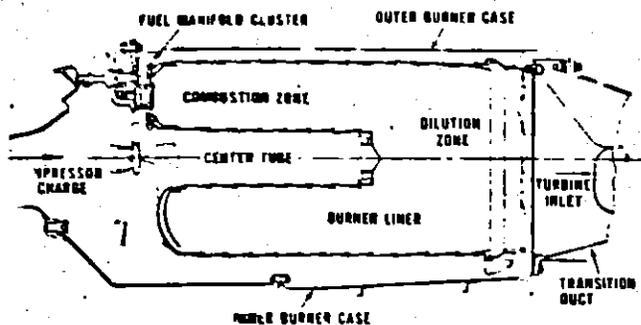


Fig. 2 FT4 burner section

performance and NO_x emission were measured while using either distillate or natural gas as a fuel and injecting water over a range of water fuel ratios from 0.25 to 1.5. The program was also conducted while injecting a mixture of water and fuel through the fuel nozzles.

BACKGROUND/PROBLEM DEFINITION

With an increasing population and an increasing demand for industrial products coupled with an increasing awareness of the dangers of environmental pollution, air pollution regulations are expected to become more restrictive requiring continual research to reduce emissions from industrial machinery.

With the evolution of larger and higher temperature gas turbines, the absolute quantities of NO_x emission (on a pound per hour or parts per million basis) will increase unless a low emission combustion system can be developed.

Since industry is now living in a period when rapidly changing attitudes toward environmental pollution are being increasingly implemented by moral suasion and new regulations, the goals of emission reduction programs are continually changing. Under these conditions, the only sensible objective that can be pursued in development programs is the achievement of a maximum reduction in emission.

The findings reported here are the results of the early stages of the emission reduction program. The primary concern during this period was with oxides of nitrogen and their reduction by means of injected inert materials.

The rate of formation and the reaction processes of NO and NO_2 have been the subject of much investigation as borne out by the extensive list of references usually accompanying published material on this subject. It has been universally acknowledged that time, temperature, and atomic oxygen content determine the rate (and eventual level) of NO formation within a given combustion

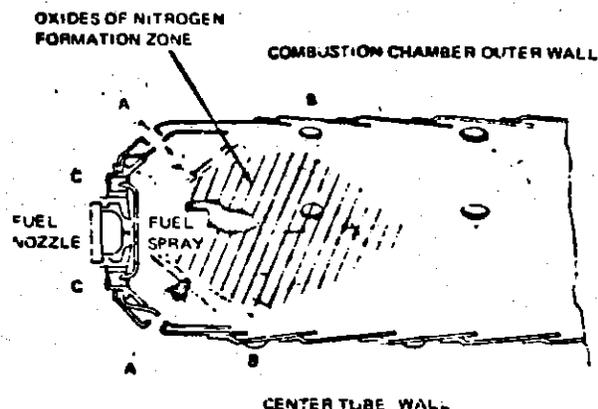


Fig. 3 FT4 burner front end flow pattern

system. However straightforward the influence of each of these factors appears when considered by itself, it is readily apparent that the overall rate of NO formation, because of the complexity of the turbulent flow patterns occurring in the front end of the burner, will be some value consistent with and influenced by localized conditions occurring in the burner. The extent to which temperature and NO vary within the combustor is illustrated by the measurements performed and reported by Starkman et al.(6).

Based upon these experimental observations and consideration of the thermochemical relationships describing the formation of NO , it is apparent that a reduction in local temperature level within the primary zone of the combustor could contribute to a general reduction of NO_x emission. Approaches to accomplish this reduction would be to lower the local fuel air ratio by improved mixing or to increase the average specific heat characteristics of the local gas mixture. The former approach would diminish the local "hot spot" temperature areas by leaning out the local mixture, while the latter would increase the average heat absorption within the primary zone. Of these, the latter approach lends itself well to a practical application when water as liquid or steam is considered as an inert high heat (as well as latent heat) substance to be injected into the primary zone. The calculated effect of fully mixed water vapor and steam on the adiabatic flame temperature of a hydrocarbon fuel indicates that reductions of 450 and 110 R, respectively, can be achieved for water/steam fuel ratios of 1.0. It is apparent, if the full effect of the water can be utilized, that a substantial reduction in NO may be realized. Analysis of the probable effects using a mathe-

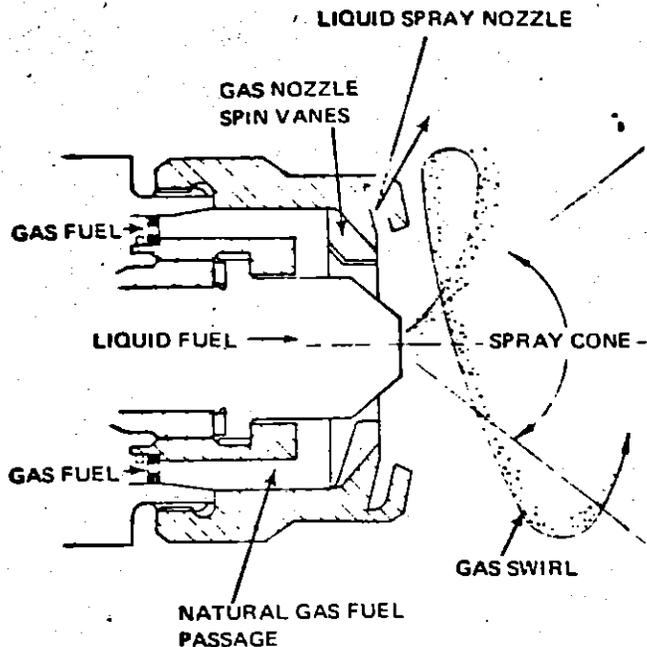


Fig. 4 FT4 dual-fuel nozzle cross section

tical modeling technique, as described by Roberts et al. (5), indicated that a reduction of 97 percent with water and 80 percent with steam would be predicted at maximum power levels and water-fuel ratios of 1.0. Thus, though the probable benefits of injecting an inert higher specific heat capacity substance, such as water, into the primary zone of a gas turbine combustor were well established, it remained to experimentally determine the exact NO_x reduction by burner rig and engine evaluation.

COMBUSTOR SYSTEM

The FT4DF gas turbine engine combustor section is of the can-annular type containing eight burners. Each burner contains six fuel nozzles arranged symmetrically around a center tube. A longitudinal section of the entire burner, indicating the general paths of the main airflow through the liner, is shown in Fig. 2. Fig. 3 shows a detailed longitudinal section of the front end of the burner and indicates the airflow patterns and fuel spray distribution as estimated from cold flow analysis and airflow visualization tests. The main current of air in the front end of the burner is the reverse flow which provides the hot piloting action to insure continuous ignition of the fuel. The region of reverse flow is known as the recirculation zone and utilizes a portion of the flow from jets (b). A film of air (c) which is admitted as a vortex by being passed through swirlers around the fuel nozzles

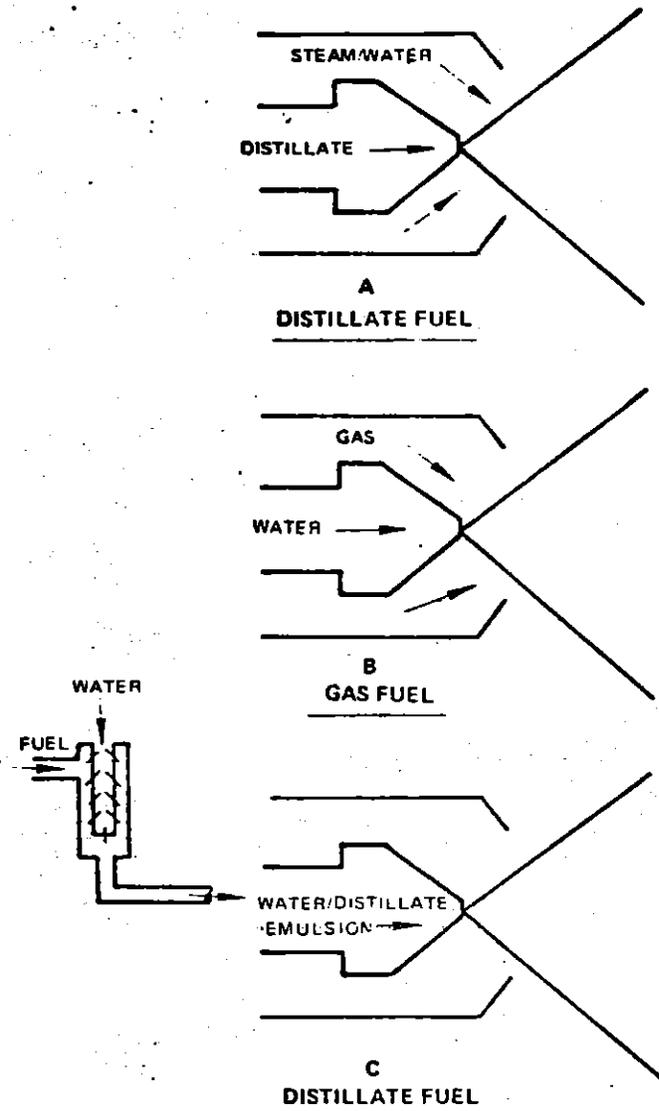


Fig. 5 Three methods used for introducing water as a liquid or steam into FT4 burner system

contributes to the strength and stability of the recirculatory zone. Also shown are jets (a) of air which impinge directly into the front end of the burner and cause some disruption of the recirculatory zone. These jets (a) have been added to the burner in order to reduce local fuel-rich areas which cause carbon smoke at high engine power levels. The fuel-injection system is capable of dual-fuel operation and is shown schematically in Fig. 4. Liquid fuel is passed through a pressure atomizing nozzle located at the center of the injection system while gaseous fuel is injected coaxially to the liquid nozzle.

EXPERIMENTAL PROCEDURE

The program was initiated in a single

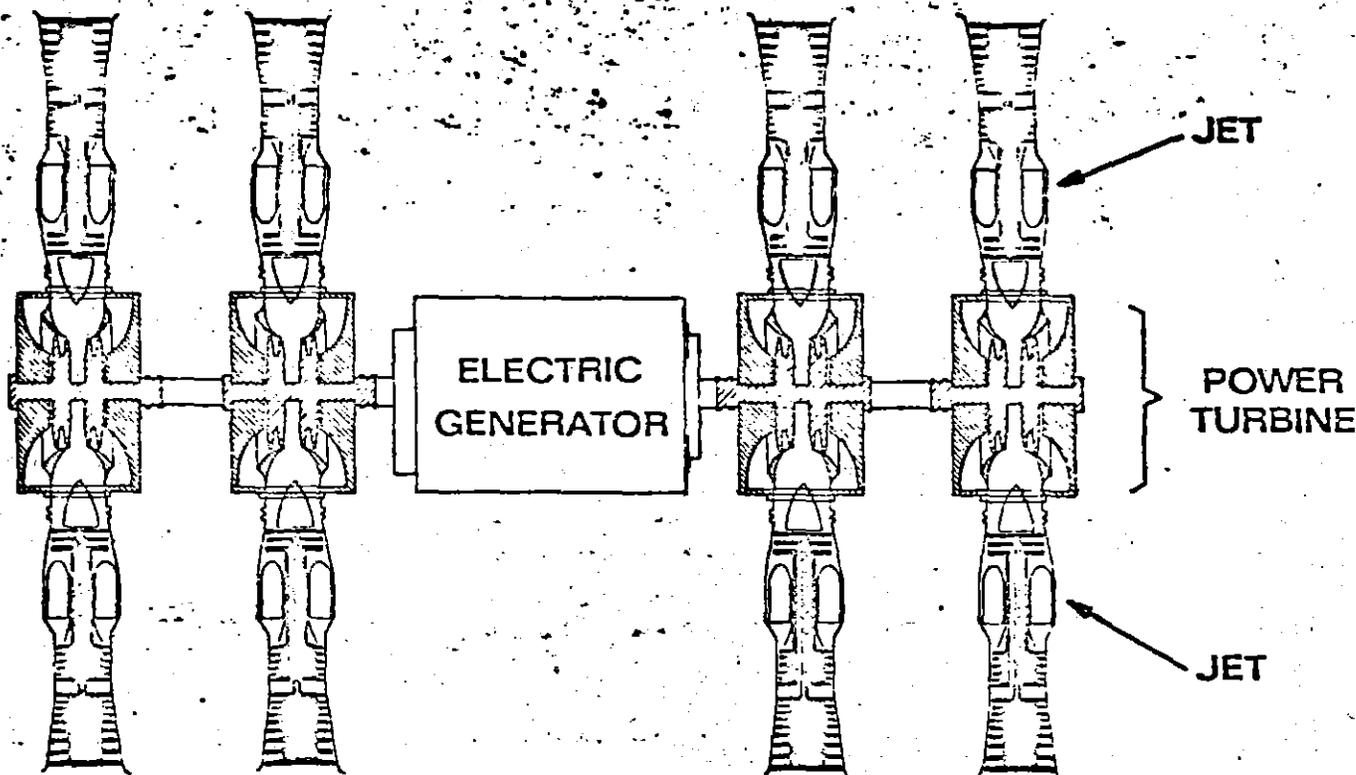


Fig. 6 Schematic of "Hi-Cap" generating station showing special equipment for water-injection tests

segment burner rig with the object of determining the effect of water injection on burner emissions and performance before undertaking full-scale engine tests. The burner rig was a 1/8 segment full-scale model of the hot section of an FT4 engine. It is the type of rig generally used in can-annular main combustor development since, with only one burner can, it simulates engine flow passage geometry from the compressor discharge to the turbine inlet.

Although pressure level affects the rate of formation of NO_x within the burner front end, the rig tests were conducted at a pressure close to atmospheric (1.3 atm) after it was determined by analytical modeling (5) that the absolute level and trends of NO_x formation from these tests would provide quantitative results which could be projected to full-scale engine performance. Other operational parameters of the combustion chamber, such as air temperature and velocity at the inlet of the burner, as well as rates of heat release, were maintained close to the design parameters covering the power range from base load to maxi-

imum peaking for current and advanced FT4 engine models.

Water was injected into the burner at various rates proportional to the fuel flow ranging from a water-fuel ratio of 0.25 to 1.5. The methods used for injecting water and fuel is shown schematically in Fig. 5. When the fuel being used was distillate fuel, water (as liquid or steam) was injected through the normal gas passages radially inward toward the fuel spray, Fig. 5(a). When the fuel was natural gas, water (as liquid) was injected through the normal spray nozzle radially outward into the gas jets, Fig. 5(b). In addition, an alternate method was investigated in which liquid water was finely dispersed into the distillate fuel to form an emulsion and injected into the burner through the spray nozzle, Fig. 5(c). The dispersion of liquid water into the fuel was accomplished through a mixing device, shown schematically in Fig. 5(c), where the emulsion is accomplished by 10-micron openings in the mixing interface membrane.

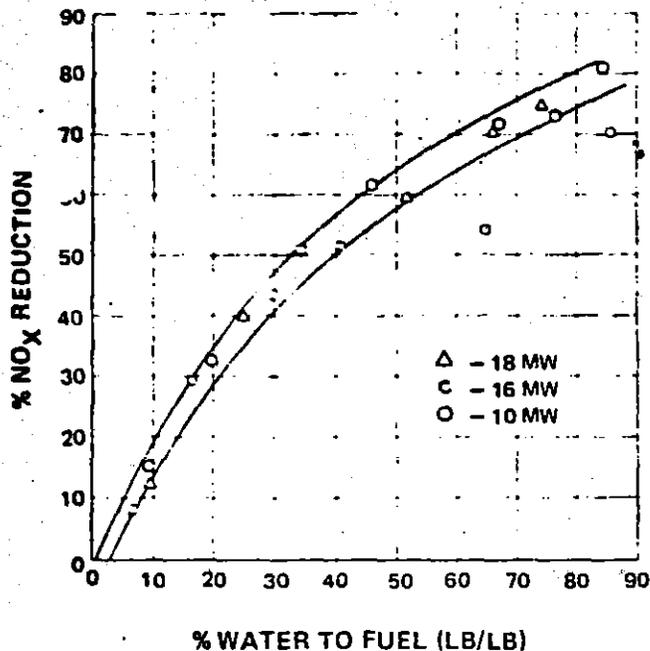


Fig. 7 Percent reduction in NO_x versus water/fuel ratio in FT4 engine operating on natural gas

Burner temperature rise as well as exit temperature patterns with and without water injection were measured with a high-temperature seven-point thermocouple rake traversed across the burner exit. Exhaust gas sampling was accomplished through a single point probe located approximately 6 in. downstream of the centerline of the burner; this location was shown to provide average gas sample readings. Exhaust emissions (NO, NO₂, CO₂, and total hydrocarbons) were measured using Beckman NDIR, NDUV, and FID Model 402 analyzers. Combustor performance data were recorded whenever exhaust measurements were made.

Upon the successful completion of the burner rig and "in-house" prototype engine tests, a field test was conducted to verify the in-house results on a typical gas turbine generating unit.

The test unit was a "Hi-Cap" generating station which has four pairs of engines, each engine pair coupled to a double-flow expander as shown in Fig. 6. Two engines of one pair were injected with water simultaneously.

The test was conducted at three power levels, individually equivalent to 10, 16 and 18 MW's, and water was injected over a range from 0.066 to 0.85:1 water-to-fuel ratio. Both engines were instrumented for performance and exhaust emissions. Since both engines exhaust into a common power turbine, it was necessary to instrument the individual engines and also the common exhaust stack. Both engines were sampled

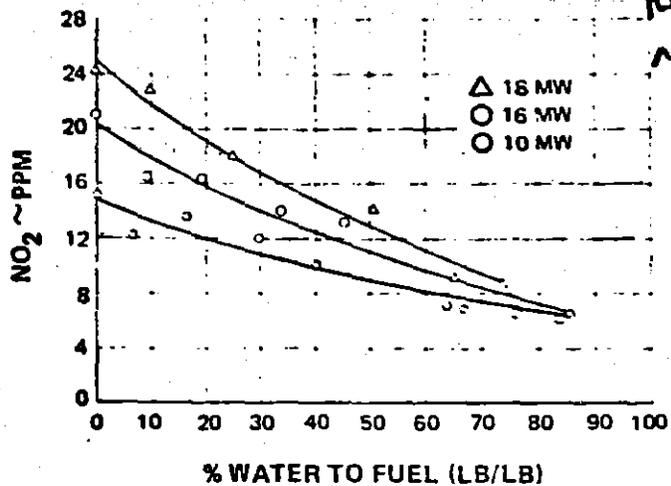


Fig. 8 Reduction in NO₂ concentration versus water/fuel ratio in FT4 engine operating on natural gas

with multiple probes just after the engine turbine at station 7, and in the exhaust stack at a station just before the secondary airflow is mixed in the exhaust stream. During each test point, the exhaust stack gas was sampled for NO_x, NO₂, CO₂, CO, hydrocarbons, and particulate matter. The engine exhaust was sampled for NO_x, NO₂, CO₂, and O₂.

TEST RESULTS

The results of the field test during which water was injected with natural gas showed substantial NO_x reduction. As shown in Fig. 7, a decrease of 80 percent in NO_x emissions (somewhat higher than obtained in rig tests) was realized with a water-to-fuel ratio of 0.85. The percent reduction band, Fig. 7, represents primarily the higher load conditions. At 10-MW load and at high water-to-fuel ratios, the percent NO_x reduction did not follow the higher power results precisely showing some reduction in the effectiveness of water injection at this power condition.

The NO_x level reduction trend, as shown in Fig. 8, decreases with increasing water flow and intersects (as water injection increases) on a point, regardless of load, at approximately 1:1 water-to-fuel ratio. As shown in Fig. 9, NO₂ levels can be reduced up to 69 percent at a water-to-fuel ratio of approximately 0.85. The NO₂ reduction trend is similar to the NO_x trend, where the levels intersect at a point at approximately 1:1 water-to-fuel ratio.

The NO₂/NO_x ratio was found to increase with increased water injection rate as shown in Fig. 10. This trend indicates that rates of reduction

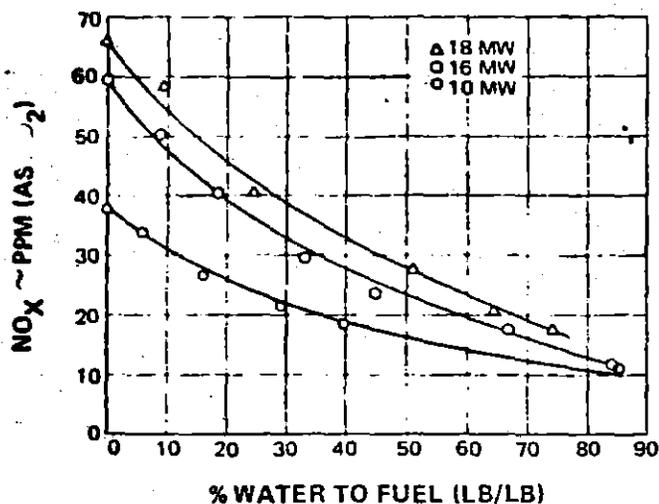


Fig. 9 NO_x concentration versus water/fuel ratio in FT4 engine operating on natural gas

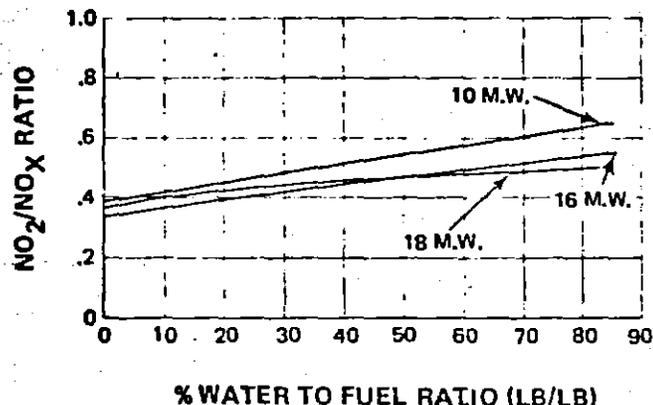


Fig. 10 Effect of water/fuel ratio on NO_2/NO_x ratio in FT4 engine exhaust

of NO and NO_2 vary as water flow increases.

Particulate concentration in the exhaust was not affected by the amount of water injected into the engine at the power levels investigated in this program. The variations in particulate discharge shown in Fig. 11 was considered to be within the measuring tolerances of the instrumentation.

Over the NO_x reduction range of most interest, i.e., up to 50 percent absolute total hydrocarbon and carbon monoxide emission levels were essentially unchanged from dry operation.

General performance was not greatly affected by water injection, except for minor changes in the rotor speeds, a decrease in exhaust gas temperature, and a slight increase in fuel flow. The exhaust of both test engines during all water injection flows did not display a steam plume from the exhaust stack.

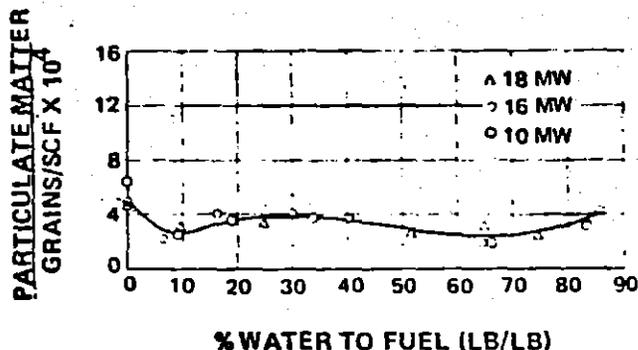


Fig. 11 Effect of water/fuel ratio on particulate concentration in FT4 engine exhaust

In the single segment rig tests with water injection and light distillate fuel (JP5) a decrease in NO_x emission was also obtained as shown in Fig. 12. For this program, the injection configuration shown in Fig. 5(a) was used which resulted in the water being introduced as a sheet radially inward at the base of the fuel spray cone. The results of single segment tests, in which the water was mixed with the fuel before injection, are also shown in Fig. 12. While the distribution of water by the two foregoing methods was vastly different, their apparent effect on NO_x emission was judged to be identical. However, the anticipated net effect of water injection on NO_x formation was not attained at the water-fuel ratios tested. This deficiency was attributed to less than optimum distribution of the water into the critical NO formation zone within the rig primary combustion zone. As in the full-scale results with natural gas, no significant shift in burner performance or exit temperature spread was measured with either of these two injection methods.

Test results obtained in the single segment rig with distillate fuel and steam injection are plotted in Fig. 13. In these tests, a high-quality steam (1 to 2 percent max.) at 300 P was injected radially inward, Fig. 5(a), to the fuel spray cone. The effect of steam on NO_x reduction was considered extremely encouraging since the results compare favorably with the calculated levels of reduction for the flow range investigated, thereby indicating that near optimum mixing had been achieved. Observation of the flame in the burner rig with steam injection revealed that its appearance changed from white luminescent to a semi-bluish haze, thereby indicating that a physical change was occurring with steam injection. Internal gas probing revealed some increase in local unburnt hydrocarbon level with steam injection; however, measurements at the burner exit

Exhibit 1

Statement Concerning the Health Impact of The PGE
Proposed Combustion Turbine Electric Generating Facility
at Harborton

I, David Kabat, Ph.D., am Associate Professor of Biochemistry, University of Oregon Medical School, Portland, Oregon, 97201. My training has been at Brown University, Providence, R. I. (Sc. B. in Chemistry, 1958), and The California Institute of Technology, Pasadena, Calif. (Ph.D. in Biochemistry, 1967). Prior to holding my present job, I was employed in the Biology Department at the Massachusetts Institute of Technology, Cambridge, Mass. My expertise and research experience has been in cancer research and in the fields of human genetics and human embryonic development. Presently, my research on leukemia is supported by the National Cancer Institute and by the National Heart & Lung Institutes of the U.S. Public Health Service. On the basis of my research and training, I am qualified to judge the health impact of the proposed PGE combustion turbine electric generating facility at Harborton. My analysis of pollution effects has been based on the pollutant estimates contained in a Memorandum from R. E. Hatchard (Program Director, Columbia Willamette Air Pollution Authority) to the Board of Directors of CWAPA, written on April 24, 1973. In the discussion below, I will ~~describe most~~ give special consideration to the oxides of nitrogen because these would be generated in large amounts regardless of the type of fuel utilized. Where health effects are described, my main source has been an excellent recent review by L. B. Lave and E. P. Seskin (Science, 169. 723 (1970)) in which the authors have

statistically analyzed all available studies by a mathematical approach.

I would like to briefly describe some current "views of experts" regarding the oxides of nitrogen [for example, see A.J. Haagen-Smit in Air Pollution (A.C. Stern, ed) Academic Press, 1962 and Pollution Primer, p29, published by the National Tuberculosis and Respiratory Disease Association, 1969]. "Photochemical smog" is generated when sunlight falls on polluted air which contains oxides of nitrogen. Such smog is a serious problem in Portland and is the reason ~~that~~ ^{why} pollution feels worst on sunny days and why sundown is ~~not~~ followed by relief. Nitrogen dioxide is responsible for the yellow color of polluted air; ~~not~~ it is the primary light absorbing molecule; and it becomes energized by its absorption of light energy. In other words, the mechanism by which sunlight causes smog is by striking NO_2 in the air; without NO_2 there would be no ^{photochemical} smog. The energized NO_2 molecule is responsible for generating all of the secondary components of smog - those chemicals not emitted directly from the polluting source. A myriad of complex, irritating and toxic chemicals are thereby produced — ozone and other oxidants, aldehydes and peroxyacyl nitrates. Many of these components of smog are known to be dangerous to materials (e.g., ozone causes rubber cracking), and to plants (e.g., peroxyacyl nitrates) and to be irritants to the eyes and lungs (e.g., aldehydes and ozone). Furthermore, NO_2 potentiates and increases the ~~harmful~~ harmful effects of sulfur dioxide in air. The oxidation of sulfur dioxide to the very harmful sulfur trioxide is caused by the oxidants ~~for~~ which are present in photochemical smog. The resulting sulfur trioxide combines with water to form sulfuric acid. This acid is not only very corrosive,

but it has a very low vapor pressure and therefore condenses to form aerosols (microscopic particles which penetrate deeply into the lungs) and it also adsorbs onto other particulate matter in the air. Such condensations decrease visibility and are known to very seriously affect human health, as described below. Thus, the ^{deleterious} consequences of oxides of nitrogen in air are enormous. It is very clear that most of the irritating chemicals in polluted air are not primary pollutants (emitted by the source) but are rather the secondary consequence of the reaction of NO_2 with sunlight. This photochemical burden of NO_x pollution is extremely serious and should be minimized whenever possible. It is important to realize that the amount of photochemical smog increases exponentially rather than linearly with the concentration of nitrogen oxides in air. Accordingly, a relatively small increase in NO_2 will have large effects on this most irritating and noxious type of pollution.

Extremely strong evidence now demonstrates that particulates and SO_2 (oxidized forms) in air can cause bronchitis, lung cancer and stomach cancer in man. Air pollution also increases morbidity and mortality from coronary heart disease. Activation of the Harborton facility would be expected to cause a statistical increase in deaths and illness from these causes. Air pollution also has a variety of other deleterious effects on human health. For example, evidence indicates that air pollution can cause a reduction in work efficiency and an increase in accident rate. Many subclinical but serious health problems are also known to be enhanced by air

pollution, such as headaches, burning eyes, and general feelings of psychological distress. The latter problems are most strongly correlated with photochemical smog. As mentioned above, The Harborton facility would be expected to cause an especially marked increase in that type of pollution.

~~The~~ In summary, I would just like to point out that technology is now available for efficiently removing nitrogen oxides from gaseous emissions [R.L. Chass et al, J. Air Pollution Control Association, 22, 15 (1972)] and such devices are now operating in Los Angeles. I request you urgently to reject the application for the proposed PGE plant at Harborton.

TESTIMONY PRESENTED TO THE ENVIRONMENTAL QUALITY COMMISSION REGARDING
APPLICATION BY PORTLAND GENERAL ELECTRIC FOR AIR CONTAMINANT DISCHARGE
PERMIT - HARBORTON TURBINE GENERATION INSTALLATION BY THE OREGON
ENVIRONMENTAL COUNCIL.- AUGUST 13, 1973

. Chairman, my name is Larry Williams. I am Executive Director of the Oregon Environmental Council. The Council is a coalition organization of approximately 85 conservation, planning and sportsman organizations and has an individual membership of over 2,000 Oregonians. Our office is at 2637 S. W. Water Street, Portland, Oregon 97201.

The OEC has followed very closely the developments surrounding the installation of the PGE Harborton turbines. From the first moment the details of the application to CWAPA were available, we have participated in the dialogue to help insure that the public interest was represented in the decision-making process. It is our firm conviction that Portland General Electric deliberately delayed presenting the permit application and the required technical information to CWAPA in order to gain the political leverage of time on the Agency so that the permit would be more likely issued to their liking. I realize that is rather harsh language, but we feel that it is an honest portrayal of the situation.

The Oregon Environmental Council, along with the Department of Environmental Quality, were parties in the Supreme Court Appeal on the EPA decision not to implement the non-degradation clause of the Clean Air Act. We especially appreciate the State of Oregon joining this very significant suit. As a result of the Supreme Court decision, the Environmental Protection Agency is now attempting to come to grips with the job of keeping our clean air clean and cleaning up those portions of the country where the air is already degraded. We feel that the addition of this Harborton turbine generating facility to an already contaminated airshed is absolutely incompatible with the goals fought for by the OEC and the DEQ before the Supreme Court. There is no question that this generating facility will add substantial amounts of pollution to the airshed and will make it that much more difficult for the State to meet the goals as perscribed in the Clean Air Act and set forth in the State's implementation plan.

As
Complicating your decision here today is the fact that we are being told that if we do not accept this generating facility we will be faced with a severe power crisis this winter. It is beyond the OEC's ability to ascertain just how accurate these predictions are. We presume that much depends on the whims of Mother Nature. If we have a very wet and warm fall and winter we might be able to squeak by. But, we are told, if it is a dry and cold fall and winter, we could be in a very desperate situation as far as our power supply is concerned.

On the other hand, this Commission is charged to decide this issue based only on the facts as they exist within your jurisdiction; that is whether or not PGE's turbines are acceptable, under State air pollution laws, at this location. Because your regulations call for highest and best practicable pollution control technology to be used, we feel that the proposed permit violates that mandate. In our opinion, the lack of NO_x controls is inexcusable.

May we suggest an alternative solution to this dilemma? The Director has proposed that this plant only be allowed to operate until September 1, 1975. At that time the plant must be removed from the Harborton site. We propose that the Commission accept that idea but take it one step further by accelerating that schedule. If we accept as fact that there will be a power shortage this winter, then we propose that this Commission give PGE one of two choices:

- (1) PGE be allowed to complete the installation of the turbines at the Harborton site and to run them through the crisis period. As soon as the spring season begins when our power crisis eases up, they be ordered to remove the plant from the Harborton site and install it in a more acceptable location with NO_x controls, or
- (2) PGE can decide to move the plant at this time if they feel they can find a new location and install it prior to the time of need this winter. One of the beauties of these turbines is that they are relatively portable. We understand it would take some time to establish fuel supplies and to hook up to transmission facilities, but if PGE feels that they can meet that deadline so much the better.

The essence of our proposal asks this question: Why wait two years to clean up this pollution source that no one should have to live with in the first place? You should not feel obligated to support the present location just because of the money that PGE has spent on installing this plant illegally. No building permits, no discharge permits, equals no responsibility by City or State for the ill-advised investment they have made. We do, however, have some responsibility to the people of this area if indeed there is to be a power crisis. We hope that our proposal might extradite this Commission from the dilemma which they face.

Maybe, in addition, PGE can be prevailed upon to look at alternate power sources. It might be well to ask PGE how much money and time they have spent in investigating the possibility of developing geothermal power sources in Oregon. Oregon is supposedly one of those states which has very high potential for such a program. We are sure there are environmental pitfalls in this area too, but that does not relieve PGE from the responsibility of investigating every possible avenue that would move them away from nuclear power plants and the waste of using fossil fuel to generate electricity.

Thank you.

STATEMENT TO DEQ RE: HARBORTON

North Portland Citizens Committee, at an open regular meeting held at Columbia Park on Tuesday, August 7, adopted the following resolution: NPCC requests that the PGE Harborton jet turbine facility be relocated immediately. NPCC supports the standards set by the Clean Air Acts.

We would like to recall to your attention paragraph 4 on page five of the staff report signed by Mr. O'Scannlain. It reads as follows:

The PGE Harborton turbine installation is a very large fuel combustion source which will add large quantities of particulates, SO₂, and NO_x emissions to the atmosphere. It should not be permanently located in the Portland metropolitan area where emissions in general are already too great and an overall reduction program is not yet clearly defined or assured of success in meeting and maintaining air quality standards.

We could not have said it better ourselves, with one exception. If the emissions in general are already great and the reduction program in doubt we suggest it should not be located in Portland at all.

We wonder if you realize how great the emissions in general really are. Do you have any idea of how often the standards in Portland are exceeded. With the permission of Hal Burkitt and the assistance of DEQ staff I went thru the DEQ records for 1972 concerning SO₂, NO_x, oxidants, particulates, and carbon monoxide; all of which will be emissions of the PGE turbines.

Chart →
This is the result. 165 out of 365 days one or more emission standard was exceeded in downtown Portland, and particulates were only measured every third day.

As you can see the worst months for pollution excesses are the very months that PGE wants to burn oil in the Harborton facility. Six days last November standards were not exceeded. How many days were close I didn't count but with the PGE jet turbines it can only get worse.

I did not go through these records to find out the effect just on downtown. I went through them primarily to find the general emission pattern in North Portland but the only records kept for our industrial peninsula that I could find were for the CWAPA Station measuring particulates every three days at Roosevelt High School.

That station does not reflect the amount of carbon monoxide generated in downtown St. Johns by the entire traffic load of the St. Johns Bridge. It does not reflect the amount of pollutants at points on Willamette Blvd. and Edison and Lombard and Reno downwind of Continental Can and Union Carbide. It does not reflect the particulates from the chip dump on St. Birgetta's parish hall, or the particulates from the plywood mill, or the grain elevator on those homes nearby. It does not reflect the creosote emissions on the homes by the University of Portland.

The emissions in general in downtown Portland are deplorable. But the emissions in specific in North Portland are unknown. This is the area that will receive the heaviest burden of the Harborlon plant. And even if the emissions allowed for the 73-74 winter under this permit were not too excessive the emissions allowed ~~for 74-75~~ under this permit for the winter of 74-75 could be fantastic.

This permit is good until September 1, 1975 at latest, but there are no figures -- NONE -- within the permit that will restrict the amount of oil burned after June 30, 1974.

There is also nothing in this permit which would prohibit this plants use to supply interruptable power. Any time PGE has enough power to supply anyone interruptable power PGE has enough power to not need Harborlon. Its use and the supplying of interruptable power should be mutually exclusive.

There is a section of this permit (page 6, 4.6) which states that PGE shall notify the DEQ if it expects to cause "a significant increase in emissions or violation of any conditions of this permit." There is no section of this permit that says what DEQ can, should or might do about it!

There are several places in this permit that state PGE shall at all times... and then says unless otherwise specified in writing, allowing extreme variations on what the permit says and what the DEQ might say.

We feel that this permit would allow too many chances to be taken with the health and breath of the people of Portland: That the permit should be denied, and that the plant should be moved immediately.

THE PGE HARBORTON PLANT
with respect to
PORTLAND, ITS ENVIRONMENT, AND FOREST PARK

Presented by Brian Lightcap, forester, resident of 6311 N. Commercial Ave.
Portland

Representing: Arboretum and Forest Park Manager Jim Bray
The Committee of Fifty for Forest Park
Himself as a forester and concerned citizen

August 13, 1973

Any corporation capable of greatly affecting or influencing Portland and the Willamette Valley has the personal responsibility of insuring that the quality of life is not depreciated only in the name of growth. Because of the unique pollution problems presently experienced, the quality of living, especially from the city core and out towards the St. John's Bridge, is now seriously affected. Even though the turbine engines to be used at Harborton are advanced with regards to emission control, the volume in tons of SO₂, NOx, and hydrocarbons that will be spewed into an already polluted atmosphere, will make pollution alert levels more common than ever before.

The City of Portland has taken no positive steps for reducing traffic flows and simultaneously increasing mass transit during periods of high pollution. When alert levels are called, the city has no effective operational plans for reducing the major sources of pollutants (the automobile) without completely disrupting employment as well. The pollution from the Harborton plant would only aggravate a serious situation. In fact, the air discharge permit application to DEQ on 8 July 73 stated that PGE has not even been requested to prepare and submit an Emergency Emission Reduction Plan for Harborton.

To operate such a plant so close to an urban area, PGE, DEQ, and Portland commissioners must, on a factual basis, determine how close we are to alert levels and how many times per year this occurs. Just because no realistic pollution considerations were revealed before the convenient placement at Harborton, there is no excuse for using political pressures for supporting an illegally constructed plant.

The air pollution levels should not be permitted to remain at near alert levels and become a more difficult problem to solve. This kind of rationale is like saying that Lake Erie should not be permitted to get any worse, and then, later make great political and technical overtures on how the Lake has not gotten any worse. By comparison, air quality conditions in Portland have been steadily deteriorating. The staff report recommends that 95% of the operational time natural gas be used. Before placing such a plant in an urban area along with eight other plants emitting SO₂ gasses, Portlanders must be assured that the supply of natural gas is adequate.

If the object of planners and the DEQ is only to monitor pollution levels, call alerts, and basically do nothing to improve air quality, then the 7000 acre Forest Park will be degraded as a potential recreational asset as planned by the Committee of Fifty on Forest Park and the Portland Park Bureau. Forest Park extends along the west side of the Willamette River from Washington Park to Newberry Road. This park is the most unique city wilderness park in the United States, and the prime wildlife and forested sections are situated right above and immediately downwind from the Harborton power plant.

There is no shortage of documentation of the effects of SO₂ on forests. Forests die slowly; however, indicators reveal themselves over periods of time (1). A smelting plant in Ontario, Canada, has been intensively studied on the impact of the SO₂ emitted. Extensive damage was inflicted upon forests twenty-five miles distant from the plant which emitted 2,000,000 tons of SO₂ annually. The damage from death and retarded growth has been placed at 1.7 million at 1962 timber appraisal values. In this 17,5000 acre stand, only the white pine damage was tallied; thus, only 7% of the timber stand

was studied. Only direct damage was measured; however, windfall and forest disease also increased.

Another forest, the Arrowhead-Crestline near the Los Angeles area, is presently sustaining serious damage and considerable mortality (2). That watershed could not afford to be ruined. The damage in this forest is due both from SO_2 and O_3 (Ozone). O_3 is made from interactions from hydrocarbons, SO_2 , and NOx , and is the most deadly poison to forests when heavy concentrations occur for short durations (3). The DEQ permit does not specify controls for hydrocarbons or ozone, nor does it properly assess the danger of NOx pollution which is 10% greater now than originally anticipated.

Exposures over short time to high pollutant concentrations are more hazardous than long term exposures to low concentrations (4). This means that threshold alert levels are important to keep alerts from being called. When alerts are called, it is too late. Not only are air inversions in Portland commonplace and serious, but also the Harborton plant is situated adjacent to Forest Park as well as eight other SO_2 producing plants. The species of trees being encouraged and most desirable--the needle-bearing trees--are the most susceptible to damage because they are green all year round. Conifers will keep damaged needles for several years, thus SO_2 and O_3 damage to conifers from Harborton will be cumulative. (2)(5).

Presently, vegetative response in the Forest Park area to unabated, increasing Portland air pollution has been evident. An area close to oil refining plants in the Northwest section was subjected to heavy doses of SO_2 and sulfuric acid fumes as observed by myself three months ago. In this area, confirmed by Forest Park Manager Jim Bray, sixty (60) dominant Douglas fir fell over. During that time no unusual winds were responsible for the fall. The hillside is fairly well protected from heavy winds.

Even though foresters are not fond of alder trees, they also serve as an indicator of vegetative conditions. The alders in Forest Park are of much smaller size for their age than in normal forested areas. Their growth is becoming stunted and many sprouts have appeared on the trunk bases. There is an area the stream on Salzman Road where hundreds of alders have died very prematurely. Other similar areas could be found. Good examples of forest deterioration can be found along the St. Helens highway going into Portland. Growth is scrubby, with many blackberry bushes. Trees have dead branches and many sprouts as well as ivy. There is little or no reproduction from needle-type trees, and very slow growth of trees presently growing in this area.

Over on the Mocks Bottom side of the River (eastern side) --and probably in most places in the metropolitan area--the Oregon white oak are suffering badly from galls. These severely restrict the growth of this tree. Pollution has reduced the disease resistance of the oak. Reproduction of oak has been nearly halted. Some trees are dying at this time.

Given the anticipated volume of NOx , SO_2 , and particulate matter from the Harborton plant, the most valuable part of Forest Park could not withstand the poisons produced. Coal and oil fuels are too dangerous to be used in

an already endangered Portland environment. The only way to both begin a positive Portland environmental trend and also insure that the recreational assets of Forest Park are not compromised is to:

- 1) burn only natural gas at Harborton for the coming winter, and then the plant must be moved or,
- 2) move the proposed plant to an airshed which can tolerate the levels of pollution anticipated.

I encourage that the literature cited in this discourse be carefully read and that the PGE turbines not be located in Harborton.

The State of Oregon now realizes that we are enduring the worst drought in thirty years. I am sure that all participants in this general area can act positively to face this unusual crisis. This can be done if people are constructively told what to do. I do not believe that people in the Portland area airshed desire to compromise their environment, Forest Park, and their children's health due to political pressures created by the drought and the lack of proper site consideration on the part of PGE engineers.

Thank you.


Brian Lightcap

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August 13, 1973

Department of Environmental Quality
State of Oregon

Gentlepeople:

The Board of Directors of St. Johns Day Care Center supports the position of the North Portland Citizens Committee in regard to the construction and operation of the Portland General Electric power generating plant at Harborton.

As a facility for care of thirty-five children, ages three through six, we cannot condone any further deterioration of air quality in North Portland. Evidence continues to mount that prolonged exposure to various pollutants in the atmosphere is causing health damage in young children.

Clearly it is your responsibility and that of the other government agencies involved to protect from increased pollution the air our children breathe. Therefore, St. Johns Day Care Center joins many other North Portlanders in urging you to prevent the ecological crime at Harborton and to continue an active effort to improve current environmental quality. Thank you.

Sincerely,

Pat Dutcher
Chairperson of the Board

"a balance for the public interest"

411 governor building • 408 sw 2nd avenue
portland, oregon 97204 (503) 222-6541

STATEMENT OF TED SCHEINMAN, OSPIRG STAFF ECONOMIST
BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
CONCERNING
HARBORTON TURBINE GENERATING INSTALLATION

August 13, 1973

In the staff memorandum by Mr. O'Scannlain to the Environmental Quality Commission, recommending the conditions necessary for an acceptable Air Contaminant Discharge Permit for the PGE Harborton Turbine Generator Installation, the statement was made that "PGE's power situation has become critical." However, the Department of Environmental Quality has made no independent investigation of the load estimates made by PGE; they claim to have taken as correct PGE's load and source estimates. OSPIRG has examined the assumptions and methodology lying behind the estimates of PGE and feel that the load estimates for electricity are not adequately supported.

In its Environmental Report for the Harborton Turbines, PGE has attempted to justify its electric power needs upon electric power growth over the past eleven years. Since Harborton is to be used only for a short period of time, PGE should consider the power needs for the same short period of time. Application of past long-term growth rates for short-term projections is inappropriate, because of cyclical factors.

Discussions with PGE economists have indicated that electric power estimates are primarily derived from residential electric use. Residential demand can be separated into two components: (1) the number of new residential units and (2) an increase in the electrical



Oregon Student Public Interest Council Group: Clackamas Community College/ Eastern Oregon College/ Lane Community College/ Oregon College of Education/ Oregon State University/ Oregon Technical Institute/ Pacific University/ Portland Community College/ Portland State University/ Southern Oregon College/ Southwestern Oregon Community College/ University of Oregon/ University of Portland/ Willamette University.

However, even if there is a shortage of electric energy in the next two years, there are methods of dealing with it. First, it is possible to pursue a positive policy of energy conservation. PGE indicates in its Environmental Report that it expects that conservation measures will have no net effect on the demand for electricity. We question this assumption, unsupported by PGE. Second, if curtailment of power is necessary without Harborton, what are the tradeoffs? How many jobs will be lost by Harborton's utilization of over 2.5 million gallons of fuel oil and nearly 100 million Therms of natural gas per year?

However, the concern of Environmental Quality Commission is with the air, noise, and water pollution effect of Harborton. As will be/was indicated by Professor George Tsongas in his testimony, the Harborton turbines will contribute to the violation of particulate and oxidant standards for Portland, if located at its present site. The recommended standards may add 127,000 pounds of particulates, 5.5 million pounds of Nitrogen Oxide, and 178,000 pounds of sulfur dioxide to Portland per year.

Given that the load estimates for PGE are questionable and that the air quality standards are being violated, OSPIRG recommends that the Environmental Quality Commission refuse to issue a permit for Harborton, while recommending that PGE seek an alternative site for the turbine installation outside of Portland.

August 13, 1973

My name is Christine Lightcap. I reside at 6311 N. Commercial Ave. in Portland. I represent myself as a concerned citizen.

This hearing has been called for the specific purpose of gathering information prior to the approval, disapproval, or revision of an air contaminant discharge permit requested by PGE for its projected Harborton plant. Much of this information will be in the form of technical facts and scientific interpretations of quantities and limits. The final decision will be expressed in factual terms: permit granted, permit not granted, permit conditional for X number of days under conditions Y and Z. Furthermore, the results of this decision will be tabulated on charts and scales for comparisons and projections. In short, at all phases, decision-makers will strive to participate in objective, technical appraisal and action.

But let us be realistic: the decision will not be made on technical grounds alone, because it is not really a technical decision. Rather, it will be determined by the resilient capacity of a region to face a current crisis with view to future improvement of the environment or, it will be determined by the temptation to forsake perspective now while setting precedent for greater environmental crises at a future date.

To approve this permit request is to say yes to air pollution, yes to the lop-sided growth policy proposed by regional energy companies, and yes to our fear of alternative ways to face a current drought condition crisis.

To approve this permit is to say no to the challenge of improving the air quality of the Portland-Willamette Valley area, and no to a growth policy which preserves the natural character and beauty of a region.

There is no way to negate the fact that the operation of this plant under this permit will add:

- 45.1 tons of particulate matter
- 2,775.6 tons of NOx
- 88.25 tons of SO₂
- 220.6 tons of CO

to our already polluted air over a nine month period. Furthermore, this permit indicates probable operation for an additional nine month period, or until September, 1975.

Thus we are being asked to accept this plant and its additional pollution as a part of our community, within the city limits, adjacent to our neighborhoods, and as a part of our recreational life for at least two years. We and our children are taking the risk of breathing unhealthy air conducive to lung disease and other serious ailments while we can't enjoy the view, or see a mountain, or ride a bicycle downtown or through North Portland. We are being asked to live under the cloud of a pollution alert (for which this permit requires no written Emergency Emission Reduction Plan) while we watch our parks and city trees wane and fall. It follows that we deserve to know for what cause the quality of our daily life is being diminished. We deserve to know why the efforts of our city to improve its air quality, services, and physical appearances are being compounded qualitatively and quantitatively by the ill-conceived plans of regional power companies.

agreements accompanying the defense of this permit? Why has PGE in hearings from March to August never specified for whose cause we are diminishing our good air? Can you imagine on a winter day: why here's a good breath of SO₂ for the employes of Company X; and here's 1 lb. of particulate matter in my lungs and on my trees to bless the construction of the aluminum plant in Warrenton; and of course, a deep breath of NOx and CO for the residents of Y street in development Q, for whom PGE-with the approval of other regional power sources-is burning 20,000 gallons of oil (or comparable natural gas) per hour to heat their homes while I burn one 680 gallon tank of fuel oil to heat our 35' X 42' two story home per winter ?

Is this a fair trade for J.Q. Citizen to make with PGE? Is this the way to face a power problem?

Over a period of two years the citizens of Portland can help in many ways to ease the demand for power throughout a drought crisis and/or a delay in the operation of the Trojan plant. They can voluntarily curtail their use of power, and companies can voluntarily curtail their production and profits. Why, we could even survive a brown-out. But no one, no one, can voluntarily curtail his breathing, or deny his symbolic need to see a mountain he knows is there.

I support the strictest interpretation of the Clean Air Act of 1971. I support the wisdom of Item 4, page 5, of the Staff Report for August 13, 1973 Public Hearing: The PGE Harberton turbine installation is a very large-fuel combustion source which... should not be permanently [if ever] located in the Portland metropolitan area where emissions in general are already too great.

Thank you.

Mary C. Valasek
NWDA

EXHIBIT 14

When first we looked at the proposed permit, it seemed that the DEQ staff in almost Solomonic fashion had offered to split the baby with us, the residents of North and Northwest Portland. As the true relatives of the child however, we feel it wise to point out that the baby is already sick. We have a number of reasons for opposing the installation of this plant, some of the ~~arg~~ arguments relate to land use and we will save those ^{for} ~~for~~ the Planning Commission. We would like to present four of the arguments to you this morning ^{today}

- 1- In North and Northwest Portland, the standards for particulate and SO₂ are regularly exceeded; it is estimated that the standards for hydrocarbon are being exceeded also. No polluting plants should go in until something is done to help establish the ~~best~~ health of the area.
- 2- We find it hard to believe that the plant will actually stay limited to the number of hours of operation that are written here, and wonder how DEQ intends to enforce them, when they are not even monitoring the plant themselves. For another example, DEQ still seems to be using data provided by PGE. Why haven't the staff gone out and collected their own, since the plant in Salem is operational now?
- 3- According to law, we are entitled to the highest and best practicable treatment and control of air contaminant emissions ... so as to maintain overall air quality at the highest possible levels." This permit does not give us that protection.
- 4- No alternative solutions have ever been seriously considered by the agencies we hire to do our collective thinking. How much we would have to conserve this winter if this plant does not operate has never been calculated, so we have no real choice in the matter. How much power can be produced through other means has not been determined. Harborton is an inefficient use of scarce fossil fuels and it puts the squeeze on us - the consumers - four ways.

The most serious flaw is the total compression or suppression of the facts about NW Portland air in a chart on the last page. From the air study done by ESL for the I-505 highway, we know that the standards for particulate and for HC (estimated) are being exceeded. These figures were also available from CWAPA, and yet this staff report was written as if the data did not exist. We know that these excesses are not due mainly to traffic, they are due to industry. Some firms have made laudable attempts to clean up their own operations, but we still breathe pollutants from the industrial area when the wind comes from the north as it does in the summer, and we breathe pollutants from downtown which are blown over us when the wind is from the south and east as is the case in the winter.

We are working to save the residential areas in the Northwest district, we are trying to protect Forest Park which is a great asset to all the citizens of the area, we are trying to protect Sauvie Island, we were looking forward to the Willamette River Greenway. We are fighting for our lives. We are not well-served by a staff report which tells us only how much more pollutants they think we should have to breathe by the hour, rather than assisting us in cleaning up the bad situation we have now.

POINT 2

We have heard time and again although without any proof about the shortage of electrical power this winter. Does it not appear unusual ^{that} the PGE applies to run the plant 80% of every day during Sept & Oct., but only 51% of the time in December and January? To what can we attribute this inconsistency? Certainly not to the desire to keep the pollution down, after all these are the months when they intend to burn oil, and violations of the 8 hour maxima are definitely to be expected during the winter season. Can it be that PGE knows that EPA intends to review any source of pollution of more than 4,000 tons/year? This reduction in the number of hours brings the pollutants for NO_x down to a mere 2,753 tons per yr. Perhaps we should be grateful that the increase is only 2,758 tons a yr. but we know that it is bound to be more than that as soon as the SNG

plant in Linnton and the oil refinery in Rivergate go in. Let us appear ungrateful if necessary, but let us be sure to ask how DEQ intends to enforce the limited number of ~~pp~~ hours or the removal of the plant. We will hear a thousand excuses, we have to have more energy, Trojan will need to be shut down, etc. Frankly, we do not believe that the number of hours will be limited to what is written here, and the only way to limit the operation of the plant in NW is to ask it to move elsewhere. We say they should never have tried to put it here, and they should have begun to make plans to move it as soon as we objected, and that EQC should now ask them to move it. It doesn't cost that much to pour concrete slabs some where else - most of the cost of the plant is in those engines, and they are portable.

I've talked with a number of people since this permit came out and the one question they all ask is - Who is going to watch them? It is discomfiting to have to ~~admit~~ ^{inform them} that PGE will do its own monitoring. People laugh. They have had too much ~~Waterate~~ to trust any system that does not have a built-in public checkpoint, and not even all of those. From the technical point of view, what is DEQ going to do with 15 day old data, collected by a Plan we are asked to approve though it does not yet exist? Perhaps this is a case where the physician should be looking to his own malady.

POINT 3

This point relates to the protection controls and is dealt with by George Tsongas, let me just say that wherever the plant is moved to, they still need NO_x controls.

POINT 4

Harborton puts the squeeze on us 4 ways:

- 1- it uses gas inefficiently, for a rate of return of less than 40%.
the rest goes to heat the great outdoors.
- 2- it will raise our electricity rates.
- 3- it will reduce fuel supplies for other home heating
- it reduces air quality, and those costs have not been tallied, either the effect on property or the effect on human and forest health.

No wonder the supplies of fuel are going to be short this winter - one source is consuming it up at the rate of 20,000 gallons an hour. It makes more sense to use the most conservative, most efficient use of the scarce fossil fuels we

not be driven up quite so fast.

We are extremely dissatisfied with the totally unsubstantiated statement by the Director that his recommendations are made "in view of the critical need for interim electrical energy generation capacity to meet the immediate needs of the people."

This statement is

1- totally unsubstantiated with data about energy supplies

2- does not consider alternatives such as serious efforts at conservation or

power rationing, establishing a PUD or geothermal development or solar units in Eastern Oregon where it rains infrequently. In fact we are presented with no alternatives at all. At the least, we could be told how much energy we would have to conserve - and then we could make a choice. One day we will have to make this change anyway, since energy resources are going to be scarce no matter how we look at the matter. Let's make the choice now before we much ^y up the air some with a nasty brown tinge more, and before we damage the Forest Park.

If it is true that this energy is necessary even though it is ^{an} inefficient use of resources, and even though no alternatives were considered, why in the name of all that is just, did it have to be located inside the city, and if within the city, why in the quadrant with the most severe pollution problems? Part of the answer is that we ^{have} ~~have~~ no site planning for utilities or pollutant sources - we are at the mercy of corporate management decision making. Another part of the answer is ^{that} ~~that~~ we have as yet no model for ^{the} ~~an~~ air shed. What goes up must come down, but where will it land? We don't really know yet. It seems that North and NW Portland take it on the chin every time. Why not put this plant at the other places where the power lines intersect the fuel lines - both at Rainier and at Wilsonville. Oh no, say the powers that be, not in Wilsonville, that would affect its potential for development. The irony is that they then choose to locate it in an area which is already developed. Again we are at the mercy of corporate interests. What with the traffic going to the suburbs ^{passing through our neighborhood} and now the electrical power destined for the all-electric suburbs, we in North and Northwest Portland are fighting for ~~our~~ the livability of our ^{own} environment, for our very existence. We appeal to the ¹⁰⁵⁶² ~~the~~ commissioners to heed our appeal, and redress our grievance.

INSET

This whole controversy led me to the Clean Air Implementation Plan. Perhaps here we would find anticipated reductions in pollutants more than enough to offset Harborton. Instead I found that the Clean Air Plan is limping along itself, and that if the plant goes in, we may as well forget about the Plan.

| <u>Pollutant</u> | <u>1970</u> | <u>1975 (est)</u> | <u>reduction</u> | <u>Harborton</u> |
|------------------|------------------------------|------------------------------|----------------------------|--------------------------------------|
| NO _x | 42,376 tons (25,712 tons) | 40,878 tons (24,428 tons) | 1,498 tons (1,311 tons) | 2,578 tons <i>as per mult Co</i> |
| Particulate | 10,597 tons | 5,637 tons | 4,960 tons | 63 tons <i>Mult Co</i> |
| SO ₂ | 9,821 tons | 10,424 tons | increase of 603 tons | 245 tons <i>Mult Co</i> |

The Clean Air Plan does not take into account Harborton, or Bethel, or Clatskanie where work is already being contracted, or the synthetic natural gas plant at Linnton, or the oil refinery at Rivergate. The delay in auto emission controls will also set the plan back. So far the Clean Air Plan is in trouble because of an increase in particulates. There appears to be no rollback strategy that we can count on - - only setbacks .

My name is Richard Bowen; I am a geologist and geothermal specialist with the State of Oregon Department of Geology and Mineral Industries. I am not appearing as a representative of the State Department of Geology but as a private citizen living in northwest Portland, and I have been asked by some of my neighbors to tell you of an alternative source of power that is being used in other areas and has great potential in Oregon - that is, geothermal power.

I want to point out to you here today that other utilities consider geothermal power an important adjunct to their system and are proceeding rapidly to develop geothermal power sites. Because of its basic simplicity, geothermal power plants can be constructed very rapidly. For example, at The Geysers geothermal field in northern California, the time interval from signing the contract to purchase steam to production of electricity took less than two years - and that was for the first one built in the United States.

I believe it is appropriate to call the attention of this group to a comparison of cost of producing electricity by gas turbines and geothermal plants. To that I submit for the record a portion of the application of the Pacific Gas and Electric Company before the Public Utilities Commission of

California to construct Unit 14 at The Geysers power plant. Exhibit "J" ,
line 22, average delivered cost of power at a 90% capacity factor is 8.35
mills/kwh. Compare that with Exhibit "I", gas turbine capacity, line 28,
average delivered cost of power at a ~~100~~ similar capacity factor is 17.36 mills/
kwh.

Exhibit "B" shows P.G. & E. plans on adding 1000 mw of new geothermal
capacity before 1980

Is Portland General Electric going to continue to add only costly nuclear
and gas turbine power to their system while clean, low-cost geothermal power
lies neglected at our feet?

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA

In the matter of the application of
PACIFIC GAS AND ELECTRIC COMPANY for
a certificate of public convenience
and necessity to construct, install,
operate, maintain, and use Unit 14
at The Geysers Power Plant together
with transmission lines and related
facilities.

(Electric)

FILED

JUL 24 1973

APPLICATION

NO. B 4201

APPLICATION

JOHN C. MORRISSEY
MALCOLM H. FURBUSH
PHILIP A. CRANE, JR.
GLENN WEST, JR.

77 Beale Street
San Francisco, California 94105
Telephone: (415) 781-4211

Attorneys for Pacific Gas and
Electric Company

ESTIMATED COST OF POWER FROM

UNIT NO. 14 GEYSERS

PRESENT COST BASIS

| | STEAM PRODUCTION | STEP-UP SUB. | TRANS- MISSION |
|--|---------------------|-----------------|-------------------|
| 1. ESTIMATED CONSTRUCTION COST (THOUS. \$) | 13290 | 564 | 160 |
| 2. TOTAL PROJECT (THOUS. \$) | | 14034 | |

ESTIMATED ANNUAL COST, EXCL. FUEL
FIXED CHARGES, PERCENT OF CAPITAL

| | | | |
|----------------------------|-------|-------|-------|
| 3. RETURN AND DEPRECIATION | 9.79 | 9.56 | 9.34 |
| 4. TAXES ON INCOME | 2.22 | 1.92 | 1.82 |
| 5. PROPERTY TAXES | 2.03 | 2.03 | 2.03 |
| 6. INSURANCE | 0.09 | 0.09 | 0.09 |
| 7. TOTAL | 14.13 | 13.60 | 13.28 |

ANNUAL COST, THOUS. \$

| | | | |
|-----------------------|------|------|----|
| 8. FIXED CHARGES | 1878 | 17 | 24 |
| 9. OPERATION | 55 | 4 | 0 |
| 10. MAINTENANCE | 80 | 3 | 0 |
| 11. GENERAL EXPENSE | 40 | 2 | 0 |
| 12. TOTAL, EXCL. FUEL | 2053 | 86 | 24 |
| 13. TOTAL PROJECT | | 2163 | |

FUEL REQUIREMENTS AND POWER COSTS

BASIC DATA

| | | | | |
|---|--|------|------|------|
| 14. NET CAPACITY | | 110 | | |
| 15. TRANSMISSION LOSSES ON ENERGY, PERCENT | | 6.00 | | |
| 16. CAPACITY FACTOR OPERATION, PERCENT | | 70 | 80 | 90 |
| 17. NET ANNUAL ENERGY PRODUCTION, MILLION KWH | | 675 | 771 | 867 |
| 18. NET ENERGY AT END OF LINES, MILLION KWH | | 634 | 725 | 815 |
| 19. ANNUAL FUEL COST, THOUS. \$ ** | | 3610 | 4120 | 4640 |
| 20. OTHER ANNUAL COSTS, THOUS. \$ | | 2163 | 2163 | 2163 |
| 21. TOTAL ANNUAL COSTS, THOUS. \$ | | 5773 | 6283 | 6803 |
| 22. AVERAGE DELIVERED COST, MILLS/KWH | | 9.11 | 8.67 | 8.35 |

*Return and Depreciation for Production Plant is capital recovery at 9.00% for a plant service life of approximately 29 years. Equivalent life for stepup substation and transmission facilities is about 36 years.

**Cost of steam at 4.85 mills per kwh base price plus 0.5 mills for effluent disposal.

PACIFIC GAS AND ELECTRIC COMPANY

ESTIMATED COST OF POWER FROM

GAS TURBINE CAPACITY

ESCALATED COST BASIS

| | OTHER PRODUCTION | STEP-UP SUB. |
|--|---------------------|-----------------|
| 1. ESTIMATED CONSTRUCTION COST (THOUS. \$) | 15180 | 440 |
| 2. TOTAL PROJECT (THOUS. \$) | | 13620 |

ESTIMATED ANNUAL COST, EXCL. FUEL

FIXED CHARGES, PERCENT OF CAPITAL

| | | |
|----------------------------|-------|-------|
| 3. RETURN AND DEPRECIATION | 10.67 | 9.51 |
| 4. TAXES ON INCOME | 2.40 | 1.91 |
| 5. PROPERTY TAXES | 2.50 | 2.50 |
| 6. INSURANCE | 0.09 | 0.09 |
| 7. TOTAL | 15.66 | 14.01 |

ANNUAL COST, THOUS. \$

| | | |
|-----------------------|------|------|
| 8. FIXED CHARGES | 2064 | 62 |
| 9. OPERATION | 230 | 3 |
| 10. MAINTENANCE | 1000 | 2 |
| 11. GENERAL EXPENSE | 369 | 2 |
| 12. TOTAL, EXCL. FUEL | 3663 | 69 |
| 13. TOTAL PROJECT | | 3732 |

FUEL REQUIREMENTS AND POWER COSTS

BASIC DATA

| | | |
|--|--|--------|
| 15. NET CAPACITY | | 110 |
| 16. NO LOAD FUEL, MILLION BTU PER HR | | 330 |
| 17. INCREMENTAL ENERGY OUTPUT, BTU/NET KWH | | 9000 |
| 18. FUEL PRICE AT PLANT, CENTS/MILLION BTU | | 108.00 |
| 19. TRANSMISSION LOSSES ON ENERGY, PERCENT | | 0.00 |

CAPACITY FACTOR OPERATION, PERCENT

| | 70 | 80 | 90 |
|---|-------|-------|-------|
| 20. NET ANNUAL ENERGY PRODUCTION, MILLION KWH | 675 | 771 | 867 |
| 21. NET ENERGY AT END OF LINES, MILLION KWH | 675 | 771 | 867 |
| 22. ENERGY FUEL REQUIRED, BILLION BTU | 6071 | 6938 | 7885 |
| 23. NO LOAD FUEL REQUIRED, BILLION BTU | 2024 | 2313 | 2602 |
| 24. TOTAL FUEL REQUIRED, BILLION BTU | 8094 | 9251 | 10407 |
| 25. ANNUAL FUEL COST, THOUS. \$ | 8806 | 10065 | 11323 |
| 26. OTHER ANNUAL COSTS, THOUS. \$ | 3732 | 3732 | 3732 |
| 27. TOTAL ANNUAL COSTS, THOUS. \$ | 12538 | 13797 | 15055 |
| 28. AVERAGE DELIVERED COST, MILLS/KWH | 18.59 | 17.90 | 17.25 |

EXHIBIT L

SHEET 1

EXHIBIT C
EXHIBIT D
EXHIBIT E
EXHIBIT F
EXHIBIT G
EXHIBIT H

RESOURCES

| | |
|---|---|
| Generator Nameplate Rating Megawatts | Net Effective Operating Capacity Megawatts |
|---|---|

EXISTING JANUARY 1, 1973

| | | |
|---------------|----------|------|
| Hydroelectric | 2402.043 | 2529 |
| Thermal | 8034.854 | 7841 |

ADDITIONS

| <u>Year</u> | <u>Type of Resource (1)</u> | <u>Generator Nameplate Rating Megawatts</u> | <u>Net Effective Operating Capacity Megawatts</u> | <u>Estimated Date Available</u> |
|-------------|-----------------------------|---|---|---------------------------------|
| 1973 | Geysers 9 | 59.4 | 53 | August |
| | Geysers 10 | 59.4 | 53 | November |
| 1974 | Geysers 11 | 118.8 | 106 | October |
| | Potrero 4 | 61.2 | 52 | December |
| 1975 | Potrero 5 | 61.2 | 52 | March |
| | Geysers 12 | 118.8 | 106 | August |
| | Diablo Canyon Site Unit 1 | 1134.0 | 1060 | September |
| | Melones (Retirement) | 24.3 | 26 | November |
| 1976 | Diablo Canyon Site Unit 2 | 1134.0 | 1060 | June |
| | Geysers 14 | 118.8 | 110 | June |
| | Geysers 13 | 139.8 | 135 | August |
| | Geothermal | G | 55 | October |
| | Hunters Point 1 | 61.2 | 52 | December |
| 1977 | Potrero 6 | 61.2 | 52 | March |
| | Geothermal | G | 110 | August |
| 1978 | Station C | GT | 100 | January |
| | Geothermal | G | 110 | August |
| | Thermal '78 (2) | F | 735 | December |
| 1979 | Metcalf Substation | CC | 300 | April |
| | Geothermal | G | 110 | August |
| | Undetermined (3) | GT | 500 | October |

(1) H-Hydro, F-Fossil Steam, N-Nuclear, G-Geothermal, GT-Gas Turbine, CC-Combined-Cycle, PS-Pumped Storage

(2) This capacity will be provided by fossil-fueled generation that will probably be located near the San Francisco Bay Area

(3) This gas turbine capacity will be located at sites to be determined within the San Francisco Bay Area

PRECISION CASTPARTS CORP.

4600 S. E. HARNEY DRIVE • PORTLAND, OREGON 97206

TWX: 910-464-6130
AREA CODE 503
PHONE 777-3881

8 August 1973

Mr. Diarmuid F. O'Scannlain, Director
Department of Environmental Quality
Terminal Sales Building
1234 S. W. Morrison Street
Portland, Oregon 97205

Dear Mr. O'Scannlain:

According to information published in the local newspapers, a hearing is scheduled to be held on Monday, August 13, for the purpose of considering the request by Portland General Electric Company for a discharge permit at its Harborton turbine generator facility in the North Portland area. With respect to that hearing Precision Castparts Corp. respectfully requests to appear as an intervener in favor of the issuance of that permit. The company will be represented at the hearing either by its President, Edward H. Cooley, or the undersigned in his capacity as Vice President-Finance.

Precision Castparts Corp. is concerned that a voluntary or involuntary reduction in the availability of electrical energy would be detrimental to its ability to continue its manufacturing processes and would have an adverse economic impact on its employees. Precision Castparts is a manufacturer of investment castings employing approximately 700 people, all but four of whom are located in its plant in Southeast Portland. Total payrolls in the Portland plant last fiscal year amounted to \$6.1 million. The company enjoyed sales in its fiscal year ended March 31, 1973, of nearly \$14 million, 99.6% of which came into Oregon from customers located outside the state. We expect sales to increase by 15% during the current fiscal year.

The company is a substantial user of electrical energy in its manufacturing process. In calendar year 1972, we consumed almost 15 million kilowatt hours of electricity. Our electrical energy requirements are anticipated to increase at least by the same percentage as our sales increase. Any curtailment of electrical energy availability would impact unfavorably both on the company and its employees. Electricity is our only method of melting alloys for castings and is used extensively in all other areas of the manufacturing process.

The company previously undertook a program of energy conservation. Meetings were held with all departmental supervisors and additional metering devices were installed for the purpose of determining electrical consumption each half hour of the day. Equipment which is not in use is now turned off instead

Mr. Diarmuid F. O'Scannlain, Director
Department of Environmental Quality

Page 2

8 August 1973

of being permitted to idle as was the case earlier. Lights in many areas of the plant are not turned on unless company personnel is in the area and the lights are required for the purpose of their work.

We believe that the issuance of the permit and the early installation of the turbines is in the best interests of the residents of Oregon and, particularly, the Greater Portland Area. We further believe that approval should be given for its construction and the permit issued. Denial of the permit will work not only an economic but convenience hardship on the customers of P. G. E.

Respectfully submitted,

PRECISION CASTPARTS CORP.



R. M. Marvin
Vice President
Finance

RMM:vr



ENVIRONMENTAL QUALITY COMMISSION

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

TOM McCALL
GOVERNOR

B. A. McPHILLIPS
Chairman, McMinnville

GRACE S. PHINNEY
Corvallis

PAUL E. BRAGDON
Portland

MORRIS K. CROTHERS
Salem

ARNOLD M. COGAN
Portland

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Agenda Item No. D, September 21, 1973, EQC Meeting
Appointment of Deputy Director

On July 19, 1973, Governor Tom McCall approved House Bill 3230 which pertained to the creation of the statutory office of deputy director for the Department of Environmental Quality. The new Act thereupon went into effect July 1, 1973, as Chapter 291 of the 1973 Oregon Laws and was made a part of ORS Chapter 449.

It reads as follows:

"With the approval of the commission, the director may appoint a deputy director in the unclassified service who shall serve at the pleasure of the director. The deputy director shall have full authority to act for the director, subject to directions of the director. The appointment of the deputy director shall be by written order, filed with the Secretary of State"

Pursuant to this law I have appointed Ronald L. Myles to this position.

At the time of my appointment as director, I brought along Mr. Myles, who had been my assistant commissioner for

telecommunications at the Oregon Public Utility Commissioner, as my assistant. Each of the commissioners knows the scope of my assignment and the needs and objectives of this agency. And so I believe it unnecessary, unless desired by the commissioners, to elaborate on the need for a deputy director. Certainly the Governor and the Legislature have supported that need.

Each of the commissioners knows Mr. Myles, although I know the contacts have of necessity been brief and sketchy. Let me simply say that a deputy director is the director's surrogate, an individual who must think and act as would the director himself. Mr. Myles knows, understands, and consistently reflects my thinking; and I know and trust in his abilities and have full confidence in him. He has already in countless instances acted in my behalf at the DEQ, confirming my belief. And there is no doubt in my mind but that he will continue to perform in the best interests of this Commission and this agency.

Director's Recommendation

It is recommended that the Commission approve the director's appointment of Ronald L. Myles as deputy director of the Department of Environmental Quality.


DIARMUID F. O'SCANNLAIN



DEPARTMENT OF ENVIRONMENTAL QUALITY

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

TOM McCALL
GOVERNOR

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. E, September 21, 1973, EQC Meeting
Position of Secretary to the Environmental Quality Commission

As a part of the initial reorganization of the Department of Environmental Quality, and consistent with my aim of freeing our technical staff from all non-technical activity that could be assumed by administrative assistants, I propose creating the position of Secretary to the Environmental Quality Commission.

Assigning all support functions to the Secretary of the Commission would accomplish several objectives:

1. designate a liaison between the Commissioners and the Director for all matters related to the prescribed duties;
2. mitigate the possibility of meeting schedule conflicts of Commissioners, Director and staff;
3. provide greater opportunity for the Commissioners and the Director to fully utilize the time frame for meetings outside Portland to meet with the area's community leaders and government officials on matters of mutual interest and concern.

Duties for the Secretary would include the following:

1. initial preparation of the agenda and supervision of procedures for completion of staff reports and their reproduction and distribution prior to Commission meetings;
2. send notices and reminders of meetings and coordinate with Information Officer for publicity purposes;

3. handle all arrangements for meetings and Commissioners, members and staff;
4. supervise transcribing, editing, reproduction and distribution of minutes;
5. provide follow-up on complaints, suggestions, requests for information made by witnesses and visitors at meetings, or coordinate response with appropriate division;
6. maintain Commission files, books, minutes, expense accounts, distribute supplies to Commissioners as needed.

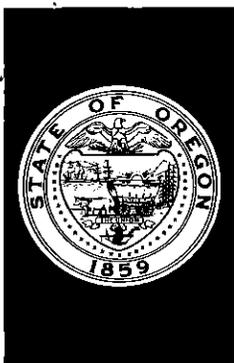
Other duties may be assigned by the Commission or Director.

It is the Director's recommendation that the position of Secretary to the Environmental Quality Commission be created.



DIARMUID F. O'SCANNLAIN

9/13/73



ENVIRONMENTAL QUALITY COMMISSION

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

TOM McCALL
GOVERNOR

September 21, 1973

B. A. McPHILLIPS
Chairman, McMinnville

GRACE S. PHINNEY
Corvallis

PAUL E. BRAGDON
Portland

MORRIS K. CROTHERS
Salem

ARNOLD M. COGAN
Portland

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Members, Environmental Quality Commission

From: Director

Subject: Agenda Item No. F, September 21, 1973, EQC Meeting
(2) Publishers Paper Company -- Application for Renewal of Oregon CUP Award

Publishers Paper Company has applied for renewal of its Oregon CUP Award. The attached letter from the Company delineates the new measures taken within the past year. Background of last year's award as presented to the Environmental Quality Commission following approval by the Screening Committee is covered in the attached exhibit from the July 27th, 1972 Environmental Quality Commission meeting.

Additional Information

Publishers Dwyer Division recently had a caustic spill which resulted in a fish kill in Johnson Creek. In hindsight the spill was recognized as resulting from a chain of negligent actions by Pennwalt, Widing Transportation and Publishers. Publishers promptly acknowledged their responsibility and has installed facilities and initiated operating procedures to prevent any similar occurrence. They have also, as a result, ordered corrective actions at other company plants to prevent any similar occurrence. Once again the positive company attitude shows through. They are of course in full compliance with the permit.

Recommendation

Publishers Paper has consistently gone out of its way, not only to comply with pollution control requirements but to anticipate those requirements wherever possible and to plan in advance for implementing them even before any mandatory requirements were presented.

Members, Environmental Quality Commission
September 21, 1973
Page 2

They have printed the insignia on their Shasta towels, on cores or wrappings of newsprint rolls produced in their plant and on the bottom of paper bags with an explanation of the nature of the CUP Award.

Director recommends renewing the Award for the calendar year 1974.



DIARMUID F. O'SCANNLAIN
Director

DFO'S:cs

Attachments



ENVIRONMENTAL QUALITY COMMISSION

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TOM McCALL
GOVERNOR

September 21, 1973

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Corvallis

PAUL E. BRAGDON
Portland

MORRIS K. CROTHERS
Salem

ARNOLD M. COGAN
Portland

MEMORANDUM

TO: Members, Environmental Quality Commission
From: Director
Subject: Agenda Item No. F, September 21, 1973, EQC Meeting

DIARMUID F. O'SCANNLAIN
Director

(1) American Can Company - Application for Renewal of Oregon CUP Award

American Can Company has applied for renewal of its Oregon CUP Award. The attached letter from the Company delineates the new measures taken within the past year. Background of last year's award as presented to the Environmental Quality Commission following approval by the Screening Committee is covered in the attached exhibit from the July 27th, 1972 Environmental Quality Commission meeting.

Additional Information

New kraft mill regulations have been adopted and conditions related to these will be written into the permit for American Can which is expected to be issued within sixty days. The Company has been most cooperative in permit negotiations as in all their activities.

The Company has now announced its plans to use the Award insignia on package labels and shipping containers if the Award is renewed.

Recommendation

American Can Company continues to indicate a high degree of integrity related to compliance to applicable rules and regulations.

American Can is, in effect, the test company for the effectiveness of the Oregon CUP Awards program. They are the only awardee to date which makes primarily consumer products and we would hope to test the effectiveness of

Members, Environmental Quality Commission
September 21, 1973
Page 2

the program itself in terms of whether consumers will make a particular effort to patronize CUP Award winners when they can be identified readily and when there is a program of public education to familiarize consumers with the symbol. The Department would plan to work with American Can Company's advertising staff toward such public education if the Award is renewed and the insignia imprinted on labels.

Director recommends renewal of the Award for the calendar year 1974.

A handwritten signature in black ink, appearing to read "Diarmuid F. O'Scannlain", with a long horizontal flourish extending to the right.

DIARMUID F. O'SCANNLAIN
Director

DFO'S:cs

Attachments



ENVIRONMENTAL QUALITY COMMISSION

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

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Portland

MORRIS K. CROTHERS
Salem

ARNOLD M. COGAN
Portland

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. G, September 21, 1973, EQC Meeting

Unified Sewerage Agency of Washington County, Consideration
of Proposal for Expansion of Interim Treatment Facilities

Background

At the meeting of the Environmental Quality Commission on August 13, 1973 a quota was established for connections to the Aloha and Metzger sewage treatment facilities of USA of 1200 and 600 respectively for the period ending August 1, 1974. Under the program approved by the Commission, Washington County was to establish the priorities for allocation of connections within those quotas. Since that time, the county has been under pressure to provide additional temporary expansion of existing treatment plants in order to accommodate more sewage connections until the Durham plant is completed. The Agency will open bids on the Durham plant on September 26, 1973. Construction is expected to take about 30 months. Attached is a letter dated September 7, 1973 from the Washington County Administrative Officer requesting response to several questions related to interim facility expansions. These questions are paraphrased as follows:

1. Will the Environmental Quality Commission authorize the construction of sewage treatment facilities with discharge of additional secondary effluent (20 Milligrams per liter BOD and 20 Milligrams per liter suspended solids) to the receiving streams during the wet weather winter months

only and employing irrigation disposal of the increased portion of the secondary effluent during the summer months such that summer discharges would be the same as presently approved? This question is applicable both to Fanno Creek in the vicinity of the Metzger treatment plant and to Beaverton Creek in the vicinity of the Aloha plant.

2. Assuming a positive answer to question No. 1, would the EQC authorize construction of an aerated lagoon-type treatment device which would meet the 20/20 standard in the vicinity of either the Metzger or Aloha treatment plant sites and if so, under what conditions might such an authorization be made? A preliminary proposal has been made to the Unified Sewerage Agency for construction of such a facility at the Metzger plant site.
3. Also assuming a positive answer to question No. 1, would the Commission consider approving a proposal which would incorporate package treatment plants at the Aloha or Metzger plant sites as a means of providing additional treatment capacity and if so, under what conditions might such authorization be made?

Evaluation

The Department has reviewed the request from Washington County and notes the following:

1. The Environmental Quality Commission recently approved a staff recommendation to allow a proposed expansion of the Somerset West treatment system. This proposal involved addition of conventional lagoons with irrigation disposal

of effluent during the summer months and discharge to Rock Creek during the wet weather/winter months. In recommending approval of this proposal, the staff noted that an increased discharge of treated effluent to the stream would occur during the winter months and that no significant deterioration in wet weather water quality would be expected. While this could be considered as a precedent for approval of expanded facilities on either Fanno Creek or Beaverton Creek, several significant differences exist:

- a. The Metzger and Aloha facilities are located in more populated areas whereas the Somerset West facilities are by comparison remote.
 - b. Fanno Creek and Beaverton Creek both presently have substantially more sewage discharged to them during the winter months than does Rock Creek.
 - c. Development adjacent to Fanno Creek and Beaverton Creek below the respective points of discharge is much greater than that adjacent to Rock Creek, therefore, more persons are potentially affected by any increased discharges.
2. It is the opinion of the staff that a 10 to 20% increase in the quantity of treated effluent discharged to either Fanno Creek or Beaverton Creek during the wet weather winter months (approximately November 1 through May 1) would not cause significant further deterioration of water quality in the streams providing the BOD and suspended solids levels in the discharges are maintained at 20 Milligrams per liter or less. If higher levels of suspended solids in the effluent occur,

solids would be expected to deposit on the bottom of the stream downstream from the point of discharge. Such solids accumulations would be expected to have an adverse effect on overall stream quality during the warmer summer months.

3. The Department of Environmental Quality has received complaints over the years from the adjacent residents relative to odor and noise from the Metzger plant. Some complaints have also been received regarding the Aloha plant. Sewage treatment facilities have a characteristic odor which some people find objectionable. Odor varies at different times of the year depending on the condition of the sewage received at the plant, atmospheric conditions and other factors. The mechanical components of treatment plants also generate noise. Thus any increase in treatment capability would be expected to add to the existing odor and noise levels depending upon the particular technology employed to achieve plant expansion. A minimal increase in odor and noise problems would be expected with some alternative which does not extend the boundaries of the present treatment plant grounds.
4. Spray irrigation of treated effluent during the summer months is used in a number of situations in Oregon. This method of effluent disposal can be fully satisfactory as long as sufficient land area is provided to insure disposal without runoff and provided the disposal system is diligently operated to avoid problems.
5. The principal problem anticipated with any proposed expansion of facilities is that of disposal of sludge. Sewage treatment plants remove organic matter from waste water by converting the soluble and colloidal organic material into solids which

are then physically removed by settling from the effluent. Most often, effluent quality problems as well as plant odor problems occur as the result of the inability of plants to effectively remove and properly dispose of suspended and settleable solids.

At the April 30, 1973 meeting of the Commission when major adjustments were made in the implementation schedule for master plan facilities in Washington County, the Unified Sewerage Agency was requested to develop and submit a program for sludge disposal to the Department. Although the Agency is known to be working on such a program, to date that program has not been submitted. A fully effective program for disposal of sludge on a year-round basis from existing plants as well as any proposed expansion is a critical need.

6. Addition of aerated lagoon-type facilities or package treatment plants have been suggested by USA as possible alternatives for increasing plant capacity. Other alternatives which could be explored include flow equalization to remove hydraulic surges, minor process modifications in the existing treatment plants, chemical additions to enhance solids separation and other possible operational changes. While each type of modification has its advantages or disadvantages, the effect on neighboring residences must be a significant determining factor in approving any specific plan. It is the opinion of the staff that the aerated lagoon concept may be the least desirable alternative from an aesthetic and environmental standpoint because such a facility would significantly expand the plant site boundaries.

Conclusions

It is concluded that:

1. A 10 to 20% expansion of the Aloha and Metzger plants utilizing land disposal of treated effluent during the dry weather summer months and discharge of a 10 to 20% increase in treated effluent containing less than 20 Milligrams per liter BOD and suspended solids during the wet weather winter months would not cause significant further deterioration of water quality.
2. Various alternatives for accomplishing plant expansion can be expected to have varying degrees of impact on nearby residences.
3. The ability to maintain satisfactory operation of existing plants and provide for reliable operation of any expanded facilities will depend on speedy resolution of existing sludge disposal problems.

Director's Recommendation

It is recommended that the questions asked by Washington County in their September 7, 1973 letter be answered as follows:

1. The Department will consider approval of specific proposals to increase the treatment capability of the existing Metzger and Aloha treatment plants based on irrigation disposal of effluent during the dry weather summer months for the added sewage load and discharge of the highly treated effluent containing less than 20 Milligrams per liter BOD and 20 Milligrams per liter suspended solids to the stream during the winter months subject to the following conditions:

- a. Flow equalization, chemical treatment, process changes, operational changes, aerated lagoons, package plants and other feasible alternative methods for increasing treatment capacity must be properly considered prior to making a choice as to the finally proposed alternative so as to minimize environmental impact.
 - b. The county shall give adequate notice of any proposed expansion plan and give opportunity for public comment prior to submission of any finally proposed alternative to the Department.
 - c. Land use questions must be satisfactorily resolved at the local level prior to submission of any finally proposed alternative to the Department.
 - d. Written approval must be obtained from the Department for any specific proposal prior to construction.
2. The specific aerated lagoons or package plant alternatives will be considered in accordance with the above conditions.



DIARMUID F. O'SCANNLAIN

HLS:ak

September 13, 1973



WASHINGTON COUNTY

ADMINISTRATION BUILDING — 150 N. FIRST AVENUE
HILLSBORO, OREGON 97123

BOARD OF COMMISSIONERS

ELDON HOUT, Chairman
VIRGINIA DAGG
WILLIAM MASTERS
ROD ROTH
BURTON C. WILSON, JR.

DANIEL O. POTTER
COUNTY ADMINISTRATIVE OFFICER
ROOM 418
(503) 648-8676

September 7, 1973

Mr. Diamuid O'Scannlain
Director, Department of
Environmental Quality
1234 S. W. Morrison
Portland, Oregon

Dear Mr. O'Scannlain:

At the August 1973 meeting of the Environmental Quality Commission specific sewer connection limits were placed on the Unified Sewerage Agency's treatment plants located in the Beaverton-Rock Creek basin, and in the Fanno Creek Basin of Washington County.

Since this time, the Unified Sewerage Agency has reviewed proposals to increase the connection capability on a short-term basis pending the completion of its Durham waste water treatment plant. Comparable proposals are also under review to increase connection capability in the Beaverton-Rock Creek basin pending completion of the Rock Creek plant now in preliminary design.

In order for either of these plans to be made effective, the Agency needs to know whether the Environmental Quality Commission would authorize the construction of sewerage treatment facilities with discharge to the receiving stream on a secondary treatment basis (20 mg/l BOD and SS) during the winter months, and employing recognized and approved spray irrigation techniques in the summer months. This question is vital to any further increase in sewage treatment capability to provide the Fanno Creek basin or the Beaverton-Rock Creek basin with added sewage treatment capability.

If the Commission should consent to the added waste loadings in the winter months and the spray irrigation of effluent in the summer months, there are two secondary questions which need clarification for a rational plan to be produced.

September 7, 1973

1. The Unified Sewerage Agency is reviewing a proposal for an areated lagoon-chlorine contact basin system which would provide secondary treatment. Such a plant might be added on or adjacent to existing facilities at the Metzger plant site or the Aloha plant site. Copies of an engineering report have been provided to members of your staff for review. The question is--would the Environmental Quality Commission authorize construction of facilities of this character? If so, under what conditions might such an authorization be made?

2. The Agency is also reviewing the possibility of incorporating package treatment plant facilities at either its Aloha or Metzger sites as a means of providing additional treatment. We would expect to have definitive information to you at an early date for staff consideration. Would the Environmental Quality Commission consider this solution at either the Metzger or Aloha plant sites? If so, under what conditions might such authorization be made?

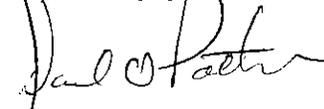
As you can observe, the Unified Sewerage Agency is attempting to discharge its responsibility to the area which it serves by providing added and adequate sewage treatment facilities to meet ongoing requirements and to meet the requirements of the Environmental Quality Commission. For this reason our ability to plan requires some indication as to what would be acceptable.

We would welcome any added comments or ideas which the Department of Environmental Quality might have in regard to acceptable methods of providing added treatment capability.

Members of the Agency staff will be available for any consultation on these matters that may be desired.

We would request this matter be placed before the Environmental Quality Commission at its September 21, 1973 meeting so that some early resolution to these problems can be found.

Sincerely yours,



Daniel O. Potter

County Administrative Officer

DOP:ams

STATE OF OREGON
ROUTE SLIP

Date September 20, 1973
TO: Diarmuid F. O'Scannlain/EJW

FROM: HLS

- CHECK
- | | |
|--|---|
| <input type="checkbox"/> Approval | <input type="checkbox"/> Investigate |
| <input type="checkbox"/> Necessary Action | <input type="checkbox"/> Confer |
| <input type="checkbox"/> Prepare Reply | <input type="checkbox"/> Per Telephone Conversation |
| <input type="checkbox"/> For My Signature | <input type="checkbox"/> For Your Information |
| <input checked="" type="checkbox"/> Your Signature | <input type="checkbox"/> As Requested |
| <input type="checkbox"/> Comment | <input type="checkbox"/> Note and File |
| <input type="checkbox"/> Initial and Return | <input type="checkbox"/> Return With More Details |

COMMENTS:



ENVIRONMENTAL QUALITY COMMISSION

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

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GOVERNOR

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Chairman, McMinnville

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Corvallis

PAUL E. BRAGDON
Portland

MORRIS K. CROTHERS
Salem

ARNOLD M. COGAN
Portland

—
DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Supplement to Agenda Item No. G, September 21, 1973,
EQC Meeting

Unified Sewerage Agency of Washington County, Consideration
of Proposal for Expansion of Interim Treatment Facilities

The Department staff met on Wednesday, September 19, 1973 with Unified Sewerage Agency staff and the two consultants working for USA in the Fanno and Beaverton Creek Basins. Although studies are not complete, results to date indicate that practicable and technically approvable alternatives exist to increase capacities in line with the recommendation to the EQC in Agenda Item G and that such alternatives could be installed and functional prior to the summer of 1974.

In the Metzger area, installation of a prefabricated treatment plant within the existing plant boundaries would appear to be the most practicable solution based on information to date. In the Beaverton Creek Basin, work has not progressed to the point of narrowing on a specific alternative, however, improvement of the Sunset plant to permit loading to its full design capacity is one possible alternative. Specific proposals for sludge disposal alternatives are also expected within the next week.

The Washington County Board of Commissioners has adopted and sent to the Department a resolution committing itself to implement

interim expansion alternatives and requesting immediate release of the remaining 300 of the theoretically available connections in the Metzger plant. (On August 13, 1973, 600 of 900 theoretically available connections to the Metzger plant and 1200 of 1900 theoretically available connections to the Aloha plant were allocated as a quota for the year ending August 1, 1974). Release of the additional 300 connections in the Metzger area would permit allocation of connections to relieve developers' severe financial problems. Actual connections would be made gradually over the next year or more. If USA fails to proceed with interim expansion, no additional building could take place in the Metzger service area until the Durham plant is essentially complete. Thus, the County will be under extreme pressure to proceed with development of interim capacity.

Director's Further Recommendation

It is recommended that the Director be authorized to adjust the 600 unit connection quota for the Metzger sewage treatment plant service area for the period through August 1, 1974 by releasing the additional 300 requested units upon receipt from USA of an approvable specific program, implementation schedule and firm assurance of implementation of the approved plan and continued operation of the plant to meet the established interim 20/20 effluent requirements.

It is further recommended that the Director be authorized to adjust the quotas for the Aloha plant service area at such time as an approvable specific program and implementation schedule for increasing connection capability is submitted to the Department and firm assurance of implementation of the approved plan and continued operation of the plant to meet the established interim 20/20 operation requirements has been received.

It is also recommended that the Director be authorized to establish quotas for any additional connections which may result from approved facilities which may be constructed to increase capacity so as to insure that such facilities do not become overloaded and are continuously operated in compliance with standards.



DIARMUID F. O'SCANNLAIN

HLS:ak

September 20, 1973



State of Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: Director O'Scannlain *D*

Date: September 7, 1973

From: Shirley

Subject: attached letter

The attached letter came in this afternoon to Hal Sawyer. It is the reason for including the USA (Metzger Treatment Plant) item on the EQC Agenda for September.



WASHINGTON COUNTY

ADMINISTRATION BUILDING — 150 N. FIRST AVENUE
HILLSBORO, OREGON 97123

BOARD OF COMMISSIONERS

ELDON HOUT, Chairman
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BURTON C. WILSON, JR.

DANIEL O. POTTER
COUNTY ADMINISTRATIVE OFFICER
ROOM 418
(503) 648-8676

September 7, 1973

Mr. Diamuid O'Scannlain
Director, Department of
Environmental Quality
1234 S. W. Morrison
Portland, Oregon

Dear Mr. O'Scannlain:

At the August 1973 meeting of the Environmental Quality Commission specific sewer connection limits were placed on the Unified Sewerage Agency's treatment plants located in the Beaverton-Rock Creek basin, and in the Fanno Creek Basin of Washington County.

Since this time, the Unified Sewerage Agency has reviewed proposals to increase the connection capability on a short-term basis pending the completion of its Durham waste water treatment plant. Comparable proposals are also under review to increase connection capability in the Beaverton-Rock Creek basin pending completion of the Rock Creek plant now in preliminary design.

➔ In order for either of these plans to be made effective, the Agency needs to know whether the Environmental Quality Commission would authorize the construction of sewerage treatment facilities with discharge to the receiving stream on a secondary treatment basis (20 mg/l BOD and SS) during the winter months, and employing recognized and approved spray irrigation techniques in the summer months. This question is vital to any further increase in sewage treatment capability to provide the Fanno Creek basin or the Beaverton-Rock Creek basin with added sewage treatment capability.

If the Commission should consent to the added waste loadings in the winter months and the spray irrigation of effluent in the summer months, there are two secondary questions which need clarification for a rational plan to be produced.

September 7, 1973

1. The Unified Sewerage Agency is reviewing a proposal for an areated lagoon-chlorine contact basin system which would provide secondary treatment. Such a plant might be added on or adjacent to existing facilities at the Metzger plant site or the Aloha plant site. Copies of an engineering report have been provided to members of your staff for review. The question is--would the Environmental Quality Commission authorize construction of facilities of this character? If so, under what conditions might such an authorization be made?

2. The Agency is also reviewing the possibility of incorporating package treatment plant facilities at either its Aloha or Metzger sites as a means of providing additional treatment. We would expect to have definitive information to you at an early date for staff consideration. Would the Environmental Quality Commission consider this solution at either the Metzger or Aloha plant sites? If so, under what conditions might such authorization be made?

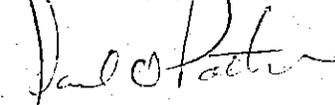
As you can observe, the Unified Sewerage Agency is attempting to discharge its responsibility to the area which it serves by providing added and adequate sewage treatment facilities to meet ongoing requirements and to meet the requirements of the Environmental Quality Commission. For this reason our ability to plan requires some indication as to what would be acceptable.

We would welcome any added comments or ideas which the Department of Environmental Quality might have in regard to acceptable methods of providing added treatment capability.

Members of the Agency staff will be available for any consultation on these matters that may be desired.

We would request this matter be placed before the Environmental Quality Commission at its September 21, 1973 meeting so that some early resolution to these problems can be found.

Sincerely yours,



Daniel O. Potter
County Administrative Officer

DOP:ams

1 IN THE UNIFIED SEWERAGE AGENCY
2 OF WASHINGTON COUNTY, OREGON

3 In the Matter of Declaring)
4 Intention to Promptly Implement)
5 Authorized Treatment Plant) RESOLUTION AND ORDER
6 Expansion and Urge Release by)
7 the Environmental Quality) NO. 73-54
8 Commission of Sewer Connection)
9 Permits now held in reserve for)
10 1974-75.)

11 This matter having come on before the Board of
12 County Commissioners of Washington County, Oregon, as
13 the governing body of the Unified Sewerage Agency of
14 Washington County, Oregon, at its meeting of September 18,
15 1973; and

16 It appearing to the Board that there is now held in
17 reserve a substantial number of sewer connections for the
18 1974 construction season; and

19 It appearing to the Board that there will be a public
20 need to provide for continuity of land use development
21 prior to the time the sewer connection permits held in
22 reserve would otherwise be available; and

23 It appearing to the Board that there is a reasonable
24 probability that the Environmental Quality Commission will
25 authorize an interim expansion of treatment capacity in the
26 Rock Creek and Fanno basins pending construction of the
27 Durham and Rock Creek sewerage plants; which interim solution
28 will provide added treatment capacity during the 1974 construction
29 season, and the Board being fully advised in the premises; it
30 is, therefore

31 RESOLVED AND ORDERED that the Unified Sewerage Agency
32 will promptly implement any expansion of the Metzger and
33 Aloha plants for the interim until the Durham plant is completed
34 which is approved by the Environmental Quality Commission or,
35 upon the Commission's authorization by staff of said Commission;

1 and it is further

2 RESOLVED AND ORDERED that with such committment and
3 authorization of interim expansion providing a reasonable
4 basis for meeting needs in the period after August 1, 1974,
5 the Unified Sewerage Agency urges that the Environmental
6 Quality Commission now release to it authorization to
7 issue permits from the 300 presently reserved in the Metzger
8 plant and 700 reserved in the Aloha plant for issuance
9 after August 1, 1974, with the assurance by the Agency that
10 it will maintain minimum reserves from such permits to allow
11 connection of now unknown hardship cases, health hazards
12 and public buildings.

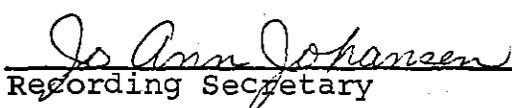
13 DATED this 18th day of September, 1973.

14 UNIFIED SEWERAGE AGENCY
15 OF WASHINGTON COUNTY, OREGON

16 By Board of County Commissioners
17 For Washington County, Oregon
18 As Its Governing Body.

19 5 Votes aye

18 
19 _____
20 Chairman

21 
22 _____
23 Recording Secretary



ENVIRONMENTAL QUALITY COMMISSION

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

TOM McCALL
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MORRIS K. CROTHERS
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ARNOLD M. COGAN
Portland

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. H, September 21, 1973, EQC Meeting

Public Hearing to Consider Adoption of Rules
Pertaining to Procedures for Issuance of
National Pollutant Discharge Elimination System
(NPDES) Permits

Background

1. The Federal Water Pollution Control Act as amended by the adoption of Public Law 92-500, October 18, 1972, requires the creation of a national waste discharge program for point source discharges to navigable waters. This National Pollutant Discharge Elimination System (NPDES) permit program is to be administered by the U. S. Environmental Protection Agency except in those states where authority to issue the NPDES permits has been transferred to a state or interstate agency.
2. The 1973 Oregon Legislature adopted new laws to provide the Department of Environmental Quality with the authority to administer the NPDES permit program. The Department submitted Oregon's proposed program for administering the NPDES permit system to EPA in the latter part of June 1973. EPA held a public hearing on Oregon's program submittal August 30, 1973, and they must make a decision whether or not to approve it by the end of September.

3. On May 29, 1973, the Environmental Quality Commission adopted emergency rules for administering the NPDES program in order for Oregon's program submittal to EPA to be complete. These emergency rules will expire October 19, 1973. The rules proposed for adoption at this time are to replace the emergency rules adopted in May. Except for some minor modifications they are the same as the emergency rules.
4. For the benefit of interested persons who may be in attendance we will briefly outline the content of the proposed rules.
 - a. In order to delineate the NPDES permit issuing procedures from the procedures of issuing State permits for activities not requiring an NPDES permit, Section 14-007 has been added to OAR Chapter 340, Division 1, Subdivision 4.
 - b. Sections 45-005 through 45-030 of OAR 340, Division 4, Subdivision 5 are to be repealed and replaced with Sections 45-005 through 45-065. These sections prescribe the requirements and procedures for obtaining NPDES permits.
 - (1) Section 45-010 deals with definitions.
 - (2) Section 45-015 explains who needs a State permit or NPDES permit.
 - (3) Section 45-020 lists some discharges which will not be permitted.
 - (4) Section 45-030 explains the procedures for applying for an NPDES permit.
 - (5) Section 45-035 describes departmental procedures for issuing NPDES permits and the preparation of notices and fact sheets. It also describes public participation opportunities including a 30 day public review period and an opportunity for public hearings.

- (6) The remainder of the proposed rules describe procedures of renewal, transfer, denial, modification, suspension and revocation of NPDES permits.

Evaluation

1. At this point in time it appears that Oregon will be granted authority to administer the NPDES permit program.
2. There have been no adverse comments from EPA regarding the content of the emergency rules adopted May 29.
3. Permanent rules must be adopted prior to the expiration of the 120 day period the emergency rules are in effect.
4. Because of written comments received from environmental groups on the emergency rules as adopted, the following modifications have been made in the proposed permanent rules:
 - a. On page 2 the definition for "navigable waters" has been changed to conform with EPA's revised definition.
 - b. Section 45-035 on page 7 was expanded to more clearly describe public participation opportunities as follows:
 - (i) To paragraph (3) at the bottom of page 7 the phrase, "shall tell of public participation opportunities," was added. This was done to explain one of the main purposes of the public notice.
 - (ii) On the top of page 8 "and copying" was added to inform the public that documents could be copied at the DEQ office.
 - (iii) Paragraph (7) at the bottom of page 8 was changed to more closely represent the language in the EPA guidelines. The primary change is the addition of the following sentence: "The Director shall provide an opportunity for the applicant, any affected state, or any interested agency, person, or group of persons to request or petition for a public hearing with respect to NPDES applications."

5. During EPA's public hearing on August 30, 1973, some of the environmental groups expressed concern that DEQ's rules do not completely duplicate EPA guidelines. It is our contention that EPA guidelines (or regulations) will adequately regulate the Department if the authority to administer the NPDES program is transferred to it. These proposed rules are geared to regulate the discharger, rather than to regulate the Department. They are to inform the discharger of the requirement to obtain a permit and of the procedures for issuance, renewal, transfer, denial, modification, suspension and revocation of a permit.

Conclusions

1. The emergency rules adopted May 29, 1973 will expire October 19, 1973. These rules must be replaced by permanent rules before that date.
2. With exception of the minor modifications noted, the emergency rules as adopted will be satisfactory as permanent rules.

Director's Recommendation

It is recommended that the proposed rules be adopted as amended.



DIARMUID F. O'SCANNLAIN

CKA:ljb
9/11/73

Proposed Amendments to
OAR Chapter 340, Division 1,
Subdivision 4

A new paragraph, which reads as follows, shall be added to OAR Chapter 340, Division 1, Subdivision 4, between Sections 14-005 and 14-010.

14-007 EXCEPTION

The procedures prescribed in this Subdivision do not apply to the issuance, denial, modification and revocation of National Pollutant Discharge Elimination System (NPDES) permits issued pursuant to the Federal Water Pollution Control Act Amendments of 1972 and acts amendatory thereof or supplemental thereto. The procedures for processing and issuance of NPDES permits are prescribed in OAR Chapter 340, Sections 45-005 through 45-065.

Proposed Amendments to

OAR Chapter 340, Division 4, Subdivision 5

Sections 45-005 through 45-030 of OAR 340 Division 4, Subdivision 5 are hereby repealed and the following are enacted in lieu thereof:

45-005 PURPOSE

The purpose of these regulations is to prescribe limitations on discharge of wastes and the requirements and procedures for obtaining waste discharge permits from the Department.

45-010 DEFINITIONS, AS USED IN THESE REGULATIONS UNLESS OTHERWISE REQUIRED BY CONTEXT:

- (1) "Commission" means the Environmental Quality Commission.
- (2) "Department" means Department of Environmental Quality.
- (3) "Director" means the Director of the Department of Environmental Quality.
- (4) "Discharge or disposal" means the placement of wastes into public waters, on land or otherwise into the environment in a manner that does or may tend to affect the quality of public waters.
- (5) "Disposal system" means a system for disposing of wastes, either by surface or underground methods, and includes sewerage systems, treatment works, disposal wells and other systems.
- (6) "Federal Act" means Public Law 92-500, known as the Federal Water Pollution Control Act Amendments of 1972 and acts amendatory thereof or supplemental thereto.
- (7) "Industrial waste" means any liquid, gaseous, radioactive or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade or business, or from the development or recovery of any natural resources.
- (8) "NPDES permit" means a waste discharge permit issued in accordance with requirements and procedures of the National Pollutant Discharge Elimination System authorized by the Federal Act and of OAR Chapter 340, Sections 45-005 through 45-065.
- (9) "Navigable waters" means all navigable waters of the United States and their tributaries; interstate waters; intrastate lakes, rivers and streams which are used by interstate travelers for recreation or other purposes or from which fish or shellfish are taken and sold in interstate commerce or which are utilized for industrial purposes by industries in interstate commerce.
- (10) "Person" means the United States and agencies thereof, any state, any individual, public or private corporation, political subdivision, governmental agency, municipality, copartnership, association, firm, trust, estate or any other legal entity whatever.
- (11) "Point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

- (12) "Pollutant" means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.
- (13) "Pre-treatment" means the waste treatment which might take place prior to discharging to a sewerage system including but not limited to pH adjustment, oil and grease removal, screening and detoxification.
- (14) "Public waters" or "waters of the state" include lakes, bays, ponds, impounding reservoirs, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland, or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters) which are wholly or partially within or bordering the state or within its jurisdiction.
- (15) "Regional Administrator" means the regional administrator of Region X of the U. S. Environmental Protection Agency.
- (16) "Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places, together with such ground water infiltration and surface water as may be present. The mixture of sewage as above defined with wastes or industrial wastes, as defined in subsections (7) and (23) of this section, shall also be considered "sewage" within the meaning of these regulations.
- (17) "Sewerage system" means pipelines or conduits, pumping stations, and force mains, and all other structures, devices, appurtenances, and facilities used for collecting or conducting wastes to an ultimate point for treatment or disposal.
- (18) "State" means the State of Oregon.
- (19) "State permit" means a waste discharge permit issued by the Department in accordance with the procedures of OAR Chapter 340, Sections 14-005 14-050 and which is not an NPDES permit.
- (20) "Toxic waste" means any waste which will cause or can reasonably be expected to cause a hazard to fish or other aquatic life or to human or animal life in the environment.

- (21) "Treatment" or "waste treatment" means the alteration of the quality of waste waters by physical, chemical or biological means or a combination thereof such that the tendency of said wastes to cause any degradation in water quality or other environmental conditions is reduced.
- (22) "Waste discharge permit" means a written permit issued by the Department in accordance with the procedures of OAR Chapter 340, Sections 14-005 through 14-050 or 45-005 through 45-065.
- (23) "Wastes" means sewage, industrial wastes and all other liquid, gaseous, solid, radioactive or other substances which will or may cause pollution or tend to cause pollution of any waters of the state.

45-015 PERMIT REQUIRED.

- (1) Without first obtaining a state permit from the Director, no person shall:
 - (a) Discharge any wastes into the waters of the state from any industrial or commercial establishment or activity or any disposal system.
 - (b) Construct, install, modify, or operate any disposal system or part thereof or any extension or addition thereto.
 - (c) Increase in volume or strength any wastes in excess of the permissive discharges specified under an existing state permit.
 - (d) Construct, install, operate or conduct any industrial, commercial or other establishment or activity or any extension or modification thereof or addition thereto, the operation or conduct of which would cause an increase in the discharge of wastes into the waters of the state or which would otherwise alter the physical, chemical or biological properties of any waters of the state in any manner not already lawfully authorized.
 - (e) Construct or use any new outlet for the discharge of any wastes into the waters of the state.

- (2) Without first obtaining an NPDES permit, no person shall discharge pollutants from a point source into navigable waters.
- (3) Any person who has a valid NPDES permit shall be considered to be in compliance with the requirements of Subsection (1) of this section. No state permit for the discharge is required.
- (4) Although not exempted from complying with all applicable laws, rules and regulations regarding water pollution, persons discharging wastes into a sewerage system are specifically exempted from requirements to obtain a state or NPDES permit, provided the owner of such sewerage system has a valid state or NPDES permit. In such cases, the owner of such sewerage system assumes ultimate responsibility for controlling and treating the wastes which he allows to be discharged into said system. Notwithstanding the responsibility of the owner of such sewerage systems, each user of the sewerage system shall comply with applicable toxic and pretreatment standards and the recording, reporting, monitoring, entry, inspection and sampling requirements of the commission and the Federal Act and federal regulations and guidelines issued pursuant thereto.
- (5) Each person who is required by Subsection (1) or (2) of this section to obtain a state or NPDES permit shall:
 - (a) Make prompt application to the Department therefor;
 - (b) Fulfill each and every term and condition of any state or NPDES permit issued to such person;
 - (c) Comply with applicable federal and state requirements, effluent standards and limitations including but not limited to those contained in or promulgated pursuant to Sections 204, 301, 302, 304, 306, 307, 402 and 403 of the Federal Act, and applicable federal and state water quality standards;
 - (d) Comply with the Department's requirements for recording, reporting, monitoring, entry, inspection and sampling, and make no false statements, representations or certifications in any form, notice, report or document required thereby.

45-020 NON-PERMITTED DISCHARGES

Discharge of the following wastes into any navigable or public waters shall not be permitted:

- (1) Radioactive, chemical, or biological warfare agent or highlevel radioactive waste.

- (2) Any point source discharge which the Secretary of the Army acting through the Chief of Engineers finds would substantially impair anchorage and navigation.
- (3) Any point source discharge to navigable waters which the Regional Administrator has objected to in writing.
- (4) Any point source discharge which is in conflict with an areawide waste treatment and management plan or amendment thereto which has been adopted in accordance with Section 208 of the Federal Act.

45-025 PROCEDURES FOR OBTAINING STATE PERMITS

Except for the procedures for application for and issuance of NPDES permits on point sources to navigable waters of the United States, submission and processing of applications for state permits and issuance, renewal, denial, transfer, modification and suspension or revocation of state permits shall be in accordance with the procedures set forth in OAR Chapter 340, sections 14-005 through 14-050.

45-030 APPLICATION FOR NPDES PERMIT

- (1) Any person wishing to obtain a new, modified or renewal NPDES permit from the Department shall submit a written application on a form provided by the Department. Applications must be submitted at least 180 days before an NPDES permit is needed. All application forms must be completed in full and signed by the applicant or his legally authorized representative. The name of the applicant must be the legal name of the owner of the facilities or his agent or the lessee responsible for the operation and maintenance.
- (2) Applications which are obviously incomplete or unsigned will not be accepted by the Department for filing and will be returned to the applicant for completion.
- (3) Applications which appear complete will be accepted by the Department for filing.

- (4) If the Department later determines that additional information is needed, it will promptly request the needed information from the applicant. The application will not be considered complete for processing until the requested information is received. The application will be considered to be withdrawn if the applicant fails to submit the requested information within 90 days of the request.
- (5) An application which has been filed with the U. S. Army Corps of Engineers in accordance with section 13 of the Federal Refuse Act or an NPDES application which has been filed with the U. S. Environmental Protection Agency will be accepted as an application filed under this section provided the application is complete and the information on the application is still current.

45-035 ISSUANCE OF NPDES PERMITS

- (1) Following determination that it is complete for processing, each application will be reviewed on its own merits. Recommendations will be developed in accordance with provisions of all applicable statutes, rules, regulations and effluent guidelines of the State of Oregon and the U. S. Environmental Protection Agency.
- (2) The Department shall formulate and prepare a tentative determination to issue or deny an NPDES permit for the discharge described in the application. If the tentative determination is to issue an NPDES permit, then a proposed NPDES permit shall be drafted which includes at least the following:
 - (a) Proposed effluent limitations,
 - (b) Proposed schedule of compliance, if necessary,
 - (c) And other special conditions.
- (3) In order to inform potentially interested persons of the proposed discharge and of the tentative determination to issue an NPDES permit, a public notice announcement shall be prepared and circulated in a manner approved by the Director. The notice shall tell of public participation opportunities, shall encourage comments by interested individuals or agencies and shall tell of the availability of fact sheets, proposed NPDES permits, applications and other related documents available for public.

inspection and copying. The Director shall provide a period of not less than 30 days following the date of the public notice during which time interested persons may submit written views and comments. All comments submitted during the 30-day comment period shall be considered in the formulation of a final determination.

- (4) For every discharge which has a total volume of more than 500,000 gallons on any day of the year, the Department shall prepare a fact sheet which contains the following:
 - (a) A sketch or detailed description of the location of the discharge;
 - (b) A quantitative description of the discharge;
 - (c) The tentative determination required under section 45-035 (2);
 - (d) An identification of the receiving stream with respect to beneficial uses, water quality standards, and effluent standards;
 - (e) A description of the procedures to be followed for finalizing the permit; and,
 - (f) Procedures for requesting a public hearing and other procedures by which the public may participate.
- (5) After the public notice has been drafted and the fact sheet and proposed NPDES permit provisions have been prepared by the Department, they will be forwarded to the applicant for review and comment. All comments must be submitted in writing within 14 days after mailing of the proposed materials if such comments are to receive consideration prior to final action on the application.
- (6) After the 14-day applicant review period has elapsed, the public notice and fact sheet shall be circulated in a manner prescribed by the Director. The fact sheet, proposed NPDES permit provisions, application and other supporting documents will be available for public inspection and copying.
- (7) The Director shall provide an opportunity for the applicant, any affected state, or any interested agency, person, or group of persons to request or petition for a public hearing with respect to NPDES applications. If the Director determines that useful information may be produced thereby, a public hearing will be held prior to the Director's final determination.

- (8) At the conclusion of the public involvement period, the Director shall make a final determination as soon as practicable and promptly notify the applicant thereof in writing. If the Director determines that the NPDES permit should be denied, notification shall be in accordance with section 45-050. If conditions of the NPDES permit issued are different from the proposed provisions forwarded to the applicant for review, the notification shall include the reasons for the changes made. A copy of the NPDES permit issued shall be attached to the notification.
- (9) If the applicant is dissatisfied with the conditions or limitations of any NPDES permit issued by the Director, he may request a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director within 20 days of the date of mailing of the notification of issuance of the NPDES permit. Any hearing held shall be conducted pursuant to the regulations of the Department.

45-040. RENEWAL OR REISSUANCE OF NPDES PERMITS

The procedures for issuance of an NPDES permit shall apply to renewal of an NPDES Permit.

45-045 TRANSFER OF AN NPDES PERMIT

No NPDES permit shall be transferred to a third party without prior written approval from the Director. Such approval may be granted by the Director where the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the NPDES permit and the rules of the Commission.

45-050 DENIAL OF AN NPDES PERMIT

If the Director proposes to deny issuance of an NPDES permit, he shall notify the applicant by registered or certified mail of the intent to deny and the reasons for denial. The denial shall become effective 20 days

from the date of mailing of such notice unless within that time the applicant requests a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department.

45-055 MODIFICATION OF AN NPDES PERMIT

In the event that it becomes necessary for the Department to institute modification of an NPDES permit due to changing conditions or standards, receipt of additional information or any other reason pursuant to applicable statutes, the Department shall notify the permittee by registered or certified mail of its intent to modify the NPDES permit. Such notification shall include the proposed modification and the reasons for modification. The modification shall become effective 20 days from the date of mailing of such notice unless within that time the permittee requests a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department. A copy of the modified NPDES permit shall be forwarded to the permittee as soon as the modification becomes effective. The existing NPDES permit shall remain in effect until the modified NPDES permit is issued.

45-060 SUSPENSION OR REVOCATION OF AN NPDES PERMIT

- (1) In the event that it becomes necessary for the Director to suspend or revoke an NPDES permit due to non-compliance with the terms of the NPDES permit, unapproved changes in operation, false information submitted in the application or any other cause, the Director shall notify the permittee by registered or certified mail of his intent to suspend or revoke the NPDES permit. Such notification shall include the reasons for the suspension or revocation. The suspension or revocation shall become effective 20 days from the date of mailing of such notice unless within that time the permittee requests a hearing before the Commission or its authorized representative.

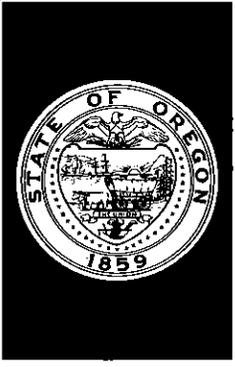
Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department.

- (2) If the Department finds that there is a serious danger to the public health or safety or that irreparable damage to a resource will occur, it may, pursuant to applicable statutes, suspend or revoke an NPDES permit effective immediately. Notice of such suspension or revocation must state the reasons for such action and advise the permittee that he may request a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director within 90 days of the date of suspension and shall state the grounds for the request. Any hearing shall be conducted pursuant to the regulations of the Department.

45-065 OTHER REQUIREMENTS

Prior to commencing construction on any waste collection, treatment, disposal or discharge facilities for which a permit is required by section 45-015, detailed plans and specifications must be submitted to and approved in writing by the Department as required by ORS 449.395; and for privately owned sewerage systems, a performance bond must be filed with the Department as required by ORS 449.400.

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ENVIRONMENTAL QUALITY COMMISSION

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Director

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. I, September 21, 1973, EQC Meeting
Continuing Planning for Water Quality Management in Oregon (Status Report)

Background

Section 303(e) of the Federal Water Pollution Control Act requires each state to submit to EPA for approval a description of its continuing planning process for water quality management. An approved continuing process is required as the first step toward seeking EPA approval of a State operated permit program in the National Pollutant Discharge Elimination System.

A continuing planning process for the preparation of water quality management plans in Oregon has been underway since June 1, 1972, supported by a planning grant from EPA. By letter dated February 15, 1973, Governor McCall submitted Oregon's Continuous Planning Process to EPA for approval pursuant to Section 303(e) of the Act. In accordance with that letter, the Department submitted additional information on June 6 and 25, 1973. In summary, these three submissions to EPA contained the following:

1. Establishment of Planning Areas. A planning framework of 20 river basins has been established in the State using hydrologic boundaries.

2. Classification of Waters. All waters within Oregon have been classified as Water Quality Limiting based on either the actual fact of existing water quality criteria violations not expected to be fully abated by best practicable treatment at point sources; or a non-degradation framework (based on Oregon Water Quality Standards) applied to waters where existing quality is higher than water quality criteria.
3. Planning Methodology. The planning methodology employed in developing river basin plans under 303(e) will include consideration of instream water quality and water quality standards, waste sources and loads, compliance schedules, funding requirements for publicly owned treatment works, and a summary of expected water quality improvement.
4. Planning Agencies. The State Continuing Planning Process constitutes Oregon's commitment to the preparation of water quality management plans for the navigable waters of the State. The Department has overall planning responsibility for this effort, including the coordination of basin planning and final plan preparation. Coordination with the water quality management study and planning activities of Federal, State, and local agencies, including the private sector, will be accomplished to achieve the participation, information, plan development, and plan certification required by 303(e) of the Act. The State clearinghouse will be utilized to assist the Department in establishing these agency contacts and in coordinating water quality management activities. Each basin plan will incorporate any other water quality or applicable resource plan which involves all or any part of the basin, including each area-wide waste treatment management plan, which may be

developed under Section 208 of the Act and each facilities plan for a proposed project for the construction of treatment works under Section 201 of the Act.

5. Phasing of Planning. A phased schedule for plan preparation has been established which provides for completing preliminary draft plans for all 20 river basins by the end of this month; review, revision, and refinement of the plans by September 1974; and hearings and final adoption by July 1, 1975.

Present Status and Comments

Full approval of Oregon's Continuing Planning Process was granted by EPA on July 17, 1973. Complete descriptions of this planning process are available to the public upon request to the Department.

Regulations pertaining to Area-wide Waste Treatment Planning under Section 208 have not yet been promulgated. These regulations could be published in the Federal Register by the end of September 1973, however. Since some confusion exists on this part of the Act, the following comments are in order.

1. The Section 208 regulations will be used by the Governor to identify areas in Oregon having substantial water quality control problems, to designate the boundaries of such areas, and to designate an organization which will develop an effective area-wide waste treatment management plan in each area so identified. All the designations made under this regulation will require the approval of EPA.
2. Submission of the designated planning areas and area-wide agencies to EPA is required within 180 days after the publication date of the regulation. By Federal law, the area-wide agencies designated under Section 208 of the Act must have a water quality planning process fully underway

in one year and a water quality management plan completed in three years. Federal financial assistance authorized under Section 208 will be restricted to such areas and agencies. However, if this Federal assistance is limited nation-wide, then Oregon may not receive sufficient funds to do this type of planning at the local level.

Representatives of EPA are therefore advising the State not to make any designations until the funding level or appropriation has been finalized.

3. The Department, through its continuing planning process, is developing a list of areas in the State having substantial water quality problems, which may qualify for designation as 208 planning areas in the event planning funds become available.

Annual Water Strategy

As required by regulations promulgated pursuant to Section 303(e) and 106 of Public Law 92-500, the Department of Environmental Quality is also required to issue annually a water strategy paper which set forth a summary assessment of water quality in the State and the plans of the Department relative to water quality control for the year. This strategy was submitted to the Environmental Protection Agency on June 12, 1973.

As indicated in the strategy document, Oregon's programs will generally concentrate during FY 74 in three principal areas as follows:

1. Proceed as rapidly as possible toward completion and adoption of Basin Water Quality Management Plans for 20 designated basins in the State. Draft plans for all basins will be completed and major progress toward final adoption is expected.

2. Bring and maintain all known point-source sources of pollution under the control of enforceable State or Federal waste discharge permits. In the coming program year, the Department of Environmental Quality will undertake management of the National Pollutant Discharge Elimination System, the national waste discharge permit program established in the Federal Water Pollution Control Act Amendments of 1972. To meet the requirements of that law, all dischargers within the State must be under NPDES permit by December 1974. The Department intends to convert existing State permits for the most significant industrial and municipal sources to NPDES permits during Fiscal Year 1974.
3. Initiate construction of needed pollution control facilities. Needed industrial facilities are generally being constructed in a timely manner as needs are identified through the permit issuance process. Municipal facilities construction has been essentially stopped for nearly a year by Federal grant procedures. Major efforts will be required to get projects moving when funds are released. The availability of Federal funding will be the principal constraint upon the rate of sewage treatment construction in Oregon.

While concentrating on these areas, other program elements such as monitoring, special water quality studies, compliance inspections and enforcement will not be slighted. During the summer months of 1973, stream flows in all Oregon streams are expected to be exceptionally low. In the Willamette River in particular, the possibility exists that water quality standards may be violated. Major emphasis will therefore be placed on monitoring of water quality and waste discharges to the Willamette River to serve as a basis for instituting extraordinary waste source control measures to insure standards compliance.

The strategy document also contains priority rankings for 20 basins and 107 stream segments. These rankings are based on presently available information relative to severity of pollution problems, population affected, need for preservation of high quality waters, and State and national priorities.

An inventory of municipal, industrial, and miscellaneous waste sources in rank order for permit issuance is also included.

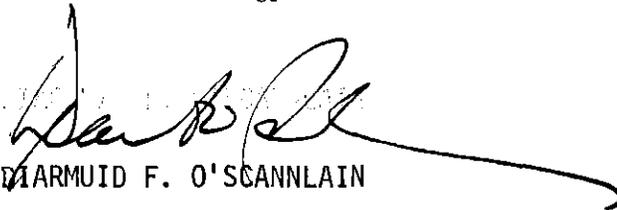
Construction grant priority criteria and priority listings are presently undergoing revision. The earlier developed information is included for reference, however.

Summary

In response to the requirements of the Federal Water Pollution Control Act, the Department of Environmental Quality has developed a continuous planning process and an annual water strategy for FY 74 and submitted these documents to the Environmental Protection Agency. The purpose of this report has been to advise the Environmental Quality Commission and the public of the actions of the Department and the general content of the documents. Copies of the documents have been and will be made available to interested persons.

Director's Recommendation

It is recommended that any interested persons be invited to either testify or submit written comments regarding Oregon's continuous planning process and water strategy for FY 74.



DIARMUID F. O'SCANNLAIN

HLS:ljb

9/10/73

Attachments (Annual State Strategy Program, State Continuing Planning Process)



DEPARTMENT OF ENVIRONMENTAL QUALITY

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TOM McCALL
GOVERNOR

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Agenda Item J, September 21, 1973, EQC Meeting
Proposed Statewide Noise Control Regulations
Public Hearing

Background

Since the Commission authorized the development of a noise control program in October of 1972, several important things have happened.

1. The staff has continued investigating noise complaints to gain additional insight into regulatory needs. The voluntary noise abatement program has continued, resulting in resolution of many industrial noise problems.

2. ORS 467 was changed to eliminate the statutory requirement for describing noise by Perceived Noise Level, thereby allowing the use of reasonably economical means of measuring sound.

3. Motor vehicle test procedures have been developed which are less dependent on location and weather conditions.

4. Sound measurement equipment for the District Offices has been acquired.

5. The Oregon State Marine Board, in cooperation with the Department, has established motorboat test sites as far from residential areas as practicable in the Portland area. This action eliminated a major community noise problem in the Sellwood area. It is now anticipated that test sites will also be established near Corvallis and Eugene.

6. Portland and Multnomah County have received a grant from the U. S. Department of Housing and Urban Development for the development of a noise ordinance. This program is expected to establish an experience record and an improved procedure for developing, adopting and implementing a local noise ordinance. The resulting ordinance should be a model for the state.

7. The Federal Noise Control Act of 1972 was enacted and contains the following items:

a. Designates EPA as the primary federal agency responsible for noise control,

b. Gives EPA preemptive authority to regulate noise of new products sold in interstate commerce and confirms rights of state and local governments to license and regulate use of products.

c. EPA is to propose aircraft-airport noise regulation to FAA.

d. Authorizes EPA to regulate product labeling relative to noise.

e. DOT, after consulting EPA, is to promulgate regulations for noise from railroads and motor carriers engaged in interstate commerce. Federal rule for motor carriers have been proposed and published in the Federal Register.

f. EPA is authorized to coordinate, conduct and finance research on noise.

8. The staff attended a motor vehicle noise enforcement training program sponsored by the U. S. Department of Transportation and conducted by the California Highway Patrol. The Department gained additional information about enforcement of California vehicle noise laws and recently proposed modifications to California's Enforcement procedures. A number of the revised California procedures have been incorporated into the proposed Oregon motor vehicle noise program. The Department expects to receive some sound measuring equipment from the Department of Transportation to initiate Oregon's motor vehicle noise enforcement program.

Proposed Noise Rules, General

Proposed noise standards, regulations and guidelines have been developed from monitoring of sources, the evaluation of various noise sources, the investigation of noise complaints, and from literature review. These rules are intended to control noise problems indicated to be most important by the public (off-road recreational vehicles, road vehicles, racing events, public roads, industry and commerce).

It is intended that other important noise sources such as airports and construction equipment be covered in future regulations.

The proposed noise source standards for motor vehicles are similar to California's motor vehicle noise laws, and are based on the use of present muffler technology for compliance with immediately applicable standards and on improved technology for future compliance. Technology for future compliance is now being developed through projects such as the "quiet truck" project at Freightliner Corporation, under contract with the U. S. Department of Transportations.

Proposed ambient noise standards, such as those for industry and highways, are based primarily on the need for outdoor speech communication and indoor sleep on residential property. They are stringent standards which cannot be significantly relaxed if speech communication and sleep are to be protected. The Department concludes that the welfare of Oregon citizens requires that speech communication and sleep must be protected.

Based on data from John C. Webster¹ of the Naval Electronics Laboratory Center in San Diego, the ambient noise levels in the proposed standards will allow people to communicate in a typical communicating voice level at distances up to 12 feet at least 90% of the time and at distances up to 35 feet at least 10% of the time.

1. Webster, John C., "Sil-Past, Present and Future", Sound and Vibration, August, 1969.

Motorcycles and Off-Road Recreational Vehicles

These rules will:

1. Prohibit the sale of new motorcycles and new snowmobiles which exceed specified noise limits.
2. Prohibit the sale of loud replacement exhaust systems.
3. Prohibit modifications to exhaust systems which increase noise.
4. Prohibit the use of vehicles with inadequate mufflers and those which have been modified for increased noise.
5. Require property owners to control the use of recreational vehicles on their property such that specified noise limits at residential property lines are not exceeded. Where noise problems arise, and property owners have not authorized use of their property for recreational vehicles, they will be encouraged to post their property against such use and seek the assistance of local enforcement agencies to control trespassing.

Enforcement of these rules is expected to be primarily by state and local police officers, with the Department testing new vehicles offered for sale for compliance with the regulation.

Road Vehicles

These rules will:

1. Prohibit the use on public roads of motor vehicles
 - a. Which have inadequate mufflers,
 - b. Which have been modified for increased noise, or
 - c. In a manner which produces noise exceeding specified limits.

2. Prohibit modifications to exhaust systems which increase noise, and

3. Prohibit the sale of loud replacement exhaust systems.

These regulations and the associated enforcement procedures closely parallel the latest revision to the California vehicle noise control program and the proposed federal regulations for motor carriers. Deviations from the California enforcement procedures are intended to provide improved enforcement in wet weather and with a stationary vehicle.

Enforcement is expected to be primarily by state and local police, with training and initial noise measuring equipment supplied by the Department.

The principal effects of these regulations are expected to be the installation of better mufflers on many trucks, such as log trucks, and the restoration to original or equivalent equipment of modified motorcycles and cars, such as Volkswagens with "extractor" type exhaust.

Racing Events

This rule will have its greatest effect on racing facilities which are located very near residential property. There are many homes in a number of areas in Oregon at which noise from nearby races makes speech communication difficult inside homes and virtually impossible outdoors, and disturbs sleep at all hours of operation.

The noise control staff and district engineers will find it necessary to monitor some racetrack noise, but it is anticipated that the majority of noise monitoring will be required to be accomplished by racetrack operators, with results reported to the Department, as required by the rule.

Public Roads

This rule is intended primarily to protect residences from excessive noise due to new roads, and will be enforced primarily through the plan review process associated with new road projects.

There are many existing road noise problems due to improper design or location of both homes and roads. Where the problems can be clearly identified and solutions are feasible, these problems can be solved through the use of this regulation. In some instances this will require detailed plans and long term compliance schedules. However, many past mistakes cannot be readily resolved and will likely be with us for some time.

The noise control staff expects to conduct a preliminary highway noise monitoring program, as workload allows, to identify specific existing road noise areas and problems.

Industry and Commerce

These rules are intended to protect residences from industrial and commercial noises which cause sleep disturbance, annoyance or interrupt speech communication, and also to protect industry established in compliance with these regulations from future unreasonable encroachment by residential development. Enforcement is expected primarily by Department field staff.

Schools

These guidelines are intended to assist in ensuring hearing conservation and a suitable environment for speech communication for school occupants. The Department expects to contact school officials to explain the guideline and seek voluntary compliance.

The noise standards, regulations and guidelines proposed are not necessarily applicable to all states. However, the Department believes that they are applicable to Oregon and are necessary to insure the welfare of Oregon citizens.

Program & Implementation

To implement the proposed noise control regulations and assure proper continued development of the noise control program, the Department proposes to undertake to:

1. Provide noise enforcement training for district engineers, state police and other appropriate personnel.
2. Conduct seminars to familiarize courts and district attorneys with the vehicle noise control program.
3. Provide technical assistance as required for enforcement activities.

4. Initiate a formal noise monitoring program.
5. Contact school officials about school noise guidelines.
6. Draft noise guidelines for airports.
7. Draft noise regulations for construction equipment and activities.
8. Assist Portland and Multnomah County in the development of a noise ordinance.
9. Adopt a model ordinance for cities and counties.
10. Develop noise guidelines for land use planning.
11. Review action of federal agencies on noise control and evaluate the need for expanded state program.

Authorization for Public Hearing

Subject to approval by the Commission, the Department plans to conduct public hearings on the proposed rules according to the following preliminary schedule.

| <u>Location</u> | <u>Date</u> | <u>Time</u> |
|-----------------|------------------|-------------|
| Portland | October 22, 1973 | evening |
| Eugene | October 24, 1973 | evening |
| Roseburg | October 29, 1973 | evening |
| Medford | October 29, 1973 | morning |

Following the above hearings and after incorporating appropriate public testimony, the proposed regulations will be presented to the commission for adoption at the earliest possible date.

Director's Recommendation

It is the Director's recommendation that the commission authorize the Department to conduct public hearings on the proposed noise regulations.

A handwritten signature in black ink, appearing to read 'D. F. O'Scannlain', written in a cursive style.

DIARMUID F. O'SCANNLAIN

GKS:sb

9/7/73



ENVIRONMENTAL QUALITY COMMISSION

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DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item No. K, September 21, 1973, EQC Meeting

Subsurface Sewerage Disposal, Promulgation of Emergency Rules

Background

Effective January 1, 1974, SB 77 (Chapter 835, Oregon Laws 1973) establishes a subsurface sewage disposal permit program and transfers jurisdiction for subsurface sewage disposal to the Department of Environmental Quality. The same legislative act terminates the Health Division's authority effective October 5, 1973. Department of Environmental Quality through ORS 449.150 has some responsibility for maintaining regulatory control of subsurface sewage disposal during the interim period.

At present, subsurface rules are adopted by the State Health Division and are administered by the Health Division and County Health Departments.

Evaluation

1. The Department of Environmental Quality does not have the resources to administer the subsurface program during the period from October 5, 1973 to January 1, 1974.
2. The Environmental Quality Commission can adopt current Health Division rules with minor modifications as temporary rules of the Department to provide continuation of the same rules until January 1, 1974. Such action is necessary to protect public health and welfare.

3. Through contract arrangement, the Health Division and local Health Departments can continue to administer the program during this 3 month period.
4. The Department has prepared proposed minor modifications to current Health Division rules. These proposed changes are as follows:

Section 1 - adopts current Health Division rules as amended by subsequent sections.

Section 2 - adds a section of explanatory language.

Section 3 - clarifies the duration of validity of prior permits or approvals.

~~Sections 4~~ and ~~5~~ - delay the previously specified septic tank design changes for the duration of the temporary rules to avoid possibility of putting manufacturers through additional changes when permanent rules are adopted.

Section 6 - alters language regarding seepage pits in a manner contemplated by the Health Division.

Section 7 - inserts language previously adopted by Health Division as temporary amendments to their rules.

Section 8 - deletes section on special areas and systems because such systems are extremely difficult to handle through a transitional period. It should be noted that the Health Division previously by temporary rules amended this section to make approvals very difficult.

Conclusion

It is concluded that regulations of subsurface sewage disposal during the period from October 5, 1973 to January 1, 1974 can best be accomplished by adopting the Health Division rules with minor modification and contracting with the Health Division for administrative enforcement. The adoption of such rules as temporary rules is necessary to protect public health and welfare.

Director's Recommendations

It is recommended that:

- (1) The attached proposed rules governing the subsurface disposal of sewage be adopted as temporary rules.
- (2) The Director be instructed to negotiate a contract with the State Health Division to administer and enforce said temporary rules.



DYARMUID F. O'SCANNLAIN

HLS:1jb

9/17/73

Attachment (Proposed Rules Governing the Subsurface Disposal of Sewage)

DEPARTMENT OF ENVIRONMENTAL QUALITY
(Proposed)
RULES

GOVERNING THE SUBSURFACE
DISPOSAL OF SEWAGE

Section 1. The rules contained in the attached Exhibit A entitled "Oregon State Health Division Rules Governing the Subsurface Disposal of Sewage" as amended by following sections are hereby adopted as rules of the Department of Environmental Quality.

Section 2. The following section shall be added ahead of the section entitled "Definitions" on page 1 of Exhibit A:

Explanation

These rules are adopted by the Environmental Quality Commission as temporary rules in accordance with ORS Chapter 183 based on the legal authorities contained in ORS 449.081 and ORS 449.150.

Effective January 1, 1974 Chapter 835, Oregon Laws 1973 transfers jurisdiction for subsurface sewage disposal to the Department of Environmental Quality and initiates a state-wide permit program for installation of subsurface systems. Chapter 835, Oregon Laws 1973 also repeals State Health Division legal authorities effective October 5, 1973. In order to provide continuity of the program with minimum changes until January 1, 1974 and based on authorities contained in ORS 449, the Department of Environmental Quality is adopting these temporary rules to cover the interim period and the Department of Environmental Quality and the State Health Division are entering into a contract pursuant to ORS 449.062 whereby the Health Division and local Health Departments will continue to implement the subsurface program until January 1, 1974.

Permanent rules will be adopted by the Environmental Quality Commission in accordance with the provisions of Sections 209 and 210 of Chapter 835, Oregon Laws 1973 which becomes effective January 1, 1974.

Section 3. Subsection 20 of the section entitled "Water Carried Subsurface Sewage Disposal Systems" on page 13 of Exhibit A is amended to read as follows:

- (20) Prior Permits or Approvals - Any permit or written approval for construction of a subsurface sewage disposal system granted by the administrator or his authorized representative prior to the adoption of these rules or pursuant to these rules shall be effective for a period of one year from the date of issuance of the permit or written approval. The rules in effect on the date of issuance of the permit or written approval and any special conditions contained in the permit or written approval shall apply.

Section 4. Subsection 1 of the section entitled "Septic Tanks" on page 18 of Exhibit A is amended to read as follows:

- (1) Liquid Capacity - The required minimum liquid capacity of septic tanks for dwellings, houseboats, boathouses and similar floating structures and mobile homes not in a mobile home park shall be based upon the number of bedrooms contemplated in the structure served, according to the following:

Required Minimum Capacities of Septic Tanks for Dwellings

| <u>Number of Bedrooms</u> | <u>Required Minimum Capacity in Gallons</u> | <u>Recommended Liquid Capacity</u> |
|-------------------------------|---|--|
| 1 | 750 | 1,000 |
| 2 | 750 | 1,000 |
| 3 | 900 | 1,200 |
| 4 | 1,000 | 1,333 |
| 5 | 1,250 | 1,667 |
| 6 | 1,500 | 2,000 |
| 7 | 1,750 | 2,333 |
| 8 | 2,000 | 2,666 |
| 9 | 2,250 | 3,000 |
| 10 | 2,500 | 3,333 |

The effective liquid capacity of septic tanks for systems serving other than dwellings for flows up to 500 gallons per day shall be at least 750 gallons; for flows between 500 and 1,500 gallons per day, shall be equal to at least one and one-half (1 1/2) days' sewage flow; and for all flows greater than 1,500 gallons per day shall be equal to 1,125 gallons plus seventy-five (75) percent of the daily sewage flow.

Section 5. Subsection 3 of the section entitled "Septic Tanks" on page 18 of Exhibit A is amended to read as follows:

- (3) Compartments - (A) No compartment of any tank shall have an inside horizontal dimension of less than twenty-four (24) inches, nor a liquid depth of greater than seventy-two (72) inches.

- (B) No tank shall have an excess of four (4) compartments.
- (C) The second compartment shall have a minimum liquid capacity at least equal to one-third of the capacity of the first compartment.

Note: The amendments of Sections 4 and 5 above are being made to defer implementation of tank changes until after permanent Department of Environmental Quality rules are adopted pursuant to Sections 209 and 210 of Chapter 835, Oregon Laws 1973.

Section 6. Subsection (1) of the section entitled "Seepage Pits" on page 40 of Exhibit A is amended to read as follows:

- (1) Use - Seepage pits shall not be used for the subsurface disposal of sewage except in areas specifically approved by the Division. Consideration shall not be given for the installation of seepage pits when any of the following conditions are present:
 - (A) Where the free water level is closer than four (4) feet from the bottom of the seepage pit during any season of the year.
 - (B) Where a community water supply is not available.
 - (C) Where clean, coarse gravel or other equally porous material does not occur in a continuous 5-foot-deep stratum within 12 feet of the surface of the ground.
 - (D) In limestone areas.
 - (E) Where an impervious layer overlays the gravel stratum.
 - (F) Other areas where, in the judgment of the Division, deep

disposal of septic tank effluent may jeopardize the quality of any domestic water supply or any other waters of the State.

Section 7. The section entitled "Approval by Local Health Officers of Lots or Parcels of Land" on pages 41, 42, and 43 of Exhibit A is amended to read as follows:

(1) Definitions

- (A) Preliminary Investigation Report means a report issued by a local health officer which details the criteria in the Rules Governing the Subsurface Disposal of Sewage having an effect on a certain piece of property. It does not give either approval or denial, but lists conditions which shall be satisfied on any portion considered for approvability.
- (B) Seller's or Subdivider's Approval Letter means a letter from the local health officer which states that at least one area has been found on each lot or parcel which meets the criteria outlined in Rules Governing the Subsurface Disposal of Sewage in effect at the time of the letter.
- (C) Seller's or Subdivider's Denial Letter means a letter from the local health officer which states that the area examined on each lot or parcel does not meet the criteria outlined in the Rules Governing the Subsurface Disposal of Sewage in effect at the time of the letter.

- (2) No governmental body shall approve any subdivision, land partitioning, or plat or plan thereof, until it has received in writing a statement of the use or uses for which the property within the proposed

subdivision or partitioning will be offered by the subdivider or partitioner. If the use or uses set forth in the written statement include residential, camping, or non-agricultural commercial uses, and if these uses would utilize any method of subsurface sewage or waste disposal, the statement shall be accompanied by the subdivider's or seller's approval letter governing each lot or parcel from the local health officer required by subsection (4) (B) of this section.

- (3) No person shall transfer, sell, lease or otherwise dispose of any lot or parcel of land within the State of Oregon for valuable consideration or agree in writing to do so (except when such written agreement states that the completion of the transfer, sale, lease, or other disposition is contingent upon compliance with the remainder of this subsection), without first having received from the proposed transferee a written statement which either (a) sets forth the transferee's intended use of the property, or (b) states that the intended use is not known, or (c) states that the transferee declines to disclose the intended use. If the use or uses set forth in the written statement include residential, camping, or non-agricultural commercial uses, and if these uses would utilize any method of subsurface sewage or waste disposal, and such use and system is other than the use and system to which the property is put at the time of the statement, the transferor shall provide to the transferee a copy of the subdivider's or seller's approval or denial letter from the local health officer

required by subsection (4)(B) of this section. The statement of the proposed transferee required under this subsection shall be retained by the transferor or his agent.

- (4) If the use or uses set forth in the written statement of the subdivider, partitioner, or proposed transferee include residential, camping or non-agricultural commercial uses, and if these uses would utilize any method of subsurface sewage or waste disposal, and such use and system is other than the use and system to which the property is put at the time of the statement, the subdivider, partitioner, or transferor shall propose to the local health officer in writing a method for providing such property with sewage disposal and domestic water. The local health officer shall determine whether or not the property in question could be approved for the installation of the proposed method for disposal, and shall deliver a seller's or subdivider's approval or denial letter in writing to the subdivider, partitioner, or transferor. The local health officer shall report a decision on approvability in one of the following two ways: issuance of a preliminary investigation report followed by a subdivider's or seller's approval or denial letter, or issuance of a subdivider's or seller's approval or denial letter directly.

- (A) A preliminary investigation report by the local health officer shall be a statement which outlines the effect of the Rules Governing the Subsurface Disposal of Sewage on the property in question. It shall list criteria, if any,

which are to be satisfied before an approval letter can be written. This report shall not be used as an approval or denial letter.

- (B) The subdivider's or seller's approval or denial letter shall be issued by the local health officer after a specific evaluation of the lot or lots, parcel or parcels, has been made. This evaluation shall be performed after building sites of sufficient size and with soils and topography which meet the criteria outlined in the Rules Governing the Subsurface Disposal of Sewage have been determined by the applicant or his representative and a preliminary plat is submitted to the health officer. The evaluation required by this section shall be used on examination of two test pits or less, as required by the local health officer, which have been spaced 100 feet apart in the area of a proposed drainfield. If upon inspection the health officer concurs that the sites are approvable for subsurface sewage disposal, he shall state in the subdivider's or seller's approval letter that the specific lots or parcels meet the criteria outlined in the Rules Governing the Subsurface Disposal of Sewage, and such approval would be upheld pending adoption of rules which may be more restrictive. If the health officer does not concur that the lots or parcels meet the criteria outlined in the Rules Governing the Subsurface Disposal of Sewage, the seller's or subdivider's denial letter, which covers those lots denied, shall be served on the applicant, wither personally or by

registered or certified mail. The denial letter shall include the reasons for the determination, a reference to the State rules or statutes relied upon for the determination, and a statement of the opportunity for a hearing before the State Health Division upon request within twenty (20) days after receipt of the denial by the applicant, pursuant to ORS Chapter 183.

- (5) Any person who has received a denial letter under this section may request and shall be granted a hearing before the State Health Division, pursuant to the provisions of ORS Chapter 183. A ruling by the State Health Division shall either affirm, reserve or modify the health officer's determination. Should the State Health Division find the proposed method for subsurface sewage disposal approvable, such finding shall serve as the statement of the local health officer, required by subsection (1) and (2) of this section.
- (6) The statement of approval given under this section is in addition to and does not supercede any other approval required under local ordinances or regulations.

Section 8. The section entitled "Special Areas and Systems" on page 44 of Exhibit A is deleted in its entirety.

Note: As a result of the transfer of jurisdiction over systems contemplated under the above referenced section from the Health Division to the Department of Environmental Quality pursuant to Chapter 835, Oregon Law 1973 and the temporary and transitional nature of these rules, approval of any such

systems should be deferred until transfer of jurisdiction is complete and permanent rules are adopted.

OREGON STATE HEALTH DIVISION
RULES GOVERNING THE SUBSURFACE DISPOSAL OF SEWAGE

DEFINITIONS

(1) "A" Horizon means the original top layer of soil having the same color and texture throughout its depth. It is usually ten (10) to twelve (12) inches thick, but may range from two (2) inches to two (2) feet.

(2) Absorption facility means a system of open-jointed or perforated piping, alternate distribution units, or other seepage system for receiving the flow from septic tanks or other treatment units and designed to distribute effluent for absorption by the soil within the zone of aeration.

(3) Administrator means the Administrator of the Health Division of the Department of Human Resources.

(4) Authorized Representative means the staff of the Health Division and Administrators or Health Officers or Sanitarians of local Health Departments.

(5) Building drain (house drain) means that part of the lowest horizontal piping of a building drainage system which receives the discharge from soil, waste, and other drainage pipes within or adjoining the building or structure, and conveys the same to the building sewer which begins at a point five (5) feet outside the established line of the building or structure including any structural projection except eaves.

(6) Building sewer means that part of the piping of a drainage system which begins at a point five (5) feet outside the established line of the building or structure and which receives the discharge from the building drain or drains and conveys such discharge into a public sewer, septic tank, cesspool, or to other point of disposal.

(7) Cast-iron means standard weight cast-iron soil pipe.

(8) Chemical toilet means any device used for the retention and/or treatment of human waste which is dependent upon the addition of organic or non-organic chemicals other than water for that retention and/or holding. It shall also mean portable toilets which are intended to be emptied into water-carried sewage disposal facilities or into trailer holding tank dump stations.

(9) Cesspool means a receptacle which receives the discharge of sewage from a building sewer and which is so designed and constructed as to allow separation of solids from the liquid, digestion of organic matter during a period of detention, and to allow the liquids to discharge into the soil within the zone of aeration through perforations in the side wall of the receptacle.

(10) Disposal area means the entire area used for underground dispersion of the liquid portion of sewage. It may consist of a seepage pit or of a disposal field or of a combination of the two.

(11) Disposal field means either a disposal trench or seepage bed.

(12) Disposal trench means a ditch or trench with vertical sides and substantially flat bottom with a minimum of twelve (12) inches of clean, coarse filter material into which a single distribution line has been laid, the trench then being backfilled with a minimum of twelve (12) inches of soil.

(13) Distribution box means a watertight structure which receives septic tank effluent and distributes it in approximately equal portions to two or more pipelines leading to a disposal area.

(14) Distribution pipe means an open-jointed or perforated pipe used in the dispersion of septic tank effluent into disposal trenches or seepage beds.

(15) Division means the Health Division of the Department of Human Resources.

(16) Dosing tank means a watertight receptacle placed between a settling or septic tank and a distribution box or disposal area, and equipped with an automatic siphon or pump designed to discharge septic tank effluent intermittently to a disposal field in amounts proportioned to the area of the field and to provide a rest period between such discharges.

(17) Dwelling means any structure, building, or any portion thereof which is used, intended, or designed to be occupied for human living purposes.

(18) Effluent sewer means that part of the system of drainage piping that conveys septic tank effluent from a septic tank or other treatment facility to a distribution box, or other point of disposal.

(19) Free water means water which enters into a test pit from the soil from the sides or bottom.

(20) Free water level means the highest level maintained by free water for a continuous period of two weeks during a year.

(21) Grade means the rate of fall or drop in inches per foot or percentage of fall of a pipe.

(22) Grease trap means a device in which grease in sewage is intercepted and from which the grease may be periodically removed for disposal.

(23) Health hazard means a condition which presents the possibility of exposing the public to an illness, disorder, or disability not limited to bacteria, viruses, pollutants or other noxious wastes normally found in human waste, animal waste, or as by-products resulting from their disposal.

(24) Impervious layer means a layer which restricts water or root penetration. It shall also be defined as having a permeability rating of less than .06 inches per hour as outlined in the United States Department of Agriculture, Soil Conservation Service, OR-Soils-1, for that particular soil series.

(25) Individual sewage disposal system means a subsurface sewage disposal system owned and operated by a person and designed and constructed to treat sewage in a manner that will retain some of the solids in a cesspool, settling tank, or septic tank, and that will dispose of the liquid portion into the soil.

(26) Industrial waste means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business, or from the development or recovering of any natural resources.

(27) Intermittent stream means any watercourse that continuously flows water for a period of greater than two months in any one year, but not continuously for that year.

(28) Invert is the lowest portion of the internal cross section of a pipe or fitting.

(29) Leaching trench means the same as disposal trench.

(30) Multiple compartment tank means a settling or septic tank containing more than one settling compartment or chamber in series.

(31) Non-water-carried sewage disposal facility includes, but is not limited to, pit privies, vault privies, and chemical toilets.

(32) Occupant means every person living or sleeping in a dwelling.

(33) Owner means every person who alone, or jointly, or severally with others (a) has legal title to any lot, dwelling, or dwelling unit, or (b) has care, charge, or control of any lot, dwelling, or dwelling unit as agent, executor, executrix, administrator, administratrix, trustee, leasee, or guardian of the estate of the holder of legal title, or (c) is the contract purchaser of the legal title. Each such person as described in (b) and (c) above, thus representing the holder of legal title, is bound to comply with the provisions of these minimum standards as if he were the owner.

(34) Percolation test means a test to determine the rate of movement or flow of water under the influence of gravity through the interstices or pores of a soil.

(35) Permeability means the rate at which a soil transmits water when saturated.

(36) Person means individuals as well as corporations, associations, firms, partnerships, joint stock companies, political subdivisions, and government agencies.

(37) Privy means a structure used for the disposal of human waste without the aid of water. It consists of a shelter built above a pit or vault in the ground into which the human waste falls.

(38) Restrictive layer means a layer in the soil that because of its structure or low porosity does not allow water entering from above to pass through as rapidly as it accumulates. During some part of every year, a restrictive layer will have free water accumulated above it. A restrictive layer shall also be defined as having a permeability rating of 0.2 inches per hour to .06 inches per hour as outlined in the United States Department of Agriculture, Soil Conservation Service, OR-Soils-1, for that particular soil series.

(39) Scum means a mass of sewage solids floating at the surface of sewage which is buoyed up by entrained gas, grease, or other substances.

(40) Seepage area means the bottom or side wall of a disposal trench, disposal bed, or that portion of a seepage pit through which the sewage seeps into the soil.

(41) Seepage bed means a type of absorption facility which is composed of gradated stone partially filling a shallow excavation with distribution lines laid in the stone, and covered with topsoil or other suitable fill.

(42) Seepage pit means a type of absorption facility which is a covered pit with open-jointed lining through which septic tank effluent may seep or leach into surrounding ground.

(43) Septic tank means a watertight receptacle which receives the discharge or sewage from a sanitary drainage system and which is so designed and constructed as to allow separation of solids from the liquid, digestion of organic matter during a period of detention, and to allow the liquids to discharge into the soil outside of the tank through an absorption facility.

(44) Septic tank effluent means partially treated sewage which is discharged from a septic tank or other treatment facility into an effluent sewer.

(45) Sewage means the water-carried human or animal wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places together with such ground-water infiltration, surface waters, or industrial waste as may be present.

(B) Sandy loam: Consists largely of sand, but has enough silt and clay present to give it a small amount of stability. Individual sand grains can be readily seen and felt. Squeezed in the hand when dry, this soil will readily fall apart when the pressure is released. Squeezed when moist, it forms a cast that will not only hold its shape when the pressure is released, but will withstand careful handling without breaking. The stability of the moist cast differentiates this soil from sand.

(C) Loam: Consists of an even mixture of sand and of silt and a small amount of clay. It is easily crumbled when dry and has a slightly gritty yet fairly smooth feel. It is slightly plastic. Squeezed in the hand when dry, it will form a cast that will withstand careful handling. The cast formed of moist soil can be freely handled without breaking.

(D) Silt loam: Consists of a moderate amount of fine grades of sand, a small amount of clay, and a large quantity of silt particles. Lumps in a dry, undisturbed state appear quite cloddy, but they can be pulverized readily; the soil then feels soft and floury. When wet, silt loam runs together and puddles. Either dry or moist, casts can be handled freely without breaking. When a ball of moist soil is pressed between thumb and finger, it will not press out into a smooth, unbroken ribbon, but will have a broken appearance.

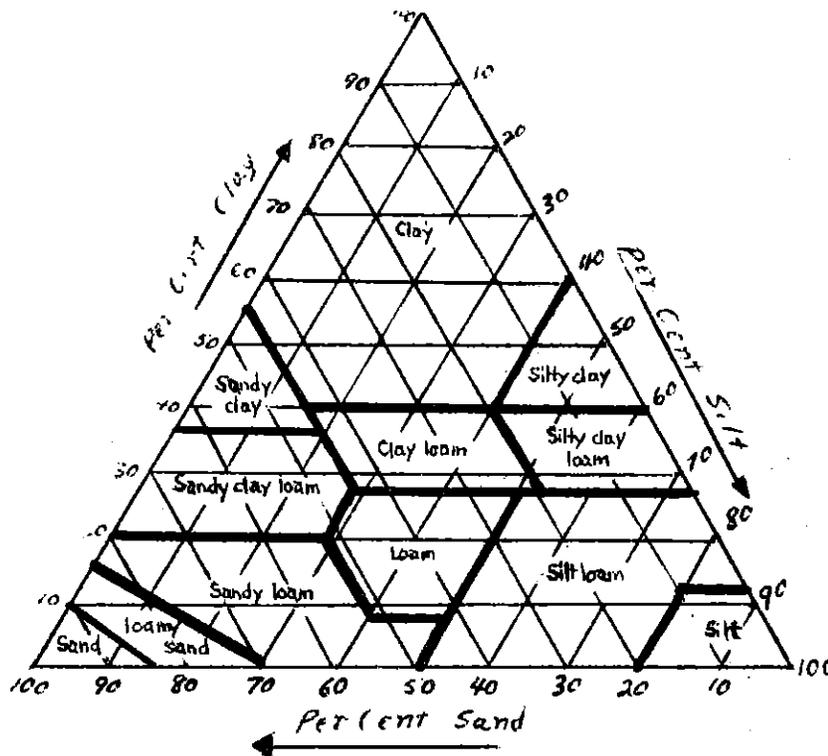
(E) Clay loam: Consists of an even mixture of sand, silt, and clay, which breaks into clods or lumps when dry. When a ball of moist soil is pressed between the thumb and finger, it will form a thin ribbon that will readily break, barely sustaining its own weight. The moist soil is plastic and will form a cast that will withstand considerable handling.

(F) Silty clay loam: Consists of a moderate amount of clay, a large amount of silt, and a small amount of sand. It breaks into moderately hard clods or lumps when dry. When moist, a thin ribbon or 1/8-inch wire can be formed between thumb and finger that will sustain its weight and will withstand gentle movement.

(G) Silty clay: Consists of even amounts of silt and clay and very small amounts of sand. It breaks into hard clods or lumps when dry. When moist, a thin ribbon or 1/8-inch or less sized wire formed between thumb and finger will withstand considerable movement and deformation.

(H) Clay: Consists of large amounts of clay and moderate to small amounts of silt and sand. It breaks into very hard clods or lumps when dry. When moist, a thin, long ribbon or 1/16-inch wire can be molded with ease. Fingerprints will show on the soil, and a dull to bright polish is made on the soil by a shovel.

These and other soil textural characteristics are also defined as shown in the United States Department of Agriculture textural classification chart shown below which is based on laboratory analysis and hereby adopted as part of these regulations.



(52) Subsurface sewage disposal means the physical, chemical or bacteriological breakdown and treatment of sewage in the zone of aeration of the soil, preceded by bacterial breakdown within a septic tank or other treatment facility.

(53) Subsurface sewage disposal system means the combination of a building sewer and cesspool or a building sewer, septic tank, or other treatment unit and effluent sewer and absorption facility.

(54) Test pit means an open pit dug to permit examination of the soil to evaluate its permeability for subsurface sewage disposal.

(55) Trap means a fitting or device which provides a liquid seal without materially affecting the flow of sewage or waste water through it.

(56) Vent stack means a vertical vent pipe which is installed to provide circulation of air to and from the drainage system.

(57) Zone of aeration means that area between the surface of the ground and the free-water level.

WATER-CARRIED SUBSURFACE SEWAGE DISPOSAL SYSTEMS

All water-carried subsurface sewage disposal systems shall comply with the following requirements:

(1) Lot Sizes - No lot or parcel on which it is intended to place both a subsurface sewage disposal system and an individual water supply shall be considered for such placement unless such parcel or lot can provide the minimum separation distances required by these rules. Suitable area for replacement of the subsurface sewage disposal system shall also be included.

(2) Minimum Separation Distances - All portions of any subsurface sewage disposal system shall not be installed closer than the following distances from the items below:

| | <u>SEPTIC TANKS</u> | <u>DISPOSAL FIELDS</u> | <u>SEEPAGE BEDS</u> | <u>SEEPAGE PITS</u> | <u>CESSPOOLS</u> |
|--|---------------------|-----------------------------|---------------------|---------------------|------------------|
| A. ANY PROPERLY CASED AND PROTECTED WELL. | 50 ft. | 50 ft. | 50 ft. | 50 ft. | 50 ft. |
| B. WELLS NOT PROPERLY CASED AND PROTECTED, SPRINGS, CISTERNS; COMMUNITY OR PUBLIC SOURCES OF WATER. | 100 ft. | 100 ft. | 100 ft. | 100 ft. | 100 ft. |
| C. ABANDONED OR IRRIGATION WELLS. | 50 ft. | 50 ft. | 50 ft. | 50 ft. | 50 ft. |
| D. PROPERTY LINE* | | | | | |
| (1) WHEN SERVED BY OR ADJACENT TO PROPERTY SERVED BY INDIVIDUAL WATER SUPPLY. | 25 ft. | 25 ft. | 25 ft. | 25 ft. | 25 ft. |
| (a) EXCEPT ON PROPERTY LINE ABUTTING PUBLIC STREET. | 10 ft. | 10 ft. | 10 ft. | 10 ft. | 10 ft. |
| (2) WHEN SERVED BY COMMUNITY WATER. | 10 ft. | 10 ft. | 10 ft. | 10 ft. | 10 ft. |
| E. RIVER, STREAM, LAKE, OCEAN OR INTERMITTENT STREAM (BANK DROP-OFF OR MEAN YEARLY HIGH WATER MARK, WHICHEVER IS GREATER). | 100 ft. | 100 ft. | 100 ft. | 100 ft. | 100 ft. |
| F. WATER MAINS OR SERVICE LINES. | 10 ft. | 10 ft. | 10 ft. | 10 ft. | 10 ft. |
| G. FOUNDATION LINES OF ANY BUILDING INCLUDING GARAGES AND OUTBUILDINGS. | 10 ft. | 10 ft. | 10 ft. | 10 ft. | 10 ft. |
| H. FIELD DRAIN TILES OR CURTAIN OR FRENCH DRAINS. | | 15 ft. | 15 ft. | 15 ft. | 15 ft. |
| | | -----UNDISTURBED EARTH----- | | | |
| I. ABOVE CUT BANKS OF GREATER HEIGHT THAN TWO FEET (FROM TOP OF CUT). | | 25 ft. | 25 ft. | 25 ft. | 25 ft. |

*Where more than one lot or parcel is served by a common subsurface sewage disposal system, no property setbacks shall be required from the common property line, providing the minimum separation distances between wells and subsurface sewage disposal systems can be maintained.

(3) Cuts - A subsurface sewage disposal system shall not be installed where the A horizon has been cut away without prior written approval of the Administrator or his authorized representative.

(4) Repair Area - All lots on which a subsurface sewage disposal system is to be installed must have at least sufficient suitable disposal area for a full replacement absorption system which meets all of the requirements of the rules contained herein, and which shall be installed in the event of disposal system failure.

(5) Existing Water Supply - If, in the judgment of the Administrator or his authorized representative, the installation of a subsurface sewage disposal system will adversely affect the quality of an existing domestic water supply, he shall not authorize the installation of the system. This decision shall be delivered to the owner of the property, in writing, outlining the conditions upon which the denial was based.

(6) Plot Plan and Inspection

(A) No person shall construct, alter, or repair any subsurface sewage disposal system unless he has in his possession a plot plan which shows the proposed construction, alteration, or repair, and which bears the signature of the Administrator or his authorized representative indicating that the proposal meets the requirements of Oregon Revised Statutes 447.140 and 449.150 and these rules. Such a plot plan shall be drawn to semblance of scale showing direction and approximate slope of the surface, location of wells and water-supply lines, areas intended for vehicular use, and all structures on the plot. It shall also show the number of bedrooms in each structure, and the location of the proposed subsurface sewage disposal system with respect to lot lines and structures, and neighboring wells.

(B) Every new construction, alteration, or repair shall remain open for inspection by the Administrator or his authorized representative for at least five (5) days excluding Saturday and Sunday following notification to the Administrator or his authorized representative that the system is completed and ready for inspection. All such systems shall be inspected by the Administrator or his authorized representative to ensure that the installation meets the minimum requirements provided for in these rules.

(8) Capacity - The system shall have adequate capacity to properly dispose of the maximum daily sewage flow. The quantity of sewage shall be estimated from the following table:

Quantities of Sewage Flows

| <u>Type of Establishment</u> | <u>Gallons Per Person Per Day (Unless Otherwise Noted)</u> |
|--|--|
| Airports (per passenger) | 5 |
| Bathhouses and swimming pools | 10 |
| Camps: | |
| Campground with central comfort stations | 35 |
| With flush toilets, no showers | 25 |
| Construction camps (semi-permanent) | 50 |
| Day camps (no meals served) | 15 |
| Resort camps (night and day) with limited plumbing | 50 |
| Luxury camps | 100 |
| Churches (per seat) | 5 |
| Country clubs (per resident member) | 100 |
| Country clubs (per non-resident member present) | 25 |
| Dwellings: | |
| Boarding houses | 50 |
| Additional for non-resident boarders | 10 |
| Multiple family dwellings (apartments) | 75 |
| Rooming houses | 40 |
| Single-family dwellings | 75 |
| Factories (gallons per person, per shift, exclusive of industrial wastes, with shower facilities) | 35 |
| Factories (gallons per person, per shift, exclusive of industrial wastes, without shower facilities) | 15 |
| Hospitals (per bed space) | 250 |
| Hotels with private baths (2 persons per room) | 60 |
| Hotels without private baths | 50 |
| Institutions other than hospitals (per bed space) | 125 |
| Laundries, self-service (gallons per wash; i.e., per customer) | 50 |
| Mobile home parks (per space) | 375 |
| Motels with bath, toilet, and kitchen wastes (per bed space) | 50 |
| Motels (per bed space) | 40 |
| Picnic Parks (toilet wastes only)(per picnicker) | 5 |
| Picnic Parks (with bathhouses, showers and flush toilets) | 10 |
| Restaurants (toilet and kitchen wastes per seat) | 40 |
| Restaurants (single-service with toilet)(per customer) | 2 |
| Restaurants (additional for bars and lounges per seat) | 10 |
| Schools: | |
| Boarding | 100 |
| Day, without gyms, cafeterias or showers | 15 |
| Day, with gyms, cafeterias and showers | 25 |
| Day, with cafeteria, but without gyms or showers | 20 |
| Service stations (per vehicle served) | 10 |
| Swimming pools and bathhouses | 10 |
| Theaters: | |
| Movie (per auditorium seat) | 5 |
| Drive-in (per car space) | 20 |
| Travel trailer parks (without individual water and sewer hookups)(per space) | 50 |
| Travel trailer parks (with individual water and sewer hookups)(per space) | 100 |
| Workers: | |
| Construction (at semi-permanent camps) | 50 |
| Day, at schools and offices (per shift) | 15 |

NOTE: The number of occupants shall be calculated as two (2) per bedroom in dwellings and thirty (30) per classroom in schools.

(9) Building Sewer - The building sewer shall be of cast-iron, vitrified clay, concrete or asbestos cement, and shall be constructed in a manner as outlined in Oregon State Plumbing Laws and Administrative Rules (OAR Chapter 814, Section 21-002 to 21-512).

(10) Effluent Sewer - The effluent sewer shall be of the same materials and constructed in the same manner as the building sewer.

(11) Cleaning and Repairing - Every owner or agent of premises in which there are any individual sewage disposal systems or other means of sewage disposal shall keep the disposal systems in good repair.

(12) Maintenance - All subsurface sewage disposal systems shall be maintained in a manner that will not create a hazard to public health or cause the system to become a source of pollution.

(13) Discharge to the Surface of the Ground - No raw sewage or septic tank effluent shall be allowed to discharge or spill onto the surface of the ground, into any waters of the State or to flow into any gutter, roadway, street, or public place.

(14) Prohibited Flows - No cooling water, air-conditioning discharge, ground water, or discharge of roof drains shall be discharged to the subsurface sewage disposal system.

(15) Drainage - A subsurface sewage disposal system shall not be located in an area where an accumulation of surface water will occur for a period of two (2) consecutive weeks or longer. Provision shall be made to minimize the flow of surface water over the area.

(16) Backfill shall be free from stones larger than ten inches in diameter, frozen clumps of earth, masonry, stumps, or waste construction material. Machinery and vehicles which may crush or disturb the alignment of pipe in the disposal system after installation shall not be allowed on any part of the disposal area.

(17) Multiple Service - Where a water-carried subsurface sewage disposal system will serve more than one (1) lot or parcel, such a system shall be under the control of a legal entity which has been formed in compliance with Oregon Revised Statutes, Chapter 450 or 451.

(18) Property Line Crossed - No sewage disposal system or part thereof shall cross any property line unless a recorded utility easement is secured which permits installation, maintenance, repair or replacement of the proposed construction. This easement must accommodate the entire proposed subsurface sewage disposal system, including setbacks, which lies beyond the property line.

(19) Grease or Oil Prohibited - No grease or oil shall be discharged into any subsurface sewage disposal system.

(20) Prior Permits - Where local permits for construction of subsurface sewage disposal systems have been issued prior to the effective date of these rules, and when conditions on the site were in compliance with the rules in effect at the time of such issuance, but are not in compliance with these rules, such construction shall be allowed even though not in compliance with these rules for the life of such permit, but in no case longer than six months from the effective date of these rules.

SEWAGE-CESSPOOL WORK

(1) Registration at Local Health Department required. Each person, before engaging in sewage-cesspool work in Oregon, shall register his name, firm name, State registration number, business location and address with the appropriate health officer in whose area of jurisdiction the operator proposes to engage in such work.

(2) Construction and Pumping-Notification to Local Health Department required. No person shall construct, alter, repair or pump any cesspool, septic tank, disposal field or seepage pit without notifying the Administrator or his authorized representative for the area in which the work will be performed, and submitting for review and approval a detailed plan of the work to be done.

(3) Disposal of privy, cesspool and septic tank contents.

(A) No part of the contents of any privy, cesspool, or septic tank shall be discharged upon the surface of the ground. Final disposal shall be only at a disposal site or treatment facility for which a permit has been issued by the Department of Environmental Quality or a location and method for which written authorization has been obtained from the Administrator or his authorized representative.

(B) The contents of privies, cesspools, and septic tanks shall be transported in a manner that will not create a nuisance or health hazard.

(4) Sewage cesspool workers - registration and permits required.

(A) No person shall engage in the construction, pumping, transportation, or disposal of the contents of privies, cesspools, or septic tanks or other sewage for hire without first obtaining a registration certificate from the Division as required by ORS 447.033, and then obtaining a written permit from the appropriate health officer for the area in which the privies, cesspools, or septic tanks are located and from the appropriate health officer for the area in which the final disposal of the material will take place.

(B) No person registered to engage in the business of sewage-cesspool work in this State under the provisions of ORS 447.033 to 447.050 shall construct or install a subsurface sewage system within the jurisdiction of a political subdivision which requires a permit for the construction or installation of a subsurface sewage disposal system without there having first been issued a permit therefor by the authority designated in the local law as the issuing authority.

(C) Any license granted by the Division to perform sewage cesspool work shall be revoked if such permit was obtained through error, misrepresentation, or fraud, or if the holder thereof fails to comply with the provisions of the laws and rules which pertain to such operations.

(5) Equipment--description required. Every person, firm, and corporation proposing to engage in the business of operating trucks equipped to pump and transport the contents of privies, cesspools, or septic tanks or other sewage shall file a written description of all such equipment with the Division on printed forms provided by the Division. The description of all such trucks shall be submitted to the Division.

(6) Trucks--identification. The name under which the business is conducted and business address of the sewage-cesspool worker shall be painted on each side of every tank truck operated by him. The lettering shall be at least three (3) inches high. Labels issued by the Division for each current registration period shall be displayed at all times on both sides of each tank truck while it is being operated in Oregon. Such labels shall be placed on cab doors below windows on both sides of vehicle and shall be maintained in a legible condition.

(7) Equipment--inspection of. Equipment shall be subject to inspection by a representative of the Division or other duly authorized person at any reasonable time and upon request shall be available for inspection at a designated location.

(8) Minimum specifications for sewage-cesspool pumping equipment. All sewage-cesspool pumping equipment shall comply with the following requirements:

(A) Tanks and other containers used for the conveyance of the contents of cesspools, septic tanks, or privies shall have a liquid capacity of at least 550 gallons, be of watertight metal construction, fully enclosed, strong enough for all conditions of operation, and shall be provided with suitable covers so that there will be no spillage.

(B) The tank truck shall be equipped with either a vacuum or other type of pump which will not allow any seepage from the diaphragm or other packing glands and which will be self priming.

(C) Sewage hose on trucks shall be thoroughly drained, capped, and stored in such a manner that the contents will not create a health hazard or nuisance.

(D) The discharge nozzle shall be so located that there is no flow or drip onto any portion of the truck.

(E) Discharge nozzle shall be threaded and shall be capped when not in use.

(F) Spreader gates on tank shall be prohibited.

(G) Each truck shall at all times be supplied with a pressurized wash water tank, disinfectant, and implements needed for cleanup purposes.

(H) Sewage-cesspool pumping equipment shall not be used for any other purpose.

(9) Equipment operation and maintenance.

(A) When in use, sewage-cesspool pumping equipment shall be so operated that a health hazard or a nuisance will not be created.

(B) When not in use and parked, all such equipment shall be covered or protected so that an odor, nuisance, and the breeding of flies will not be caused.

(C) Equipment shall be maintained in a reasonably clean condition at all times.

(10) Personnel responsibilities.

(A) The person or persons doing the actual cesspool, septic tank, or privy cleaning operation shall avoid spilling, pumping, or dumping the contents of the said cesspool, septic tank, or privy in the immediate vicinity of the operation or the highway when transporting the contents for dumping. Any accidental spillage on the ground around the operation shall be cleaned up by the operator and disinfected in such a manner as to render it harmless to humans and animals.

(B) All personnel shall wear clean outer clothing at all times while pumping and transporting septic tank contents.

(C) Each individual for his own protection shall:

1. Refrain from wearing clothing which has become contaminated from sewage or septic tank effluent.
2. Wash hands after exposure to contamination from sewage or septic tank effluent.

(11) Misuse of registration - No person operating a sewage-cesspool business shall permit anyone to operate under his registration, except an employee who is paid a wage by the registered sewage-cesspool worker and is working under the supervision of said registered and bonded sewage-cesspool worker. No person shall:

(A) Display or cause or permit to be displayed or have in his possession any registration certificate, knowing it to be fictitious or to have been cancelled, revoked, suspended, or fraudulently altered.

(B) Fail or refuse to surrender to the Division, upon demand, any registration certificate which has been suspended, cancelled, or revoked.

(C) Use a false name or give a false or fictitious address in any application for any such registration certificate, or any renewal or duplicate thereof, or knowingly give a false age, or make a false statement, or knowingly conceal a material fact or otherwise commit a fraud in any such application.

(12) Revocation of certificate - When a "Certificate of Registration for Sewage-Cesspool Work," which had been issued by the Division, is revoked, cancelled, or expired, the operator shall remove from display:

(A) The Registration Certificate.

(B) All identifying labels on trucks which were furnished by the Division.

SEPTIC TANKS

(1) Liquid Capacity - The required minimum liquid capacity of septic tanks for dwellings, houseboats, boathouses and similar floating structures and mobile homes not in a mobile home park shall be based upon the number of bedrooms contemplated in the structure served, according to the following:

Required Minimum Capacities of Septic Tanks for Dwellings

| <u>Number of Bedrooms</u> | <u>1st Compartment Gallons</u> | <u>2nd Compartment Gallons</u> | <u>Total Liquid Capacity</u> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|
| 1 | 750 | 250 | 1,000 |
| 2 | 750 | 250 | 1,000 |
| 3 | 900 | 300 | 1,200 |
| 4 | 1,000 | 333 | 1,333 |
| 5 | 1,250 | 417 | 1,667 |
| 6 | 1,500 | 500 | 2,000 |
| 7 | 1,750 | 583 | 2,333 |
| 8 | 2,000 | 666 | 2,666 |
| 9 | 2,250 | 750 | 3,000 |
| 10 | 2,500 | 833 | 3,333 |

The effective liquid capacity of the first compartment of septic tanks for systems serving other than dwellings for flows up to 500 gallons per day shall be at least 750 gallons; for flows between 500 and 1,500 gallons per day, shall be equal to at least one and one-half (1½) days' sewage flow; and for all flows greater than 1,500 gallons per day shall be equal to 1,125 gallons plus seventy-five (75) percent of the daily sewage flow.

(2) Liquid Depth - The liquid depth of any septic tank or compartment thereof shall not be less than thirty (30) inches. A liquid depth of greater than seventy-two (72) inches shall not be considered in determining liquid capacity. The tank may be oval, circular, rectangular, or square in plan, provided the distance between the inlet and outlet of the tank is at least equal to the liquid depth of the tank.

(3) Compartments - After January 1, 1974, no septic tank shall be installed which does not have a minimum of two (2) compartments constructed in the following manner:

(A) No compartment of any tank shall have an inside horizontal dimension of less than twenty-four (24) inches, nor a liquid depth of greater than seventy-two (72) inches.

(B) No tank shall have an excess of four (4) compartments.

(C) The second compartment shall have a minimum liquid capacity at least equal to one-third of the capacity of the first compartment.

(4) Tanks in parallel - No septic tank shall be installed in such a manner that the sewage flow from one building drain or building sewer is divided with one portion being discharged to one tank and the remaining portion being discharged to a second tank.

(5) Construction.

(A) Materials.

1. Septic tanks shall be of watertight construction below the liquid level and either of concrete or of not less than twelve (12) gauge steel or a combination of the two. When steel is used it shall be covered inside and out with asphalt or other protective coatings, and meeting U.S. Department of Commerce Commercial Standard CS 177-62, effective January 1962, Sections 5.3.1 through 5.3.4.4 as shown in Appendix C, or other coatings of equal performance approved by the Division. Precast concrete tanks shall have a minimum wall, compartment, and bottom thickness of two and one-half (2½) inches, and shall be adequately reinforced.

2. Cast-in-place concrete tanks, precast concrete tanks, and steel tanks shall be constructed and reinforced to withstand all loads imposed upon the walls and bottom, and a live load of 500 pounds per square foot on the tank top. The top of the cast-in-place and precast concrete tanks shall be at least four (4) inches thick.

NOTE: Appendix A shows recommended sidewall thickness, bottom thickness, and reinforcement for cast-in-place tanks. For septic tanks that are installed beneath a road or driveway, refer to Appendix B.

3. Where concrete block tanks are permitted by the Administrator or his authorized representative, the tanks shall be constructed of heavy-weight concrete block, eight (8) inch minimum thickness, laid on a four (4) inch poured foundation slab. The mortared joints shall be well filled. All block holes or cells shall be filled with mortar or concrete. "k" webbing shall be installed at every third row of block. No. 3 re-bar shall be installed vertically in every block. The interior of the tank shall be surfaced with two (2) one-quarter (¼) inch thick coats of Portland cement-sand plaster or waterproof asphalt emulsion.

If the tank is installed within the free water level, the outside of the tank shall be surfaced in a similar manner. The first row of blocks shall be keyed or doweled to the concrete foundation.

4. The Division shall review and approve specific specifications and manufacturers of tanks of other materials, and when such specific approval is received by the Administrator or his authorized representative, he shall allow the installation of such tanks.

5. The inlet and outlet connection shall be located at opposite ends of the tank, shall be cast-iron soil pipe, or other materials approved by the Division which show equal performance, at least four (4) inches in diameter, and shall extend below and above the liquid level as required in this section.

6. The invert of the inlet shall be not less than one (1) inch and preferably three (3) inches above the invert of the outlet line.

7. The inlet pipe shall be a hubbed cast-iron long turn elbow extending at least six (6) inches below the liquid level. The cast-iron elbow shall be attached to a steel tank by a rubber or synthetic rubber ring seal and compression plate, or in some other manner approved by the Division.

8. The outlet pipe of the tank shall be a hubbed cast-iron "tee" extending below the liquid level to a distance equal to forty (40) percent of the liquid depth and at least six (6) inches above the liquid in order to provide scum storage. The cast-iron "tee" shall be attached to a steel tank by a rubber or synthetic rubber ring seal and compression plate, or in some other manner approved by the Division.

| <u>Liquid Depth in Septic Tank</u> | <u>Depth of Outlet "tee" Below Flow Line</u> |
|--|--|
| 4 feet | 19 inches |
| 5 feet | 24 inches |
| 6 feet | 29 inches |

The opening between compartments shall be four (4) inches by twelve (12) inches, or its equivalent. The top of the opening shall be at the same level as the total depth of the outlet "tee".

9. At least 10% of the inside volume of the tank shall be above the liquid level to provide scum storage.
10. Ventilation shall be provided through the outlet connection by means of at least a two (2) inch space between the underside of the top of the tank and the top of the "tee" fitting. Ventilation between compartments shall be provided by a hole or space at least one (1) inch in diameter in the compartment divider wall one (1) inch below the top of the tank.
11. All prefabricated or precast septic tanks shall have markings on the uppermost face of the tank when installed for use which indicate the total liquid capacity of the tank and either the manufacturers' name or the number which has been assigned by the Division.
12. Septic tanks shall be installed on a level, stable base that will not settle.
13. Adequate access to each compartment of the tank for inspection shall be provided by a manhole, not less than fourteen (14) inches square or equivalent, one over the inlet and one over the outlet of the tank.
14. Installed septic tanks shall be located so as to be accessible for servicing and cleaning.
15. Backfill around and over the septic tank shall be placed in such a manner as to prevent damage to the tank.
16. No septic tank shall be covered by concrete or asphalt surfaces unless provisions are made for access in accordance with these rules.

WATER-CARRIED SUBSURFACE DISPOSAL TRENCHES

(1) No standard subsurface sewage disposal system shall be installed where any of the following conditions are present:

NOTE: Measurements are to be taken on the downhill side of the test pit.

(A) An impervious layer is less than thirty-six (36) inches below the surface of the ground or twelve (12) inches below the bottom of the disposal trench.

(B) A restrictive layer is less than thirty (30) inches below the surface of the ground or six (6) inches below the bottom of the disposal trench.

(C) An area where the free water level would come in contact with the disposal field. Projected levels of free water may be predicted during periods of dry weather utilizing one of the following criteria:

1. Where water movement is laterally restricted, mottling consisting of various shades of gray and red specks, splotches and/or tongues throughout the soil and caused by alternate saturation and desiccation, or dark black highly organic soils, may be found at the free water level.

2. Where water movement is laterally unrestricted, no mottling will occur and free water level prediction shall be based on past observations by the Administrator or his authorized representative, or judgments shall be based on observations made at a future date by the Administrator or his authorized representative.

(D) Slopes exceeding these maximums

1. Where restrictive layers are encountered:

| <u>Depth to Restrictive Layer</u> | <u>Maximum Slope Allowed</u> |
|------------------------------------|------------------------------|
| Greater than 54 inches | 30% |
| Between 36 and 54 inches | 20% |
| Between 30 and 36 inches | 12% |

2. Where impervious layers are encountered:

| <u>Depth to Impervious Layer</u> | <u>Maximum Slope Allowed</u> |
|------------------------------------|------------------------------|
| Greater than 72 inches | 30% |
| Between 54 and 72 inches | 20% |
| Between 36 and 54 inches | 12% |

(E) Where rapid-draining materials of greater size than one-half (1/2) inch are less than thirty-six (36) inches below the surface of the ground, unless the spaces between coarse fragments are filled with sandy loam or finer material.

(2) All subsurface disposal fields shall comply with the following requirements:

(A) Minimum seepage area - The amount of bottom trench area required for each disposal field shall be determined by consideration of soil characteristics, including texture and levels of restrictive layers, observed and anticipated free water levels, topographical and climatological features. Percolation tests which are run in the manner outlined may be used only as a supplement to the requirements of this section.

1. Where restrictive layers are encountered, the following chart shall be used to determine the minimum bottom trench area:

MINIMUM BOTTOM SEEPAGE AREA IN SQUARE FEET PER 150 GALLONS DAILY WASTE FLOW DETERMINED FROM TYPE OF SOIL VERSUS DEPTH TO RESTRICTIVE LAYER.

| | | | | | | | | |
|----------------------------|----------------|------|--------------|--------------|-----------------------|---------------|-------|----------------|
| DEPTH TO RESTRICTIVE LAYER | 30" | 150 | 180 | 250 | 275 | 300 | 330 | NOT ACCEPTABLE |
| | 36" | 125 | 150 | 180 | 250 | 275 | 300 | |
| | 42" | 125 | 150 | 180 | 200 | 275 | 300 | |
| | 48" | 125 | 150 | 180 | 200 | 275 | 300 | |
| | 54" | 100 | 125 | 150 | 180 | 250 | 275 | |
| | 60" | 100 | 125 | 150 | 180 | 250 | 275 | |
| | 66" | 100 | 125 | 150 | 180 | 250 | 275 | |
| | 72" or more | 100 | 100 | 125 | 150 | 180 | 250 | |
| | SANDY LOAM | LOAM | SILT LOAM | CLAY LOAM | SILTY CLAY LOAM | SILTY CLAY | CLAY* | |

Soil Type at the Depth of Disposal Trench

2. Where free water or projected free water is encountered, the following chart shall be used to determine the minimum bottom trench area:

MINIMUM BOTTOM SEEPAGE AREA IN SQUARE FEET PER 150 GALLONS DAILY WASTE FLOW DETERMINED FROM TYPE OF SOIL VERSUS DEPTH TO FREE WATER DURING THE HIGHEST PERIOD OF A YEAR.

| | | | | | | | | |
|---------------------|----------------|------|--------------|--------------|-----------------------|---------------|-------|----------------|
| DEPTH TO FREE WATER | 24" | 150 | 180 | 250 | 275 | 300 | 330 | NOT ACCEPTABLE |
| | 30" | 125 | 150 | 180 | 250 | 275 | 300 | |
| | 36" | 125 | 150 | 180 | 250 | 275 | 300 | |
| | 42" | 125 | 150 | 180 | 250 | 275 | 300 | |
| | 48" | 100 | 125 | 150 | 180 | 250 | 275 | |
| | 54" | 100 | 125 | 150 | 180 | 250 | 275 | |
| | 60" | 100 | 125 | 150 | 180 | 250 | 275 | |
| | 66" or more | 100 | 100 | 125 | 150 | 180 | 250 | |
| | SANDY LOAM | LOAM | SILT LOAM | CLAY LOAM | SILTY CLAY LOAM | SILTY CLAY | CLAY* | |

Soil Type at the Depth of Disposal Trench

NOTE: A minimum of 300 square feet of bottom trench absorption area shall be provided for each disposal field.

*Clays that have a low or moderate shrink-swell potential combined with a moderate or strong structure according to the SCS OR-1 for that type of soil shall be permitted with a soil rating of 330 square feet per 150 gallons daily waste flow.

3. Calculations on amount of bottom trench area needed shall be based on either an 18 or 24 inch wide trench.
4. Soil types not listed on the charts above shall be determined by evaluation of local conditions.
5. Approved method of conducting percolation tests.
 - (a) Sidewall method must follow the procedure outlined below. The bottom of the percolation test hole, before filling, shall be two (2) inches below the anticipated bottom of the drainfield trench. In addition, the percolation test readings shall be taken between 0 - 6 inches from the top of the gravel lining the bottom of the percolation test holes.
 - (a-1) Number and location of tests - Six or more tests shall be made in separate test holes spaced uniformly over the proposed absorption field site.
 - (a-2) Type of test hole - Dig or bore a hole, with a diameter of four (4) to twelve (12) inches and vertical sides to the depth of two (2) inches below the proposed absorption trench.
 - (a-3) Preparation of test hole - Carefully scratch the bottom and sides of the hole with a knife blade or sharp pointed instrument in order to remove any smeared soil surfaces and to provide a natural soil interface into which water may percolate. Remove all loose material from the hole. Add two (2) inches of coarse sand or fine gravel to protect the bottom from scouring and sediment.
 - (a-4) Saturation and swelling of the soil - It is important to distinguish between saturation and swelling. Saturation means that the void spaces between soil particles are full of water. This can be accomplished in a short period of time. Swelling is caused by intrusion of water into the individual soil particle. In the

conduct of the test, carefully fill the hole with clear water to a minimum depth of twelve (12) inches over the gravel. In most soils, it is necessary to refill the hole by supplying a surplus reservoir of water, possibly by means of an automatic syphon, to keep water in the hole 24 hours. Determine the percolation rate twenty-four (24) hours after water is first added to the hole.

This procedure is to insure that the soil is given ample opportunity to swell and to approach the condition it will be in during the wettest season of the year. Thus, the test will give comparable results in the same soil whether made in a dry or in a wet season. In sand, the swelling procedure is not essential, and the test may be made as described under Item (a-5), iii, after the water from one filling of the hole has completely seeped away.

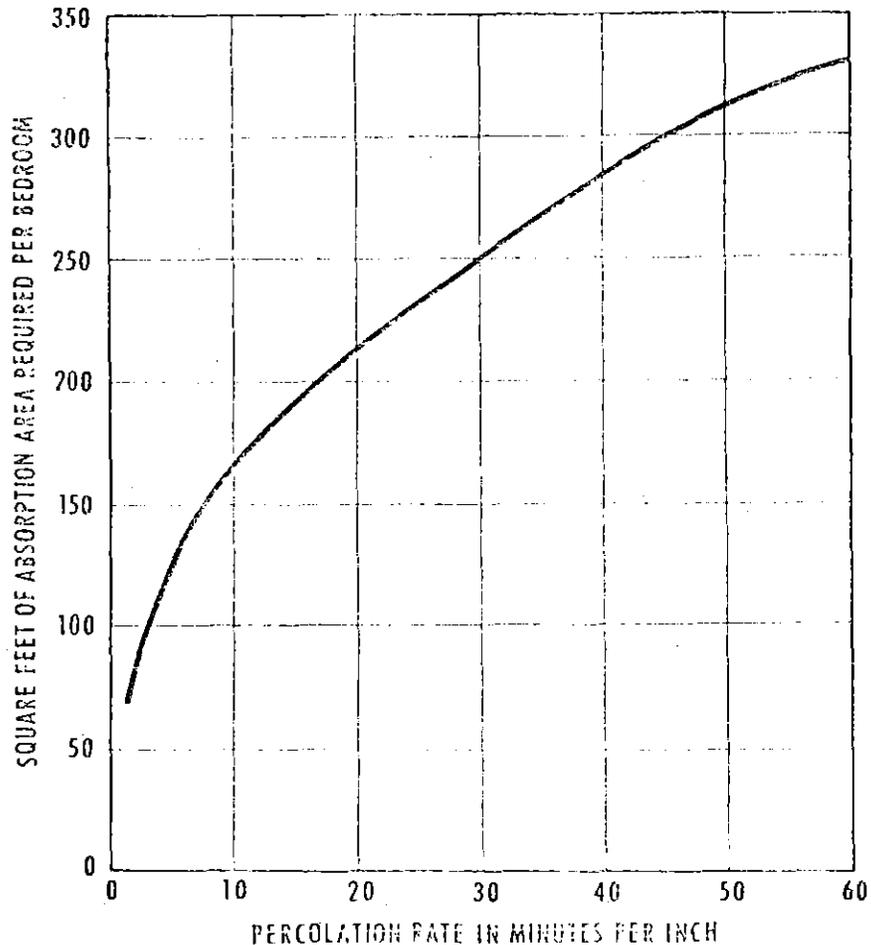
(a-5) Percolation-rate measurements - With the exception of sandy soils, percolation-rate measurements shall be made on the day following the procedure described under Item (a-4).

(i) If water remains in the test hole after the swelling period, adjust the depth to six (6) inches over the gravel. From a fixed reference point, measure the drop in water level over a thirty (30) minute period. This drop is used to calculate the percolation rate.

(ii) If no water remains in the hole after the swelling period, add clear water to bring the depth of water in the hole to six (6) inches over the gravel. From a fixed reference point, measure the drop in water level at approximately thirty (30) minute intervals for four (4) hours, refilling six (6) inches over the gravel after each 30 minute interval. The drop that occurs during the final thirty (30) minute period is used to calculate the percolation rate.

(iii) In sandy soils (or other soils in which the first six (6) inches of water seeps away in less than thirty (30) minutes after the twenty-four (24) hour swelling period), the time interval between measurements shall be taken as ten (10) minutes and the test run for one (1) hour. The drop that occurs during the final ten (10) minutes is used to calculate the percolation rate.

(b) Comparable bottom trench area requirements shall be determined from the following chart:



6. Where bottom trench area requirements differ between the soil investigation and the percolation test, the method requiring the greater area shall be the determining factor.

(3) Minimum construction requirements for disposal trenches.

(A) Excavations may be made by machinery provided that the soil at bottom and sides of the disposal trench is not compacted. The bottom of each trench shall be parallel with the grade of the tile. When subsoils

within the level of the disposal trench are saturated, trench bottoms and sidewalls shall be raked or hand finished to insure permeability.

(B) Filter material in the absorption trench shall be clean, crushed stone or washed gravel ranging from three quarters ($3/4$) to two and one-half ($2\frac{1}{2}$) inches in size. No material of less than three quarters ($3/4$) inch in diameter shall be allowed in the absorption trench. Cinders, cinder rock, broken shell, broken brick, or similar porous materials shall not be used. The filter material shall extend the full width of the trench or bed, shall not be less than six (6) inches deep beneath the bottom of the distribution pipes, and shall extend at least two (2) inches above the top of the distribution pipes. The filter material shall be covered with untreated building paper, five (5) thicknesses of newspaper, or a minimum of two (2) inches of straw before the trench is backfilled with earth. In sandy soils which can be expected to enter the filter material even many years after installation, the filter material may be covered with plastic or tar paper where this is required by local conditions and where authorized by the Division.

(C) Distribution pipes shall have a minimum diameter of four (4) inches and shall be laid true to line and grade. The distribution pipe may consist of perforated bituminized-fiber, perforated plastic, or vitrified clay pipe or cement tile laid with loose joints. A description of the approved materials and the construction requirements is found below.

1. The lines between each of the field lateral lines and the distribution box shall be constructed with watertight joints and shall be bedded on undisturbed soil. No open-jointed or perforated distribution line shall be within five (5) feet of a distribution box. The trenches shall not be constructed to allow septic tank effluent to flow backwards from the field laterals to undermine the distribution box and septic tank.
2. Distribution pipes in disposal trenches - All disposal trenches shall have a distribution pipe of at least four (4) inch diameter centered in the middle of the ditch. After January 1, 1974 no pipe shall be used which does not meet the specifications listed below:

(a) Plastic pipe.

(a-1) Styrene-rubber plastics used for pipe and fittings shall meet ASTM (American Society for Testing and Materials) Specification D 2852-72 and Sections 5.5 and 7.8 of Commercial Standard 228-61, published by the U.S. Department of Commerce, which are designated Appendix D and E, respectively, and by this reference are made a part of these regulations. Pipe and fittings shall also pass a deflection test withstanding 350 pounds/foot without cracking by using the method found in ASTM 2412. In addition to the markings required by ASTM 2852-72, each manufacturer of styrene-rubber plastic pipe shall state, in writing, to the Division that he certifies that the pipe to be distributed for use in absorption facilities within the State of Oregon will comply with all requirements of this section.

(a-2) Polyethylene pipe in 10-foot lengths of which pipe and fittings shall meet Commercial Standard 228-61, published by the Department of Commerce, which is designated Appendix E and by this reference is made a part of these regulations. Pipe and fittings shall also pass a deflection test withstanding 350 pounds per foot without cracking by using the method found in ASTM 2412. Each length of pipe and each fitting shall be marked with the nominal size, the manufacturer's name or trademark, or other symbol which clearly identifies the manufacturer and the Commercial Standard number above. Markings on pipe shall be located on the uppermost surface when properly installed and at intervals of not greater than 10 feet. In addition to the markings required above, each manufacturer of polyethylene pipe shall state, in writing, to the Division that he certifies that the pipe to be distributed for use in absorption facilities within the State of Oregon will comply with all requirements of this section.

(a-3) The two types of plastic pipe described above shall have two (2) rows of holes spaced one hundred twenty (120) degrees apart and sixty (60) degrees on either side of a

center line. A line of contrasting color shall be provided on the outside of the pipe the full length along the line furthest away and parallel to the two rows of perforations. The holes of each row shall be not more than five (5) inches on center and shall have a minimum diameter of one-half ($\frac{1}{2}$) inch.

(a-4) Installation shall be with the aid of grade boards or stakes which have been installed before any gravel is placed in the ditch, and there shall be no less than six (6) inches of gravel under every portion of the pipe.

(b) Concrete tile in twelve (12) inch lengths which meets ASTM (American Society for Testing and Materials) Specification C 412-65 which is designated Appendix F and by this reference is made a part of these regulations. Tile used as part of an absorption facility shall bear the ASTM number above and some identification as to which quality standard it meets (Standard-Quality, Extra-Quality, or Special-Quality). In addition to the markings required above, each manufacturer of concrete tile shall state in writing to the Division that he certifies that the pipe to be distributed for use in absorption facilities within the State of Oregon will comply with all of the requirements of this section. The following installation requirements shall be met if concrete tile is used as part of an absorption field.

(b-1) The tile shall be laid with one-fourth ($\frac{1}{4}$) inch open joints. The top one-half ($\frac{1}{2}$) of these joints must be protected by individual strips or a capping strip of either treated building paper or tar paper. Suitable tile connectors, spacers, collars, or clips may be used.

(b-2) The tile must be laid on a grade board at least six (6) inches high and one (1) inch wide. This grade board must run the total length of the seepage trench and must remain in place after backfilling.

(b-3) If used in soils with a pH of less than 6.0, Special-Quality pipe as defined in ASTM C 412-65 shall be installed.

(c) Vitrified clay drain tile in twelve (12) inch lengths that meets ASTM (American Society for Testing and Materials) Specification C 4-62 which is designated Appendix G and by this reference is made a part of these regulations.

Tile used as part of an absorption facility shall bear the ASTM number above and some identification as to which quality standard it meets (Standard, Extra-Quality, Heavy-Duty). In addition to the markings required above, each manufacturer of clay tile shall state, in writing, to the Division that he certifies that the pipe to be distributed for use in absorption facilities within the State of Oregon will comply with all of the requirements of this section. Installation requirements shall be the same as (b-1) and (b-2) for concrete tile above.

(d) Bituminized fiber of which both pipe and fittings must meet ASTM (American Society for Testing and Materials) Specification D 1861-69 which is designated Appendix H and by this reference is made a part of these regulations. Each length of pipe and each fitting shall be marked with the nominal size, the manufacturer's name or trademark, or other symbol which clearly identifies the manufacturer and the ASTM standard number above. Markings on pipe shall be spaced at intervals not greater than two (2) feet. In addition to the markings required above, each manufacturer of bituminized pipe shall state, in writing, to the Division that he certifies that the pipe to be distributed for use in absorption facilities within the State of Oregon will comply with all requirements of this section. In addition, all bituminized pipe that is to be installed as part of an absorption facility shall comply with the following requirements:

(d-1) The pipe shall have two rows of holes spaced one hundred twenty (120) degrees apart and sixty (60) degrees on either side of a center line. A line of contrasting color shall be provided on the outside of the pipe the full length along the line furthest away and parallel to the two rows of perforations. The holes of each row shall not be more than five (5) inches on center and shall have a minimum diameter of one-half ($\frac{1}{2}$) inch.

(d-2) Installation shall be with the aid of grade boards or stakes which have been installed before any gravel is placed in the ditch, and there may be no less than six (6) inches of gravel under every portion of the pipe.

(4) Markings - No disposal pipe shall be installed which does not have the markings required above.

(5) Backfill of the disposal trenches shall be carefully placed to prevent damage to piping and to the installation.

(6) Standard disposal trench construction - Disposal trenches shall be constructed according to one of the following methods depending on the slope of the ground surface:

(A) Loop System (Figures 1A and 1B)

1. Trenches follow standard dimensions listed in (7) below, with the exception of grade. All lines and headers shall be level with no drop throughout their length.
2. A distribution box may receive the effluent sewer and shall divert the flow of sewage into a header for each lateral in the disposal facility. In lieu of a distribution box, a series of "tees" laid on an even grade shall be used.
3. The disposal trenches shall be interconnected at the farthest point from the distribution box by "tees" connecting an additional disposal trench which shall run at right angles to the other trenches.
4. The elevation of all disposal trenches shall be the same.

(B) Equal distribution system (Figure 2)

1. Trenches follow standard dimensions listed in (7) below.
2. A distribution box shall receive the effluent sewer and shall divert the flow of sewage into a header for each lateral in the disposal facility.

(C) Serial System (Figures 3A and 3B)

1. Trenches follow standard dimensions listed in (7) below with the exception of grade. The bottom of each trench and its distribution line shall be level.
2. One overflow pipe or one set of drop-boxes per line shall be used to divert the effluent to the succeeding trench at such time as each fills.

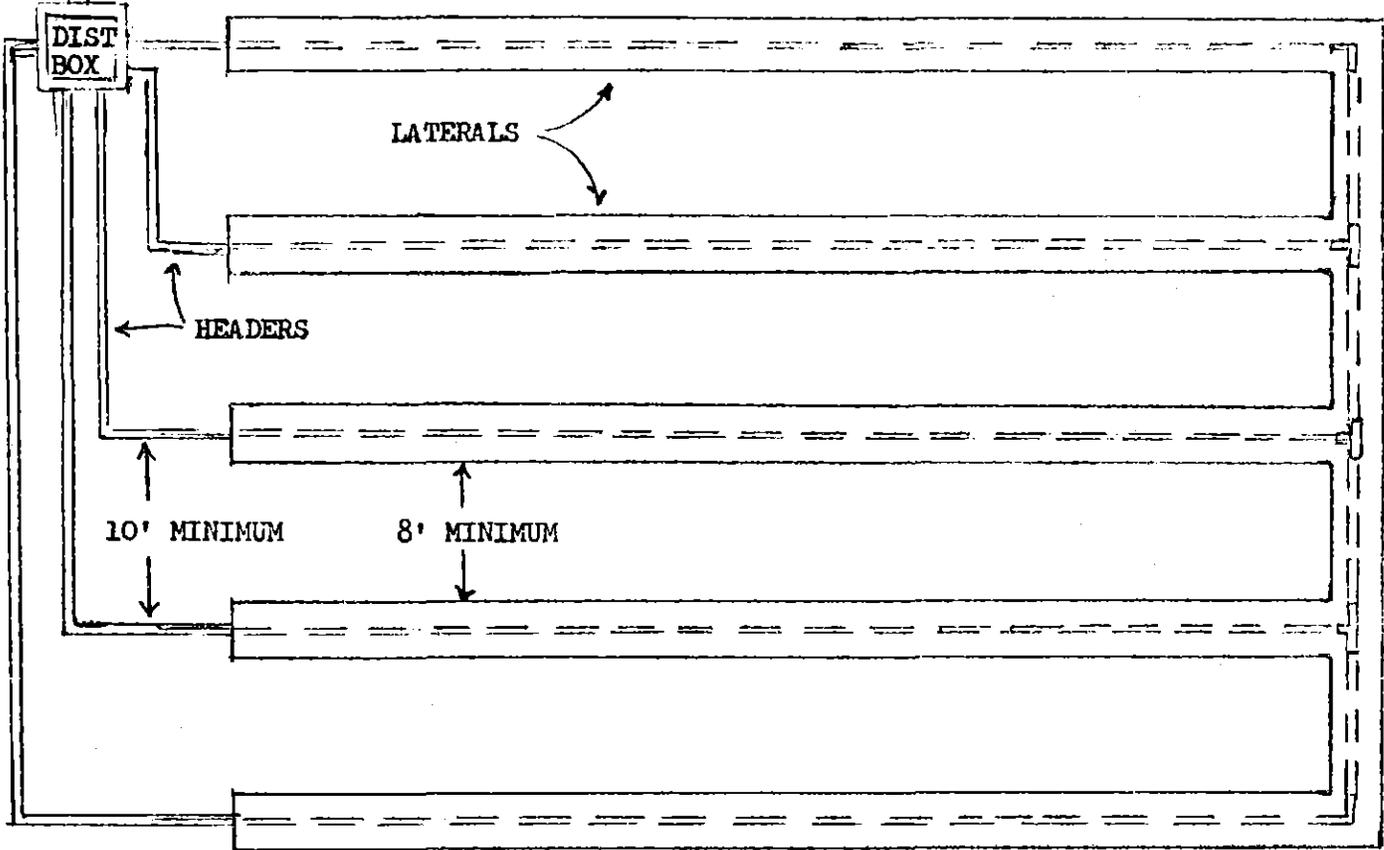
(D) Slopes less than 1% shall use either the loop or equal distribution system.

(E) Slopes from 1 - 8% shall use the equal distribution system.

(F) Slopes greater than 8% shall use either the equal distribution or the serial system.

INLET

FIGURE 1A
LOOP SYSTEM (with Distribution Box)



FROM
SEPTIC
TANK

FIGURE 1B
LOOP SYSTEM (with Manifold)

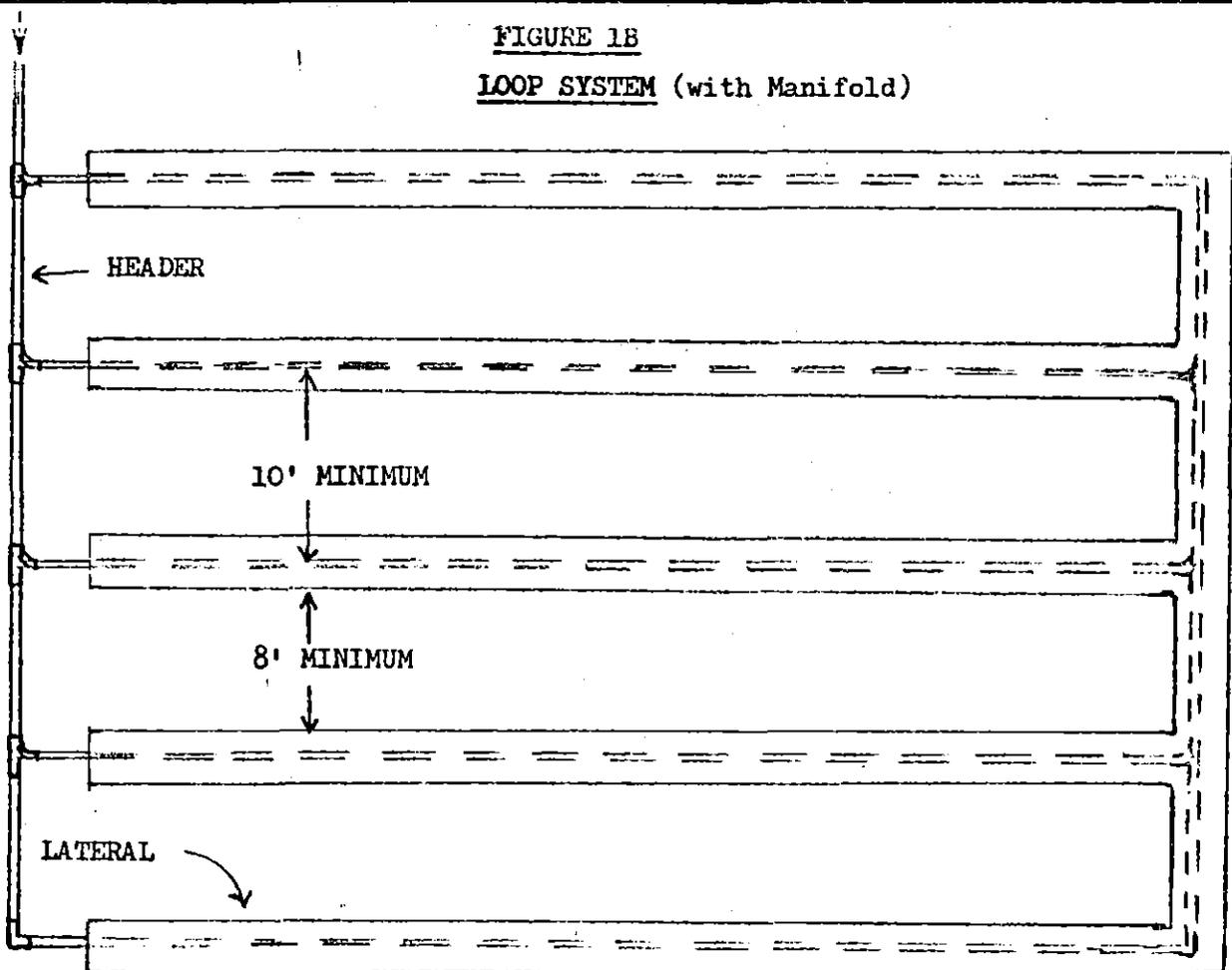


FIGURE 2
EQUAL DISTRIBUTION SYSTEM

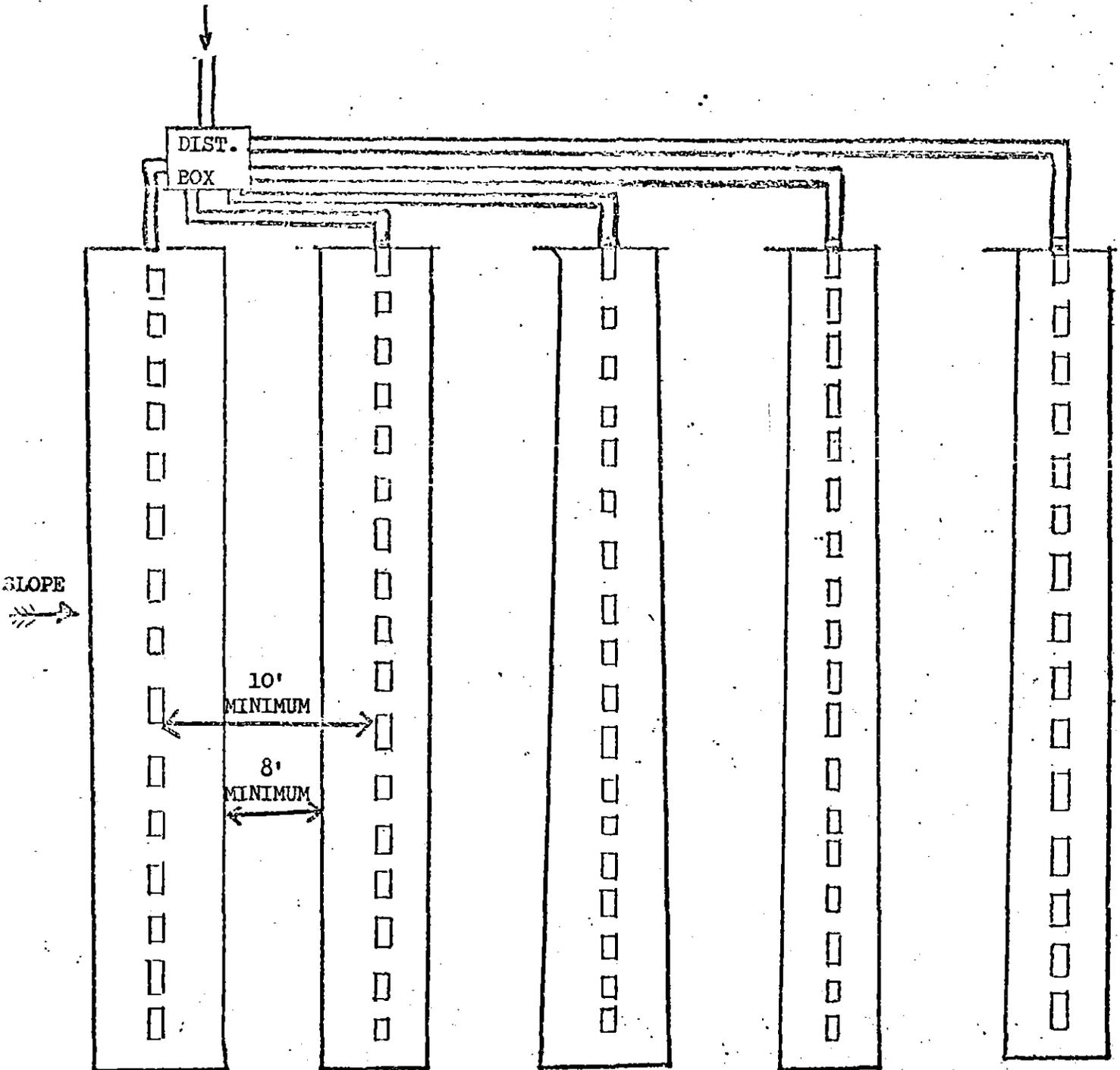
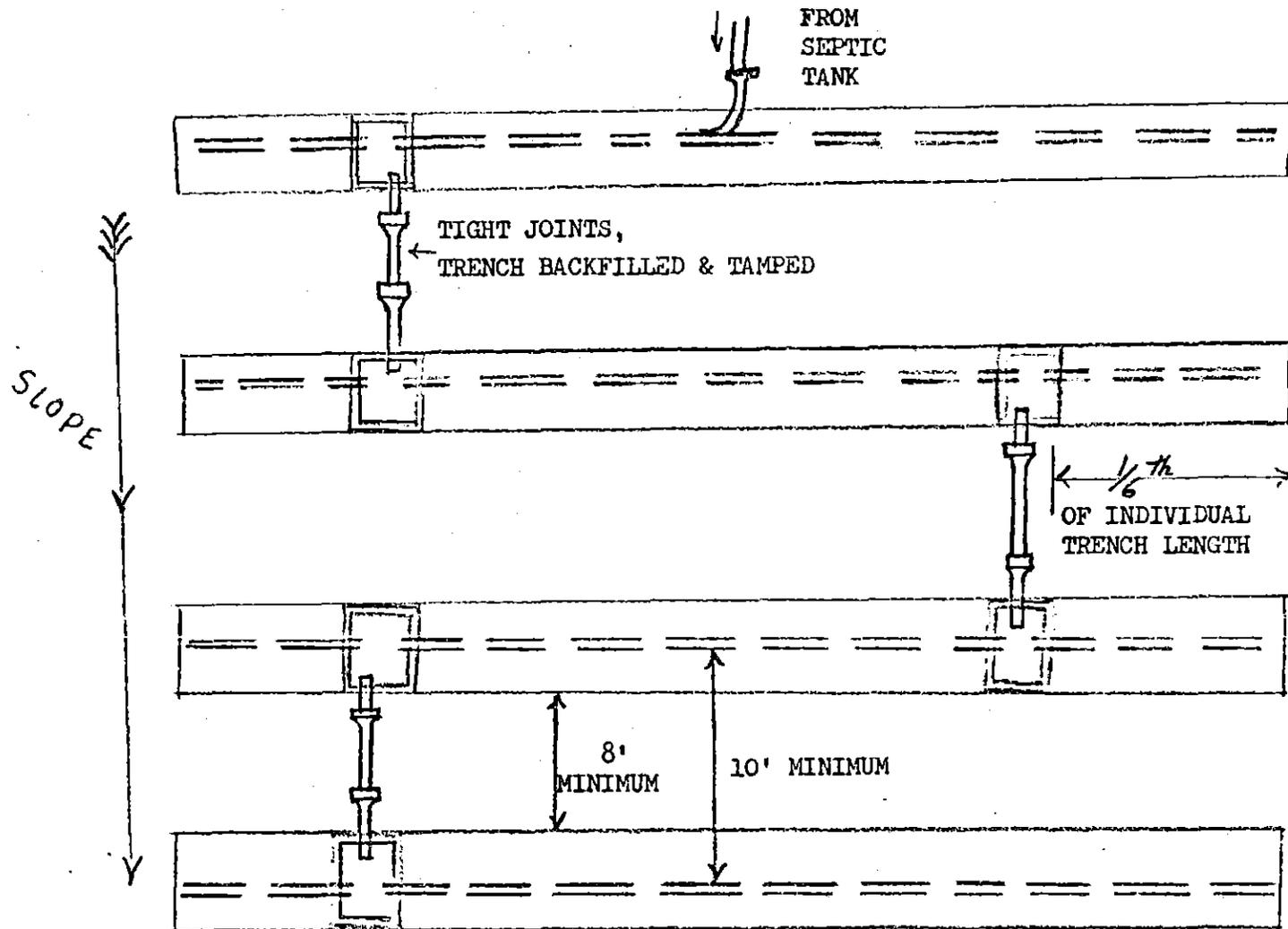


FIGURE 3A
SERIAL SYSTEM



CROSS SECTION DROP BOX DETAIL

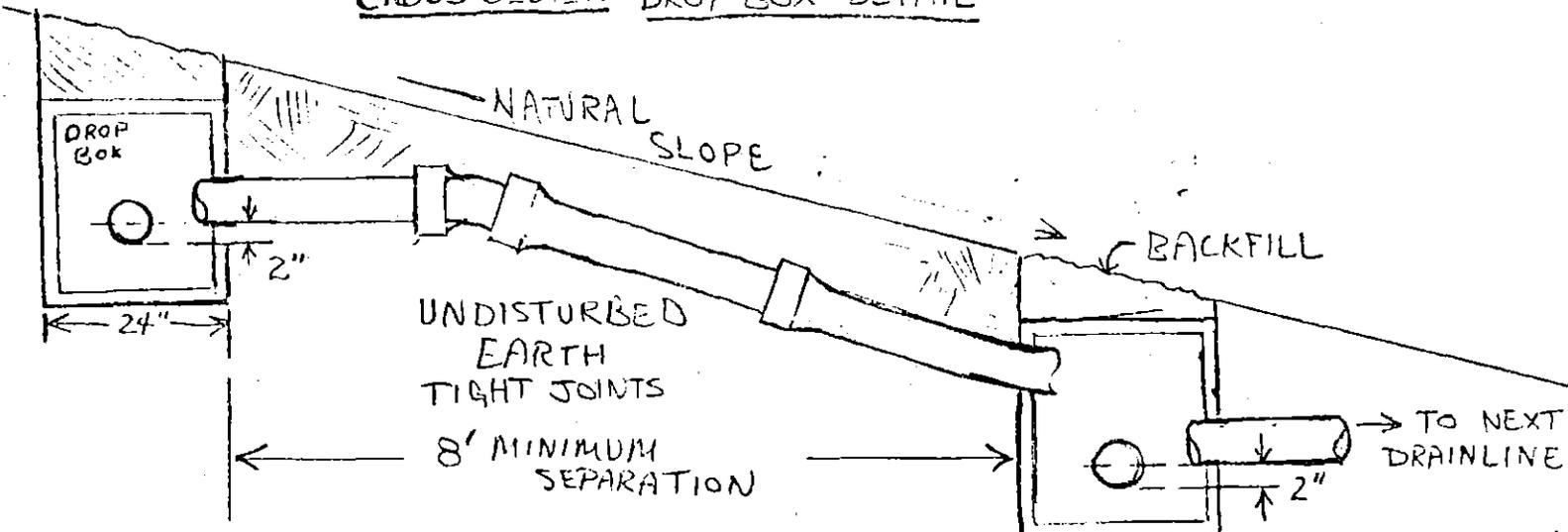
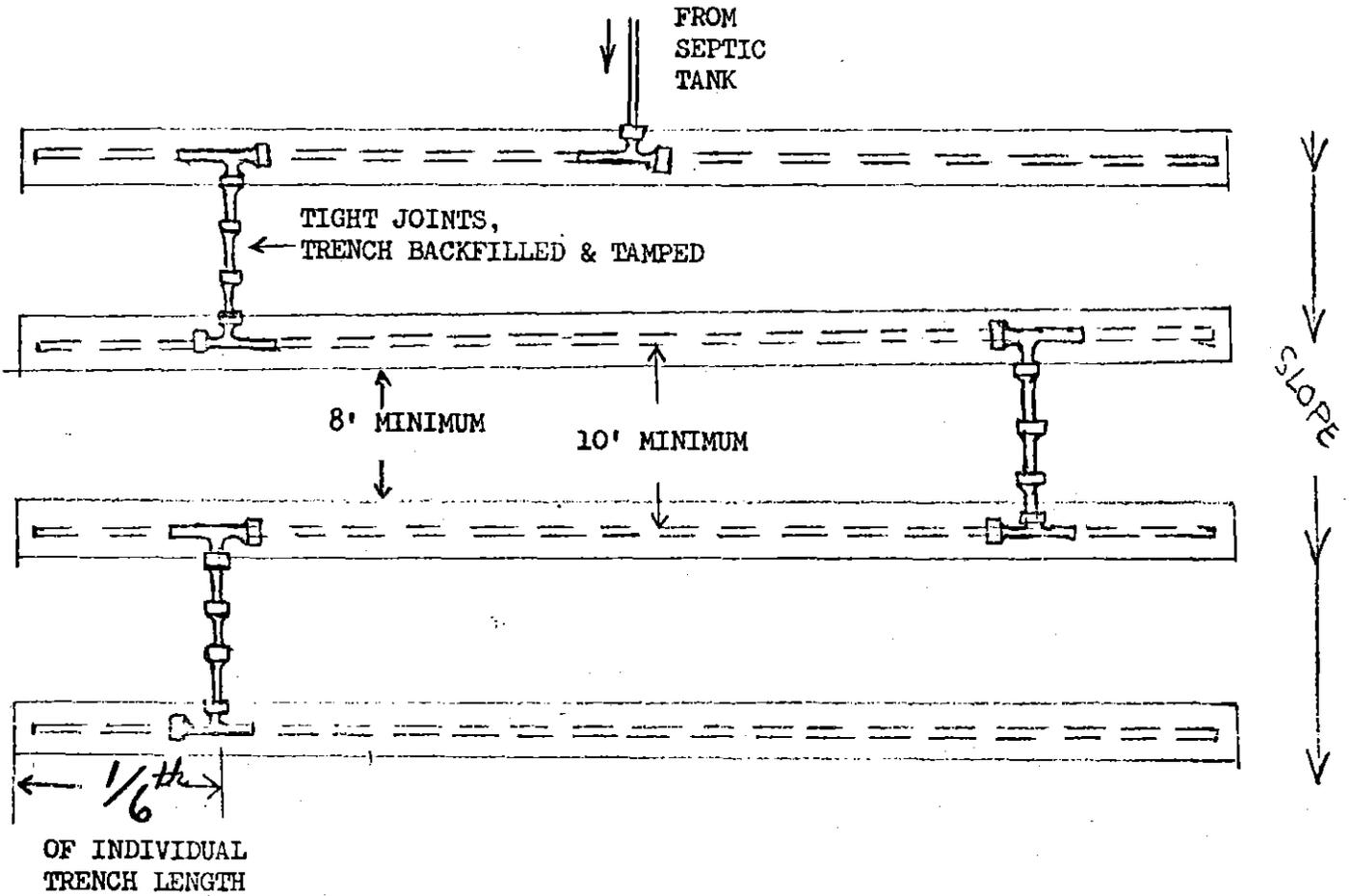
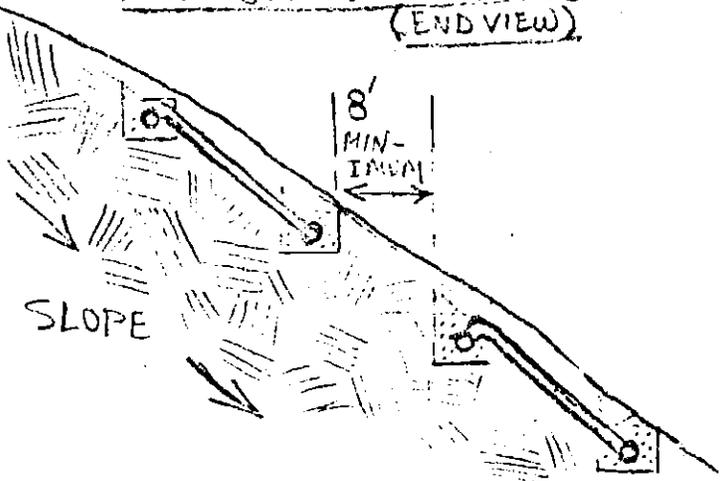


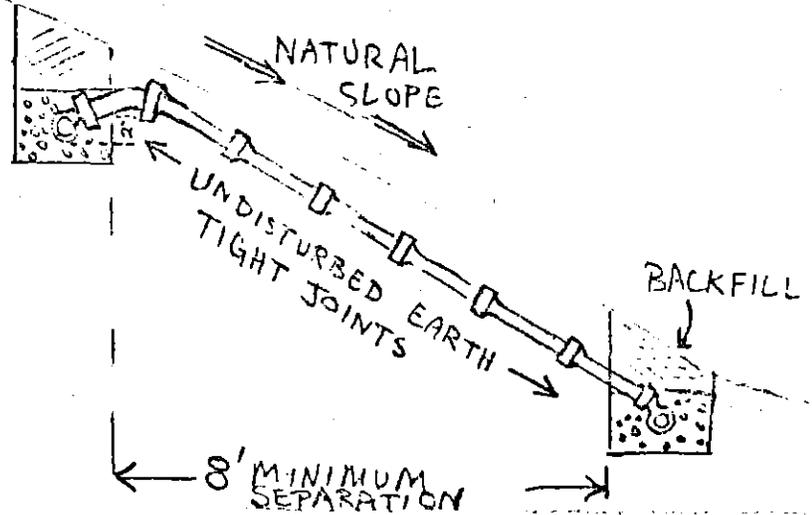
FIGURE 3B
SERIAL SYSTEM



**CROSS SECTION OF SERIAL
DISTRIBUTION DRAIN FIELD
(END VIEW)**



OVERFLOW PIPE DETAIL



(7) Disposal trenches shall be constructed in accordance with the standard dimensions listed in the following table:

- (A) Minimum lines per field using equal distribution system 2
- (B) Maximum length per trench using equal distribution system 125 feet
- (C) Minimum diameter of distribution lines 4 inches
- (D) Maximum grade of distribution lines from point nearest the septic tank to the point at the farthest distance 5-inch drop in every 125 feet (Prefer 2-inch drop)
- (E) Minimum bottom width of trench 18 inches
- (F) Maximum bottom width of trench 36 inches
Note: Bottom trench area based on 18" or 24" trench.
- (G) Minimum depth of seepage trench 24 inches
- (H) Maximum depth of seepage trench 36 inches
- (I) Minimum depth of backfill over trench 12 inches
- (J) Minimum distance of undisturbed earth between disposal trenches 8 feet
- (K) Minimum depth of filter material under 4-inch tile 6 inches
- (L) Minimum total depth of filter material 12 inches
- (M) Drainage - Provisions must be made for the drainage of the ground

surface of and adjacent to a disposal area to prevent the accumulation of surface water and to prevent erosion.

(N) No subsurface disposal trench shall be covered by asphalt or cement, and no vehicular traffic shall be allowed to drive over the field after installation.

(8) Frozen conditions - Backfill shall not be used when in a frozen condition.

(9) Fills - No standard subsurface sewage disposal system shall be placed in a fill area.

DOSING TANKS

(1) Siphons and Pumps - Siphons and pumps shall be of the alternating type when the total volume of waste to be disposed of exceeds 5,000 gallons per day. They shall operate automatically and shall discharge to separate disposal areas of equal size.

(2) Capacity - Dosing tanks shall have a capacity equal to the volume required to cover the disposal area being dosed to a depth of not less than one-fourth ($\frac{1}{4}$) inch nor more than two (2) inches within fifteen (15) minutes.

(3) Foundation - Dosing tanks shall be constructed on a level stable base that will not settle.

(4) Inlet and Outlet - The inlet shall be above maximum water elevation in the tank. The outlet shall conform with the requirements of the manufacturer of the dosing tank siphon.

(5) Manholes - Manholes shall be installed to provide access and to facilitate repair or adjustment of the siphon or pump in all dosing tanks. Manholes shall be brought up to ground surface.

EFFLUENT LIFT PUMPS

(1) Effluent lift pumps shall not be used where a gravity flow is possible.

(2) The minimum size of the discharge shall be one and one-quarter ($1\frac{1}{4}$) inch.

(3) All effluent lift pumps shall be of the submersible type.

(4) Switches shall be of the mercury float type.

(5) Manholes shall be constructed in the same manner as that required for dosing tanks.

DISTRIBUTION BOXES

(1) Distribution box shall be installed on all equal distribution systems, and shall be located between a septic tank and a disposal field to provide equal distribution.

(2) Outlet elevations - The invert elevation of all outlets shall be the same, and shall be at least two (2) inches below the inlet. Outlet pipes shall be level for at least one (1) foot beyond the distribution box.

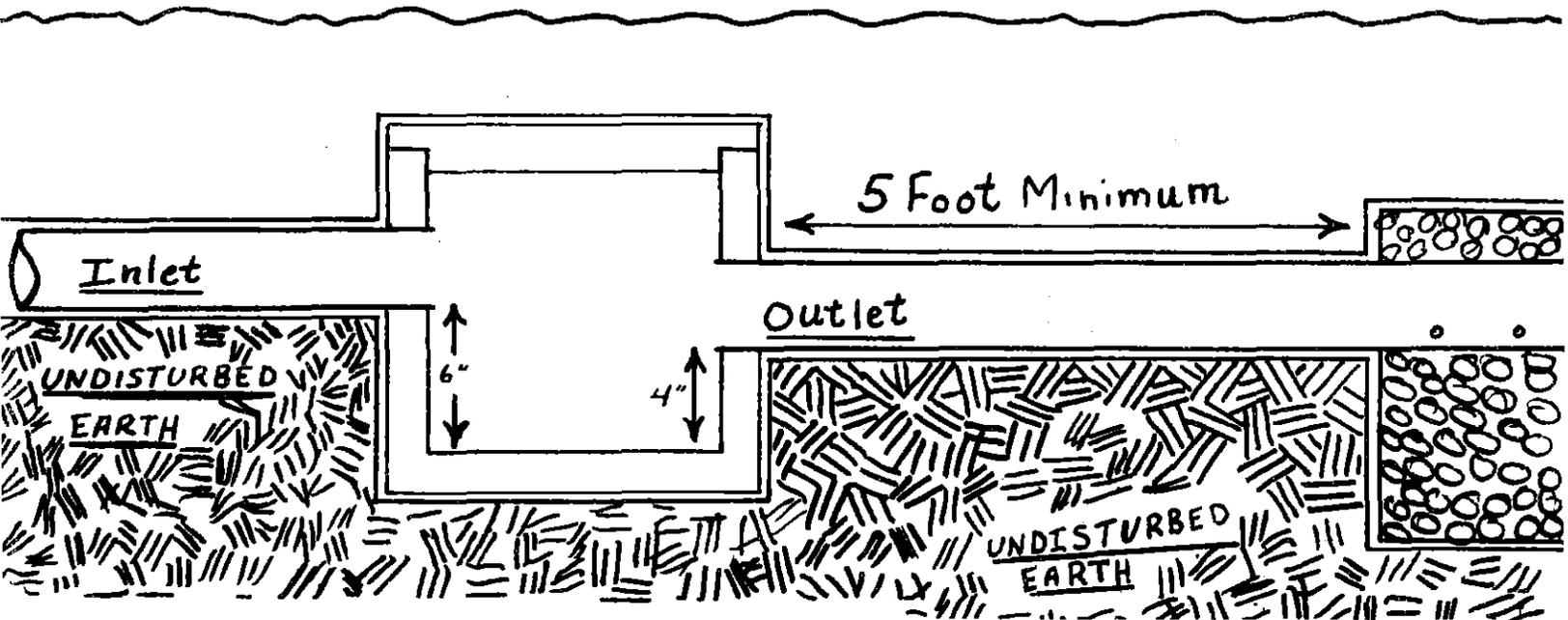
(3) Sump - The distribution box shall be provided with a sump extending four (4) inches below the bottom of the outlet pipe.

(4) Size - After January 1, 1974 inside horizontal dimensions measured at the bottom of the box shall be a minimum of fifteen (15) inches. No distribution box shall be installed which has a top surface area which is greater than the bottom surface area.

(5) Construction - Distribution boxes shall be constructed of concrete or other durable material approved by the Division. They shall be watertight and designed to accommodate the necessary distribution laterals.

(6) Foundation - All distribution boxes shall be bedded on undisturbed earth.

FIGURE 4
DISTRIBUTION BOX



(7) Cover - Distribution boxes shall be provided with a readily removable cover of durable material. For systems handling over 2,000 gallons per day, covers shall be brought to ground surface.

(8) Receiving box - Where the distribution system is dosed by siphons or pumps, the distribution box shall be preceded by a receiving box supplied with a baffle.

(9) All distribution boxes shall be water leveled before cover.

(10) All outlets shall be of solid line for a distance of at least five (5) feet beyond the distribution box.

(11) Marking - Each distribution box shall show the manufacturer's name and address on the top, and all manufacturers shall state, in writing, to the Division that the products to be distributed for use in absorption facilities within the State of Oregon will meet all of the requirements of this section.

SEEPAGE BEDS

(1) Use - Seepage beds shall not be used for the subsurface disposal of sewage unless approved by the Administrator or his authorized representative. No seepage bed shall be installed where soil conditions indicate a maximum loading capacity of greater than 125 square feet of bottom trench area per 150 gallons daily waste flow.

(2) Construction - Seepage bed construction shall adhere to the following criteria:

(A) Because of loss of sidewall absorption area, the effective bottom absorption area for such a field shall be double the amount shown in the charts above for disposal trenches.

(B) The bed shall be a minimum depth of twenty-four (24) inches below the natural ground surface to allow a minimum earth backfill of twelve (12) inches.

(C) The bed shall have a minimum depth of twelve (12) inches of gradated stone which meets the same criteria as that stone required in disposal trenches above.

(D) The bottom of the bed and the distribution pipes contained therein shall be level.

(E) Lines for distributing effluent shall be spaced not greater than six (6) feet apart and shall be not greater than three (3) feet from the bed sidewall.

(F) The maximum length of the seepage bed shall be the same as that for disposal trenches.

SEEPAGE PITS

(1) Use - Seepage pits shall not be used for the subsurface disposal of sewage except where specifically approved by the Division. Consideration shall not be given for the installation of seepage pits when any of the following conditions are present:

(A) Where the free water level is closer than sixteen (16) feet from the surface of the ground during any season of the year.

(B) Where a community water supply is not available.

(C) Where clean, coarse gravel or other equally porous material does not occur in a continuous 5-foot-deep stratum within 12 feet of the surface of the ground.

(D) In limestone areas.

(E) Where an impervious layer overlays the gravel stratum.

(F) Other areas where, in the judgment of the Division, deep disposal of septic tank effluent may jeopardize the quality of any domestic water supply or any other waters of the State.

(2) Construction - The liquid capacity of the seepage pit or pits shall be at least equal to the volume of the septic tank to which it is connected.

(A) The minimum inside diameter of the lining shall be four (4) feet.

(B) The maximum depth shall be twelve (12) feet.

(C) Two or more seepage pits shall be separated from each other by a distance equal to twelve (12) feet of undisturbed earth.

(D) A distribution box may be used if more than one (1) pit is installed.

(E) The pit shall be lined with stone, fired clay brick, building tile, adequately reinforced perforated precast concrete rings at least two and one-half (2½) inches thick, or other material approved by the Division. A six (6) inch space shall be required between the lining of the pit and the soil, and it shall be backfilled with clean, coarse rock.

(F) Connecting lines between the septic tank and pit and between the distribution box and pits shall be of standard weight cast-iron. The inlet pipe of the pit shall be an elbow which extends downward a minimum of twelve (12) inches.

CESSPOOLS

(1) Use - Cesspools shall not be installed for the subsurface disposal of sewage except in areas specifically approved by the Division. Criteria for consideration shall be the same as those for seepage pits.

(2) Construction - The construction of cesspools shall be the same as the criteria outlined for seepage pits.

APPROVAL BY LOCAL HEALTH OFFICERS OF LOTS OR PARCELS OF LAND

(1) No governmental body shall approve any subdivision, land partitioning, or plat or plan thereof until it has received in writing a statement of the use or uses for which the property within the proposed subdivision or partitioning will be offered by the subdivider or partitioner. If the use or uses set forth in the written statement include residential, camping, or non-agricultural commercial uses, and if these uses would utilize any method of subsurface sewage or waste disposal, the statement shall be accompanied by the statement of approval by the local health officer required by subsection (3)(b) of this section.

(2) No person shall transfer, sell, lease or otherwise dispose of any lot or parcel of land within the State of Oregon for valuable consideration, or agree in writing to do so (except when such written agreement states that the completion of the transfer, sale, lease, or other disposition is contingent upon compliance with the remainder of this subsection), without first having received from the proposed transferee a written statement which either (a) sets forth the transferee's intended use of the property, or (b) states that the intended use is not known, or (c) states that the transferee declines to disclose the intended use. If the use or uses are set forth in the written statement and they include residential, camping, or non-agricultural commercial uses, and if these uses would utilize any method of subsurface sewage or waste disposal, and such use and system is other than the use and system to which the property is put at the time of the statement, the transferor shall provide to the transferee a copy of the statement of approval by the local health officer required by subsection (3)(b) of this section. The statement of the proposed transferee required under this subsection shall be retained by the transferor or his agent.

(3) If the use or uses set forth in the written statement of the subdivider, partitioner, or proposed transferee include residential, camping, or non-agricultural commercial uses, and if these uses would utilize any method of subsurface sewage or waste disposal, and such use and system is other than the use and system to which the property is put at the time of the statement, the subdivider, partitioner, or transferor shall propose to the local health officer in writing a method for providing such property with sewage disposal and domestic water. The local health officer shall determine the approvability of the proposed method for disposal with respect to the property in question, and shall deliver a statement in writing to the subdivider, partitioner, or transferor stating whether or not such sewage or waste disposal means are approvable, in accordance with the rules in effect at the time of the statement. Written approvals by local health officers prior to the effective date of these rules shall be deemed to be a statement of feasibility under these rules.

(A) The feasibility statement by the local health officer shall be a statement outlining the relationship between the property as a whole and the requirements of the statutes and rules of the State of Oregon relating to the subsurface disposal of sewage. (OAR Chapter 333, section 41-001 to 41-045; ORS 447.140) The feasibility statement of the health officer hereunder is of a preliminary and non-specific nature addressed only to the feasibility of the proposed method of sewage disposal on the property as a whole. The feasibility statement shall not be considered as an approval of any specific subsurface sewage disposal system or systems, number of systems or location or locations of systems. The statement of the local health officer shall clearly indicate that it is of a general nature as previously stated and particularly shall convey that no specific lot, parcel, location, or system within the whole of the property is guaranteed final approval.

(B) The feasibility statement shall also include criteria, if any, which are to be satisfied before approval of sites on individual parcels can be made. At such time as building sites with soils and topography which meet the criteria outlined in the feasibility statement and of sufficient size have been found by the applicant or his representative, a request may be made of the local health officer to evaluate the site for specific approval or denial. Such approval shall be made when specific lot lines are determined, building sites are identified, and two (2) test holes or less are exposed, as required by the local health

officer, which meet all of the criteria needed in the feasibility statement plus any applicable portion of these rules and which are spaced 100 feet apart in the area of the proposed drainfield. If upon inspection the health officer concurs that the sites are approvable for subsurface sewage disposal, he shall state in a letter of approval that the specific lots or parcels meet the minimum criteria outlined in these rules and such approval would be upheld, pending adoption of rules which may be more restrictive. If the health officer does not concur with the applicant or his representative that the lots or parcels meet the minimum requirements as outlined in these rules, the statement of denial shall be served on the applicant either personally or by registered or certified mail. The statement of denial shall include the reasons for the determination, a reference to the State rules or statutes relied upon for the determination, and a statement of the opportunity for a hearing before the State Health Division upon request within twenty (20) days after receipt of the denial by the applicant, pursuant to ORS Chapter 183.

(4) Any person who has received a statement of denial under subsection (3)(b) of this section, may request and shall be granted a hearing before the State Health Division, pursuant to the provisions of ORS Chapter 183. A ruling by the State Health Division shall either affirm, reverse or modify the health officer's determination. Should the State Health Division find the proposed method for subsurface sewage disposal approvable, such finding shall serve as the statement of the local health officer required by subsection (1) and (2) of this section.

(5) The statement of approval given under this section is in addition to and does not supersede any other approval required under local ordinances or regulations.

SPECIAL AREAS AND SYSTEMS

The Division may authorize for research purposes the installation of special systems not otherwise authorized by these rules, in a limited number, in specific areas dependent on local conditions. These systems shall be closely monitored to observe the performance. The Division shall not authorize special systems in areas where conventional systems are feasible. Owners of property on which it is proposed to install a modified system shall be informed, in writing, that the system is not according to the standards required by the present regulations and, as such, may not perform with the same success as those systems covered by the regulations. Before the authorization for installation is given, the owner shall state, in writing, to the Division that he has been informed of the foregoing and that he accepts the responsibility of maintenance and repair of the system should it fail to perform to expectations. A copy of this statement shall be filed with the appropriate government agency to ensure that future purchasers become aware of this agreement.

NON-WATER-CARRIED WASTE DISPOSAL FACILITIES

(1) No non-water-carried waste disposal facility shall be used where there exists a water supply to the dwelling, except a non-water-carried waste disposal facility may be used where there exists a water supply to the structure served at labor camps and places of employment.

(2) Well separation - Non-water-carried waste disposal facilities shall be located at least 100 feet from a well, spring, or other source of domestic water supply.

(3) Privies.

(A) Earth pit privies may be used in conjunction with dwellings or other structures with no water hookup providing that the soils on the property shall meet the minimum requirements for the future installation of a water-carried subsurface sewage disposal facility as outlined in these regulations. Dwellings or other structures utilizing privies prior to the effective date of these regulations may replace those privies even though the soils may not be suitable for water-carried subsurface sewage disposal. In addition, earth pit privies may be used in recreation parks, isolated individual campsites, labor camps, places of employment, or on construction sites. When used on construction sites, their use shall be limited to the period of actual construction only. Earth pit privies shall comply with the following requirements:

1. They shall be located at least one hundred (100) feet from the mean high water mark of any river, stream, lake, ocean, or intermittent stream.
2. The free water level shall not be higher than four (4) feet below the maximum depth of the privy.
3. They shall be located at least twenty-five (25) feet from any property line.
4. The privy shall be so located and so constructed that no surface water may enter into the pit either as runoff or as flood water.
5. The pit shall be constructed of such material and in such a manner as to prevent rapid deterioration, provide adequate capacity, and facilitate maintenance in a satisfactory manner under ordinary conditions of usage.
6. The pit and seat area shall be vented by a flue or vent pipe having not less than fifty (50) square inches cross-sectional area so as to provide a continuous escape of odors.

7. The pit shall provide a capacity of fifty (50) cubic feet for each seat installed in the privy building and shall be at least five (5) feet deep. The area within sixteen (16) inches of the surface grade shall not be counted as part of the fifty (50) cubic-foot capacity.

8. Pit cribbing shall fit firmly and be in uniform contact with the earth walls on all sides, and shall rise at least six (6) inches above the original ground line and descend to the full depth of the pit. However, pit cribbing below the soil line may be omitted in rock formations.

9. An earth plateau shall be constructed level with the top of the pit cribbing, and extend horizontally for a distance of at least eighteen (18) inches before sloping to the original ground level.

10. A building housing any non-water-carried sewage disposal facility shall be firmly anchored and rigidly constructed in the following manner. It shall be ventilated by leaving a four (4) inch opening at the top of all the walls just beneath the roof.

(a) The building shall be of fly-tight construction, doors shall be self-closing, and all vents shall be screened with sixteen (16) mesh screen of durable material. The vent shall extend twelve (12) inches above the roof.

(b) The seat shall be so spaced as to provide a minimum clear space of twenty-four (24) inches between each seat in multiple-unit installations, and shall provide twelve (12) inches clear space from the seat opening to each side wall in single and multiple units.

(c) The seat riser shall have an inside clearance of not less than twenty-one (21) inches from the front wall and not less than twenty-four (24) inches from the rear wall of the privy building.

(d) The seat opening shall be covered with an attached, movable toilet seat and lid that can be raised to allow sanitary use as a urinal.

(e) The floor and riser shall be built of impervious material or tongue and groove lumber, and in a manner to deny access of insects.

(f) The contents of a privy shall not be permitted to overflow onto the surface of the ground or be exposed to flies and rodents. When the pit becomes filled to within sixteen (16) inches of the ground surface, a new pit shall be excavated and the old one shall be backfilled with at least two (2) feet of earth.

(g) In labor camps and other places of employment, where electricity is available, adequate lighting shall be provided in all privies and other temporary or portable toilet rooms. An adequate supply of toilet paper in a convenient receptacle shall be provided for each seat.

11. (a) Where the nearest neighboring dwelling is further than 1,000 feet away, kitchen and other household wastes shall be disposed of in a seepage pit the same as that required in Oregon Administrative Rules Chapter 333, 31-062(3)(b), for overnight campgrounds. These pits may be used for the disposal of waste water from culinary activity, temporary bathing facilities, and clothes washing facilities where there is no available piped water supply. Human excreta shall not be discharged into such a seepage pit.

(b) In non-isolated areas, kitchen and other household wastes shall be disposed of by the installation of a septic tank/disposal trench system which meets all of the requirements as outlined in these rules.

(B) Vault privies shall not be used for dwellings except for labor camps, however, on watersheds of public or community water supply or other areas where high water tables are encountered, concrete vault privies shall be used in the place of earth pit privies for the other uses allowed above in (3)(A).

1. All vault privies shall have vaults and receptacles which are watertight of a minimum capacity of three hundred fifty (350) gallons or, in places of employment, 100 gallons per seat, and shall be constructed of reinforced concrete, plastic, metal, or other material of equal durability which has been approved by the Division.

2. The contents of vault privies shall be disposed of in the same manner as septic tank effluent as outlined in these rules.

3. Equipment and trucks used to haul the contents of vault privies over public roads shall comply with these rules.

4. No water-carried waste shall be placed in any vault, privy.

5. The addition to the vault of caustic chemicals or disinfectants is required at frequent intervals to prevent bacterial decomposition and resulting odors.

(3) Chemical toilets shall be divided into three types, each with its own requirements for use.

(A) Holding type where the wastes are held within the body of the toilet for removal when filled to capacity. This type of facility shall be used only in the same situations and the wastes contained therein shall be disposed of in the same manner as that outlined for vault privies.

(B) Discharge type (less than five (5) gallons per day) may be used in isolated dwellings that do not have piped water serving the dwelling, and which are located at least one thousand (1,000) feet from the nearest neighboring dwelling. They may also be used for recreation parks, isolated individual campsides, or on construction sites. When used on construction sites, their use shall be limited to the period of actual construction only. This type of chemical toilet shall also comply with the following requirements:

1. A five-hundred- (500) gallon container meeting the specifications for a vault privy above shall be installed ten (10) feet outside the dwelling line. This tank shall be provided with a vent which meets the minimum requirements of a main vent in a dwelling. When nearing capacity, the tank shall be pumped out as a vault privy.

2. Kitchen and other household wastes shall be disposed of according to Oregon Administrative Rules, Chapter 333, 31-062 (3)(b) for overnight campgrounds.

(C) Discharge type (greater than five (5) gallons per day) must meet the minimum requirements for a water-carried subsurface sewage disposal system and must be connected to such a system before use.

(D) In labor camps and places of employment, the following types of toilets may be used provided the requirements below are met. All buildings shall be constructed in the same manner as outlined under earth pit privies in these rules.

1. Chemical toilet specifications:

(a) Receptacles for caustic shall be durable and corrosion proof, and provide a minimum capacity of 100 gallons per seat.

- (b) The charge of caustic per seat shall be a minimum of 25 pounds of caustic dissolved in 10 gallons of water.
 - (c) The chemical shall be drained and receptacle recharged every six months of continuous use, or at the beginning or end of each season of operation when in intermittent use, or when three-fourths full, whichever occurs first.
 - (d) Each seat in the building shall be provided with a conveniently located agitator.
 - (e) The receptacle shall be equipped with a manhole external to the privy building for cleaning and caustic removal purposes. The manhole shall be covered so as to prevent the escape of gases and odors.
2. Combustion toilet specifications:
- (a) All external surfaces, including bowl and hopper, shall be easy to clean.
 - (b) The residue must be sterile and inert.
 - (c) The flue effluents must be free of bacteria.
 - (d) The combustion system and all fuel and electrical parts shall be safe and in compliance with applicable gas and electrical codes of local authorities. Where such codes do not exist, the installations shall comply with the American National Standard National Electrical Code, C1-1968 (NFPA No. 70-1968).
3. Recirculating toilet specifications:
- (a) All materials, bowl, piping and fittings shall be corrosion resistant.
 - (b) Waste passages shall have smooth surfaces and be free of obstructions, recesses, or chambers that would permit fouling.
 - (c) Flushing shall be accomplished by a single control so arranged as to be operated without special knowledge or effort.
 - (d) Recirculating toilets shall conform to "Self-Contained, Electrically Operated Recirculating, Chemically Controlled Toilet," published as the International Association of Plumbing and Mechanical Officials Trailer Standard TSC 12-65.
 - (e) The unit shall be maintained and cleaned; water, filter, and odor-controlling chemical shall be replaced in accordance with the instructions of the manufacturer.

4. Portable toilet specifications:

(a) A portable toilet may be made up of the seat and its treatment unit to be installed in a structure, or it may be made up of an entire prefabricated, skid mounted, or otherwise portable structure containing a seat or treatment units with seat.

(b) No pit, tank, or other subsurface structure shall be construed as part of a portable toilet.

(b-1) Portable privies must be installed over a pit conforming to the requirements of this section, or a manhole that is part of a sanitary or combined waste water disposal system.

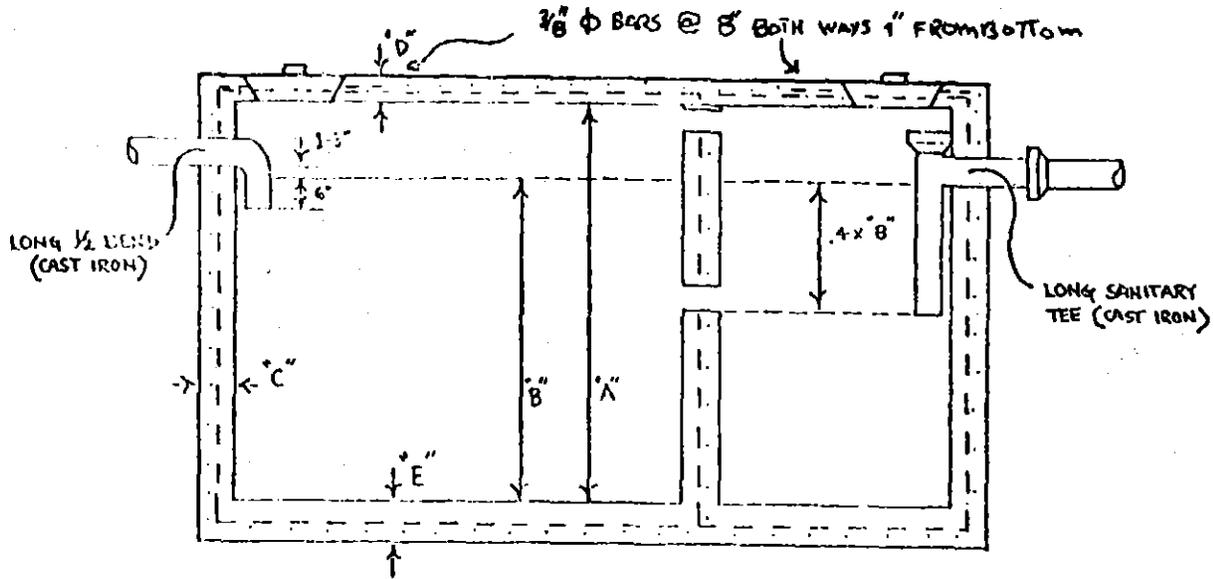
(b-2) No portable toilet shall discharge into a storm sewer or into any waters of the State.

(c) An airtight seal shall be provided between the structure base and any pit, receptacle, or manhole over which it is placed.

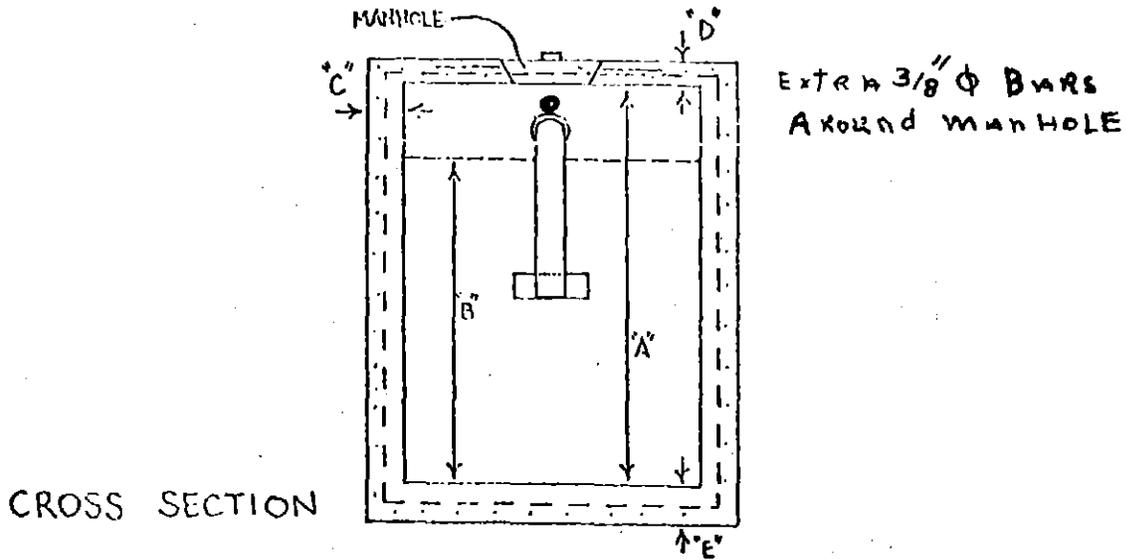
(d) A portable toilet shall be provided with facilities, requisite to its construction, for the removal of chemicals, ash, or residue. All surfaces subject to soiling shall be readily accessible and easily cleaned.

* * *

APPENDIX A



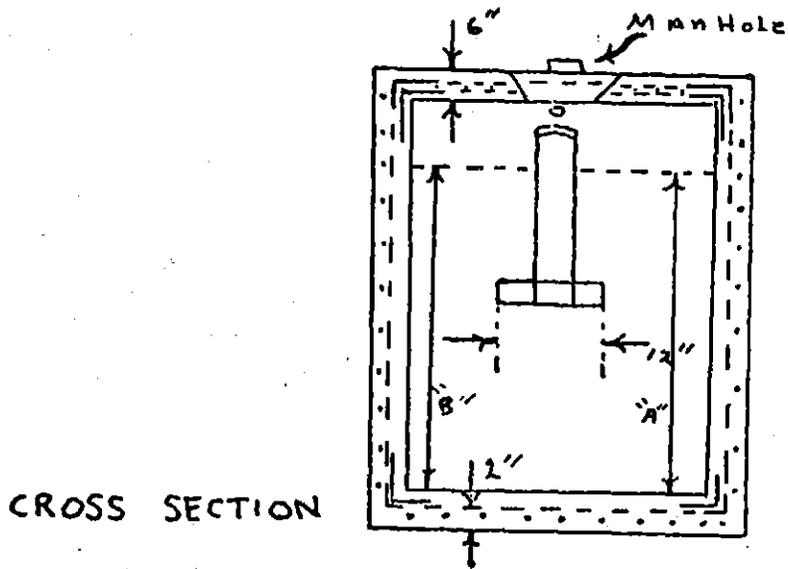
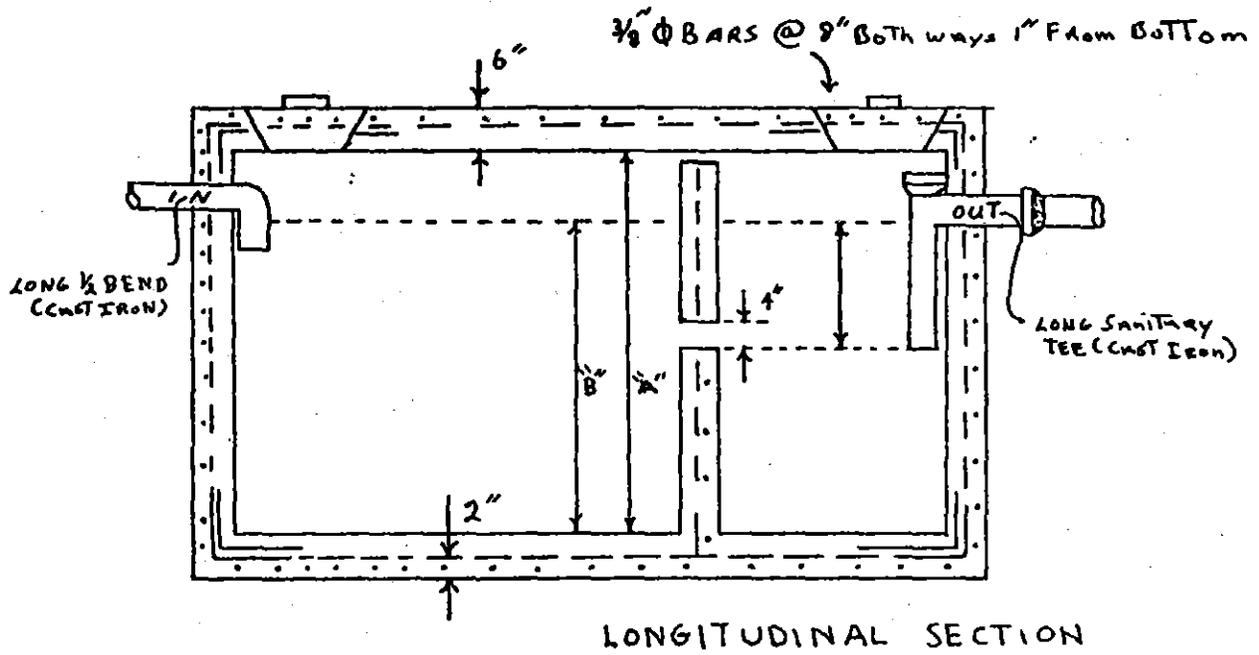
LONGITUDINAL SECTION



CROSS SECTION

| SPECIFICATIONS | | | | | | | | | | | | | | | | |
|-----------------|-------------------------------|----------------------------------|-------------|--------------|--------------------|-----|--------|-------------------------|----------------------------|--------|-------|-------------------------|----------------------------|--------|-------|----------------------|
| NUMBER BEDROOMS | TOTAL WORKING CAPACITY (GALS) | TOTAL WORKING CAPACITY (CU. FT.) | TOTAL DEPTH | LIQUID DEPTH | CONCRETE THICKNESS | | | FIRST COMPARTMENT | | | | SECOND COMPARTMENT | | | | CUBIC YARDS CONCRETE |
| | | | | | WALLS | TOP | BOTTOM | WORKING CAPACITY (GALS) | WORKING CAPACITY (CU. FT.) | LENGTH | WIDTH | WORKING CAPACITY (GALS) | WORKING CAPACITY (CU. FT.) | LENGTH | WIDTH | |
| | | | | | "C" | "D" | "E" | | | | | | | | | |
| 1 | 1000 | 133 | 5'-0" | 4'-0" | 6" | 4" | 6" | 750 | 100 | 6'-0" | 4'-0" | 250 | 33 | 2'-0" | 4'-0" | 3.20 |
| 2 | 1000 | 133 | 5'-0" | 4'-0" | 6" | 4" | 6" | 750 | 100 | 6'-0" | 4'-0" | 250 | 33 | 2'-0" | 4'-0" | 3.20 |
| 3 | 1200 | 160 | 5'-0" | 4'-0" | 6" | 4" | 6" | 900 | 120 | 6'-8" | 4'-6" | 300 | 40 | 2'-6" | 4'-6" | 3.56 |
| 4 | 1333 | 177 | 5'-6" | 4'-6" | 8" | 5" | 6" | 1000 | 133 | 6'-8" | 4'-6" | 333 | 44 | 2'-6" | 4'-6" | 4.68 |
| 5 | 1667 | 233 | 6'-0" | 5'-0" | 8" | 5" | 6" | 1250 | 167 | 6'-8" | 5'-0" | 417 | 46 | 2'-6" | 5'-0" | 5.61 |

APPENDIX B



Appendix C

Commercial Standard CS 177-62, January 1962

United States Department of Commerce

5.3 Bituminous coatings

5.3.1 Coating requirements.—The coating shall be composed of bituminous-base materials that are impervious to water and resistant to sulfuric and sulfurous acids of concentrations encountered in the normal operation of septic tanks. The physical characteristics of the materials shall be such that they are capable of being applied in a continuous coating which is free from bubbles, pinholes, holidays, etc. They shall have good adherence to the metal, and shall permit handling incidental to shipping and installation at temperatures between 30° and 140° F without separating from the metal or showing appreciable flow or stickiness.

5.3.2 Coating systems.—Two coating systems are acceptable as follows:

System I.—Hot-dipped asphalt coating applied to the bare metal or over an asphalt primer, followed by a coal-tar-base emulsion coating applied to the critical area.

System II.—Cold-application coal-tar-base coating to the bare metal or over a coal-tar primer, followed by a second application of coating to the critical area.

5.3.3 Materials.—Materials shall meet requirements for the applicable system, as follows:

System I.

(a) **Asphalt for hot-dipped coatings.**—The material shall comply with the requirements of Underwriters' Laboratories, Inc., for Asphalt Coating—System I.² Softening point shall not be lower than 185° F nor higher than 210° F; penetration (hundredths of a centimeter) shall be not less than 20 at 0° C; not less than 25 nor more than 50 at 25° C; and not greater than 100 at 46° C.

(b) **Asphalt primer, when used.**—Suitable primer shall be furnished by the manufacturer of asphalt coating.

(c) **Coal-tar-base emulsion.**—The material shall comply with the requirements of Underwriters' Laboratories, Inc., for Coal-Tar-Base Emulsion—System I.²

System II.

(a) **Coal-tar-base coating.**—The material shall comply with the requirements of Underwriters' Laboratories, Inc., for Coal-Tar-Base Coating—System II.²

(b) **Coal-tar primer, when used.**—Suitable primer shall be furnished by the manufacturer of the coal-tar-base coating.

5.3.4 Coating procedure.

5.3.4.1 Preparation of tanks.—Prior to coating, the metal shall be free from all loose scale, rust, oil and grease which would prevent proper adherence of the coating. The clean tanks shall be protected from rain, snow and frost prior to coating.

5.3.4.2 System I.

(a) Apply asphalt primer when recommended by the manufacturer of the coating material used. Make the application in accordance with recommendations of the coating manufacturer. Allow primer to set to touch at atmospheric temperature.

(b) Submerge the tank in the hot asphalt and withdraw it from the asphalt bath at such a rate that uniform coating of asphalt not less than 0.025" in average thickness will be produced on all surfaces of the tank. The coating shall be free from air bubbles, pinholes and holidays that expose bare metal.

(c) After the tank has cooled to atmospheric temperature, apply the coal-tar emulsion to the critical area by brush or spray at a rate of not more than 60 square feet per gallon of emulsion.

² Given in publication entitled "Requirements for Bituminous Coatings for Metal Septic Tanks, Subject 70" obtainable from Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago 11, Illinois.

Appendix C

5.3.4.3 System II.

- (a) Apply coal-tar primer when recommended by the manufacturer of the coating material used. Make the application in accordance with recommendations of the coating manufacturer. Allow primer to set to touch at atmospheric temperature.
- (b) Apply the coal-tar-base coating uniformly by brush or spray to all exterior and interior surfaces of the tank at a rate of not more than 100 square feet per gallon. Allow to dry not less than 24 hours at atmospheric temperature. Drying may be accelerated by the use of infrared lamps or heated drying chamber, provided the coating is not heated sufficiently to affect it adversely in adherence, flexibility and other significant properties. In general, the temperature for accelerated drying should not exceed 120° F and the drying time at approximately that temperature should be between 6 and 8 hours, unless slightly higher drying temperatures, or shorter drying periods, or both, are definitely known to be suitable for the materials used.
- (c) Apply a second coat of the coal-tar-base coating to the critical area at a rate of not more than 75 square feet per gallon.

5.3.4.4 *Touch up coating.*—Each tank shall be provided with a pint of touch-up material. The material supplied with tanks having system I coating shall comply with the requirements of Underwriters' Laboratories, Inc., for Touch-up Coating—System I.² The material supplied with tanks having System II coating shall comply with the requirements of Underwriters' Laboratories, Inc., for Coal-Tar-Base Coating—System II.²



Designation: D 2852 - 72

Standard Specification for STYRENE-RUBBER PLASTIC DRAIN AND BUILDING SEWER PIPE AND FITTINGS¹

This Standard is issued under the fixed designation D 2852; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

1. Scope

1.1 This specification covers requirements and methods of test for materials, dimensions, workmanship, impact resistance, load-deflection properties, dimensional stability, and joint tightness of plain-end or bell-end styrene-rubber plastic drain and building sewer pipe and fittings in sizes 2 through 6 in.

NOTE 1—The values stated in U.S. customary units are to be regarded as the standard.

2. Terminology

2.1 The plastics terminology used in this specification is in accordance with ASTM Nomenclature D 883, Relating to Plastics² and ASTM Abbreviations D 1600, Terms Relating to Plastics,² unless otherwise indicated. The abbreviation for styrene-rubber plastics is SR.

3. Uses

3.1 The requirements for this standard are intended to provide pipe and fittings suitable for nonpressure underground drainage of sewage and certain other liquid wastes, in applications outside the building limits, where resistance to deterioration from water and chemicals, dimensional stability, resistance to aging, and strong tight joints are required. The plastic drain and sewer pipe and fittings described in this specification are intended for use in the following applications:

3.1.1 Building sewers in dwellings of four families or less.

3.1.2 House connections to septic tanks.

3.1.3 Footing drains (foundation drains).

3.1.4 Storm drainage.

NOTE 2—Industrial waste disposal lines should be installed only after careful consideration of the composition of the wastes involved, and only with the specific approval of the cognizant building code authority. Detrimental chemicals not commonly found in drains and sewers, and excessive temperatures may be encountered in industrial waste disposal lines.

3.2 The pipe should be installed in accordance with ASTM Recommended Practice D 2321, for Underground Installation of Flexible Thermoplastic Sewer Pipe.³

4. Materials

NOTE 3—A recommended list of chemicals, concentrations, and related test procedures to evaluate plastic piping materials for use in residential sewer systems is being developed and will be added to the Appendix of this specification when the work is completed. This is a particularly difficult task because of the lack of uniformity in the chemical composition of the material being transported and the lack of chemical analyses of this material. Consequently, the chemicals and the amounts present are to some extent a matter of opinion of those concerned. Investigations and discussions are underway to arrive at a consensus that can be added to all the plastic sewer piping specifications being developed in ASTM Subcommittee D-20.17. It should be noted that the consensus developed will be used to evaluate whether or not specific plastic materials are useful for residential sewer piping and not as test requirements in the body of the specifications.

4.1 *Materials*—The pipe and fittings shall

¹ This specification is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D-20.17 on Thermoplastic Pipe and Fittings functioning as a Joint Committee of The Society of the Plastics Industry and ASTM.

Current edition effective March 13, 1972. Originally issued 1969. Replaces D 2852 - 71.

² Annual Book of ASTM Standards, Part 27.

³ Annual Book of ASTM Standards, Part 26.



be made of styrene-rubber (SR) plastics meeting the following requirements:

4.1.1 The SR plastic compound shall contain at least 50 percent styrene plastics, combined with rubbers to a minimum rubber content of 5 percent, and compounding materials such as antioxidants and lubricants, and may contain up to 15 percent acrylonitrile combined in the styrene plastics and/or rubbers. The rubbers shall be of the polybutadiene and/or butadiene-styrene type with a maximum styrene content of 25 percent and/or nitrile type. The combined styrene plastics and rubber content shall be not less than 90 percent. No fillers may be used.

4.1.2 The SR plastic compound shall meet the following minimum requirements when tested in accordance with Section 6:

| | |
|---|---|
| Tensile strength at rupture, | 26.2 MN/m ² (3800 psi) |
| Elongation at rupture, percent, | 15 |
| Modulus of elasticity in tension, | 2068 MN/m ² (300,000 psi) |
| Izod impact strength, notched, | 0.11 m-kg (0.8 ft-lb) |
| Deflection temperature at 1.82 MN/m ² (264 psi), deg C (deg F) | 65 (149) |

4.1.3 *Rework Material*—Clean rework material, generated from the manufacturer's own pipe or fittings production, may be used by the same manufacturer, provided that the pipe and fittings produced meet all of the requirements of this specification.

5. Requirements

5.1 *Workmanship*—The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density and other physical properties.

5.2 Pipe Dimensions:

5.2.1 *Pipe Diameters*—The outside and inside diameters of the pipe shall be within the tolerances given in Table 1 when tested in accordance with 6.6.1.

5.2.2 *Wall Thickness*—Pipe wall thickness shall meet the requirements of Table 1 when measured in accordance with 6.6.2.

5.2.3 *Laying Length*—The laying length shall be 10 ft with a tolerance of $-0 +\frac{1}{2}$ in., unless otherwise specified. The laying length shall be determined in accordance with 6.6.3.

5.3 Fitting and Bell-End Dimensions:

5.3.1 *Socket Diameters*—The inside di-

ameters of the sockets shall comply with the dimensions in Table 2 when determined in accordance with 6.7.1.

5.3.2 *Wall Thickness*—The wall thicknesses of fittings shall comply with the requirements shown in Table 2 when determined in accordance with 6.7.2. In the case of belled pipe, this thickness of the belled section shall be considered satisfactory if the bell was formed from a pipe meeting the requirements of Table 1.

5.3.3 *Socket Depth*—The socket depth shall be not less than that shown in Table 2 when measured in accordance with 6.7.3.

5.3.4 *Laying Length*—The laying length shall meet the requirements shown in Table 3.

5.4 *Impact Strength*—The impact strength of the pipe and fittings shall not be less than the values given in Table 4 when tested in accordance with 6.9.

NOTE 4—This test is intended only as a quality control test, not as a simulated service test.

5.5 *Pipe Stiffness*—The pipe stiffness at 5 percent deflection shall be not less than the values given in Table 5 when tested in accordance with 6.10. This requirement does not apply to fittings.

5.6 *Flattening*—The pipe shall show no evidence of splitting, cracking, or breaking at 20 percent deflection when tested in accordance with 6.8.

5.7 *Dimensional Stability*—The average decrease in inside diameter of pipe and fittings shall not exceed 10 percent when tested in accordance with 6.11.

5.8 *Solvent Cement*—See Note 5.

5.9 *Joint Tightness*—Joints made with pipe and fittings shall not leak when tested at an internal pressure of 170 kN/m² (25 psi) in accordance with 6.12.

NOTE 5—A specification for SR plastic pipe cement is being developed and will be referenced when it is available. In the meantime, this pipe specification will be held as tentative rather than processing as a standard because of lack of a satisfactory reference for this requirement. It is suggested that users follow the recommendation of manufacturers regarding cements until this work is completed.

6. Methods of Test

6.1 *Conditioning*—Condition the specimens prior to test at 23 ± 2 C (73.4 ± 3.6 F)



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and 50 ± 5 percent relative humidity for not less than 40 h in accordance with Procedure A of ASTM Methods D 618, Conditioning Plastics and Electrical Insulating Materials for Testing,² for those tests where conditioning is required and in all cases of disagreement.

6.2 Test Conditions—Conduct tests in the Standard Laboratory Atmosphere of 23 ± 2 C (73.4 ± 3.6 F) and 50 ± 5 percent relative humidity, unless otherwise specified.

6.3 Deflection Temperature—Determine the deflection temperature in accordance with ASTM Method D 648, Test for Deflection Temperature of Plastics under Flexural Load.² Injection mold two 6.4 by 12.7 by 127-mm ($\frac{1}{4}$ by $\frac{1}{2}$ by 5-in.) test specimens under conditions specified by the manufacturer. The test shall be made only at a stress of 1.82 MN/m^2 (264 psi). An inert immersion medium shall be used. The heating rate shall be 2 ± 0.2 C/min.

6.4 Material Impact Resistance—Determine the Izod impact resistance in accordance with Method A of ASTM Methods D 256, Test for Impact Resistance of Plastics and Electrical Insulating Materials.² Injection mold ten $\frac{1}{8}$ by $\frac{1}{2}$ by $2\frac{1}{2}$ -in. test specimens under conditions specified by the manufacturer. The notch shall be produced by a machining operation using a single-tooth milling cutter.

6.5 Tensile Properties—Determine the tensile strength, elongation at rupture, and modulus of elasticity in accordance with ASTM Method D 638, Test for Tensile Properties of Plastics.² Injection mold five Type I test specimens approximately 3.2 mm ($\frac{1}{8}$ in.) thick under conditions specified by the manufacturer. The speed of testing shall be 5 to 6 mm (0.20 to 0.25 in.)/min.

6.6 Pipe Dimensions:

6.6.1 Pipe Diameters:

6.6.1.1 Measure the average outside diameter of the pipe in accordance with Section 6 of ASTM Method D 2122, Determining Dimensions of Thermoplastic Pipe and Fittings.³ Use either a tapered-sleeve gage or a vernier circumferential wrap tape accurate to ± 0.02 mm (± 0.001 in.).

6.6.1.2 Measure the average inside diameter of the pipe in accordance with Section 5

of Method D 2122.

6.6.2 **Wall Thickness**—Measure the wall thickness in accordance with Method D 2122. Make sufficient readings, a minimum of six, to ensure that the minimum thickness has been determined. Use a cylindrical anvil tubing micrometer accurate to ± 0.02 mm (± 0.001 in.).

6.6.3 **Length**—Determine the over-all length of the pipe in accordance with Method D 2122 using a steel tape with at least 1-mm ($\frac{1}{16}$ -in.) graduations. For belled or coupled pipe, determine the laying length by measuring the bell or coupling socket depth with a steel rule with at least 1-mm ($\frac{1}{16}$ -in.) graduations and subtracting this dimension from the over-all length.

6.7 Fitting and Bell-End Socket Dimensions:

6.7.1 **Socket Diameters**—Measure the inside diameters of the sockets at the socket entrance and bottom, using an inside micrometer accurate to 0.02 mm (± 0.001 in.) or a telescoping pin gage in conjunction with an outside micrometer accurate to 0.02 mm (± 0.001 in.). Determine the average inside diameters at the entrance and the bottom of the socket by taking sufficient readings to determine the minimum and maximum at each position. Calculate the average inside diameter at each position by taking the mean of the minimum and maximum values.

6.7.2 **Wall Thickness**—Measure the wall thickness in accordance with Section 4 of Method D 2122. Make sufficient readings, a minimum of six, to ensure that the minimum thickness has been determined. Use a cylindrical anvil tubing micrometer accurate to ± 0.02 mm (± 0.001 in.).

6.7.3 **Socket Depth**—Measure the socket depth using a steel rule with at least 1-mm ($\frac{1}{16}$ -in.) graduations. Make sufficient readings to ensure that the minimum depth has been determined.

6.8 **Flattening**—Flatten three specimens of pipe, 6 in. long, between parallel plates in a suitable press, until the distance between the plates is 80 percent of the original outside diameter of the pipe. The rate of loading shall be uniform and such that the compression is completed within 2 to 5 min. Remove the load and examine the specimens for evidence



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of splitting, cracking, or breaking. Reversal of curvature of the surface in contact with the parallel plate before 20 percent deflection is reached shall also be deemed failure.

NOTE 6—This test may be run in conjunction with 6.10.

6.9 Impact Strength—Determine the impact strength of pipe and fittings in accordance with ASTM Method D 2444, Test for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)³. Tup B at 4.5-kg (10-lb) weight shall be used, and dropped on the specimen from the selected height equivalent to the minimum impact requirements given in Table 4 for that size pipe or fitting. Test six specimens. If two or more specimens fail to meet the requirements, the pipe or fitting fails to pass this requirement. Test couplings and other in-line fittings assembled to pipe.

6.10 Pipe Stiffness—Determine the pipe stiffness at 5 percent deflection in accordance with ASTM Method D 2412, Test for External Loading Properties of Plastic Pipe by Parallel Plate Loading.³

6.11 Dimensional Stability—Cut two $6 \pm \frac{1}{8}$ -in. long test specimens cleanly from the pipe. Mark and measure a diameter on the inside on the nearest 0.02 mm (0.001 in.). Place the specimens on a flat rigid base with the measured diameter in a vertical position, and place the assembly in a circulating air

oven. Load the pair of test specimens symmetrically as shown in Fig. 1 to produce the total load for the indicated diameter as shown in Table 6. Turn on the heat in the oven and raise the temperature to 50 ± 3 C (122 ± 5.4 F). Hold the temperature there for 48 ± 1 h. Remove the load from the specimens and then remove the specimens from the oven. After cooling for 1 h, remeasure the inside diameters and calculate the average change in percent of the initial diameter.

6.12 Joint Tightness—Test solvent cemented joints prepared with cements and by procedures in accordance with manufacturer's recommendations and allowed to stand 24 h at room temperature. Then subject the specimen to an internal pressure of 0.17 MN/m² (25 psi) for 24 h with water as the medium. The joints shall show no leakage.

7. Marking

7.1 Marking—Each length of pipe and each fitting shall be marked with the nominal size, the manufacturer's name or trademark, or other symbol clearly identifying the manufacturer, the symbol SR for styrene-rubber plastic, and this specification number. Marking on pipe shall be spaced at intervals of not less than 2 ft. Alternatively, fittings may be marked with three dots in a triangular spacing instead of the specification number.

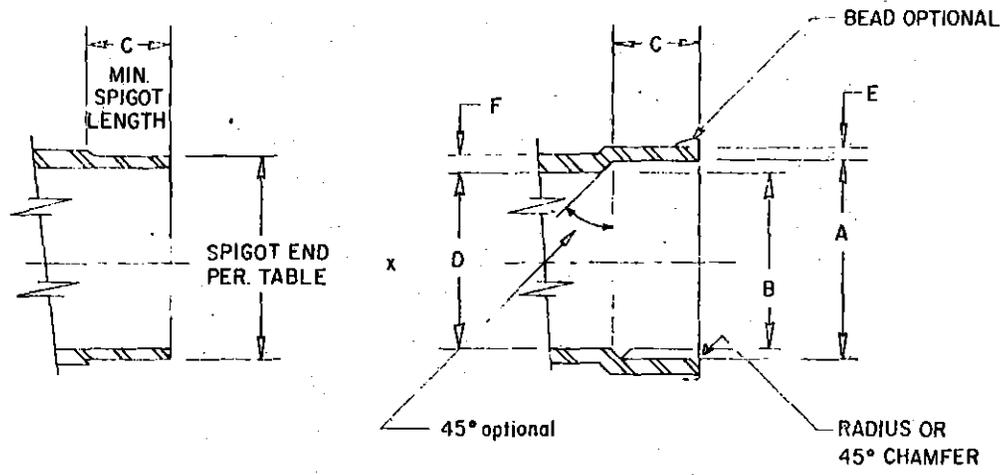
TABLE 1 Dimensions and Tolerances for SR Plastic Drain and Building Sewer Pipe, in.

| Nominal Size | Average Outside Diameter | Permissible Deviations of the Diameter from Measured Average (Out-of-roundness) | Minimum Average Inside Diameter | Minimum Wall Thickness |
|--------------|--------------------------|---|---------------------------------|------------------------|
| 2 | 2.250 \pm 0.006 | \pm 0.030 | 2.000 | 0.073 |
| 3 | 3.250 \pm 0.008 | \pm 0.040 | 2.875 | 0.100 |
| 4 | 4.215 \pm 0.009 | \pm 0.050 | 3.875 | 0.125 |
| 5 | 5.300 \pm 0.010 | \pm 0.060 | 4.875 | 0.150 |
| 6 | 6.275 \pm 0.011 | \pm 0.070 | 5.875 | 0.180 |

APPENDIX D (5)

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TABLE 2 Fitting Dimensions and Tolerances, in.

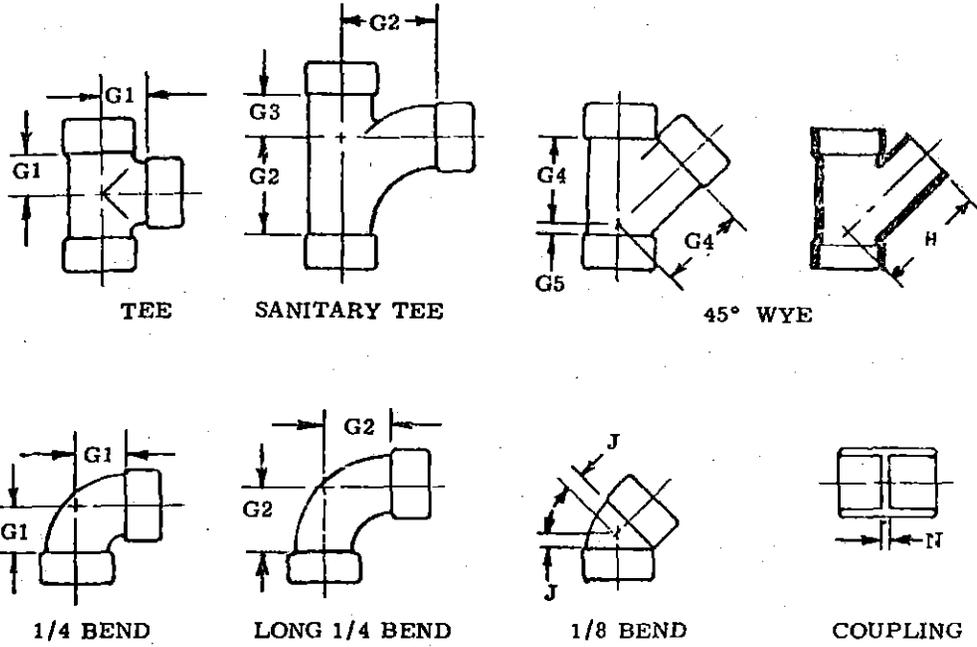


| Nominal Size | A | B | C min | D min | E and F min |
|--------------|--------------------------|--------------------------|-------|-------|-------------|
| 2 | 2.264 + 0.006 - 0.006 | 2.245 + 0.006 - 0.006 | 3/4 | 2 | 0.073 |
| 3 | 3.271 + 0.008 - 0.008 | 3.245 + 0.008 - 0.008 | 1 1/2 | 2 3/8 | 0.100 |
| 4 | 4.235 + 0.009 - 0.009 | 4.210 + 0.009 - 0.009 | 1 3/4 | 3 3/8 | 0.125 |
| 5 | 5.330 + 0.010 - 0.010 | 5.295 + 0.010 - 0.010 | 2 | 4 3/8 | 0.150 |
| 6 | 6.305 + 0.011 - 0.011 | 6.270 + 0.011 - 0.011 | 2 1/2 | 5 3/8 | 0.180 |

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TABLE 3 Fitting Minimum Laying Length Dimensions, in.

NOTE—All dimensions are in inches. The negative tolerance on these dimensions is zero.



| Size | G1 | G2 | G3 | G4 | G5 | H | J | N |
|------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|
| 2 | 1 ⁵ / ₂ | 1 ³ / ₄ | 1 ⁵ / ₁₆ | 2 ³ / ₄ | 1 ¹ / ₂ | 3 ³ / ₈ | 9 ¹ / ₁₆ | 3 ³ / ₂ |
| 3 | 1 ² / ₃ | 2 ⁷ / ₈ | 1 ³ / ₈ | 3 ¹ / ₄ | 9 ¹ / ₁₆ | 6 | 1 ¹ / ₁₆ | 1 ¹ / ₈ |
| 4 | 2 ⁵ / ₂ | 3 ¹ / ₁₆ | 1 ³ / ₄ | 5 | 1 ⁵ / ₁₆ | 7 ⁷ / ₁₆ | 7 ¹ / ₈ | 1 ¹ / ₈ |
| 5 | 2 ¹ / ₁₆ | — | — | — | — | — | — | 1 ¹ / ₈ |
| 6 | 3 ³ / ₁₆ | — | — | 7 ³ / ₈ | 1 ⁵ / ₁₆ | — | 1 ³ / ₈ | 1 ¹ / ₈ |

TABLE 4 Minimum Impact Strength Requirements of Pipe and Fittings at 23 C (73.4 F)

| Nominal Size, in. | Minimum Impact | |
|-------------------|----------------|------|
| | ft·lb | m·kg |
| 2 | 10 | 1.4 |
| 3 | 10 | 1.4 |
| 4 | 15 | 2.1 |
| 5 | 15 | 2.1 |
| 6 | 15 | 2.1 |

TABLE 5 Minimum Pipe Stiffness for Pipe

| Nominal Size, in. | Minimum Pipe Stiffness at 5 Percent Deflection | |
|-------------------|--|------|
| | Original and Water Immersion Specimens | |
| | lb/in. ³ | MPa |
| 2 | 50 | 0.35 |
| 3 | 42 | 0.29 |
| 4 | 38 | 0.26 |
| 5 | 37 | 0.26 |
| 6 | 34 | 0.23 |

TABLE 6 Loads for Dimensional Stability Test

| Nominal Size, in. | Total Load | |
|-------------------|------------|------|
| | lb | kg |
| 2 | 55 | 25 |
| 3 | 55 | 25 |
| 4 | 55 | 25 |
| 5 | 65 | 29.5 |
| 6 | 65 | 29.5 |

APPENDIX D (7)

ASTM D 2852

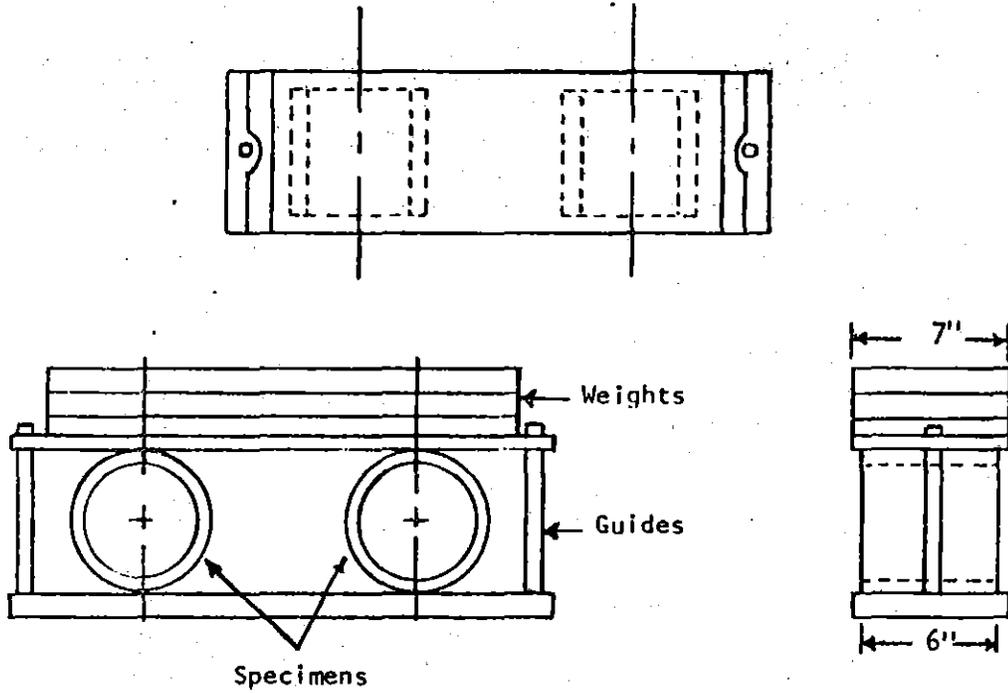


FIG. 1 Apparatus for Dimensional Stability Test.

By publication of this standard no position is taken with respect to the validity of any patent rights in connection therewith, and the American Society for Testing and Materials does not undertake to insure anyone utilizing the standard against liability for infringement of any Letters Patent nor assume any such liability.

(CMA 228-61

**Styrene-Rubber Plastic Drain and
Sewer Pipe and Fittings**

A recognized
voluntary standard of the
trade published by
the U.S. Department
of Commerce



For sale by the Superintendent of Documents
U.S. Government Printing Office, Washington 25, D.C. Price 10 cents

U.S. DEPARTMENT OF COMMERCE
BUSINESS AND DEFENSE SERVICES ADMINISTRATION
OFFICE OF TECHNICAL SERVICES
Commodity Standards Division

With the cooperation of the
National Bureau of Standards

EFFECTIVE DATE

Having been passed through the regular procedures of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this Commercial Standard is issued by the U.S. Department of Commerce, effective May 15, 1961.

LUTHER H. HODGES, *Secretary.*

COMMERCIAL STANDARDS

Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Technical Services, Business and Defense Services Administration, and with the National Bureau of Standards. Their purpose is to establish quality criteria, standard methods of test, rating, certification, and labeling of manufactured commodities, and to provide uniform bases for fair competition.

The adoption and use of a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

Commercial Standards originate with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The division by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the division assures continuous servicing of each Commercial Standard through review and revision whenever, in the opinion of the industry, changing conditions warrant such action.

SIMPLIFIED PRACTICE RECOMMENDATIONS

Under a similar procedure the Commodity Standards Division cooperates with industries in the establishment of Simplified Practice Recommendations. Their purpose is to eliminate avoidable waste through the establishment of standards of practice for sizes, dimensions, varieties, or other characteristics of specific products; to simplify packaging practices; and to establish simplified methods of performing specific

Styrene-Rubber Plastic Drain and Sewer Pipe and Fittings

(Effective May 15, 1961)

1. PURPOSE

1.1 The purpose of this Commercial Standard is to provide a nationally recognized specification for the guidance of producers, distributors, testing laboratories, and users of styrene-rubber plastic drain and sewer pipe and fittings; and to maintain public confidence in the quality of the products of this industry.

2. SCOPE

2.1 This Commercial Standard covers requirements and methods of test for materials, dimensions, workmanship, chemical resistance, crushing strength, water resistance, dimensional stability, and joint tightness of styrene-rubber plastic pipe and fittings. A form of marking to indicate compliance with this standard is also included.

3. TERMINOLOGY

3.1 The plastics terminology used in this Commercial Standard is in accordance with the definitions given in Tentative Definitions of Terms Relating to Plastics (ASTM Designation: D863-59T), unless otherwise indicated.

4. USES

4.1 The requirements of this standard are intended to provide pipe and fittings suitable for non-pressure drainage of sewage and certain other liquid wastes, where toughness, resistance to deterioration from water and chemicals, dimensional stability, resistance to aging, and strong tight joints are required. The plastic drain and sewer pipe and fittings described in this standard are intended for use in the following applications:

1. Building sewers and underground building drains in dwellings of four families or less.
2. Storm drainage.
3. House connections to septic tanks.
4. Leaching-system piping for septic-tank effluents.
5. Footing drains (foundation drains).
6. Sanitary sewers and storm sewers.

Industrial waste disposal lines should be installed only with the specific approval of the cognizant building code authority, since chemicals not commonly found in drains and sewers and temperatures in excess of 180° F. may be encountered.

5. REQUIREMENTS

5.1 Materials.—The pipe and fittings shall be made of styrene-rubber plastic. This plastic may contain stabilizers, lubricants, dyes, pigments, and fillers. Test specimens molded from the extrusion compound or from pieces of finished pipe and fittings shall have the following properties:

5.1.1 Deflection temperature.—The average deflection temperature shall be not less than 65° C. (149° F.) when tested in accordance with paragraph 7.3.

5.1.2 Impact resistance.—The average Izod impact strength shall be not less than 0.80 ft-lb/in of notch when tested in accordance with paragraph 7.4.

5.1.3 Tensile properties.—The average tensile strength and elongation at rupture shall be not less than 3,000 p.s.i. and 15 percent, respectively, when tested in accordance with paragraph 7.5.

5.2 Dimensions.

5.2.1 Pipe diameters.—The outside diameter of the pipe shall be within the tolerances given in table 1 when measured in accordance with paragraph 7.6. The inside diameter of the pipe shall meet the requirement given in table 1.

TABLE 1.—Pipe diameters and tolerances

| Nominal size | Outside diameter | Minimum inside diameter | Minimum wall thickness ¹ |
|---------------|------------------------|-------------------------|-------------------------------------|
| <i>Inches</i> | <i>Inches</i> | <i>Inches</i> | <i>Inches</i> |
| 2..... | 2.250+ .010 — .000 | 2.030 | 0.073 |
| 3..... | 3.250+ .015 — .003 | 2.875 | .100 |
| 4..... | 4.215+ .016 — .007 | 3.875 | .125 |
| 5..... | 5.300+ .020 — .007 | 4.875 | .150 |
| 6..... | 6.275+ .020 — .007 | 5.875 | .180 |
| 8..... | 8.400+ .020 — .010 | 7.750 | .200 |
| 10..... | 10.500+ .035 — .012 | 9.750 | .225 |
| 12..... | 12.500+ .040 — .015 | 11.750 | .300 |

¹ These minimum wall thickness requirements do not apply to perforated drain pipe.

5.2.2 Pipe length.—The pipe shall be in 10-foot $\pm \frac{1}{4}$ inch lengths unless otherwise specified.

5.2.3 Fitting dimensions.—The dimensions of fittings shall meet the requirements given in table 2 when measured in accordance with paragraph 7.6.

5.3 Workmanship.—The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. The pipe shall be as uniform as commercially practicable in color, opacity, density, and other physical properties.

5.4 Crushing strength.—The minimum crushing strength of pipe and fittings in sizes 2" to 6" nominal diameter shall be 1000 lb. per lineal foot, and the minimum crushing strength for sizes 8", 10", and

12" nominal diameter shall be 1200 lb. per lineal foot when tested in accordance with paragraph 7.7.

5.5 *Chemical resistance.*—The pipe and fittings shall not increase in weight more than 0.50 percent or change in crushing strength more than ± 15 percent when tested in accordance with paragraph 7.8.

TABLE 2.—Fitting dimensions and tolerances

| Nominal size | Dimensions | | | | |
|---------------|----------------|----------------|----------------|----------------|----------------|
| | A | | B | | O |
| | Maximum inches | Minimum inches | Maximum inches | Minimum inches | Minimum inches |
| <i>Inches</i> | | | | | |
| 2..... | 2.267 | 2.257 | 2.250 | 2.240 | $\frac{3}{16}$ |
| 3..... | 3.273 | 3.263 | 3.250 | 3.240 | $\frac{1}{8}$ |
| 4..... | 4.280 | 4.220 | 4.220 | 4.210 | $\frac{1}{4}$ |
| 5..... | 5.315 | 5.305 | 5.305 | 5.295 | $\frac{3}{8}$ |
| 6..... | 6.250 | 6.250 | 6.250 | 6.250 | $\frac{1}{2}$ |
| 8..... | 8.430 | 8.420 | 8.410 | 8.400 | $\frac{3}{4}$ |
| 10..... | 10.535 | 10.525 | 10.510 | 10.500 | $\frac{7}{8}$ |
| 12..... | 12.640 | 12.630 | 12.610 | 12.600 | 1 |

5.6 *Water resistance.*

5.6.1 *Water absorption.*—The pipe and fittings shall not increase in weight more than 0.60 percent when tested in accordance with paragraph 7.9.1.

5.6.2 *Wet strength.*—The minimum crushing strength of wet specimens of pipe and fittings shall be within ± 5 percent of the actual crushing strength of dry specimens when tested in accordance with paragraph 7.9.2.

5.7 *Dimensional stability.*—The average decrease in inside diameter of pipe and fittings shall not exceed 10 percent when tested in accordance with paragraph 7.10.

5.8 *Joint tightness.*—Joints made with pipe and fittings shall not leak when tested at an internal pressure of 25 p.s.i. in accordance with paragraph 7.11.

6. SAMPLING AND RETEST

6.1 *Sampling.*—A sample of the pipe and fittings sufficient to determine conformance with this standard shall be taken at random from each lot or shipment. About 40 feet of pipe are required to make the tests prescribed. The number of fittings required varies depending on the size and type of fitting.

6.2 *Retest.*—If the results of any test do not conform to the requirements prescribed in this standard, that test shall be repeated on two additional sets of specimens from the same lot or shipment, each of which shall conform to the requirements specified. If either of these two additional sets of specimens fails, the material does not comply with this Commercial Standard.

7. METHODS OF TEST

7.1 *Conditioning Test Specimens.*—The specimens shall be conditioned prior to test at $23 \pm 2^\circ$ C. ($73.4 \pm 3.6^\circ$ F.) and 50 ± 5 percent

relative humidity for not less than 48 hours in accordance with Procedure A in Standard Method of Conditioning Plastics and Electrical Insulating Materials for Testing (ASTM Designation: D618-59) for those tests where conditioning is required and in all cases of disagreement.

7.2 Test Conditions.—Tests shall be conducted in a laboratory atmosphere of $23 \pm 2^\circ \text{C}$. ($73.4 \pm 3.6^\circ \text{F}$.) and 50 ± 5 percent relative humidity, unless otherwise specified.

7.3 Deflection Temperature.—The deflection temperature shall be determined in accordance with Standard Method of Test for Deflection Temperature of Plastics under Load (ASTM Designation: D618-56). Two test specimens shall be injection molded under conditions specified by the manufacturer and shall be $\frac{1}{2}$ by $\frac{1}{2}$ by 5 inches. The test shall be made only at stress of 264 p.s.i. The immersion medium shall be water. The heating rate shall be $2 \pm 0.2^\circ \text{C}$. per minute.

7.4 Impact Resistance.—The Izod impact strength shall be determined in accordance with Method A in Standard Methods of Test for Impact Resistance of Plastics and Electrical Insulating Materials (ASTM Designation: D256-56). Ten test specimens $\frac{1}{2}$ by $\frac{1}{2}$ by $2\frac{1}{2}$ inches shall be injection molded under conditions specified by the manufacturer except that the notch shall be produced by a machining operation using a single-tooth milling cutter.

7.5 Tensile Properties.—The tensile strength and elongation at rupture shall be determined in accordance with Method of Test for Tensile Properties of Plastics (ASTM Designation: D638-58T). Five Type 1 test specimens approximately $\frac{1}{8}$ -inch thick shall be injection molded under conditions specified by the manufacturer. The speed of testing shall be 0.20 to 0.25 inch per minute.

7.6 Dimensions.—Dimensions shall be measured on five cleanly cut specimens of pipe and fittings with micrometers accurate to 0.001 inch. For materials that are sufficiently flexible, a tapered plug may be used to measure the diameter provided that the diameter is not expanded by inserting the plug into the pipe or fittings. The pipe length shall be measured with a steel tape accurate to plus or minus $\frac{1}{32}$ " in 10 feet.

7.7 Crushing Strength.—The crushing strength shall be measured by the sand bearing method described in Standard Specifications for Drain Tile (ASTM Designation: C4-55). Five specimens, each sufficient in length to test an area at least 1-foot along the axis of the pipe, shall be tested. Each specimen shall meet the requirement in paragraph 5.4. When the design of a fitting does not permit the selection of a length sufficient for a test area 1-foot long, sections from several fittings may be used to obtain a composite specimen with the required length. Fittings having non-uniform diameters, such as reducers, shall be considered acceptable when the wall thicknesses at all points are equal to or greater than the wall thickness of pipes of the same diameters and of the same plastic compound that have been found to meet the crushing strength requirements for those diameters.

7.8 Chemical Resistance.—The resistance to the following chemicals shall be determined in accordance with Tentative Method of Test

for Resistance of Plastics to Chemical Reagents (ASTM Designation: D543-56T).

| Chemicals | Concentration in Water Solution |
|---------------------|---------------------------------|
| Sodium carbonate | 0.1N. |
| Sodium sulfate | 0.1N. |
| Sodium chloride | 5 percent. |
| Sulfuric acid | 0.1N. |
| Hydrochloric acid | 0.2N. |
| Acetic acid | 5 percent. |
| Sodium hydroxide | 0.2N. |
| Ivory soap | 5 percent. |
| Household detergent | 5 percent. |
| Raw sewage | |

ALL

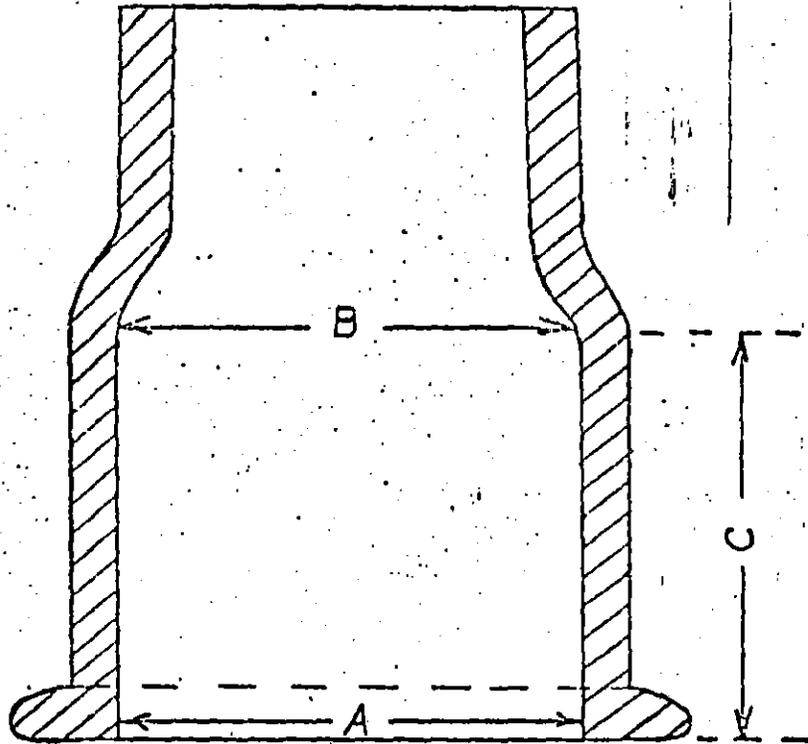


FIGURE 1. Fitting dimensions.

The test specimens shall be one foot long and cleanly cut. Three specimens shall be tested with each reagent. The specimen shall be weighed to the nearest 0.1 gram and completely immersed in the chemicals. The immersion period shall be 72 hours. On removal from the chemicals, the specimens shall be washed with running water, wiped with a clean, dry cloth, conditioned for 2 hours, -0 +15 minutes, and reweighed. The increase in weight shall be calculated to the nearest 0.01 percent on the basis of the initial weight. The specimen shall then be tested to determine the crushing strength in accordance with paragraph 7.7 within 30 minutes after weighing. The results obtained in both the weight and strength tests for each specimen shall meet the requirements.

7.9 Water Resistance.

7.9.1 Water absorption.—Three cleanly cut test specimens at least 4-inches long of pipe or three complete fittings shall be weighed to the nearest 0.1 gram and immersed in water at $23 \pm 2^\circ \text{C}$. ($73.4 \pm 3.6^\circ \text{F}$.) for 48 hours. The specimens shall be removed, wiped dry with a clean, dry cloth, and reweighed immediately. The average percent gain in weight shall be calculated to the nearest 0.01 percent on the basis of the initial weight.

7.9.2 Wet strength.—The specimens used to make the water absorption tests shall be tested in accordance with paragraph 7.7 within 30 minutes after removal from the water. The crushing strength of each specimen shall meet the requirement.

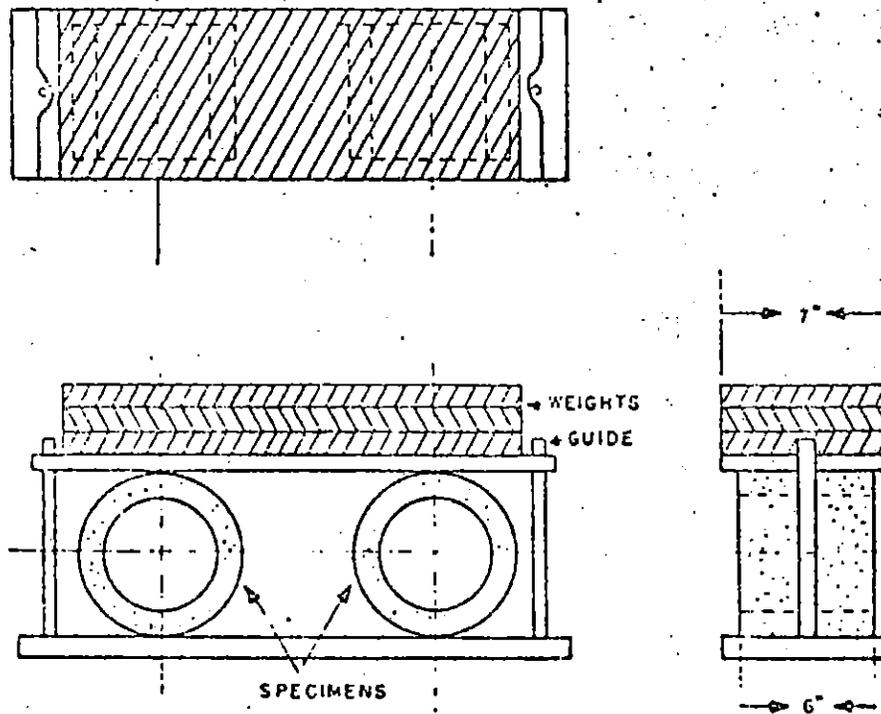


FIGURE 2. Apparatus for dimensional stability test.

7.10 Dimensional Stability.—The 6-inch long test specimens shall be cleanly cut from the pipe. A diameter shall be marked and measured on the inside to the nearest 0.001 inch. The specimens shall be placed on a flat rigid base with the measured diameter in a vertical position and the assembly placed in a circulating air oven. The pair of test specimens shall be loaded symmetrically as shown in figure 2 to produce the total load for the indicated diameter as shown in table 3.

The heat shall then be turned on in the oven and the temperature raised to $50 \pm 3^\circ \text{C}$. ($122 \pm 5.4^\circ \text{F}$.) and held there for 48 ± 1 hours. The load shall then be removed from the specimens and the specimens removed from the oven. After cooling for 1 hour, the inside diameters shall be remeasured and the average change in percent of the initial diameter shall be calculated.

TABLE 3.—Loads for dimensional stability test

| Nominal size, inch | 2 | 3 | 4 | 5 | 6 |
|--------------------|----|----|----|----|----|
| Total load, lb. | 55 | 55 | 55 | 65 | 65 |

7.11 *Joint Tightness.*—Two pieces of pipe shall be joined together with a fitting by solvent welding or other method recommended by the manufacturer and allowed to stand for 24 hours at room temperature. The specimen shall then be subjected to an internal pressure of 25 p.s.i., with water as the medium, for 24 hours. The pipe and the joints shall show no leakage.

AMERICAN SOCIETY FOR TESTING AND MATERIALS

1916 Race St., Philadelphia 3, Pa.

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Standard Specification for
CONCRETE DRAIN TILE¹

ASTM Designation: C 412 - 65

ADOPTED, 1960; LAST REVISED, 1965.

This Standard of the American Society for Testing and Materials is issued under the fixed designation C 412; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. This specification covers nonreinforced concrete drain tile with internal diameters from 4 to 24 in.

Classes

2. Drain tile manufactured according to this specification shall be of the following three classes:

(a) *Standard-Quality Concrete Drain Tile*, intended for land drainage of ordinary soils where the tile are laid in trenches of moderate depths and widths. Standard-quality concrete drain tile are not recommended for use where internal diameters in excess of 12 in. are required.

(b) *Extra-Quality Concrete Drain Tile*, intended for land drainage of ordinary soils where the tile are laid in trenches of considerable depths or widths, or both.

(c) *Special-Quality Concrete Drain Tile*, intended for land drainage where

¹ Under the standardization procedure of the Society, this specification is under the jurisdiction of the ASTM Committee C-13 on Concrete Pipe.

special precautions are necessary for concrete tile laid in soils that are markedly acid or contain unusual quantities of sulfates (see Section 9), and where the tile are laid in trenches of considerable depths or widths, or both (Note 1).

NOTE 1.—Where the calculated loads are in excess of the crushing strengths prescribed in Table III, tile strengths must be specified in advance by the purchaser.

Basis of Purchase

3. The purchaser shall specify in writing the class or classes of concrete tile to be supplied, whether Standard-Quality, Extra-Quality or Special-Quality. Unless Extra-Quality or Special-Quality concrete drain tile have been stipulated, Standard-Quality drain tile shall be accepted.

Basis of Acceptance

4. The acceptability of drain tile shall be determined by (1) the results of the physical tests as specified in Section 19 and in the Methods of Test for Determining Physical Properties of Concrete

SPECIFICATION FOR CONCRETE DRAIN TILE (C 412)

Pipe or Tile (ASTM Designation: C 497),² (2) measurements and inspection to ascertain whether the tile conform to the requirements regarding dimensions, shape, and freedom from visible defects, and (3) the manufacturer's certification in writing that the tile have been made in accordance with any special provisions, such as strength, absorption, permeability, type of cement, admixture, curing conditions, etc.

MATERIALS

Concrete

5. The concrete shall consist of portland cement, mineral aggregates and water, and may include admixtures and blends as described in Section 8.

Cement

6. Portland cement for concrete drain tile shall conform to the requirements of the Specifications for Portland Cement (ASTM Designation: C 150),³ or shall be air-entraining portland cement conforming to the requirements of the Specifications for Air-Entraining Portland Cement (ASTM Designation: C 175),³ or shall be portland blast-furnace slag cement conforming to the requirements of the Specifications for Portland Blast-Furnace Slag Cement (ASTM Designation: C 205).³

Aggregates

7. The aggregates for concrete drain tile shall conform to the Specifications for Concrete Aggregates (ASTM Designation: C 33),³ except that the grading requirements for aggregates are waived when the tile meet all the other requirements of this specification.

Admixtures and Blends

8. Admixtures or blends that have been proven to impart desirable proper-

ties to concrete drain tile may be used with the approval of the purchaser.

CHEMICAL REQUIREMENTS

Acid and Sulfate Resistance

9. (a) The purchaser may specify special requirements in order to increase the durability of the drain tile in cases where the soils, soil water, or drainage waters are markedly acid (Note 2) or contain unusual quantities of soil sulfates (Note 3). Without a specific agreement in advance, no drain tile shall be rejected by reason of its composition as determined later by chemical analyses.

NOTE 2.—Soils or drainage waters with a pH of 6.0 or lower may be considered to be markedly acid.

NOTE 3.—Where the sulfates are chiefly sodium or magnesium, singly or in combination, unusual quantities of these sulfates may be assumed to be 3000 ppm (0.30 per cent) for soil or soil water.

(b) Concrete drain tile that will be installed in markedly acid soils shall meet the physical test requirements given in Table III for Special-Quality concrete drain tile. Tile that will be exposed to unusual quantities of soil sulfates shall meet the physical test requirements given in Table III and shall be made with sulfate-resistant cements.

(c) Type V portland cement shall be used where high-sulfate resistance is required, and types II and IIA portland cement shall be used for general concrete construction exposed to moderate sulfate conditions. If mutually agreed by the manufacturer and the purchaser, other cements, as described in Section 6, that have been proven to be sulfate resistant may be used.

PHYSICAL TEST REQUIREMENTS

Physical Tests

10. The physical properties of concrete drain tile shall conform to the requirements specified in Table I, or, when

² Appears in this publication.

³ 1965 Book of ASTM Standards, Part 10.

SPECIFICATION FOR CONCRETE DRAIN TILE (C 412)

specified by the purchaser in advance, they shall conform to the requirements given in Tables II and III.

(a) For Standard-Quality concrete drain tile, the three-edge bearing crushing strength as shown in Table I, Column A, or the three-edge bearing crushing strength and the 5-hr boiling absorption as shown in Table I, Column B, shall meet the requirements given in Table I.

TABLE I.—PHYSICAL TEST REQUIREMENTS FOR STANDARD-QUALITY CONCRETE DRAIN TILE.

| Nominal Inside Diameter, in. | Standard-Quality Concrete Drain Tile | | | | |
|------------------------------|---|--|---------------------------|---------------------------------------|----|
| | Three-Edge-Bearing Crushing Strength ^a | | | Absorption, boiled 5 hr | |
| | Minimum Average, lb per lin ft | Minimum for Individual Tile, lb per lin ft | Maximum Average, per cent | Maximum for Individual Tile, per cent | |
| | A | B | A and B | B | B |
| 4 | 900 | 800 | 700 | 10 | 11 |
| 5 | 900 | 800 | 700 | 10 | 11 |
| 6 | 900 | 800 | 700 | 10 | 11 |
| 8 | 900 | 800 | 700 | 10 | 11 |
| 10 | 900 | 800 | 700 | 10 | 11 |
| 12 ^b | 900 | 800 | 700 | 10 | 11 |

^a Drain tile meeting the above strength requirements are not necessarily safe against cracking in deep and wide trenches.

^b Tile with nominal diameters greater than 12 in. should meet the requirements specified in Table II for Extra-Quality or in Table III for Special-Quality concrete drain tile.

No absorption tests are required if the strength requirements of Table I, Column A, are met.

(b) For Extra-Quality concrete drain tile, the three-edge-bearing crushing strength and the 5-hr boiling absorption shall meet the requirements given in Table II.

(c) For Special-Quality concrete drain tile the requirements shall be as follows:

(1) The three-edge-bearing crushing strength shall meet the requirements given in Table III, or the higher specified load.

(2) The 5-hr boiling absorption shall meet the requirements given in Table III.

(3) The 10-min, room-temperature soaking absorption shall meet the requirements given in Table III.

(4) The hydrostatic test shall be

TABLE II.—PHYSICAL TEST REQUIREMENTS FOR EXTRA-QUALITY CONCRETE DRAIN TILE.

| Nominal Inside Diameter, in. | Extra-Quality Concrete Drain Tile | | | | |
|------------------------------|-----------------------------------|---|--|---------------------------|---------------------------------------|
| | Nominal Wall Thickness, in. | Three-Edge-Bearing Crushing Strength ^a | | Absorption, boiled 5 hr | |
| | | Minimum Average, lb per lin ft | Minimum for Individual Tile, lb per lin ft | Maximum Average, per cent | Maximum for Individual Tile, per cent |
| 4 | 1 1/2 | 1100 | 990 | 9 | 10 |
| 5 | 1 1/4 | 1100 | 990 | 9 | 10 |
| 6 | 5/8 | 1100 | 990 | 9 | 10 |
| 8 | 3/4 | 1100 | 990 | 9 | 10 |
| 10 | 7/8 | 1100 | 990 | 9 | 10 |
| 12 | 1 | 1100 | 990 | 9 | 10 |
| 14 | 1 1/8 | 1100 | 990 | 9 | 10 |
| 16 | 1 1/4 | 1100 | 990 | 9 | 10 |
| 18 | 1 3/8 | 1100 | 990 | 9 | 10 |
| 20 | 1 1/2 | 1200 | 1030 | 9 | 10 |
| 21 | 1 5/8 | 1300 | 1170 | 9 | 10 |
| 24 | 1 3/4 | 1400 | 1260 | 9 | 10 |
| | 2 | 1600 | 1440 | 9 | 10 |

^a For loads in excess of the supporting strengths shown in the above table, tile may be supplied using designs involving the increase of wall thickness or the use of higher strength concrete.

made, when demanded, in lieu of the 10-min room temperature soaking absorption tests. The leakage shall not exceed 1 liter in 10 min per ft of length of tile for all diameter sizes.

(5) For sulfate exposures, sulfate-resistant cement shall be specified (see Section 9).

Selection of Tile for Tests

11. The drain tile to be tested shall be selected at random by the purchaser or his representative at the point or points

SPECIFICATION FOR CONCRETE DRAIN TILE (C 412)

specified in the order. If agreeable to the purchaser, the tile may be inspected and tested in advance of shipment. Any additional expense for making tests and inspection in advance of shipment shall be paid by the manufacturer or other seller.

tests, the number of tile shall be ten for each standard physical test. In the event of failure of the tile after retest, the tile shall be rejected without further test. The manufacturer, or other seller, shall pay all cost for any retest demanded and made.

Number and Cost of Tile for Tests

12. Each standard physical test shall be made on five individual tile of each size. The manufacturer, or other seller, shall furnish tile without separate charge

SHAPES, SIZES, AND PERMISSIBLE VARIATIONS

Shape

14. All drain tile shall be circular in

TABLE III.—PHYSICAL TEST REQUIREMENTS FOR SPECIAL-QUALITY CONCRETE DRAIN TILE.

| Special-Quality Concrete Drain Tile (For tile exposed to corrosive waters) | | | | | | |
|---|-----------------------------|--|---------------------------|---------------------------------------|-----------------------------------|--|
| Nominal Inside Diameter, in. | Minimum Wall Thickness, in. | Minimum Individual Three-Edge-Bearing Crushing Strength,* lb per sq ft | Absorption | | | Sulfate Exposures |
| | | | Boiled 5 hr | | Soaked 10 min at Room Temperature | |
| | | | Maximum Average, per cent | Maximum for Individual Tile, per cent | | |
| 4..... | 3/8 | 1100 | 8 | 9 | 3 | For sulfate exposures, sulfate-resistant cement should be specified (see Section 9). |
| 5..... | 9/16 | 1100 | 8 | 9 | 3 | |
| 6..... | 5/8 | 1100 | 8 | 9 | 3 | |
| 8..... | 3/4 | 1100 | 8 | 9 | 3 | |
| 10..... | 7/8 | 1100 | 8 | 9 | 3 | |
| 12..... | 1 | 1100 | 8 | 9 | 3 | |
| 14..... | 1 1/8 | 1100 | 8 | 9 | 3 | |
| 15..... | 1 1/4 | 1100 | 8 | 9 | 3 | |
| 16..... | 1 3/8 | 1100 | 8 | 9 | 3 | |
| 18..... | 1 1/2 | 1200 | 8 | 9 | 3 | |
| 20..... | 1 5/8 | 1300 | 8 | 9 | 3 | |
| 21..... | 1 3/4 | 1400 | 8 | 9 | 3 | |
| 24..... | 2 | 1600 | 8 | 9 | 3 | |

* For loads in excess of the support strengths shown in the above table, tile may be supplied using designs involving the increase of wall thickness or the use of higher strength concrete.

up to 0.5 per cent of each size. The purchaser shall pay for all tile in excess of 0.5 per cent at the same price as paid for other tile of the same size and quality.

Retests

13. Should the tile first selected fail to conform to the test requirements, the seller may, at his expense, cull the tile and have other tile selected for retest from the remaining stock. For such re-

cross-section, except when otherwise specified in advance. They shall be approximately straight, except in the case of special connections. The ends of butt-end tile shall be so regular and smooth as to readily admit the making of satisfactory close joints. Other than butt-end tile may be furnished when mutually agreed between the manufacturer, or other seller, and the purchaser.

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Nominal Dimensions and Permissible Variations

15. Permissible variations of the nominal dimensions of diameter, length, and wall thickness, are as follows:

(a) Minimum internal diameters shall not be less than the nominal diameters by more than $\frac{1}{4}$ in. for 4- and 5-in. tile, $\frac{3}{8}$ in. for 6- and 8-in. tile, $\frac{1}{2}$ in. for 10- to 14-in. tile, $\frac{5}{8}$ for 15- to 18-in. tile, and $\frac{3}{4}$ in. for sizes of 20- to 24-in. tile.

(b) The nominal length of drain tile smaller than 12-in. diameter shall be not less than 12 in. Tile of 12- to 24-in. diameter, inclusive, shall have nominal lengths not less than the diameters. The underrun of individual tile shall not exceed 3 per cent of the nominal length.

(c) No wall thickness is specified for Standard-Quality concrete drain tile where the crushing strength and the absorption tests are used to determine the tile quality. When only the crushing strength is used to determine Standard-Quality tile, then the wall thickness for Standard-Quality tile shall not exceed the nominal shell thickness given in Table II by more than 25 per cent. The wall thickness of Extra-Quality concrete drain tile at any point shall not be less than the full thickness specified in Table II by more than $\frac{1}{16}$ in. for tile having inside diameter of 4, 5, and 6 in., $\frac{3}{32}$ in. for tile having inside diameters of 8 and 10 in., and $\frac{1}{8}$ in. for tile having inside diameters of 12 to 24 in. The minimum thickness of Special-Quality drain tile walls at any point shall be not less than shown in Table III.

INSPECTION**General Properties**

16. All drain tile shall be given a thorough inspection at the agreed delivery point by an inspector approved by the purchaser, unless a satisfactory inspection has been made in advance of delivery as specified in Section 12. The

purpose of the inspection shall be to determine whether the tile, independently of meeting the physical test requirements, conform to the specifications as regards shapes and sizes as prescribed in Sections 14 and 15, and to eliminate defective tile as defined in Section 17. The manufacturer, or other seller, of the drain tile shall afford the inspector all reasonable facilities for his work, both as to the selection of tile for tests and as to inspection of the tile. Inspection shall be completed and reported promptly and full reports of all tests and inspections shall be furnished the manufacturer or other seller on his request.

Defective Tile

17. Drain tile that, when placed in a vertical position, do not give a metallic ring when struck with a light metal hammer, or that are observed to have cracks that extend through the tile wall and are of a length in excess of $\frac{1}{2}$ in. or other defects that may impair the tile strength shall be discarded without further test. Outside surface irregularities that do not affect the tile strength shall not be considered reason for the rejection of the tile.

Rejection

18. The inspector shall plainly designate all drain tile that he rejects, and such rejected tile shall be removed promptly by the manufacturer, or other seller, from any job to which the tile have been delivered.

TEST METHODS*Absorption Tests***Test Specimens**

19. Specimens for the absorption tests shall be selected in accordance with the following provisions:

(a) For tile with nominal inside diameters of 12 in. or less, and nominal lengths of 12 in., the absorption test

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shall be made on one full-length-quarter segment taken from each of the five tile broken in the strength test, constituting a standard sample as defined in Section 12. By quarter segment is meant one of the four pieces into which a tile usually breaks in the strength test. If a tile breaks in such a manner that a satisfactory quarter segment cannot be obtained, then the absorption test may be made of two or more pieces that approximate the area of a quarter tile of that size, selected so that both ends and the center portion of the tile are represented. The average absorption of the pieces so selected shall be considered the absorption for that tile.

(b) For tile with nominal inside diameters or lengths in excess of 12 in., the absorption test shall consist of three pieces, one of the pieces shall be taken from one end of the tile, another piece from the opposite end, and the third piece from near the center. The specimens shall be the full thickness of the tile, broken or cut from the tile broken in the strength test. Each specimen shall have a minimum area of not less than 25 sq in., as measured on one barrel surface. The average absorption of the three pieces shall be considered the absorption for that tile.

(c) All absorption test specimens shall be apparently sound, solid pieces of the tile and shall not show cracks or badly shattered edges.

(d) The average absorption for the Standard-Quality tile and for the Extra-Quality tile shall be the average of the absorption tests for the 5 tile constituting the standard sample as defined in Section 12, or the average of the absorption tests for the strongest and the weakest tile as measured by the crushing strength of the 5 tile of the standard sample. When drain tile fail to meet the absorption test requirement as computed by averaging the absorptions from the weakest and the strongest tile of a standard sample, then the average absorption test shall be computed by averaging the absorption tests from all the five tile from the standard sample. The average absorption for the Special-Quality tile shall be the average of the absorption tests for the 5 tile constituting the standard sample.

Procedure

20. All test shall be made in accordance with the Methods of Test for Determining Physical Properties of Concrete Pipe or Tile (ASTM Designation: C 497).²

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Standard Specifications for
 CLAY DRAIN TILE¹



ASTM Designation: C 4 - 62 (Reapproved 1970)

This Standard of the American Society for Testing and Materials is issued under the fixed designation C 4; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

Scope

1. These specifications cover drain tile made from clay, shale, fire clay, or mixtures thereof, and burned. In these specifications, the term drain tile or tile shall mean tile made only from these materials.

Classes

2. (a) Three classes of drain tile are covered:

- Standard Drain Tile,
- Extra-Quality Drain Tile, and
- Heavy-Duty Drain Tile

(b) Unless otherwise specified by the purchaser, Heavy-Duty or Extra-Quality Drain Tile shall be accepted in lieu of Standard Drain Tile, and Heavy-Duty Drain Tile in lieu of Extra-Quality. Standard Drain Tile may be furnished

¹ Under the standardization procedure of the Society, these specifications are under the jurisdiction of the ASTM Committee C-15 on Manufactured Masonry Units. A list of members may be found in the ASTM Year Book.

Current edition accepted Sept. 28, 1962. Originally issued 1914. Replaces C 4 - 59 T.

and shall be considered as meeting these specifications unless another class is specified by the purchaser.

Physical Requirements

3. (a) Drain tile shall conform to the physical requirements for the class specified as prescribed in Table I.

(b) *Waiver of Absorption Requirements.*—Requirements prescribed in Table I for water absorption (5-hr boiling) shall be waived provided a sample consisting of five drain tile, meeting all other requirements, shows no disintegration or spalling and no loss in dry weight of any individual tile greater than 5 per cent when subjected to the freezing and thawing test, made as prescribed in Sections 16 and 17. The number of cycles of freezing and thawing to which each class of tile shall be subjected are:

| Class | Number of Cycles |
|---------------|------------------|
| Standard | 36 |
| Extra-Quality | 48 |
| Heavy-Duty | 48 |

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If tile meet the requirements of the freezing and thawing test, the average percentage absorption of the specimens used in the test shall be adopted as the maximum allowable average absorption for the contract in question. At least 80 per cent of all tile tested shall meet the requirements prescribed in this Paragraph (b).

cause slaking or disintegration of the tile shall be deemed valid grounds for rejection, unless satisfactory proof is submitted that the tile are durable and permanent.

(b) Drain tile shall be free from cracks, checks, or chips extending into the body of the tile in such a manner as would decrease the strength appreciably. There

TABLE I.—PHYSICAL TEST REQUIREMENTS FOR CLAY DRAIN TILE.

| Internal Diameter of Tile, in. | Standard Drain Tile | | | | Extra-Quality Drain Tile | | | | Heavy-Duty Drain Tile | | | |
|--------------------------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|------------|
| | Minimum Crushing Strength, ^a lb per lin ft | | Maximum Water Absorption by 5-hr Boiling, ^b per cent | | Minimum Crushing Strength, ^a lb per lin ft | | Maximum Water Absorption by 5-hr Boiling, ^b per cent | | Minimum Crushing Strength, ^a lb per lin ft | | Maximum Water Absorption by 5-hr Boiling, ^b per cent | |
| | Average of five Tile | Individual | Average of five Tile | Individual | Average of five Tile | Individual | Average of five Tile | Individual | Average of five Tile | Individual | Average of five Tile | Individual |
| 4..... | 800 | 680 | 13 | 16 | 1100 | 990 | 11 | 13 | 1400 | 1260 | 11 | 13 |
| 5..... | 800 | 680 | 13 | 16 | 1100 | 990 | 11 | 13 | 1400 | 1260 | 11 | 13 |
| 6..... | 800 | 680 | 13 | 16 | 1100 | 990 | 11 | 13 | 1400 | 1260 | 11 | 13 |
| 8..... | 800 | 680 | 13 | 16 | 1100 | 990 | 11 | 13 | 1500 | 1350 | 11 | 13 |
| 10..... | 800 | 680 | 13 | 16 | 1100 | 990 | 11 | 13 | 1550 | 1400 | 11 | 13 |
| 12..... | 800 | 680 | 13 | 16 | 1100 | 990 | 11 | 13 | 1700 | 1530 | 11 | 13 |
| 14..... | 840 | 720 | 13 | 16 | 1100 | 990 | 11 | 13 | 1850 | 1660 | 11 | 13 |
| 15..... | 870 | 740 | 13 | 16 | 1150 | 1030 | 11 | 13 | 1980 | 1780 | 11 | 13 |
| 16..... | ..... | ..... | ..... | ..... | 1200 | 1080 | 11 | 13 | 2100 | 1890 | 11 | 13 |
| 18..... | ..... | ..... | ..... | ..... | 1300 | 1170 | 11 | 13 | 2340 | 2110 | 11 | 13 |
| 21..... | ..... | ..... | ..... | ..... | 1450 | 1300 | 11 | 13 | 2680 | 2410 | 11 | 13 |
| 24..... | ..... | ..... | ..... | ..... | 1600 | 1440 | 11 | 13 | 3000 | 2700 | 11 | 13 |
| 27..... | ..... | ..... | ..... | ..... | 1800 | 1620 | 11 | 13 | 3330 | 3000 | 11 | 13 |
| 30..... | ..... | ..... | ..... | ..... | 2000 | 1800 | 11 | 13 | 3590 | 3230 | 11 | 13 |

^a Strengths of sizes not listed may be interpolated between tabular values of sizes and strengths of the nearest listed diameters.

^b In case tile fails to meet absorption requirements, see Section 3 (b).

Sizes

4. (a) Sizes of drain tile shall be designated by their inside diameters.

(b) Drain tile smaller than 12 in. in diameter shall have a nominal length of not less than approximately 12 in. Tile 12 to 30 in. in diameter, inclusive, shall have nominal lengths not less than their diameters. Tile larger than 30 in. in diameter shall have a nominal length of not less than 30 in.

Materials, Workmanship, and Finish

5. (a) Presence in drain tile of any minerals or chemicals that are known to

shall be no breaks in the tile that would admit earth into the drain.

(c) Drain tile shall be reasonably smooth on the inside and shall be approximately circular in cross-section, except when otherwise specified in advance. They shall be approximately straight, except in the case of special connections. The ends of butt-end tile shall be so regular and smooth as to make possible close joints by turning and pressing together the ends of adjoining tile. Butt-end tile shall be furnished unless otherwise specified by the purchaser.

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(d) Drain tile shall conform to the general physical characteristics prescribed in Table II.

Inspection and Rejection

6. (a) All drain tile shall be given a thorough inspection by a competent inspector approved by the purchaser. The tile shall be inspected at a location and time agreed upon by the purchaser and seller. The purposes of the inspection shall be to: (1) cull and reject

(d) The inspector shall plainly mark all rejected drain tile, which shall be removed promptly by the seller at the expense of the seller.

(e) No drain tile shall be rejected by the purchaser on the basis of physical tests unless the laboratory test report is made available to the seller.

Sampling and Testing

7. (a) Tile shall be sampled and tested in accordance with Sections 9 to 18.

TABLE II.—DISTINCTIVE GENERAL PHYSICAL PROPERTIES OF CLAY DRAIN TILE

| Physical Properties Specified | Standard Drain Tile | Extra-Quality Drain Tile | Heavy-Duty Drain Tile |
|--|---------------------|--------------------------|-----------------------|
| Permissible variation of average diameter below specified diameter, per cent..... | 3 | 3 | 3 |
| Permissible variation between maximum and minimum diameters of same tile, percentage of thickness of wall..... | 75 | 85 | 65 |
| Permissible variation of average length below manufacturer's specified length, per cent..... | 3 | 3 | 3 |
| Permissible variation from straightness, percentage of length..... | 3 | 3 | 3 |
| Permissible thickness of exterior blisters, lumps, and flakes which do not weaken tile and are few in number, percentage of thickness of wall..... | 20 | 15 | 15 |
| Permissible diameters of above blisters, lumps, and flakes, percentage of inside diameter..... | 15 | 10 | 10 |
| General inspection..... | rigid | very rigid | very rigid |

imperfect individual tile, and (2) determine whether the tile, by visual inspection, meet the requirements set forth in Sections 5 and 6.

(b) Drain tile in a dry condition shall give a clear ring when held free of the ground or tipped on edge, and tapped lightly with a hammer that has a head not exceeding 4 oz in weight.

(c) The seller may appeal from decisions of the inspector when such decisions are based on visual inspection alone, in which case the point of issue shall be determined by standard physical tests made in accordance with Sections 9 to 18. Costs of such tests based on an appeal shall be paid by the seller if the tests confirm the inspector's decision; otherwise, these costs shall be paid by the purchaser.

(b) For purposes of the test, full-size, unbroken drain tile shall be selected by the purchaser or by his authorized representative. Specimens shall be representative of the whole lot of tile from which they are selected, after culling undesirable tile which fail to meet visual inspection requirements. The place or places of selection shall be designated when the purchase order is issued. The manufacturer or seller shall furnish specimens for test without charge.

(c) Each specimen shall be so marked that it may be identified at any time.

(d) Unless otherwise specified in the purchase order, costs of tests shall be paid as follows:

(1) If results of tests show that tile do not conform to the require-

SPECIFICATIONS FOR CLAY DRAIN TILE (C 4)

ments of these specifications, the cost shall be paid by the seller.

(2) If results of tests show that tile do conform to requirements of these specifications, the cost shall be paid by the purchaser, except that in the case of the freezing and thawing test, when specifically requested by the seller in order to justify waiver of absorption requirements, the cost of tests shall be paid by the seller.

(e) Should the standard sample of tile selected as prescribed in Paragraph (a) fail to conform to physical requirements prescribed in Section 3, the seller may, at his expense, cull the tile and have other tile selected for retest from the remaining stock. Selection of specimens for the purpose of retest shall be made as prescribed in Paragraphs (a) and (b), except that the number of tile sampled shall be ten per standard physical test. If the tile selected fail to meet the requirements in the retest, the lot may be rejected by the purchaser as not meeting these specifications. The seller shall pay all costs for any retesting he demands.

Basis of Acceptance

8. (a) Acceptability of the tile shall be determined by (1) measurements and visual inspection as prescribed in Sections 6 and 7, and (2) compliance with the physical requirements as prescribed in Section 3.

(b) Acceptance of drain tile as satisfactorily meeting one of the two general requirements in Paragraph (a) shall in no way be construed as a waiver of the other.

TEST METHODS

Crushing Strength Tests

Test Specimens

9. (a) Five unbroken, full-size drain tile of each specified size shall be tested.

(b) Drain tile with nominal inside diameter of 12 in. or less shall be im-

mersed in water for at least 1 hr and not more than 2 hr immediately prior to testing. Tile with nominal inside diameters greater than 12 in. may be tested without wetting but shall not be dried except as may occur in complying with the provisions in Paragraph (c).

(c) No specimen of tile shall be exposed to water or air temperature lower than 40 F from the beginning of wetting until tested. Frozen tile shall be completely thawed before being tested.

Apparatus

10. The loading device may consist of any mechanically driven or hand-powered device that meets the following requirements: It shall be substantially built and rigid throughout so that distribution of load to the specimen will not be affected appreciably by deformation or yielding of any part. It shall provide for continuous application of load at a uniform rate—from 500 to 2,000 pounds per lineal foot per minute. It shall provide means for determination of load with an error not greater than 2 per cent.

Procedure

11. (a) Strength tests shall be made by the three-edge-bearing method.

(b) All bearings and specimens of tile shall be accurately centered to secure a symmetrical distribution of loading on each side of the center of tile in every direction.

(c) Load shall be applied as nearly continuously as testing equipment permits until the specimen fails.

(d) The lower bearing for the tile shall consist of two wooden strips free of knots and with vertical sides, having their interior top corners rounded to a radius of approximately $\frac{1}{2}$ in. (see Fig. 1). The strips shall be straight, and shall be securely fastened to a rigid base with the interior vertical sides parallel and spaced a distance apart not less than $\frac{1}{2}$ in., nor more than 1 in.,

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per ft of the nominal tile diameter, with a minimum spacing of 1 in. The upper bearing shall be straight and true from end to end and load shall be applied through a wood beam or wooden-faced metal beam of such dimensions that it will transmit the full load without appreciable deflection. Upper and lower

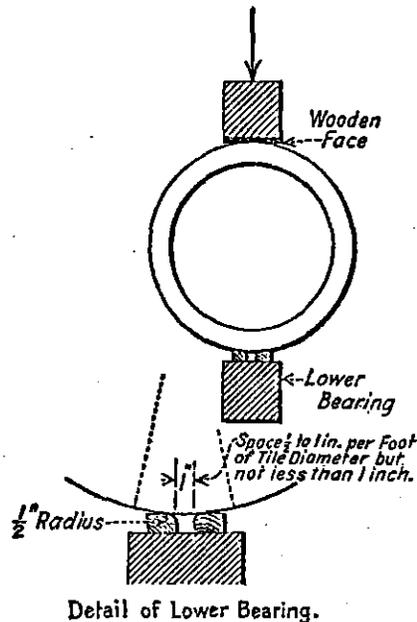


FIG. 1.—Three-Edge Bearings.

bearings shall extend the full length of tile exclusive of the bell, if any. Tile shall be placed symmetrically between the two bearings, and the center of application of load shall be at the center of the length of tile. In testing a tile that is "out of straight", the lines of bearing chosen shall be those which appear to give the most favorable conditions for a fair test.

(e) Plaster of paris bedding fillets may be used on the upper and lower bearings, if mutually agreed by the manufacturer, or other seller, and the purchaser. Before the tile is placed, a fillet of plaster of paris thick enough to

compensate for inequalities in the tile barrel shall be cast on and between the lower bearings and the tile shall be placed in position on the fillet while the plaster is still somewhat plastic.

A similar fillet shall be cast along the length of the crown of the tile. This fillet shall have a width equal to that of the upper bearing block and, for this test, the upper bearing block shall have a width 1 in. greater than the distance between the strips constituting the lower bearing.

(f) If mutually agreed by the manufacturer, or other seller, and the purchaser, proven types of bearings such as hard rubber or sand-filled high-pressure hose may be used in lieu of wooden bearings as specified in Paragraph (d).

Calculations and Report

12. Results of strength tests shall be reported in pounds per lineal foot of tile. They shall be reported separately for each of the tile constituting a standard test, together with the average.

Absorption Test

Test Specimens

13. Test specimens shall consist of segments taken from each of the five tile broken in the strength test and shall be selected in accordance with the following provisions:

(a) For tile with nominal inside diameters of 12 in. or less, and nominal lengths of 12 in., a "standard sample" shall consist of one full-length quarter segment taken from each of the five tile broken in the strength test. By quarter segment is meant one of the four pieces into which a tile usually breaks in the strength test. The segment selected shall have approximately uniform width. If a tile breaks in such a manner that a satisfactory quarter segment cannot be obtained, the absorp-

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tion test may be made on two or more pieces whose combined areas approximate the area of a quarter tile of that size, selected so that both ends and center portion of the tile are represented. The average absorption of the pieces so selected shall be considered to be the absorption for that tile.

(b) For tile with nominal inside diameters or lengths in excess of 12 in., the absorption test shall be made on three pieces, one piece taken from one end of the tile, another piece taken from the opposite end, and the third piece from near the center. Specimens shall have the full thickness of the tile, with all edges broken, or cut, preferably from tile broken in the strength test. Each specimen shall have an area not less than 25 sq in., as measured on one barrel surface. Average absorption of the three pieces shall be considered to be the absorption for that tile.

(c) All absorption test specimens shall be apparently sound, solid pieces of tile, shall not show cracks or badly shattered edges, and shall have laminations and fissures only to the extent that these are representative of the tile from which they are taken.

Procedure

14. (a) *Drying*.—Specimens shall be dried at least 16 hr in a ventilated oven at a temperature between 230 and 248 F (110 and 120 C) and until two successive weighings at intervals of not less than 3 hr show an increment of loss not greater than 0.1 per cent of the original weight of the specimen. Dry weights of specimens shall be the weights after final drying, and as soon as the specimen has cooled to 75 ± 10 F (24 ± 5.5 C). The balance used shall be sensitive to 0.5 g when loaded with 1 kg, and weighings shall be read to at least the nearest gram. Where other than metric

weights are used, the same order of accuracy must be obtained.

(b) *Saturation*. — Dried specimens shall be placed in a suitable container, packed tightly enough to prevent jostling and covered with clean water. Water shall be heated to boiling in not less than 1 nor more than 2 hr, boiled continuously for 5 hr, and then allowed to cool to room temperature by natural loss of heat for not less than 12 hr. Specimens shall be removed from the water and allowed to drain for not more than 1 min. Superficial water shall be removed by absorbent cloth or paper, and the specimens immediately weighed.

Calculations and Report

15. Absorption shall be calculated as a percentage of initial dry weight (Section 14(a)), carried to the nearest 0.1 per cent. Results shall be reported separately for each specimen, together with the average for all specimens comprising the standard sample.

*Freezing and Thawing Test***Test Specimens**

16. (a) Test specimens for the freezing and thawing test shall be in the range of absorption values that required such a test and shall be selected by one of the following methods:

(1) Specimens may be from the original tile samples used in crushing tests but not subjected to boiling, or

(2) The manufacturer shall assist in selecting a group of five tile in the absorption range at which it is desired to establish a waiver of the absorption test. However, the absorption of each test specimen shall be equal to or greater than the average absorption at which the tile failed to meet absorption requirements as shown in Table I.

(b) Two sets of test specimens shall be prepared from each of the tile selected. The size and number of test specimens

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shall be as prescribed in Section 13 (b) and (c). One set shall be used for determining absorption in accordance with Section 14 (a) and (b), and the remaining set, for freezing and thawing test in accordance with Section 17.

Procedure

17. (a) *Drying and Saturation.*—Specimens shall be dried in accordance with Section 14(a). Specimens shall be saturated by submersion in water at room temperature of 70 ± 30 F (21 ± 17 C) for not less than 24 hr. The same scales and weights specified in Section 14 for the absorption test, or others of equal sensitivity and accuracy, shall be used for weighings required in the freezing and thawing test.

(b) *Freezing and Thawing.*—When the specimens have been weighed at the conclusion of saturation, they shall be returned to water and kept immersed until the freezing test is begun. For freezing, specimens shall be placed with their concave faces upward in watertight trays. Depth of water in each tray shall be adjusted to $\frac{1}{2}$ in. and the trays placed in the freezing apparatus. Freezing shall be performed in an atmosphere in which the natural or artificial air currents are no greater than necessary to maintain approximately uniform temperatures in all parts of the freezing compartment. The freezing apparatus shall have sufficient heat-absorbent capacity for lowering the temperature of the freezing compartment to $+14$ F (-10 C) within 30 min after introduction of the specimens

and for maintaining a temperature of $+4 \pm 10$ F (-15.5 ± 5.5 C). Each freezing period shall be not less than 3 hr for specimens from tile with walls up to 1.5 in. thick, and 4 hr for specimens with walls more than 1.5 in. thick. Trays containing the specimens shall then be removed and at once submerged in water at a temperature of 75 ± 10 F (24 ± 5.5 C). The tank in which the specimens are thawed should contain sufficient water to maintain water temperature at 70 ± 15 F (21 ± 8.5 C) while the specimens are thawing. In order that this condition may prevail, running water may be used or the water in the tank may be moderately heated for at least 1 hr and until all the ice has melted. The trays of specimens shall then be placed in the freezer as before and the freezings and thawings continued until the number of cycles required is completed.

Calculations and Report

18. At the end of the thawing treatment, specimens shall be inspected and the condition of each shall be noted in the records. When the number of cycles specified has been completed, specimens shall be oven-dried and weighed as specified in Section 17(a) and the loss in weight computed as a percentage of the initial dry weight. Report the number of cycles required to cause breakage, if breakage occurs. Where the specimen has not failed by breakage, the percentage loss in weight at the conclusion of 36 and 48 cycles shall be reported.



Designation: D 1861 - 69

AMERICAN SOCIETY FOR TESTING AND MATERIALS

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Standard Specification for HOMOGENEOUS BITUMINIZED FIBER DRAIN AND SEWER PIPE¹

This Standard is issued under the fixed designation D 1861; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

1. Scope

1.1 This specification covers homogeneous bituminized fiber drain and sewer pipe and fittings for use in nonpressure conductor and drain systems.

NOTE—The values stated in U.S. customary units are to be regarded as the standard. The metric equivalents of U.S. customary units may be approximate.

2. Materials and Manufacture

2.1 Pipe and couplings shall be composed of a bituminous compound reinforced with an interwoven fibrous structure. The fibrous material shall be thoroughly impregnated. The wall of the pipe shall be dense and homogeneous, without seams or laminations, and with a smooth interior surface free from obstructions and rough or flaky areas. Bends and fittings shall be of the same material as the pipe, or of a material having equal or better physical and chemical characteristics.

3. Joints

3.1 Pipe and bends shall be provided with accurately machined or molded tapered joints, and a taper-sleeve coupling shall be provided for each length of pipe and for each bend. The slope of the taper in both pipe and coupling shall be 2 deg (4 deg included angle) (see Fig. 1).

3.2 All joints for a given size shall be interchangeable and shall be watertight when properly assembled and tested as described in ASTM Method D 2314, Testing Homogeneous Bituminized Fiber Pipe.²

4. Physical and Chemical Requirements

4.1 *Resistance to Flattening*—The diameter decrease shall not exceed 3 percent when tested in accordance with Method D 2314, using loads specified in Table 2.

4.2 *Crushing Strengths*—The requirements for dry, wet, and coupling crushing strength shall be as prescribed in Table 2 when tested in accordance with Method D 2314.

4.3 *Beam Strength*—The requirements for beam strength shall be as prescribed in Table 2 when tested in accordance with Method D 2314.

4.4 *Joint Tightness*—There shall be no evidence of the leakage of water at the joint after a period of 24 h when tested in accordance with Method D 2314.

4.5 *Water Absorption*—The maximum water absorbed shall be not more than 2 percent of the original weight, calculated to the nearest 0.1 percent, when tested in accordance with Method D 2314.

4.6 *Boiling Water Resistance*—There shall be no evidence of disintegration or separation into laminations after immersion for 6 h, and the crushing strength shall be as specified in Table 2 when tested in accordance with Method D 2314.

4.7 *Heat Resistance*—The specimen shall show no appreciable decrease in vertical di-

¹ This specification is under the jurisdiction of ASTM Committee D-8 on Bituminous and Other Organic Materials for Roofing, Waterproofing, and Related Building or Industrial Uses. A list of members may be found in the ASTM Yearbook.

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² Annual Book of ASTM Standards, Part 11.



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ameter, and no appreciable exudation of the bituminous saturant when tested in accordance with Method D 2314.

4.8 Chemical Resistance—Specimens shall show no evidence of softening or disintegration when tested in accordance with Method D 2314.

4.9 Kerosine Resistance—Specimens shall meet the dry crushing strength requirements specified in Table 2 when tested in accordance with Method D 2314.

5. Dimensions

5.1 Pipe and Couplings—The dimensions of the pipe and couplings shall be as specified in Fig. 1.

5.2 Bore—The bore shall be straight and circular in cross section as determined by passing a 36-in. (914-mm) long mandrel, $\frac{1}{4}$ in. (6.4 mm) smaller in diameter than the nominal diameter of the pipe, freely through the pipe.

5.3 Length—The standard length shall be 5, 8, or 10 ft (1.5, 2.4 or 3.0 m), depending upon the standard practice of the manufacturer. Length measurements shall include the tapered ends of the pipe, and a tolerance of ± 1 in. (25 mm) shall be allowed. Lengths other than standard shall be increments of 6 in. (150 mm) from standard and unless otherwise specified up to 20 percent of the short lengths may be supplied in a shipment. No lengths shorter than 4 ft (1.2 m) shall be furnished with no more than two different short lengths in any one shipment. A coupling shall be supplied with each length of pipe.

5.4 Dimensions of Bends—Wall thicknesses of bends shall be not less than those of the corresponding pipe. A round ball $\frac{1}{4}$ in. (6.4 mm) smaller in diameter than the nominal size shall pass through the bore of the bend freely. Dimensions of the 45 and 90-deg bends of the standard sizes furnished are shown in Fig. 2.

5.5 Five-Degree Angle Couplings—The dimensions of the 5-deg angle couplings shall be as specified in Fig. 3.

6. Sampling

6.1 From each lot to be tested or fraction thereof, representing a product of the same size, select at random a number of lengths equivalent to one half the cube root of the total number of lengths included in the lot, except that in lots of 1000 lengths or less, 5 lengths shall be taken. If one half the cube root, as calculated, proves to be a fractional number, express it as the next higher whole number. Test specimens shall not include damaged pipe. Tapered joints shall not be included except as specified in Method D 2314.

7. Basis of Acceptance

7.1 The lot shall be acceptable when all test specimens conform to the test requirements of Section 4. Should 20 percent or less of the specimens fail to meet these requirements, the supplier will be allowed a retest on two additional specimens for each specimen that failed, and the lot will be acceptable if all these specimens meet the requirements.

7.2 If any of the selected specimens should fail to meet other requirements of the specification than those of physical and chemical test, the supplier may cull the lot and may eliminate whatever quantity of pipe he desires and must so mark those pipes that they will not be considered part of the lot. The required tests and specimens will be made on the balance of the order, and they will be acceptable if they conform to the specified requirements.

8. Marking

8.1 Each length of pipe shall bear the manufacturer's name or trademark identification on its exterior barrel. The marking shall be durable enough to withstand outdoor storage and handling until installed.



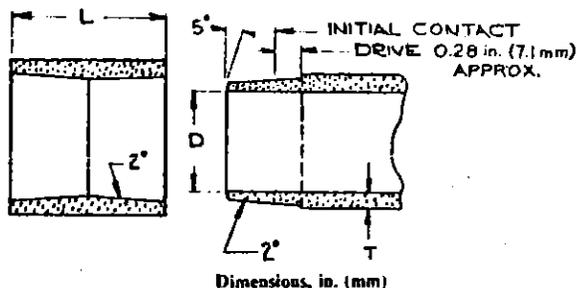
TABLE 1 Flattening Loads

| | Nominal size, in. (mm) | | | | | |
|-------------------------|------------------------|-------------|-------------|-------------|-------------|-----------|
| | 2 (50) | 3 (75) | 4 (100) | 5 (125) | 6 (150) | 8 (200) |
| Total load, lb (kg) | 55 (24.9) | 55 (24.9) | 55 (24.9) | 65 (29.4) | 65 (29.4) | 80 (36.2) |
| Load per piece, lb (kg) | 27.5 (12.5) | 27.5 (12.5) | 27.5 (12.5) | 32.5 (14.7) | 32.5 (14.7) | 40 (18.1) |
| Load, lb/ft (kg/m) | 110 (164) | 110 (164) | 110 (164) | 130 (193) | 130 (193) | 160 (238) |

TABLE 2 Physical Requirements for Homogeneous Bituminized Fiber Drain and Sewer Pipe

| Nominal Size, in. (mm) | Crushing Strength, min. lb/ft (kg/m) | | | Beam Strength, min. lb (kg) |
|---------------------------|--------------------------------------|-------------|------------|--------------------------------|
| | Pipe* | | Coupling | |
| | Flat Plate | 3-Edge | Flat Plate | |
| 2 (50) | 1100 (1650) | 1350 (2000) | 270 (400) | 1000 (450) |
| 3 (75) | 1150 (1700) | 1350 (2000) | 315 (470) | 1000 (450) |
| 4 (100) | 1250 (1850) | 1350 (2000) | 370 (550) | 2200 (1000) |
| 5 (125) | 1350 (2000) | 1400 (2100) | 430 (650) | 4200 (1900) |
| 6 (150) | 1450 (2200) | 1450 (2200) | 430 (650) | 4400 (2000) |
| 8 (200) | 1800 (2700) | 1800 (2700) | 670 (1000) | 7000 (3200) |

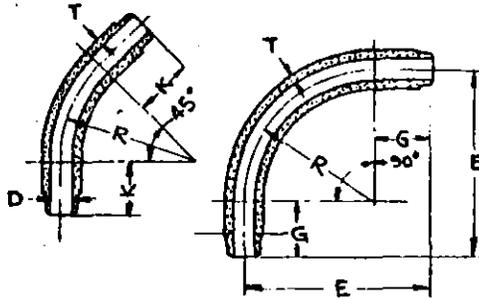
*The deflection of the specimen, based on the pipe nominal diameter, shall not exceed 10 percent before the crush value has been reached in either the flat plate or 3-edge bearing test.



| | Nominal size | | | | | |
|--------------------------------|--------------|-------------|--------------|--------------|--------------|--------------|
| | 2 (50) | 3 (75) | 4 (100) | 5 (125) | 6 (150) | 8 (200) |
| D-- Minimum inside diameter | 2.00 (50.8) | 3.00 (76.2) | 4.00 (101.6) | 5.00 (127.0) | 6.00 (152.4) | 8.00 (203.2) |
| T-- Minimum wall thickness | 0.23 (5.8) | 0.28 (7.1) | 0.32 (8.1) | 0.41 (10.4) | 0.46 (11.7) | 0.57 (14.5) |
| L-- Minimum length of coupling | 2.90 (73.7) | 3.42 (86.9) | 3.92 (99.6) | 3.92 (99.6) | 3.92 (99.6) | 5.00 (127.0) |

FIG. 1 Dimensions of Taper Joint for Pipe and Couplings.

ASME D 1861



Dimensions, in.

| | | | | | | | | | | | | | | | |
|---------------------------|------|----|----|----|------|----|----|------|----|------|----|------|-----|------|--|
| Nominal size | 2 | | | | 3 | | | 4 | | 5 | | 6 | | 8 | |
| D—Minimum inside diameter | 2.00 | | | | 3.00 | | | 4.00 | | 5.00 | | 6.00 | | 8.00 | |
| T—Minimum wall thickness | 0.23 | | | | 0.28 | | | 0.32 | | 0.41 | | 0.46 | | 0.57 | |
| R—Radius | 9.5 | 18 | 24 | 36 | 13 | 24 | 36 | 16 | 36 | 24 | 36 | 36 | 48 | | |
| E | 17.5 | 26 | 32 | 38 | 21 | 32 | 38 | 24 | 38 | 32 | 36 | 36 | (2) | | |
| G | 8 | 8 | 8 | 2 | 8 | 8 | 2 | 8 | 2 | 8 | 0 | 0 | (2) | | |
| K | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | | |

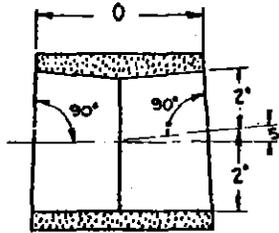
Dimensions, mm

| | | | | | | | | | | | | | | | |
|---------------------------|------|-----|-----|-----|------|-----|-----|-------|-----|-------|-----|-------|------|-------|--|
| Nominal size | 50 | | | | 75 | | | 100 | | 125 | | 150 | | 200 | |
| D—Minimum inside diameter | 50.8 | | | | 76.2 | | | 101.6 | | 127.0 | | 152.4 | | 203.2 | |
| T—Minimum wall thickness | 5.8 | | | | 7.1 | | | 8.1 | | 10.4 | | 11.7 | | 14.5 | |
| R—Radius | 240 | 460 | 610 | 920 | 330 | 610 | 920 | 410 | 920 | 610 | 920 | 920 | 1220 | | |
| E | 440 | 660 | 810 | 960 | 530 | 810 | 960 | 610 | 960 | 810 | 960 | 960 | (2) | | |
| G | 200 | 200 | 200 | 50 | 200 | 200 | 50 | 200 | 50 | 200 | 0 | 0 | (2) | | |
| K | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | | |

NOTE 1—Details of joints are given in Fig. 1.

NOTE 2—Eight-inch (200-mm) bends are supplied regularly in 45-deg angles only.

FIG. 2 Dimensions of Bends.



Dimensions, in. (mm)

| | | | | | | |
|--------|--------------|----------|------------|------------|------------|------------|
| | Nominal size | | | | | |
| | 2 (50) | 3 (75) | 4 (100) | 5 (125) | 6 (150) | 8 (200) |
| O, min | 2.98 (75.7) | 3.5 (89) | 4.00 (102) | 4.00 (102) | 4.00 (102) | 5.00 (127) |

FIG. 3 Dimensions of Five-Degree Angle Couplings.



ENVIRONMENTAL QUALITY COMMISSION

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

TOM McCALL
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Portland

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Salem

ARNOLD M. COGAN
Portland

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Agenda Item No. L, September 21, 1973, EQC Meeting

North Albany County Service District Request for Sewerage Planning Loan Advance

INTRODUCTION

The North Albany County Service District through Benton County Commissioners has demonstrated their intent to obtain funding from the State of Oregon in order to finance a regional master sewerage study for the North Albany area by their submission of a letter application to the Department. This is very similar to the Tri-City County Regional Sewage Facilities application and the North Clatsop County Regional Sewerage Facilities application reviewed and approved by the Commission in the Fall of 1972. Because approval is required by the State Emergency Board for funding, it is brought to your attention today for review and to seek authorization to present the application to the State Emergency Board as soon as possible.

BACKGROUND

1. North Albany is an unincorporated, rapidly growing, rural residential area located in Benton County across the Willamette River from the City of Albany. The present

estimated population of North Albany is 5,100 people, an increase of 25 percent since the 1970 census, and the growth rate for the area has been averaging approximately 120 percent per decade.

2. Benton County is presently engaged in completing a county-wide comprehensive land use plan. As now proposed, this comprehensive plan indicates that much of the North Albany area outside of the flood plain will be zoned urban residential which allows a minimum lot size of one-half acre per single family dwelling if a subsurface sewage disposal system is to be used. If an approved community sewerage system existed, the minimum lot size could be reduced to 10,000 square feet which is more appropriate in an urban area.
3. Except for one subdivision, North Albany area residents rely on subsurface sewage disposal systems for disposal of their domestic sanitary wastes. The predominant soils in much of the North Albany area are marginal to prohibitive for proper operation of subsurface sewage disposal systems due to their types and due to a high seasonal water table. A number of existing subsurface sewage disposal systems have failed in the area, and the increasing density of residences in the North Albany area provides potential for existence of a health hazard.
4. The only community sewerage system in the North Albany area serves Riverview Heights, a subdivision with an estimated population of 240 people. A package sewage treatment plant provides treatment of the sewage prior to discharge into a small, unnamed tributary of the Willamette River. Recent surveys of these treatment facilities indicate that the sewage treatment plant receives insufficient maintenance

and operation, and that the inadequately treated discharge has a serious impact on the receiving stream. Riverview Service Corporation has been directed to upgrade and modify the existing sewage treatment facilities so as to improve the effluent quality and reduce the impact on the receiving stream. Even with the required improvements, the small receiving stream does not have adequate flow during the low flow season to assimilate a discharge of treated sewage and the Riverview Heights sewage treatment facilities should be phased out as soon as service from an area-wide sewerage system is available.

5. Due primarily to problems associated with the rapid urbanization of the areas and the inadequacy of subsurface sewage disposal systems, on November 21, 1972, North Albany residents voted to form the North Albany County Service District. As an integral part of the Service District, the District's Board of Directors (Benton County Commissioners) formed an Advisory Committee consisting of seven local citizens. The Advisory Committee's main purpose is to assist the Board of Directors in providing an area-wide sewerage system to eliminate potential health hazards caused by failing subsurface sewage disposal systems and to provide sewerage services for anticipated residential growth in the area. The Advisory Committee has developed a scope of services, interviewed engineering consulting firms, developed a proposed contract for engineering services, and recommended that the Board of Directors hire an engineering firm to develop a comprehensive master sewerage plan for the District.

6. To develop this master sewerage plan, Benton County has submitted a letter-application to this Department for an advance loan from the State of Oregon as provided for in ORS 449.455 and ORS 449.685 (1)(e).

EVALUATION

1. A regional sewerage study for the North Albany area is definitely needed.
2. Local funds for financing this study are not available. The only other source of funds at this time is to obtain a planning loan from the State of Oregon. The Department has a letter from the Department of Justice dated August 15, 1972 which states that the Environmental Quality Commission is authorized to use State Pollution Control Bond Funds for, among other purposes, the making of a loan to a city or regional authority for the planning of construction of sewage treatment works. However, the Legislature authorized the expenditure of only committed past loans for the purpose of sewage works planning and the State Emergency Board must approve a special budget for the Department in order to make the subject loan. Benton County has prepared the attached information for the North Albany Regional Sewerage Study, which includes the following material:
 - a. Introduction as to the need for the regional study and request letter.
 - b. Letter of support from Benton County staff expressing the need for sewerage study.
 - c. Letter of support from Benton County Planning Commission.
 - d. Letter from the Benton County Health Department indicating the immediate need to provide regional sewerage collection in the study area.
 - e. Endorsements of support of the regional sewerage study by the following entities:

1. City of Albany
 2. Linn County
 3. Oregon District 4 COG
- f. The engineering consultant's agreement for providing regional sewerage plan and financing plan for the study area, by Clark and Groff Engineers amounting to \$23,800 (including reports).
 - g. Benton County Commissioners intend to form an advisory board consisting of representatives from the City of Albany, Linn County, COG District 4 and the Service District area to guide the study and its implementation in conformance with regional considerations of the Albany-North Albany urbanizing area.
 - h. The North Albany area is to be zoned for urban residential development when the Benton County county-wide comprehensive land use plan is adopted.
 - i. Copy of a proposed grant loan agreement between the Department of Environmental Quality and Benton County indicating terms of study loan and repayment possibilities. (It should be emphasized that if the study as developed is not implemented within a specific time the loan funds will be repayed to the Department of Environmental Quality, together with accrued interest at the rate of five percent (5%) per annum. If the project is implemented, the loan funds would be subtracted from any sewage works construction grants for which the project would be eligible).
3. The staff of the Department of Environmental Quality has reviewed the above information, the study area and the following facts are noted:

- a. The need for the regional sewerage study is adequately substantiated.
 - b. The grant-loan agreement is being reviewed by the Department of Justice and at this time is considered adequate.
 - c. The projected costs for the engineering report, including the financing, are considered adequate and reasonable.
 - d. The Endorsements of Support indicates that all involved parties recognize the need for the study and support its development.
4. The required improvements to the Riverview Heights sewage treatment facilities will upgrade the discharge quality such that it is acceptable only on an interim basis. The waste discharge permit which has been proposed for this facility requires that the Riverview Heights sewage treatment plant be phased out in favor of hookup to an approved area-wide sewerage system when service is available.

CONCLUSION

1. A Regional Sewerage Study is needed.
2. The loan application letter with information submitted by Benton County is considered acceptable. (Total estimated costs for the study preparation total \$23,800.)
3. The Environmental Quality Commission has the authority to authorize the use of the State Pollution Control Funds for the purpose of funding the regional study. (Actual disbursement of funds must be approved by the State of Oregon Emergency Board.)

RECOMMENDATIONS

Therefore, it is the recommendation of the Director that:

1. The Commission authorize the use of \$23,800 of the State Pollution Control funds for the purpose of preparing a Regional Sewerage Study for the North Albany area as outlined in a loan application submitted to the Department.
2. The Department present the loan application in the amount of \$23,800 to the State Emergency Board for funding at the earliest possible time.



DIARMUID F. O'SCANNLAIN

Attachments

Board of County Commissioners

BENTON COUNTY COURTHOUSE
CORVALLIS, OREGON 97330

COMMISSIONERS
MELVIN S. HAWKINS
LARRY CALLAHAN
JEANETTE SIMERVILLE

September 10, 1973

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
SEP 11 1973

OFFICE OF THE DIRECTOR

Mr. Diarmuid O'Scannlain, Director
Department of Environmental Quality
1234 S. W. Morrison Street
Portland, OR 97205

Dear Mr. O'Scannlain:

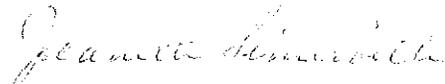
During the past year a service district was established in the North Albany area of Benton County. Its first task is to remedy the sewer problem which is extremely acute. Copies of other letters presented to you describe this situation more fully.

Benton County has entered into an agreement with the engineering firm of Clark and Groff in Salem to undertake a regional study of the North Albany area for the sewerage needs provided funding for the study can be obtained. The amount needed to complete the regional study is \$23,800.

Since Benton County funds are extremely limited, and since this study is greatly needed, we are requesting that the Department of Environmental Quality grant us a loan of \$23,800 to enable us to proceed with this monumental task in North Albany.

We would appreciate your serious consideration of this request and thank you for your efforts in our behalf. We shall be glad to provide any other information needed.

Sincerely yours,



Jeanette Simerville, Chairman
Board of County Commissioners

JS/klw

cc: Fred Bolton
Craig Starr
District 4 Council of Governments

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
SEP 11 1973

WATER QUALITY CONTROL

BENTON COUNTY ROAD DEPARTMENT

360 E. W. AVERY AVENUE
TELEPHONE 753-7345
CORVALLIS, OREGON 97330

August 29, 1973

Benton County Board of Commissioners
Benton County Courthouse
Corvallis, Oregon 97330

Dear Commissioners,

There is a definite need for sewage facilities in the North Albany area. There have been numerous septic system failures due to impervious soil conditions and high ground water. Builders in this area are reluctant to build because of the increasing problems in obtaining septic tank permits.

The present population is now 5100 which reflects a growth of 25% in the past 3 years. Present zoning requires a minimum of 1/2 acre per single family dwelling. With sewage facilities available, the average lot size could be half this area which would be more compatible to this urbanized district. As this is the logical growth area for Albany as indicated by both Benton County and City of Albany's comprehensive plan, the best land use is not being applied.

The need for a regional sewerage systems study in the North Albany area appears to be at the optimum stage for development. The initial sewerage facilities are felt to be within the financial capabilities of this area. With this study a specific design and cost alternatives could be obtained.

Yours truly,


Neal Peterson
Dir. of Public Works


Larry Bauer
Benton Co. Planning Dir.

76 FMB

COUNTY COURTHOUSE
CORVALLIS, OREGON
97330



BENTON COUNTY PLANNING COMMISSION

August 16, 1973

Department of Environmental Quality
Terminal Sales Building
1234 S. W. Morrison Street
Portland, OR 97205

Gentlemen:

The North Albany region of Benton County is currently a subject of consideration for the funding of an extensive engineering study for the establishment of a comprehensive sewer system.

North Albany is the fastest growing residential area in the District 4 Council of Governments region. The growth rate has been averaging approximately 120 percent increase per decade. The area has increased an estimated 25 percent in population since the 1970 census.

A community survey completed in 1972 indicated the need for improved sewer facilities as the foremost community need in this area.

The North Albany Planning Committee proceeded to organize an election for the creation of a special service district to deal with North Albany's severe sewer problems. By a margin of 78 percent "Yes" to 22 percent "No", the voters of North Albany approved the formation of a special service district in November of 1972.

Subsequently, the Benton County Board of Commissioners, Planning staff, and North Albany Advisory Board have formulated a work program and selected a responsible engineering firm to complete a comprehensive design of a sewer collection system and treatment alternatives, including cost estimates and regional needs.

This engineering report is proposed to be funded through a loan from State Pollution Control funds. Your endorsement of this project is fully consistent with the comprehensive planning objectives of Benton County, and has our unqualified support.

Sincerely,

Larry Bauer
Benton County Planning Director

LB/klw

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
AUG 17 1973

WATER QUALITY CONTROL

Benton County Health Department

126 N.W. FIFTH STREET
CORVALLIS, OREGON 97330

753-4423

August 16, 1973

Mrs. Jeanette Simerville, Chairwoman
Board of County Commissioners
Courthouse
Corvallis, Oregon 97330

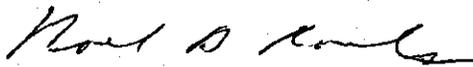
Subject: North Albany Area

Dear Mrs. Simerville:

The North Albany area has a number of developing subdivisions. This area is located on soils which are marginal for subsurface disposal. There have been a number of subsurface disposal system complaints and failures reported to the Benton County Sanitarian, Mr. Roger Heyden, and confirmed by him. Because of this condition and the increasing density of homes in the area a potential health hazard exists.

I would therefore urge the Commission to proceed as rapidly as possible with the definitive sewer study of this area and the implementation of the recommendation of this sewer study.

Sincerely,



Noel B. Rawls, M.D.
County Health Officer

eg

cc: Department of Environmental Quality

City of Albany

June 28, 1973

Benton County Commission
Mrs. George Simmerville, Chairman
Benton County Courthouse
Corvallis, OR 97330

Dear Lady and Gentlemen:

Re: North Albany Sewer Study

In action last night, the City Council formally voted to approve and support the sewer study of the North Albany area. This matter was previously discussed by yourselves and the Council at a luncheon meeting, and the Council's action last evening indicates their hope that the issue of sewers for North Albany will be resolved once and for all as a result of this study.

In taking its action, the City Council was concerned about several issues involved with this study, and I have included an excerpt from the minutes of last night's meeting for your information. Specifically, the Council wanted to indicate that it was in no way committing itself to the creation of a new city in North Albany. In fact, the Council generally indicated that it had previously decided to make sewer service available across the river when it was wanted but didn't care when that ever happened. One councilman additionally indicated he felt that the study itself was not necessary since all of the information was already available, but that he would endorse the study on the premise that it might help resolve the issue once and for all.

The Council also expressed concern that the study would become involved on the Linn County side of the river and clarified that they would not feel in any way bound by the study if it ran contrary to the existing sewer plan prepared by CH₂M three years ago.

I did have one additional question relative to the apportionment of the loan for the study itself. The Council was told that the City would not be responsible in any way for the repayment of the loan, and that the Benton County Commissioners would either provide for that loan repayment or assess it back to the North Albany Service District. I did raise the question that since the District is an advisory district only, it has no power to tax. Moreover, since the likelihood is that the sewer when installed would be done as an extension of the City's sewer

Benton County Commission

-2-

June 28, 1973

system using federal grant and the City's sewer connection fees monies to capitalize the project, then the City Council could be faced with a request to include the loan repayment as a part of that project. The problem in such a case would be that the North Albany area would not be assessed for the sewer - only the major properties at the very end of the line would be involved. It was for this reason that the motion to endorse the study included the provision that the City was not assuming any responsibility for costs at the time it undertook the construction of sewer service in Benton County.

On another note, Mr. Gloege in his comments to the City Council indicated that it was the desire that the City make up a portion of the advisory committee overseeing the study. The Council endorsed this idea and anticipates assigning a representative to the committee when formed. Thank you, and we will be pleased to assist in any way.

Sincerely,

Larry L. Rice
City Manager

LLR: aph
cc: Mr. Marvin Gloege, D 4 COG
Mr. Rick Reiter, DEQ

ALBANY CITY COUNCIL

June 27, 1973

The Albany City Council met on Wednesday, June 27, 1973 at 7:15 p.m. in the Council Chambers of City Hall. Those present included Mayor Davis and members Hubert, Pontius, Hayne, Olsen, Jones, and Hayes.

CONSIDERATION OF NORTH ALBANY SEWER STUDY APPROVAL

By way of introduction, Mayor Davis reminded the Council that they had met with the Benton County Commissioners on June 7th to listen to their explanation of a proposition on behalf of the North Albany Sewer District to institute another study of a different type of sewer collection system than the one the City had proposed some years ago.

Mr. Marvin Gloege, Director of District 4 Council of Governments, told the Council that Albany's role would be one of endorsing the study. There would not be any kind of participation in a financial sense on the part of the City. He pointed out that before the study could be approved, it requires the endorsement by the City of Albany, Linn County, District 4 Council of Governments and Benton County. A stipulation of the study would become type of advisory committee to give a regional look.

Mayor Davis wanted it again stated that the City of Albany would not be receiving any bill if they endorsed this study. Mr. Gloege said this was correct and that perhaps the staff had been left with an erroneous impression at the meeting on June 7th. Mayor Davis said he did not want to force anyone to annex to the City, but "I do not want to take steps to endorse the formation of a separate municipal corporation on the other side of the river." Mr. Gloege clarified that he was speaking of the implementation of the outcome of the present study rather than any studies made in the past. Mr. Hayes said he did not think the City cared where the sewer might run out there or whether it ran out there at all. "It think it is a waste of money, but I am not going to stand in the way of people out there if they want another study. I would endorse the study but I would like it made plain that the City of Albany is not initiating this." Mr. Hayes then asked if the study would be only of that area in North Albany. Mr. Gloege said the study would have to look at the City and the area surrounding the City.

Mr. Hayes then asked if the City would be bound by the outcome of the study to which Mr. Gloege replied, "no, you wouldn't be bound."

Mr. Gloege pointed out that the contractual responsibility for the study rests with the Benton County Commissioners who can, however, assess the costs to the North Albany Service District if they wish. Mr. Rice questioned whether this could be done since if the sewer when constructed connects to the City's plan, the assessments over and above the city and federal share would be only to the few developers at the very end of the line and not to the North Albany area. So either the County or the City would have to solve the question of who would pay the bill.

Mr. Hayes moved to endorse the North Albany sewer study but that the City of Albany would not assume any responsibility for any expense incurred in the study nor will it assume any expense for the study at any time the City might undertake the implementation of the study by construction of sewer service with the area in Benton County. Mr. Jones seconded the motion.

Mr. Olsen expressed his concern that the City might get involved with an unincorporated area with no restraints to development. "I hesitate to endorse a study which might end up with this situation."

Mrs. Charlotte Wisecup from North Albany stated that a service district does exist in North Albany. "We are trying to dispose of our sewage by the cheapest way possible." Mrs. Wisecup said she was told that Benton County said they will see that North Albany pays for this cost. "We don't want a city. It is a service district."

Mr. Vin Hurley told the Council that the original cost for this study was between \$30 - \$37,000, but that he had been contacted by Benton County Commissioner Simmerville who told him that the cost will be substantially less. Mr. Olsen said he was not worried about the cost but urban sprawl between here and Corvallis due to maybe a poorly controlled sewer situation in Benton County. The motion carried unanimously.

There being no further business, the meeting was adjourned at 11 p.m.

COMMISSIONERS:

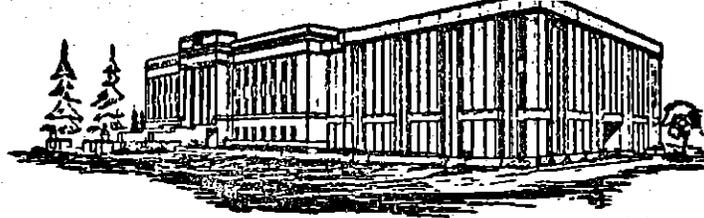
BURL INGRAM, CHM.

GEO. K. MILLER

VERNON SCHROCK

STAFF ASSISTANT:

JON LEVY



TELEPHONE:
926-4495

P.O. Box 100
ALBANY, OREGON
97321

LINN COUNTY
BOARD OF COMMISSIONERS

August 14, 1973

Benton County Commissioners
Benton County Courthouse
Corvallis, OR 97330

Subject: North Albany Service District Study

Dear Sirs and Madam:

Linn County Board of Commissioners endorses North Albany Service District Study and regional concept. This should include those parts of Linn County that might be affected.

It is our understanding that no financial assistance would be anticipated or required at this time.

LINN COUNTY BOARD OF COMMISSIONERS

Chairman

Vernon Schrock

Commissioner

Geo. K. Miller

Commissioner

JL:pf

OREGON DISTRICT 4
COUNCIL OF GOVERNMENTS
240 N. W. SIXTH
CORVALLIS, OREGON 97330

August 22, 1973

Board of Commissioners
Benton Co. Courthouse
Corvallis, OR 97330

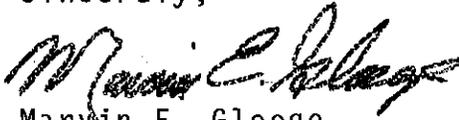
ATTENTION: Jeannette Simerville

Dear Sirs:

At the August 16 meeting of the Linn-Benton Subdistrict, the Board considered a request of Benton County to endorse the proposed sewer study for the North Albany area. The Board adopted a motion "that the Linn-Benton Subdistrict attest to the pressing need of the study and to the regional significance of the problem thereby giving its endorsement to the project".

The Regional Sewerage and Water System Plan adopted by OD4COG recognizes the regional nature of utility needs in the Albany-North Albany area. In addition, OD4COG staff assisted Benton County, the North Albany Service District and the City of Albany in development and review of the proposal.

Sincerely,

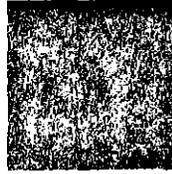

Marvin E. Gloege
Executive Director

MEG/tjp

cc: Department of Environmental Quality
Neal Peterson

July 2, 1973

CONSULTING ENGINEERS COUNCIL/USA



CEC Document

STANDARD FORM OF AGREEMENT BETWEEN
OWNER AND ENGINEER

FOR
PROFESSIONAL SERVICES

THE AGREEMENT

THIS OWNER-ENGINEER AGREEMENT made this 25th day of July
in the year NINETEEN HUNDRED and SEVENTY-THREE BY AND BETWEEN

BENTON COUNTY BOARD OF COMMISSIONERS

(Name)

Benton County Courthouse, Corvallis, Oregon 97330

(Address)

the OWNER, and

CLARK & GROFF ENGINEERS, INC.

(Name)

3276 Commercial Street, S. E., Salem, Oregon 97302

(Address)

the ENGINEER.

WITNESSETH: That whereas the OWNER intends to engage the ENGINEER to perform professional services
for a project known as A Comprehensive Sewerage Plan for North Albany
Special Service District

_____ and hereinafter called the Project.

CONSULTING ENGINEERS COUNCIL

Owner-Engineer Agreement OE.1
Copyright 1969

OE1.1

Board of County Commissioners

BENTON COUNTY COURTHOUSE

CORVALLIS, OREGON 97330

COMMISSIONERS

MELVIN S. HAWKINS
LARRY CALLAHAN
JEANETTE SIMERVILLE

RECEIVED
JUL 26 1973

July 24, 1973

CLARK & GROFF ENGRS.

Mr. Wayne A. Taylor
Clark & Groff Engineers, Inc.
3276 Commercial Street, S. E.
Salem, OR 97302

Dear Mr. Taylor:

We have enclosed the agreement between Benton County and your firm for the Comprehensive Sewerage Plan for North Albany Special Service District.

In the interest of our clarification, we are submitting for your consideration our understanding of the provision (appearing on page 1.2) relating to design award and compensation to your firm in the event of recission: We understand that the provision relating to design award and compensation in the event of recission does not mean that failure of the North Albany Special Service District to approve and/or fund construction would constitute a "recission" of the design award within the meaning of the agreement.

With your approval we will regard this letter as an amendment to the agreement (as provided in Article 7). If this clarification is acceptable, Clark & Groff Engineers are authorized, on this basis, to proceed under the Agreement. A copy of this letter has been enclosed for your use in indicating acceptance of our proposed amendment.

We have appreciated very much your efforts and assistance.

Jeanette Simerville
Commissioner

Melvin S. Hawkins
Commissioner

Acceptance of Amendment to Agreement

Wayne A. Taylor (7-26-73)

Wayne A. Taylor
for: Clark & Groff Engineers, Inc.

NOW, THEREFORE, THE OWNER and ENGINEER for the considerations hereinafter set forth agree as follows:

1. The ENGINEER shall provide professional services for the Project in accordance with the Agreement and the Terms and Conditions of this Owner-Engineer Agreement, which is attached hereto and hereby made a part of this OWNER-ENGINEER Agreement.
2. The Project is described in detail as follows:
 - a. Preparation of engineering input for funding application.
 - b. Review and evaluation of all existing planning data and other information.
 - c. Determination of immediate and long-term sewage collection and treatment needs and alternatives.
 - d. Prepare cost estimates.
 - e. Prepare financial, management and implementation plans.
 - f. Coordination between agencies concerned.
 - g. Other duties and activities more particularly enumerated in the attached Agreement.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH, that for and in consideration of the mutual covenants and promises between the parties hereto, it is hereby agreed that the ENGINEER shall furnish services and the OWNER shall make payment for same in accordance with the Agreement.

IN WITNESS WHEREOF the parties hereto have made and executed this Agreement the day and year first above written.

The Owner hereby a. (does) b. ~~(does not)~~ award design for the total project when it proceeds. Said design award (if selected at this time) shall not be recinded prior to August 1, 1978 without compensation to the Engineer as though the alternate "b" had been selected, including payment of interest at 8.5 percent per annum for delay in payment from the date that payment would have fallen due under the "b" alternate. After August 1, 1978, Clark & Groff Engineers, Inc. shall be given first consideration for design work on said project.

OWNER BENTON COUNTY BOARD
OF COMMISSIONERS

ENGINEER CLARK & GROFF
ENGINEERS, INC.

Jeanette Sumerville
E. Larry Callahan
Melvin S. Hawkins

Wayne A Taylor

TERMS AND CONDITIONS OF THIS OWNER-ENGINEER AGREEMENT

ARTICLE I ENGINEER'S SERVICES

1.1 The Engineer agrees to perform professional services in connection with the Project as hereinafter stated, including the stipulations and amendments within the Agreement.

1.2 Funding of the Project

1.2.1 Preliminary Study

.1 Prepare engineering input and advise procedures for preparation of applications for funding from the Department of Environmental Quality (DEQ). This input to be similar to that submitted for the Tri City-County area near Portland which consists of a general description of the proposed study, a copy of the Agreement for Engineering Services, and an Activity-Time Schedule of work to be performed. This much work shall be part of the Basic Services listed below.

.2 In the event the above work effort is not sufficient, if other sources of funds must be sought, or if DEQ changes the format which is acceptable, payment for this additional work shall be treated as a separate item of reimbursement.

1.2.2 Construction Funding (Not a part of the Project)

Upon completion of the Preliminary Study (Comprehensive Sewerage Plan), and selection of the final course of action and thereafter upon authorization to proceed:

.1 Assist in preparation of governmental grant and loan applications for funding construction of the system. This service shall include preparation of an environmental impact statement and other extensive data and information necessary to qualify for funding.

- . 2 Assist in public hearings as required by funding agency and other public meetings for presentation of the plan in connection with bond elections and other citizen participation.
- . 3 This service is a separate item of reimbursement for the reason that it is subject to a wide variation of effort depending upon federal and state philosophies, availability of funds, and the day-to-day changes in administration and administrative procedures.

1.3 Basic Services

Under this item the Engineer shall perform those services necessary for the preparation of a comprehensive sewerage plan for the area comprised of the North Albany Special Service District and adjacent areas designated for urban growth by the Benton County Comprehensive Plan.

The services shall comply with Federal Guidelines of Waste Water Treatment Facilities dated September 1970 and latest editions, and published by the Federal Water Quality Administration (now Environmental Protection Agency [EPA]). The Guidelines state that preliminary project planning and engineering report shall include the major considerations of:

- Environmental Compatibility
- Regionalization (in this case it would pertain to urban growth areas in Albany and North Albany)
- Project Feasibility
- Complete and Operable Treatment Works
- Receiving Waters and Degree of Treatment
- Ultimate Disposal of Sludge Solids
- Treatment Plant Reliability
- Excessive Infiltration
- Elimination of Bypassing
- Industrial Wastes
- Staffing and Budget
- Design Period

More particularly, the services shall include, but not necessarily be limited to, the following:

1. 3. 1 The first application for the funding of the Project - (Par. 1. 2. 1. 1).

1. 3. 2 Review and evaluation of existing studies and plans concerning sewerage, land use and other pertinent data which have been prepared.

1. 3. 3 Update existing base map (1" = 800') of Benton County portion of Service Area, use existing contour maps as reference material, and on one or more copies of the base map show:

a. Within District Boundaries

Street Surfacing
Building Locations
Drainage Courses
Soils Limitations
Water Table
Underground Utilities,
Existing and Planned
Other Essential Information

b. In Future Service Area

Drainage Courses
Practical Limits of
Service
Soils Limitations
General Water Table

1. 3. 4 Prepare sewage collection system layouts with sufficient accuracy to permit calculations of pipe sizes and lengths, depths of excavation, location of lift stations, etc. which, in turn, will result in cost estimates of reasonable reliability.

1. 3. 5 Evaluate alternatives for waste treatment including environmental assessments of the alternatives which shall include, but not be limited to, the Albany Sewage Plant and separate treatment systems.

1. 3. 6 Prepare financial plans, using specially qualified personnel (Marlett and Assoc.), and involving grant monies, bond issues, assessments, use charges, debt retirement as well as operation and maintenance requirements.

1. 3. 7 Prepare management alternatives with various organizational structures to construct and operate the sewer program.

1. 3. 8 Prepare an implementation schedule for the sewer program including financial information and staged construction where necessary.

1.3.9 Prepare a printed report of the findings of the study as outlined. One hundred fifty copies will be furnished with additional copies furnished at cost of printing, paper and mailing. Make verbal presentation of the report to the Board and at one public meeting.

1.3.10 Prepare a Summary Report for publication with North Albany portion of the Benton County Comprehensive Plan.

1.3.11 Miscellaneous

- .1 Coordinate with all agencies concerned including North Albany Service District, Benton and Linn County and City of Albany officials, Planning and Engineering staffs, District 4 Council of Governments, DEQ, and other appropriate federal, state and local organizations.
- .2 Preparation of monthly progress reports during the course of the study. Attendance at one meeting per month of the District or County officials for the purpose of discussing progress and courses of action pertaining to the actual study.
- .3 Utilization of computer techniques where indicated.
- .4 Consideration of innovative systems and materials wherever appropriate.
- .5 Preparation of Time-Activity charts showing tasks of the Work Outline versus the anticipated work period.

ARTICLE 2

ADDITIONAL SERVICES OF THE ENGINEER

2.1 General

If authorized in writing by the Owner, the Engineer shall furnish or obtain from others additional services of the following types which are not covered by Article 1, "Engineer's Services," herein, which shall be paid for by the Owner as provided in Article 4, "Payment to the Engineer," herein. Additional services of the Engineer and the Engineer's Contracted Professional Services from Others include, but are not limited to, the following:

- 2.1.1 Preparation of additional or supplemental applications and supporting documents for governmental grants, loans or advances including Item 1.2, "Funding of the Study," previously described.
- 2.1.2 Arrangements for aerial photography and for preparation of additional contour maps.
- 2.1.3 Survey crews for field measurements, property surveys, easement surveys, etc., in excess of 4 man days.
- 2.1.4 Field crews and equipment for soils and water table determinations, in excess of \$500 and two man days.
- 2.1.5 Changes due to major changes in the general scope of the Project.
- 2.1.6 Revising studies and reports prepared under this Agreement which have previously been approved by the Owner.
- 2.1.7 Preparation of renderings, exhibits, scale models, "hand out" material and the like in connection with presentation of the study findings or recommended sewer program to the public.
- 2.1.8 Attendance at more than two public meetings for the purpose of presenting study findings or recommended programs and actions.
- 2.1.9 Any other services not otherwise provided for in this Agreement but essential to the accomplishment of the Project.

ARTICLE 3 OWNER'S RESPONSIBILITIES

The Owner will:

- 3.1 Provide all criteria and full information as to his requirements for the Project including but not restricted to, population projections by drainage areas (30-year and ultimate) and a recent aerial map of the Service Area.

3.2 Assist the Engineer by placing at his disposal all available written data pertinent to the site of the Project including the existing 1" to 800' scale base map, previous reports and any other information and data affecting the Project.

3.3 Guarantee access to the property and make all provisions for the Engineer to enter upon public and private lands as required for the Engineer to perform his services under this Agreement.

3.4 In the interests of orderly prosecution of the Project, act promptly on requests of the Engineer for such as availability of information and data, review of reports and data, and other action items. If delays on such requests are anticipated, the Engineer shall be notified.

3.5 Designate in writing a person to act as Owner's representative with respect to the Engineer's service to be performed under this Agreement; and such person shall have authority to transmit instructions, receive information, interpret and define Owner's policies and decisions with respect to services covered by this Agreement.

3.6 Give prompt written notice to the Engineer whenever the Owner observes or otherwise becomes aware of any defect in the Project.

ARTICLE 4 PAYMENTS TO THE ENGINEER

4.1 For the Basic Services performed under Article 1, the Owner shall pay the Engineer: (a) basic salary costs times a multiplier of 1.77 to cover overhead costs, plus costs for services of others, or (b) costs as defined in "(a)" above plus a lump sum of \$2,700.

The Owner shall be kept apprised of monthly progress and expenses charged against the project. Every attempt will be made to keep expenses within the estimate and this estimate will not be exceeded without authorization from the Owner. Said estimate is:

| | |
|--|--------------|
| Engineering Study | |
| Salary Cost x 1.77 | \$14,800 |
| Other Expenses | 1,900 |
| Summary Report | |
| Salary Cost x 1.77 | 1,700 |
| Printing Costs | 1,400 |
| Financial Consultant | <u>4,000</u> |
| SUBTOTAL (or total if awarded design work) | \$23,800 |
| Lump Sum Fee (if design work not awarded) | <u>2,700</u> |
| TOTAL | \$26,500 |

If awarded engineering design work, the Engineer guarantees that the preliminary study costs (for work indicated to be included) shall not exceed estimated cost. If the design work is not awarded at this time, the lump sum fee shall be decreased by the dollar amount by which costs exceed \$25,000 until the fee is used up.

4.1.1 Progress payments on costs shall be made monthly as invoiced. The lump sum fee (if applicable) shall be due and payable upon completion of the preliminary study as outlined herein.

All invoices shall be payable within 30 days of receipt.

4.2 For additional services involved in Par. 1.2.1.2 and 1.2.2 of Article 1, "Funding of the Project," and Article 2, "Additional Services of the Engineer," the Owner shall reimburse the Engineer on same basis as indicated in 4.1 above. Should additional services cause the Engineer's salary cost on the project to increase 15 percent or more over the amount estimated above, the lump fee shall be increased by the same percentage that extra services cause salary costs to be increased.

4.2.1 Invoice for these services shall be submitted for the month in which the services are performed.

4.3 For the monies paid to the Engineer for this Project and to other agencies, firms and individuals for preliminary and other useful information, maps, etc., credit shall be granted against certain fees earned by the Engineer in carrying the Project forward to construction for such services as preparation of plans and specifications, supervision, etc. The amount of credit shall equal 15 percent of the Engineer's Fee where the fee is determined by Percentage of Net Construction Cost according to Book A of the Consulting Engineers Council of Oregon or Manual 45 of the American Society of Civil Engineers. Such credit would not accrue to the Engineer's Fee if it is determined by such other methods as Cost Plus a Fixed Payment, Fixed Lump Sum Payment, and the like.

ARTICLE 5 GENERAL CONSIDERATIONS

5.1 The Engineer will prosecute the Project in ^{MM}~~approximately~~ 150 days from date of notice to proceed, unless extension of time is granted by the Owner. It is agreed between the parties to this Agreement that the Engineer cannot be responsible for delays occasioned by factors beyond his control, nor by factors which could not reasonably have been foreseen at the time this Agreement was prepared and executed.

5.2 The Engineer's Opinion of the Construction Cost is the opinion of the Engineer of the probable Construction Cost and is supplied as a guide only. Since the Engineer has no control over the cost of labor and material or over competitive bidding and market conditions, the Engineer does not guarantee the accuracy of such opinion as compared to contractor bids or actual cost to the Owner.

5.3 During the performance of services within this Agreement, the scope of the "Engineer's Services," Article 1, the "Additional Services of the Engineer," Article 2, and compensation thereon may be adjusted by mutually agreed Change Orders to this Agreement.

5.4 No information relative to the Project shall be released by the Engineer for publication, advertising or for any other purpose without prior approval of the Owner.

ARTICLE 6 ENGINEER'S ACCOUNTING RECORDS

Records of the Engineer's Direct Personnel Expense, Contracted Professional Services from Others, and other direct expenses pertaining to the Project, shall be kept on a generally recognized accounting basis and those accounts for Extra Services (Art. 1.2 and Art. 2), shall be available to the Owner or his authorized representative, at mutually convenient times.

ARTICLE 7 EXTENT OF AGREEMENT AND TERMINATION

7.1 This Agreement represents the entire and integrated Agreement between the Owner and the Engineer and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written instrument signed by both Owner and Engineer.

7.2 This Agreement may be terminated by either party by seven days' written notice by mutual agreement or in the event of substantial failure to perform in accordance with the terms thereof by the other party through no fault of the terminating party. If this Agreement is terminated, the Engineer shall be paid for the extent of services performed by him to the termination notice date.

LOAN AGREEMENT
BETWEEN DEPARTMENT OF ENVIRONMENTAL QUALITY
AND BENTON COUNTY, OREGON

This Agreement, made this _____ day of _____, 1973
by the State of Oregon, acting by and through its Department of
Environmental Quality, hereinafter called Department, and Benton
County, a political subdivision of the State of Oregon, hereinafter
called County.

WITNESSETH AND RECITALS

County desires to plan for the collection and treatment of sewage
in the North Albany Area for the purpose of developing a regional
master plan for construction of sewage collection and treatment
works; and

It is necessary for County to raise a part of the cost of such
regional planning by borrowing funds from the Department, pursuant
to Article XI-H by the Constitution of Oregon and its implementing
legislation; and

Department intends to assist County in its proposed regional
planning project by loaning to it funds necessary to aid in financing
the undertaking; and

County's regional planning for construction of sewage collection and
treatment works being eligible for such loan as provided in ORS 449.685
(1)(e) and 449.455;

NOW THEREFORE, in consideration of the premises and mutual covenants
hereinafter set forth, it is agreed:

AMOUNT OF LOAN

Department will loan to County the sum of Twenty-three Thousand Eight
Hundred Dollars (\$23,800), and County will repay said sum, together
with interest on the balances thereof from time to time remaining
unpaid at the rate of five percent (5%) per annum, to Department as hereinafter
set forth.

METHOD OF DISBURSEMENT OF FUNDS

Loan funds will be disbursed to the County for the eligible costs for carrying out approved planning projects upon execution of this agreement and approval by Department of the sewage collection and treatment works study contract to be entered into between County and a consulting engineering firm for the performance of the Engineering Work Program which is outlined in Exhibit "A", attached hereto and by this reference made a part hereof. The first loan disbursement will not exceed 25% of the total amount of the loan. Subsequent loan disbursements will be made upon request in conjunction with the report of progress. Total loan disbursements will not exceed 90% of the total amount of the loan pending final project audit. Final approval and disbursement shall be made by the Director of Department.

REPAYMENT

Except as hereinafter provided, County shall repay to Department the loan, together with the accrued interest thereon, at the time the initial capital improvements are made in accordance with the adopted regional plan for construction of sewage collection and treatment works. It is expected that the loan, together with the accrued interest thereon, will be repaid through federal grants, state grants, bond sale proceeds, user charges, tax levy and other sources deemed appropriate by the County.

If a regional plan for construction of sewage collection and treatment works shall not be adopted by the County, within twenty-four (24) months following disbursement of the loan funds hereunder, County will repay in full to the Department the then unpaid balance of the loan, together with the accrued interest thereon, at the expiration of thirty-six (36) months following disbursement of the loan funds hereunder. If after the adoption of such a regional plan, the regional agencies are not, in the opinion of the Department, making reasonably satisfactory progress in implementing the regional plan, the Department may make

written demand upon County for the full repayment of the then unpaid principal balance of the loan, together with the accrued interest thereon, and County shall make such full repayment to the Department at the expiration of twelve (12) months following such written demand by the Department to the County for loan repayment.

Repayment of the loan will be applied first to accrued interest and then to unpaid principal balance of the loan.

Following disbursement of the loan funds hereunder, County shall make written bimonthly reports to the Department on the progress toward the objectives comprehended herein.

COVENANT OF AUTHORITY

County covenants with Department that County has legal authority to enter into this agreement and incur and repay the indebtedness provided for herein.

GENERAL COVENANTS AND CONDITIONS

County agrees to submit to Department a copy of the final agreement, hereinbefore referenced, between County and its consulting engineering firm, together with all amendments thereto that may thereafter be made.

County covenants to maintain financial records relating to the development and accomplishment of the regional sewage collection and treatment plant and to permit reasonable inspection thereof by Department officers, employees and agents. Should litigation develop between the parties, the prevailing party shall be entitled to attorney's fees and costs from the other party.

It is agreed that time is of the essence of this agreement.

It is understood and agreed that development and execution of this regional sewage collection and treatment works plan will be a pioneering venture of the parties hereto and either party may from time to time request of the other amendments or changes in this agreement for the purpose of accomplishing a viable program.

This agreement consists of _____ pages and is executed in duplicate on the date first hereinabove written.

STATE OF OREGON, acting by and
through the DEPARTMENT OF
ENVIRONMENTAL QUALITY

By _____
Director

BOARD OF COUNTY COMMISSIONERS
BENTON COUNTY, OREGON

By _____

By _____

By _____

(SEAL)

County Clerk



DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5301

TOM McCALL
GOVERNOR

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Agenda Item No. N , September 21, 1973, EQC Meeting

Proposed Washington Square Shopping Center 3369-Space
Parking Facility, Progress

Background

At the May 29, 1973 EQC meeting, the Commission denied the application of Washington Square, Inc. to construct a 5219-space parking facility and set forth requirements relative to transit systems, noise control and water quality to be satisfied prior to further Commission consideration of the parking facility. However, the Commission indicated it would consider a new application at its June meeting for construction of the minimum number of parking spaces necessary to allow two department stores to open in August 1973.

At the June 29, 1973 EQC meeting, the Commission approved construction of 1997 parking spaces at Washington Square in view of the significant progress that had been made by Washington Square, Inc. in fulfilling the Commission's requirements relative to transit systems, noise control and water quality.

The subject of this staff report is Washington Square's application for an additional 3369 parking spaces which would result in 5366 total parking spaces (1997 + 3369 = 5366); 147 more

than originally requested.

Discussion

A. Mass Transit System - the transit system for Washington Square will be developed in two phases. The first phase is based upon existing land use and population density in east Washington County surrounding the shopping center, and will be implemented in the spring of 1974 when the full shopping center opens. The second phase is a long-term comprehensive land use and transportation planning effort based upon projected land use and population density assuming Washington Square becomes "the downtown" for east Washington County.

Washington Square, Inc. hired a transportation consultant, Alan M. Voorhees and Associates, to develop recommendations for the first phase transit system. The consultant's report is contained in a document entitled "A Transit Plan for Washington Square" and is summarized below:

1. Washington Square, Inc. will operate, at its own expense, three bus lines designed to serve Beaverton, Tigard and Raleigh Hills as shown in Figure 1. The buses will be double-decker design as specified in Figure 2. Route characteristics and schedules are delineated in Figures 3 and 4. Buses will be spaced 42 to 44 minutes apart. On the incoming route, a hail system will be used to pick up passengers, supplemented by a specific pick-up point at the terminal point of each line against advertised schedules. On the outgoing route, as much flexibility as possible will be afforded the bus driver to allow a convenient drop-off program. Inbound fare will be 25 cents and outbound will be free. A specified loading area on the west side of Washington Square, leading into the center of the mall, will be designated as the shopping center bus stop. Inside the covered, air-conditioned mall, benches will be provided for waiting and the public address system will announce bus departures.

The entire Washington Square transit system will be heavily advertised and promoted as delineated in the attached document Entitled "A Promotion Program For Washington Square Transit Lines" prepared by Rockey/Marsh Public Relations, Inc.

2. Tri-Met's contribution to the first phase transit system involves rerouting four existing lines, which pass near Washington Square, through the shopping center, and inauguration of a new Lake Oswego to Beaverton line. Most of the modifications to the existing lines are minor and would not significantly upset service or operating cost characteristics from present levels.

The four lines to be rerouted are: (1) Tualatin Acres #43, (2) Greenburg #45, (3) Maplewood #46, and (4) Beaverton #56, shown in Figure 5. If these recommendations are followed, the average headway for all routes connecting Washington Square and downtown Portland would be about ten minutes. "This would certainly provide a remarkable level of service at relatively low increment of operating cost."

The Lake Oswego to Beaverton line would have intermediate stops at Tigard and Washington Square. "This line will by no means satisfy the total transit needs to the southwest communities but it is a start in that direction and may well be warranted on the basis of patronage criteria particularly after Washington Square is in full operation."

Washington Square, Inc. has agreed to implement the transit system recommended by its consultants. Unfortunately, Tri-Met's initial response to the recommended modifications to its system has been generally negative as outlined in their letter of September 14, 1973, attached. Tri-Met does not argue that the modifications are impractical or that they would not be used. They simply state it would cost too much. Tri-Met's response bears some analysis. First, the \$47,000 quoted as an annual operating cost for a single bus is high in comparison with recent estimates provided by Tri-Met in the July 16, 1973 report to the Board prepared by Mr. Roberts, President of the Board. In that report, annual operating cost is estimated at

\$39,687 for 1974-75 fiscal year (Figure 6). Further, both of these estimates were made exclusive of passenger fares. Second, bus patronage to Washington Square would represent off-peak use of Tri-Met buses which by Tri-Met's own admission is the type of ridership needed to reduce operating costs of buses presently operating with low ridership during off-peak hours. Thus, routing present lines to Washington Square could reduce the overall operating expenses of these lines. Third, under the commitment made by Tri-Met to the Portland Transportation Control Strategy, these four bus lines would likely have additional buses added to improve ridership to downtown Portland. Thus, most of Tri-Met's costs involved in modifying these four lines should have been covered in their budget plans for implementing the Transportation Control Strategy. This gets to the crux of the matter which is the fact that the Tri-Met Board at its July 25, 1973 meeting froze its operating budget at present levels for an undetermined length of time. Under the freeze, Tri-Met is unable to make any service improvements which would involve increased operating expenses or implement the Transportation Control Strategy.

Obviously, Tri-Met's posture is totally unacceptable and will prevent the State from achieving its clean air goals as well as make the Transportation Control Strategy unacceptable to the Environmental Protection Agency. EPA's proposed alternatives, including the daytime truck delivery ban, have already been documented as unnecessarily detrimental to the economic vitality of downtown Portland. Tri-Met's intransigence may assure the implementation of the truck delivery ban as well as stop development at Washington Square.

The second phase of the transit system is being developed cooperatively with Washington County. Washington County is undertaking a transit system study which will be coordinated with the development and implementation of the land use plan. Washington County has indicated its intention to undertake this study in letters

dated June 18, 1973 and July 24, 1973, attached. The estimated completion time for the transit study is September 1974. Washington County will provide DEQ with progress reports every three months. The completion of this study will require the implementation of additional transit service in an expanding scale to meet the demands created by changing land use patterns and increasing population density. Tri-Met's participation in the planning phase and subsequent implementation phase is critical for implementing and sustaining a long-term transit plan. Eventually, Tri-Met should operate the entire Washington Square transit system and the necessary preparations for the transfer need to be made now. Unfortunately, Tri-Met is not participating in this planning effort due to lack of staff planning resources. This problem can also be traced to the July 25 budget freeze.

B. Noise Control - the Department's staff has identified the major noise problems associated with Washington Square to be delivery truck noise. This is not to say that the residential areas adjacent to Washington Square and its access roads will be in compliance with proposed DEQ noise standards. Residential areas proximate to the major access arterials will experience violations of the Department's standards whether Washington Square is opened or not. The problem is incompatible land uses, i.e., residential areas next to major highways. A study prepared by Washington Square's consultant, John Graham Architects, which delineates these results, is attached.

Noise in sensitive areas, caused by trucks delivering goods to Washington Square, can be minimized by routing truck traffic away from sensitive areas. Washington County has agreed to make the necessary truck access controls as stated in its letter of August 20, 1973, attached.

C. Water Quality - a proposal for controlling surface runoff from the parking lot has been prepared by Washington Square's consultant and is attached. Washington Square, Inc. is proposing

that a drainage district be formed to control surface runoff in the entire area. If it is impossible to form a drainage district at this time, Washington Square would take care of runoff, utilizing the same land with a smaller ponding area. The procedures outlined in the consultant's report would be identical to those of the drainage district.

D. Parking - it is extremely important that the parking supply at Washington Square be balanced with projected transit patronage. In other words, parking supply should be cut back in direct proportion to expected transit patronage. Accordingly, since Washington Square, in its original application, requested 5219 parking spaces without any available transit service, the parking allowed by the Commission should be 5219 reduced in direct proportion to the projected first year transit patronage. And each succeeding year, the remainder should be reduced in direct proportion to existing plus projected transit patronage for the next year.

Washington Square has recommended that parking be reduced in the ratio of five car spaces for every forty passengers coming to the shopping center by public transit. This is based on the assumption that shopping trips average two persons per car and that each parking space is used approximately four times a day. This is in line with information available to the Department and is acceptable as a guideline.

Based upon the transportation consultant's report, Washington Square is projecting that 1520 passengers will use its three-line transit system daily. That would reduce the parking supply by 190 spaces ($1520 \times 5 \div 40 = 190$).

Tri-Met has not provided transit patronage estimates for the five lines recommended in the consultant's report. If it is assumed they would generate patronage in the same ratio as Washington Square's three lines, especially if a promotional program equivalent to Washington Square's is implemented, then parking supply would be reduced by 360 spaces. Thus, the total reduction in spaces for the

first year would be 550 spaces. Total initial parking supply at Washington Square would be 4669 spaces (5219 - 550 = 4669).

Conclusions

The mass transit, noise control and water quality plans submitted by Washington Square are acceptable and should be implemented. However, implementation of a major portion of the transit system is contingent upon Tri-Met participation and its initial response is that it will not participate. The role of Tri-Met in the two phase program is absolutely critical to its long-term success. Tri-Met's unwillingness to participate in the Washington Square system and its renegeing on its commitment to the Portland Transportation Control Strategy have put not only these programs in jeopardy, but the future of downtown Portland and Washington Square as well.

It is imperative that a meeting with the Tri-Met Board of Directors, Washington County, Washington Square, Inc. and DEQ be called immediately to reach a satisfactory resolution of this problem. The Director intends to call such a meeting for the week of September 24-28.

Upon the successful resolution of this problem, Tri-Met estimates of patronage on its lines serving Washington Square will be required to establish the exact number of parking spaces to be constructed.

Director's Recommendation

The Director recommends that the Commission authorize him to approve construction of no more than 3032 additional parking spaces at Washington Square (5219 - 1997 - 190 = 3032) as soon as an acceptable transit program can be worked out with Tri-Met, and with the following conditions:

1. The Washington Square transit system be implemented as submitted with appropriate modifications per an acceptable Tri-Met commitment.

2. Washington Square provide the Department with quarterly reports on parking lot occupancy and transit patronage for its system.

3. Washington Square, in cooperation with Washington County and Tri-Met submit a long-term transit and land-use plan in October 1974 for east Washington County and the Washington Square immediate vicinity.

4. The 3032 parking spaces be reduced in accordance with Tri-Met estimates of ridership on its lines serving Washington Square.

5. Parking at Washington Square be reduced annually in direct proportion to existing and projected annual transit patronage.

6. Noise control program be implemented as submitted.

7. Water quality control program be implemented as submitted.



DIARMUID F. O'SCANLAIN

Attachments

MJD:en

9/18/73

JK

Attention: Columbia-Willamette Air Pollution Authority
1010 N.E. Couch Street
Portland, Oregon 97232

PARKING FACILITY
NOTICE OF CONSTRUCTION AND APPLICATION FOR APPROVAL

To Construct or Modify an Air Contaminant Source

NOTE: An Approval to Construct must be obtained prior to construction. The Columbia-Willamette Air Pollution Authority will review the application and will send its recommendations to the D.E.Q. for their final action to approve or deny the project. An environmental impact statement or other information may be requested within 30 days of receipt of this N-C.

Business Name: WASHINGTON SQUARE SHOPPING CENTER Phone: _____
Greenburg Rd at State Highway Washington
Address of Premises: 217 (Oregon) City: _____ County: _____ Zip: _____

Nature of Business: Shopping Center

Responsible Person to Contact: Theodore P. Becker Title: Project Manager

Other Person Who May Be Contacted: E. A. Harrington Title: Asst. Project Manager

Corporation Partnership Individual Government Agency

Legal Owner's Address: 505 Madison Street City: Seattle Zip: 98104

Description of Parking Facility and its Intended Use. (Please include 2 copies of Plot Plan showing parking space location and access to streets or roadways): _____

Surface parking for employees and customers 3369

Estimated Cost: Parking Facility Only: \$ 800,000

Estimated Construction Date: Present Estimated Operation Date April, 1974

Name of Applicant or Owner of Business: Washington Square, Inc.

Title: _____ Phone: 206/682-6720
President

Signature: *Theodore P. Becker* Date: _____

Applicability: This Notice of Construction Requirement Pertains

1. To areas within five miles of the municipal boundary of any city having a population of 50,000 or greater.
2. Any parking facility used for temporary storage of 50 or more motor vehicles or having two or more levels of parking for motor vehicles.

RECEIVED
JUN 15 1973

COLUMBIA - WILLAMETTE
AIR POLLUTION AUTHORITY

Grid _____ N/C P. 681

FIGURE I

WASHINGTON SQUARE TRANSIT

FINAL ROUTES
(SHOWN IN DASHED LINES)



0 0.5 1 MILE
SCALE

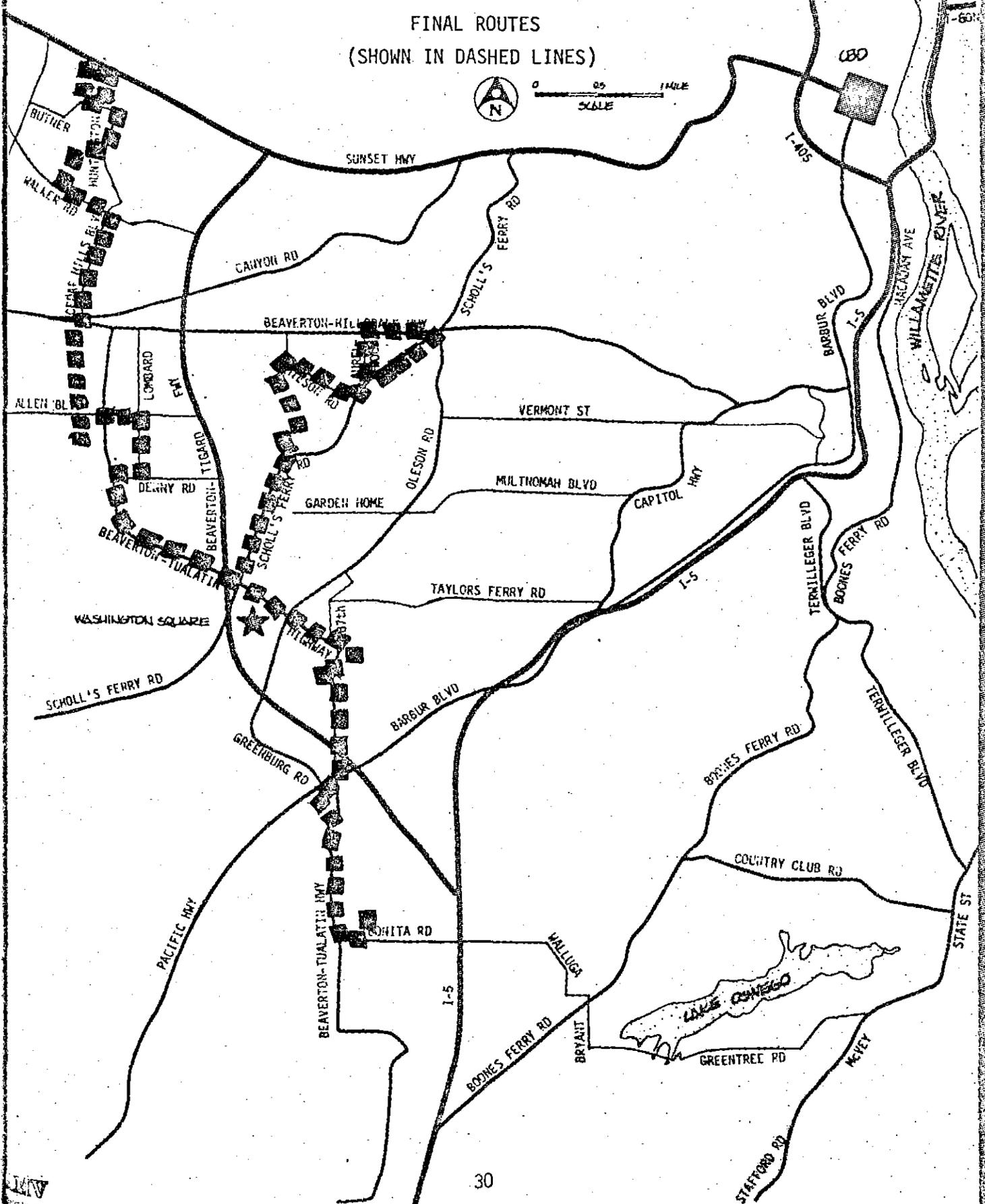


FIGURE 2

BUS SPECIFICATIONS

DESCRIPTION: Coach painted London Transport AEC diesel double decker bus in London Transport livery. Interior and exterior repaint and recent mechanical overhaul.

SUPPLIER: Omnibus Promotions Ltd.

SEATING CAPACITY: 56 adults sitting, 8 standing

LIGHTING: 2 headlamps, 4 parking lights, 4 turn signal markers, 4 clearance lights, 3 illuminated exterior sign cases, 14 interior lights per deck

ADVERTISING SPACE: Two 16' x 24" spaces, one 4' x 20" space, four 20" x 30" spaces, one 19" diameter circular space and sixteen 26" x 8" interior spaces

TYRES: 9.00 x 20 (Standard UK and US size)

BODY: Park Royal Coach - aluminum body

BATTERIES: Four (4) 6-volt heavy duty in 24 volt series

DIMENSIONS: 7'6" wide, 26' long

ENGINE: AEC 9.6 litre, 6 cylinder, rated 115 braking horsepower at 1800 rpm. Diesel.

CONDITION OVERALL: Fully renovated

WARRANTY: 6 months on parts.

Source: Omnibus Promotions Ltd.

AMV

FIGURE 3

ROUTE CHARACTERISTICS

| | Beaverton | Raleigh Hills | Tigard |
|---------------------------------------|------------------------|------------------------|------------------------|
| Route Length | 14.0 miles | 7.8 miles | 8.1 miles |
| Headway | 44 minutes | 42 minutes | 43 minutes |
| Daily Bus Miles * ¹ | 112 | 106 | 112 |
| Daily Cost @\$1.09/mi | \$122 | \$116 | \$122 |
| Annual Bus Miles | 29,200 | 27,700 | 29,200 |
| Annual Operating Cost @ 5-day week | \$31,900* ² | \$30,200* ² | \$31,900* ² |
| Average Speed | 18 MPH | 18 MPH | 18 MPH |

*¹ does not consider outbound leg, route deviations to drop off passengers

*² rounded values

AMV

FIGURE 4

PROPOSED ROUTE SCHEDULES

| BEAVERTON | RALEIGH HILLS | TIGARD |
|----------------|---------------|-------------|
| B 0:00 | | 7:24 |
| <u>WS 0:24</u> | | <u>7:48</u> |
| WS 0:29 | | |
| RH 0:47 | 0:00 | |
| <u>WS 1:00</u> | <u>0:13</u> | |
| WS 1:05 | 0:18 | |
| T 1:24 | 0:37 | 0:00 |
| <u>WS 1:38</u> | <u>0:51</u> | <u>0:14</u> |
| WS 1:43 | 0:56 | 0:19 |
| B 2:12 | 1:25 | 0:48 |
| <u>WS 2:36</u> | <u>1:49</u> | <u>1:12</u> |
| WS 2:41 | 1:54 | 1:17 |
| RH 2:59 | 2:12 | 1:35 |
| <u>WS 3:12</u> | <u>2:25</u> | <u>1:48</u> |
| WS 3:17 | 2:30 | 1:53 |
| T 3:36 | 2:49 | 2:12 |
| <u>WS 3:50</u> | <u>3:03</u> | <u>2:26</u> |
| WS 3:55 | 3:08 | 2:31 |
| B 4:24 | 3:37 | 3:00 |
| <u>WS 4:28</u> | <u>4:01</u> | <u>3:24</u> |
| WS 4:33 | 4:06 | 3:29 |
| RH 4:51 | 4:24 | 3:47 |
| <u>WS 5:04</u> | <u>4:37</u> | <u>4:00</u> |
| WS 5:09 | 4:42 | 4:05 |
| T 5:28 | 5:01 | 4:24 |
| <u>WS 5:42</u> | <u>5:15</u> | <u>4:38</u> |
| WS 5:47 | 5:20 | 4:43 |
| B 6:16 | 5:49 | 5:12 |
| <u>WS 6:40</u> | <u>6:13</u> | <u>5:36</u> |
| WS 6:45 | 6:18 | 5:41 |
| RH 7:03 | 6:36 | 5:59 |
| <u>WS 7:16</u> | <u>6:49</u> | <u>6:12</u> |
| WS | 6:54 | 6:17 |
| T | 7:13 | 6:36 |
| <u>WS</u> | <u>7:27</u> | <u>6:50</u> |
| WS | | 6:55 |

NOTE:

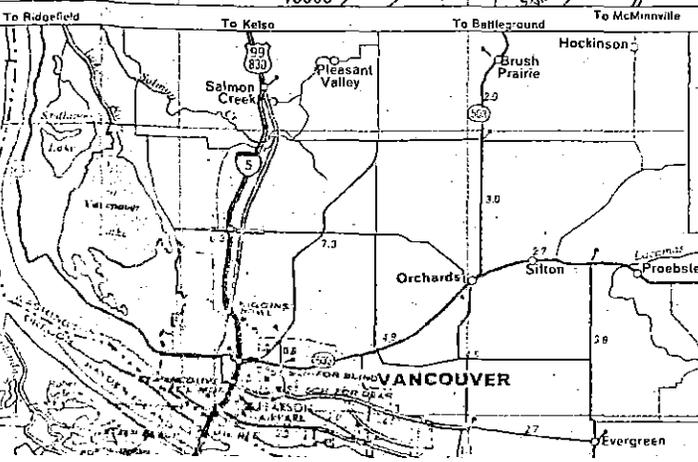
- B = Beaverton
- WS = Washington Square
- RH = Raleigh Hills
- T = Tigard

AMV

FIGURE 5

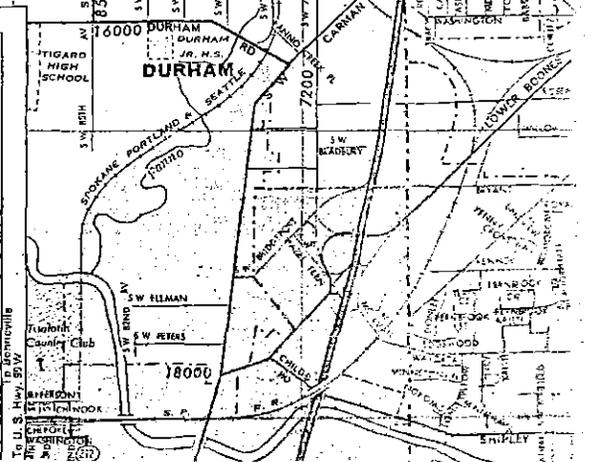


EXISTING TRI-MET ROUTES TO BE REROUTED THROUGH WASHINGTON SQUARE



PORTLAND AND VICINITY

1.3 Mileage in Red between pointers
For map explanation see legend on main map.
One inch equals approximately 4.2 miles.
Scale: 0 1 2 3 4 5 miles.



ESTIMATED AVERAGE ANNUAL COST OF OPERATING EACH BUS
NOT INCLUSIVE OF DEPRECIATION AND OVERHEAD COSTS

| | <u>1971-72</u> | <u>1972-73</u> | <u>1973-74</u> | <u>1974-75</u> | <u>1975-76</u> | <u>1976-77</u> | <u>1977-78</u> | <u>1978-79</u> |
|--------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Transportation Division Wages | \$17,507 | \$19,570 | \$22,323 | \$24,149 | \$26,410 | \$28,483 | \$29,907 | \$31,403 |
| Maintenance Division Wages | 3,306 | 3,633 | 4,147 | 4,495 | 4,926 | 5,256 | 5,518 | 5,794 |
| Wage Fringes | <u>2,706</u> | <u>3,015</u> | <u>3,534</u> | <u>4,841</u> | <u>6,461</u> | <u>6,784</u> | <u>7,123</u> | <u>7,480</u> |
| Total Personal Services Costs | <u>23,519</u> | <u>26,219</u> | <u>30,004</u> | <u>33,485</u> | <u>37,797</u> | <u>40,523</u> | <u>42,548</u> | <u>44,677</u> |
| Fuel, Oil and Grease | 1,179 | 1,123 | 2,003 | 2,123 | 2,250 | 2,364 | 2,482 | 2,606 |
| Tires | 684 | 582 | 534 | 576 | 611 | 652 | 684 | 718 |
| Bus Repairs and Maintenance Supplies | 840 | 798 | 1,003 | 1,064 | 1,127 | 1,183 | 1,242 | 1,304 |
| Insurance | <u>1,657</u> | <u>2,145</u> | <u>2,301</u> | <u>2,439</u> | <u>2,586</u> | <u>2,715</u> | <u>2,851</u> | <u>2,994</u> |
| Total Materials and Services | <u>4,360</u> | <u>4,653</u> | <u>5,841</u> | <u>6,202</u> | <u>6,574</u> | <u>6,914</u> | <u>7,259</u> | <u>7,622</u> |
| Annual Cost for Each Bus | <u>\$27,879</u> | <u>\$30,872</u> | <u>\$35,845</u> | <u>\$39,687</u> | <u>\$44,371</u> | <u>\$47,437</u> | <u>\$49,807</u> | <u>\$52,299</u> |

FIGURE 6

Rockey/Marsh

Public Relations, Inc.

PRESENTATION TO:

WINMAR PACIFIC, INC.

(503) 226-6855

222 S.W. Harrison Street, Suite GA-2 Portland, Oregon 97201

Affiliate offices in Seattle, Anchorage, San Francisco

A PROMOTION PROGRAM FOR
WASHINGTON SQUARE TRANSIT LINES

INDEX

- I. PUBLICITY AND PUBLIC RELATIONS
- II. SALES PROMOTION
- III. ADVERTISING

PUBLICITY

OBJECTIVE

To create awareness of Washington Square Transit Lines in the public mind

We recommend starting publicity 90 days prior to the date chosen for starting service and the publicity program be broken into three segments. First is the publicity in advance of commencement of service (Awareness Phase), the second segment is "start-up day" and the third is continuing publicity (Sustaining Phase).

AWARENESS PHASE

90 days prior to start up

General announcement to press - all media use stills of the buses and press packets including maps of the three routes, pictures, quotes from state VIP's, county VIP's and dignitaries from Beaverton, Raleigh Hills and Tigard. Announce a contest to pick a name for Washington Square Transit Lines (such as "Jolly Trollys" or Washington Square Wheels).

45 days prior to start up

Try to time the arrival of the buses at Portland for 45 days ahead of start-up and arrange for all four buses to arrive at Washington Square simultaneously having paraded up Broadway in Portland and through the communities of Tigard and Raleigh Hills and Beaverton en route to Washington Square. This will be the official announcement of the type of bus to be used.

Publicity (cont.)

30 days prior to start-up

Make the announcements of staff appointments and personnel appointments; conduct interviews with the VIP's in Beaverton, Raleigh Hills and Tigard; take editors and publishers of the community newspapers such as Beaverton VALLEY TIMES, Hillsboro ARGUS, Forest Grove, Tigard and other newspapers of the area for a ride in the buses ending up at lunch (and so forth).

15 days prior to start-up

Mass media press parties aboard the buses to which working members of the press are invited. They will be shown the entire routes to be covered by the buses at the same time we are serving cocktails, tea and crumpets and distributing press packets to all the members who join us for the press parties two weeks ahead of start-up.

START-UP PHASE

5 days prior to start-up

Run the trial runs with efforts to get neighborhood people out to see the buses going by on their first trial runs; good television coverage etc.

Official day of commencement
of service

Publicity will center around a formal event at Washington Square with a ribbon cutting, a cannon firing and dignitaries of Washington Square there and DEQ participation.

6

Publicity (cont.)

SUSTAINING PHASE

Sustaining publicity

Release at will interviews with occasional passengers; short stories on load factors the first week, the first month etc.; stories on covering the on-schedule operation; reaction interviews with riders and so forth.

PUBLIC RELATIONS

A complete public relations program will be formulated to include surveys of attitudes of potential riders and other publics. Based on this data a program of action, including community relations, employee relations, press relations and other publics will be prepared and, upon approval, be implemented so as to earn the acceptance and understanding of all prospective riders.

SALES PROMOTION

OBJECTIVE

To promote the sale of tickets and patronage on Washington Square Transit Lines

We intend to devote considerable time and thought to sales promotion in an effort to promote patronage of the buses by people living near the routes in all three primary areas.

We will try to get as many of the members of the association as possible to hand out free bus tickets to customers or to anyone wanting such a free pass on the buses who live anywhere near the routes. We'll try to get the radio station (KUIK) to promote free tickets for the first month by various guessing contests and write-in cards to the station. We'll try to get restaurants in Beaverton, Raleigh Hills and Tigard to give away free tickets to the buses, to the people eating in those restaurants who live near the bus routes. Each of these free tickets will have the three routes of the buses on the back of the coupon.

We'll try to get the HILLSBORO ARGUS to include a free pass on the bus with each newspaper that is mailed out promoting use of the bus from Beaverton to Washington Square (leaving the car in Beaverton). We will hand-deliver to all homes within three blocks on either side of the bus routes a front-door flyer relative to riding the bus with a free ticket attached.

There isn't enough space here to list all the promotional plans but the above should give you an idea of all the things possible to promote ridership.

ADVERTISING

OBJECTIVE

To stimulate patronage of the Washington Square Transit Lines on a regular and continuing basis through an advertising program designed to:

- A. Create awareness of the new service, its advantages and benefits;
- B. Convert this awareness to acceptance of the new service as an effective, economical, and environmentally sound mode of transportation to and from Washington Square;
- C. Generate an environment of enthusiasm, pride, prestige and excitement about the Washington Square Transit Lines.

CONSIDERATIONS AND STRATEGIES

In determining ways to motivate patronage for the Washington Square Transit Lines, the appeal that most often comes to mind is that of "convenience" because of the visions created when thinking about being let off and picked up "right at the door" of the Square. But deeper probing of this appeal reveals a strong lack of believability.

The location of Washington Square is such that it will inherently create an image of convenience for shoppers in its primary market area who, in the past, traveled by auto to the more distant Central Business District, or other shopping areas, in an attempt to find comparable merchandise selection and facilities.

Other factors such as walking and waiting in bad weather, juggling packages on and off the bus and then getting them home, and the lack of flexibility in making side trips all tend to negate the obvious convenience appeal.

Advertising (cont.)

It is our belief at this time that the appeal during the acceptance phase of the advertising program be based on glamour, charm, and luxury, with strong overtones of contribution to a better environment.

For example, the lady is being chauffeured, not bused. She is being attended or maybe even pampered a little by the attendant. She is riding in a most unique vehicle that truly has Old World charm. And, she is doing her bit to help eliminate pollutants.

She will, of course, be told that it is safe and more pleasant to be chauffeured by Washington Square Transit Lines (especially during the bad weather months), that she does not have to worry about finding a parking space, or about nicks in the paint job or wrinkled fenders, and all of the other positive features that can be developed. But, basically, we want her to feel that getting there and back is part of the shopping experience.

We will be conducting an educational program in a most positive and persuasive manner, and this calls for heavily weighted media expenditures to develop the penetration necessary to change habits, attitudes and shopping patterns.

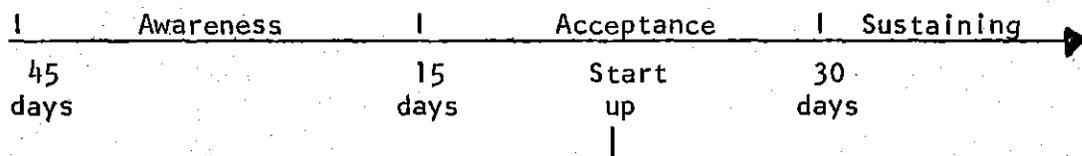
While media purchases can be sectionalized to nearly parallel routes, we believe that during the awareness phase of the campaign all media should be used to cover the entire metropolitan area. During this phase we want people to think about and talk about the Washington Square Transit Lines, whether or not they are in a position to use the service.

During the acceptance phase of the campaign, media would be purchased to closely parallel routes with impact and consistency.

Advertising (cont.)

TIMING

- Awareness phase - 45 days prior to start-up
- Acceptance phase - 15 days prior to start-up
- Sustaining phase - 30 days after start-up



TRI COUNTY
METROPOLITAN
TRANSPORTATION
DISTRICT
OF OREGON



4314 SE 17TH AVENUE
PORTLAND, OREGON 97202
(503) 233-8373

O'Scannlain

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Mr. Stephen R. McCarthy

TRI-MET

September 14, 1973

Mr. Frank A. Orrico, President
Winmar Pacific, Inc.
505 Madison Street
Seattle, Washington 98104

Dear Mr. Orrico:

Subsequent to the receipt of your letter of August 15, 1973, the Tri-Met staff has conducted an analysis of the route changes recommended by the Alan Voorhees Study for Washington Square. The study recommended that Tri-Met 1) consider transit service from Lake Oswego to Beaverton; 2) modify routes #56, #46 and #43 to serve Washington Square; 3) consider the extension of route #45 (Greenburg Road line entering Washington Square); and 4) re-evaluate the present zone boundaries and fare structures of the southwest to see if new intra-community patronage can be stimulated without obstructing linehaul revenue.

With regard to the above recommendations the following factors are applicable:

- 1) Implementation of the line between Lake Oswego and St. Vincent Hospital or Beaverton would require five buses for a 12-hour period between the hours of 6:30 a.m. and 6:30 p.m. The approximate cost would be \$235,000 per year for weekday service.
- 2) Route modifications.
 - a) The Aloha/Beaverton/Progress line (#56) could serve Washington Square using the present schedule at very little extra cost to Tri-Met.
 - b) Extension of the Maplewood line (#46) to Scholls Ferry Road to Washington Square would add two miles to the existing route and 10 minutes in each direction. Cost would be approximately \$47,000 annually.
 - c) Extension of Tualatin Acres line (#43) would entail an extension from 80th and Taylors Ferry Road to Washington Square at a yearly cost of about \$47,000.

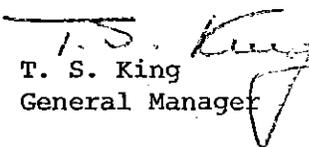
Mr. Frank A. Orrico
September 14, 1973
Page Two

- 3) The Greenburg line (#45) presently is routed around but not through Washington Square. To enter the Washington Square complex would lengthen headways and have a detrimental effect on the line unless an additional bus were added at an additional cost of about \$47,000 per year.
- 4) Fare and Zone Structure. Tri-Met has a technical study grant for the study of such a structure on a system-wide basis. As a result of our study, we will consider modifications to the fare and zone structure throughout the three-county area.

For the immediate future, Tri-Met can serve Washington Square with the Aloha/Beaverton/Progress line #56 and, to a lesser degree, with the Greenburg line. However, extensions of lines #46 and #43 and addition of NW-SW cross-town line between Lake Oswego and St. Vincent Hospital would entail considerable extra cost. As funds become available and priorities dictate, consideration could be given to the initiation of such additional service.

Tri-Met will continue to assist in any way toward the purpose of planning best practicable public transportation.

Sincerely,


T. S. King
General Manager

TSK:cg

cc: Diarmuid O'Scannlain, Director
Department of Environmental Quality

Michael Downs, Engineer
Department of Environmental Quality



WASHINGTON COUNTY

27280 S. W. TUALATIN VALLEY HWY.
HILLSBORO, OREGON 97123

| REC'D | JUN 19 1973 | FILE | | |
|--------|-------------|------|---------|------|
| | | | COPY IS | DATE |
| ORRICO | | | | |
| MICONN | | | | |
| HOLM | | | | |
| | | | | |
| | | | | |

BOARD OF COMMISSIONERS

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ROD ROTH
BURTON C. WILSON, JR.

PLANNING DEPARTMENT
MARTIN R. CRAMTON JR., Director
(503) 648-8740

June 18, 1973

Frank Orrico, President
Winmar Company, Inc.
505 Madison Street
Seattle, Washington 98104

Dear Mr. Orrico:

I am sending you a copy of a draft outline for a Washington County public transit system study. Our approach is to develop the transit plan as a part of the total transportation system for the county. Much of the data, methodology and expertise will be drawn from existing regional transportation studies. This study will be coordinated with the development and the implementation of the land use plan.

In recognizing the size and impact of Washington Square as a land use element, the internal system will likely use Washington Square as a terminal point. We will count on your cooperation in developing this portion of the system.

A portion of this study will also include the implementation and operation of the system. There are at present a number of agencies and jurisdictions involved in the transportation problems within Washington County.

It is uncertain at this time, who will engineer implement and operate the initial system. Neither Tri Met nor the County have the staff and resources necessary to accomplish these tasks.

We appreciate your expressed willingness to cooperate and will keep you informed on the status of the attached study. We will contact you for input and assistance on those portions which affect Washington Square.

Sincerely,

A handwritten signature in dark ink, appearing to read "Martin R. Cramton, Jr.", written over a large, stylized flourish.

Martin R. Cramton, Jr. AIP
Director of Planning
Washington County Planning Department

MRC: jw

WASHINGTON COUNTY TRANSIT SYSTEM

Study Outline

- I. Define Goals
 - A. Support the land use plan
 - B. Improve service to Portland Central Business District
 - C. Develop an internal transit system.
 - D. Decrease the useage of automobile.
- II. Define Citizen Input
 - A. Purpose
 - B. Format
 - C. Contacts
 - D. Input and Extent
- III. Develop Work Program
 - A. System Design
 1. Data Collection
 - a. existing and proposed land use
 - b. population centers
 - c. Washington Square market area
 - d. other activity centers
 - e. existing routes
 2. Levels of Service
 - a. park and ride
 - b. kiss and ride
 - c. local service to Portland
 - d. internal system
 - B. Components of System
 1. Routes
 2. Equipment
 3. Stations, terminals, parking facilities, etc.
 4. Service
 - C. Impacts of System
 1. Social
 2. Environmental
 3. Economic
 - D. Feasability
 - E. Implementation

1. Time schedule
2. Financing
3. Government Coordination
4. Promotion

F. Operation

1. Administration
2. Maintenance
3. Personnel

IV. Negotiate Commitments as Required

- A. Washington Square
- B. Washington County
- C. Clackamas County
- D. Cities of Tigard and Beaverton
- E. Other agencies
- F. Other businesses

V. Implement of Program



WASHINGTON COUNTY

ADMINISTRATION BUILDING
150 NORTH FIRST AVENUE
HILLSBORO, OREGON 97123

BOARD OF COMMISSIONERS

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PLANNING DEPARTMENT
MARTIN R. CRAMTON JR., Director
(503) 648-8761

July 24, 1973

Carl Holm, Vice President
Winmar Company, Inc., 505 Madison St.
Seattle, Washington 98104

Dear Mr. Holm:

This is to confirm our phone conversation on July 24, 1973, concerning the long range transit plan for Washington County.

Our present schedule includes the Countywide 1990 Framework Plan, the 1980 plan and the 1975 Community Development Plans. As we begin to work on the 1975 plans we will begin to develop the transit plan.

Our Public Works Department will shortly begin work on a two (2) year transportation program which will include a study of the County arterial system.

These two programs will be coordinated and we will pull all of the information together and develop an integrated transportation plan.

The estimated completion time for this portion of the program is September 1974. As I mentioned on the phone we would be able to supply DEQ with progress reports every three months.

I am pleased with the enthusiasm you have shown towards the work of Alan Vorhees Co. and look forward to receiving their draft report. We shall be watching closely the success of your project and will be consulting with you in the development of our countywide transit system.

Sincerely,

A handwritten signature in cursive script that reads "Dave Fredrikson".

Dave Fredrikson
Senior Planner

DF: jw

Noise

This section summarizes the results of a reevaluation study of both the present ambient noise environment and the predicted noise exposure generated by the construction of Washington Square Shopping Center. It also presents an evaluation of the results relative to impact based on the National Cooperative Highway Research Program Report 117, "Highway Noise."

Summary of Results

The present ambient noise levels in the vicinity of Washington Square are primarily due to vehicular traffic on the surrounding arterials of Greenburg Road, Hall Boulevard, S. W. Scholl's Ferry Road and S. R. 217. While the levels of traffic noise vary as a function of the time of day, the highest values occur during rush hours from approximately 7 to 9 a. m. and 5 to 7 p. m. due to commuter traffic and 7 p. m. to 9:30 p. m. resulting from shopping center traffic. In order to evaluate these peak values, 10% of the Average Daily Traffic (ADT) was selected to represent worst hourly vehicle volumes. Five percent of the vehicles were assumed to be trucks (Highway Capacity Manual 1965).

The area's traffic data not including the Washington Square Development

was based on volumes obtained from the Portland-Vancouver Metropolitan Transportation Study for 1971 and 1990. Average Daily Traffic (ADT) volumes for 1975 were interpolated assuming a constant increase for each year between 1971 and 1990. The traffic data, inclusive of the Washington Square Development, was obtained from a study by John Graham and Company (Washington Square Traffic Study, dated 1969). The projected results are based on a computer analysis of available data using a modified NCHRP 117 Noise Simulation Model. The 1971 results are assumed to be equivalent to the ambient levels which presently exist. Four noise sensitive locations are shown in Table 1 with the L₁₀ and L₅₀ levels with and without the addition of Washington Square traffic volumes.

Interpretation of Results

A. Criteria

NCHRP Report 117 suggests design criteria (Table 6) for traffic noise which have been derived from previous research projects. These criteria specify maximum noise levels that would be considered by the average individual to be acceptable with respect to sleep interference, speech, radio and TV interference, and annoyance. For example, an L₁₀ of 56 dBA during a day-time

TABLE I

1971 - 1990 L₅₀ AND L₁₀ NOISE LEVELS (dBA)
IN VICINITY OF WASHINGTON SQUARE SHOPPING CENTER

Without center: w/o

With center: w

GREENBURG ROAD
At 50 Feet From Roadway

| | L ₅₀ | L ₁₀ |
|------------|-----------------|-----------------|
| 1971 | 55 | 66 |
| 1975 - w/o | 62 | 68 |
| 1975 - w | 64 | 69 |
| 1990 - w/o | 70 | 84 |
| 1990 - w | 71 | 85 |

GOLDEN KEY APARTMENTS
(At 220 Feet From Roadway)

| | L ₅₀ | L ₁₀ |
|------------|-----------------|-----------------|
| 1971 | 52 | 58 |
| 1975 - w/o | 53 | 59 |
| 1975 - w | 57 | 68 |
| 1990 - w/o | 56 | 67 |
| 1990 - w | 60 | 70 |

S. W. SCHOLL'S FERRY ROAD
(McKay School At 100 Feet From Roadway)

| | L ₅₀ | L ₁₀ |
|------------|-----------------|-----------------|
| 1971 | 57 | 62 |
| 1975 - w/o | 59 | 62 |
| 1975 - w | 62 | 72 |
| 1990 - w/o | 62 | 72 |
| 1990 - w | 64 | 74 |

S. W. SCHOLL'S FERRY ROAD
(Whitford Park School At 400 Feet From Roadway)

| | L ₅₀ | L ₁₀ |
|------------|-----------------|-----------------|
| 1971 | 48 | 51 |
| 1975 - w/o | 51 | 58 |
| 1975 - w | 53 | 59 |
| 1990 - w/o | 54 | 60 |
| 1990 - w | 56 | 61 |

Source: Bionomics Studies Group
Computer Analysis - NCHRP117 Noise Prediction Program

TABLE 2

IMPACT EVALUATION WHEN PREDICTED NOISE LEVELS EXCEED CRITERIA

PREDICTED NOISE LEVEL - CRITERION LEVEL IN dB

| | -10 | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
|---|-----|----|----|----|----|----|----|----|----|----|-----|---|---|---|---|---|---|---|---|---|----|-----|
| PREDICTED NOISE LEVEL - AMBIENT LEVEL IN dB | 0 | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 1 | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 2 | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 3 | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 4 | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 5 | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 11 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 13 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 14 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| 15 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | >10 |
| >15 | | | | | | | | | | | | | | | | | | | | | | |

TABLE III

1975 IMPACT ANALYSIS FROM NOISE DUE TO ADDED TRAFFIC

VOLUMES IN VICINITY OF WASHINGTON SQUARE

| Location | L50 without Wash. Square 1975 | Added Noise Source | L50 with Wash. Square 1975 | Impact |
|--------------------------|----------------------------------|--|-------------------------------|--|
| Greenburg Road | 62dBA * | Washington Square Traffic (W. S. T) | 64dBA | + 2dBA; Some impact, unacceptable for residential with or without Washington Square according to NCHRP, 117 ¹ ; normally acceptable according to HUD guidelines ² ; less than 5dB increase not considered significant according to EPA. ³ |
| Golden Key Apartments | 53dBA * | W. S. T. | 57dBA | + 4dBA; Some impact, unacceptable for residential with or without Washington Square according to NCHRP, 117; normally acceptable according to HUD guidelines; less than 5dBA increase not considered significant according to EPA. |
| McKay School | 59dBA * | W. S. T. | 62dBA | + 3dBA; Some impact, unacceptable for school with or without Washington Square; HUD guidelines do not apply, not considered significant impact according to EPA. |
| Whitford Park School | 51dBA | W. S. T. | 53dBA | + 2dBA; No impact, acceptable for school with or without Washington Square, HUD guidelines do not apply, no significant impact according to EPA. |

TABLE III (Continued)

* Presently exceeds recommended design criteria for building category per NCHRP 117.

L50 = 50dBA for residential outside ambient levels.

L50 = 55dBA for schools outside ambient levels.

1. NCHRP Report 117 "Highway Noise" (1971)
2. HUD Noise Assessment Guidelines (1971)
3. EPA, NTID 300.3 "Community Noise" (1971)

TABLE IV

1990 IMPACT ANALYSIS FROM NOISE DUE TO ADDED TRAFFIC

VOLUMES IN VICINITY OF WASHINGTON SQUARE

| Location | L50 Without Wash. Square 1990 | Added Noise Source | L50 With Wash. Square 1990 | Impact |
|--------------------------|----------------------------------|---|-------------------------------|---|
| Greenburg Road | 70dBA * | Washington Square Traffic (W. S. T.) | 71dBA | + 1dBA: Some impact, unacceptable for residential with or without Washington Square according to NCHRP, 117 ¹ ; normally acceptable according to HUD guidelines since level occurs less than 8 hours per day every 24. ² No significant impact according to EPA. ³ |
| Golden Key Apartments | 56dBA * | W. S. T. | 60dBA | + 4dBA: Some impact, unacceptable for residential with or without Washington Square according to NCHRP, 117; normally acceptable according to HUD criteria; no significant impact according to EPA. |
| McKay School | 62dBA * | W. S. T. | 64dBA | + 2dBA: Some impact, unacceptable for school with or without Washington Square traffic per NCHRP, 117; HUD guidelines do not apply; no significant impact according to EPA. |
| Whitford Park School | 54dBA | W. S. T. | 56dBA ** | + 2dBA: No impact, though level exceeds design criteria by 1dBA with Washington Square, peak values will occur while school is not expected to be in session; per NCHRP, 117; HUD guidelines do not apply; no significant impact according to EPA. |

TABLE IV (Continued)

* Presently exceeds recommended design criteria for building category per NCHRP 117.

L₅₀ = 50dBA for residential outside ambient levels.

L₅₀ = 55dBA for schools outside ambient levels.

1. NCHRP Report 117 "Highway Noise" (1971)
2. HUD Noise Assessment Guidelines (1971)
3. EPA, NTID 300.3 "Community Noise" (1971)

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period is considered acceptable outside a residential dwelling while an L₁₀ of 61 is considered acceptable outside a school.

Table 2 shows the characteristics used to evaluate impacts upon sound levels as a result of a new highway source. This table can be read in two ways:

1. On the horizontal scale, if the existing ambient is already above the criteria, an increase of 1 - 5 dBA would result in SOME IMPACT. An increase of 6 dBA or more would result in GREAT IMPACT.
2. On the vertical scale, if the existing ambient is below the criteria, an increase of 0 - 5 dBA would cause NO IMPACT, 6 - 15 dBA SOME IMPACT, and more than 15 dBA would result in GREAT IMPACT.

Table 5 (below) shows the HUD Noise Assessment Guidelines and is the standard by which new construction sites are evaluated. These standards reflect time-weighted permissible exposures, whereas the NCHRP standards use only day or night levels in determining acceptability.

TABLE 5
HUD NOISE ASSESSMENT
GUIDELINES

GENERAL EXTERNAL EXPOSURES (dBA)

Unacceptable

Exceeds 80 dBA 60 minutes per 24 hours
Exceeds 75 dBA 8 hours per 24 hours

Normally Unacceptable

Exceeds 65 dBA 8 hours per 24 hours
Loud repetitive sounds on site

Normally Acceptable

Does not exceed 65 dBA more than 8 hours per 24 hours

Acceptable

Does not exceed 45 dBA more than 30 minutes per 24 hours

The present EPA criteria is more general than either the NCHRP or HUD criteria. According to EPA, the judgment of an impact is based on the amount of change caused by a new noise source.

As a general statement, increases can be divided into three ranges, related to expected community response:

1. Up to 5 dBA increase--few complaints if gradual increase.
2. 5 - 10 dBA increase--more complaints especially if conflict with sleeping hours
3. Over 10 dBA increase--substantial number of complaints

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Related to these ranges, generally no attention is needed if the increase is under 5 dBA. Some consideration should be given to alternate routing or additional abatement measures if the range increase is 5 - 10 dBA. If the increase is over 10 dBA, the impact is considered serious and warrants close attention.

The impact analysis is discussed in Tables 3 and 4 using the NCHRP 117 criteria, the HUD Noise Assessment Guidelines and the EPA Community Noise criteria. The following assumptions were made in evaluating the projected impacts around Washington Square:

1. The predictions represent the worst case commuter or shopping center traffic levels.
2. The added noise source will be due to Washington Square traffic.
3. The L₅₀ levels without Washington Square would represent the existing levels for 1975 and 1990.
4. The impact would be determined by the addition of the L₅₀ levels projected for Washington Square traffic to the existing levels for 1975 and 1990 (net increase in L₅₀).
5. The noise projections for the Washington Square vicinity indicate that the NCHRP recommended design criteria will be exceeded, in three of four locations, without the addition of Washington Square traffic (per Table 6).
6. The grade schools are not expected to be in session during peak traffic hours associated with Washington Square (evenings 7:30 - 9:00 p. m.).

- 7. The L₁₀ levels predicted, with Washington Square, will occur for approximately 6 minutes out of the worst 60 minutes each day.
- 8. The L₅₀ levels predicted are statistically more reliable than L₁₀ levels and are therefore used in the impact analysis.

III. Conclusion

Based on the results of this study, the areas immediately surrounding Washington Square Shopping Center do not appear to be suited to residential or school developments due to the projected long-term growth of traffic related noise. The absence of Washington Square would not change the long-term impacts or make possible a satisfactory environment.

The impacts predicted in the area present a problem which should be dealt with by a joint effort between county and state agencies.

The following suggestions are made which might result in a more compatible environment in the area of Washington Square. These suggestions will attempt to explore various methods for achievement of a suitable environment. The effectiveness of Washington Square, Inc. as a private enterprise would be limited to:

- 1. Coordination with Merchant's Association to establish recommended truck routes and delivery schedules to the shopping center.

2. Cooperation with governmental officials when a comprehensive abatement plan is developed.

Other methods to be further evaluated, which might achieve a suitable environment, would be the primary responsibility of the state, county or public agencies.

1. Impose vehicle weight limitations on roads to eliminate truck traffic in sensitive areas.
2. Reduce the speed limit to reduce levels associated with acceleration and deceleration.
3. Change zoning to less sensitive category to achieve compatibility with noise levels and provide building barrier for residences beyond the rezone area.
4. Enact and enforce strict standards for permissible vehicle noise levels.
5. Periodically smooth-coat the road surface (costly).
6. Relocate McKay School to better area.
7. Erect noise barriers along right-of-way.
8. Combinations of several of the above methods.

Building Equipment Noise

It is not expected that the building equipment (i. e. , coolers, fans, compressors, etc.) will constitute a problem in noise generation to surrounding sensitive areas. However, to insure that the levels from such equipment are not intrusive, octave-band sound level measurements will be made after installation. If any equipment is found to exceed the recommended levels, appropriate reduction methods will be made by Washington Square, Inc.

Street Sweeper Noise

Sweepers used at Washington Square will be operated at times and locations that will insure that their presence does not cause intrusion at noise sensitive areas surrounding the property. Early morning operations will be limited to areas closest to the department store complex, while the outer areas will be cleaned in the late morning so as not to disturb sleep.

TABLE 6

RECOMMENDED DESIGN CRITERIA

| OBSERVER CATEGORY | STRUCTURE | | L ₅₀ (dBA) | | L ₁₀ (dBA) | |
|----------------------|--------------------|----------------------|-----------------------|-------|-----------------------|-------|
| | | | DAY | NIGHT | DAY | NIGHT |
| 1 | Residences | Inside ^a | 45 | 40 | 51 | 46 |
| 2 | Residences | Outside ^a | 50 | 45 | 56 | 51 |
| 3 | Schools | Inside ^a | 40 | 40 | 46 | 46 |
| 4 | Schools | Outside ^a | 55 | - | 61 | - |
| 5 | Churches | Inside | 35 | 35 | 41 | 41 |
| 6 | Hospitals, | Inside | 40 | 35 | 46 | 41 |
| 7 | convalescent homes | Outside | 50 | 45 | 56 | 51 |
| 8 | Offices: | | | | | |
| | Stenographic | Inside | 50 | 50 | 56 | 56 |
| | Private | Inside | 40 | 40 | 46 | 46 |
| 9 | Theaters: | | | | | |
| | Movies | Inside | 40 | 40 | 46 | 46 |
| | Legitimate | Inside | 30 | 30 | 36 | 36 |
| 10 | Hotels, motels | Inside | 50 | 45 | 56 | 51 |

^a Either inside or outside design criteria can be used, depending on the utility being evaluated.



WASHINGTON COUNTY

ADMINISTRATION BUILDING — 150 N. FIRST AVENUE
HILLSBORO, OREGON 97123

BOARD OF COMMISSIONERS

ELDON HOUT, Chairman
VIRGINIA DAGG
WILLIAM MASTERS
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BURTON C. WILSON, JR.

August 20, 1973

DEPT. OF PUBLIC WORKS
KENNETH A. MENG, Director
ROOM 201
(503) 648-8886

Carl Holm
Vice-President
Winmar Pacific, Inc.
505 Madison Street
Seattle, Washington

Dear Carl:

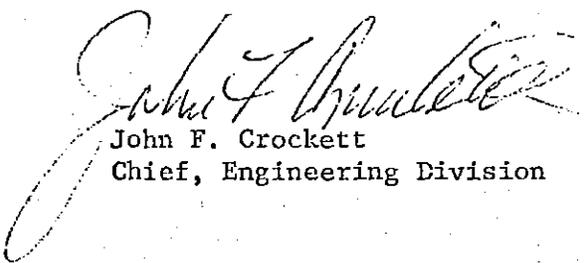
After our discussion the other day relative to truck deliveries to Washington Square Shopping Center, I would make the following observation. Because of the peculiar arrangement of the roads in the vicinity of subject shopping center, I feel that it would be entirely possible to control the access and utilization of entries into the shopping center by delivery trucks by posting informational signs. If this does not prove to be adequate control, it will then be possible to review the possibility of posting advisory signs along the access routes as well as at the entry points to the center.

I believe that this will suffice in controlling the access to your development by delivery trucks.

If it would be possible, I would appreciate very much if you might send me a copy of the Vorhis report relative to the public transit system being required at the center.

If you have any additional questions, or we might be of additional service to you, do not hesitate to call.

Yours very truly,


John F. Crockett
Chief, Engineering Division

JFC:pj

WASHINGTON SQUARE
PROGRESS, OREGON

STORM DRAINAGE EVALUATION
AND
PRELIMINARY CONSTRUCTION PROPOSAL

Prepared By

WASHINGTON SQUARE, INC.

900 S. W. Fifth Avenue

Portland, Oregon

August 14, 1973

A review of site characteristics and storm run-off projections indicates that storage and regulation of peak flows of storm water discharge can best be accomplished through use of open ponds or reservoirs to accommodate the storm waters. Due to the large volumes of water involved and the size of the required storage basin, it is impractical and certainly would be extremely expensive to attempt to cover any storage basin.

An open basin, if fenced and landscaped would serve as an asset to the area through creation of a "Green Spot" and would not constitute a safety or health hazard.

Due to the presence of some contaminants and wastes in surface waters, the storage of such water in covered reservoirs could, at times, cause septic conditions in such a reservoir with attendant health hazards. A reservoir open to the atmosphere and sunlight would provide a natural means of purification of the reservoir during low water periods and provide some aerobic reduction of waste at any stage of the water level.

It is proposed to construct one or more storage reservoirs to attenuate the peak discharge flow from the shopping center and regulate the discharge from the reservoir to the calculated discharge which occurred prior to construction.

The present storm drainage system for the center consists of

catch basins, inlets and underground piping discharging to the westerly side of state route No. 217. This water now flows westerly in open ditches to the railroad embankment thence southerly to Ash Creek at it's junction with Fanno Creek. Surface discharge from the state highways, Greenburg Road and the Industrial Park east of the railroad augment this flow and add materially to the peak discharge into Fanno Creek.

One single storage reservoir located near the confluence of Ash and Fanno Creek could regulate peak flows of the entire watershed area bounded by S. W. Hall Boulevard on the north, Greenburg Road on the east and south and the railroad on the west. This would process all waters, not just those from the shopping center. Such a development would entail cooperation between all property owners within the drainage area. Formation of a local drainage district would be a recommended solution.

Drainage Districts

A drainage district could be formed to construct, operate and maintain drainage structures etc. for the entire watershed bounded roughly by S. W. Hall Boulevard, Greenburg Road, the westerly portion of Ash Creek and the railroad embankment.

This district would include property presently not regulated, such as the highways and the commercial and industrial areas lying between Route 217 and the railroad.

Advantages of drainage district would be numerous and would enable storm water storage and regulation of the entire watershed, a cleaner effluent through use of oil skimming devices plus the ability

to separate grits, floating materials and much of the suspended solids from the storm waters.

Such a district is formed by petition of property owners to the county, the county will then provide for a local election of residents to verify formation of the drainage district.

All planning and construction done by the district must be approved by the county and is under county control. Directors of the district are empowered to condemn property as necessary, bond, construct, operate and maintain the drainage structures or systems. Financing is by assessment against property owners in the district.

Formation of such a district ensures proper operation and maintenance of a system, which, if left to individual private owners can often be a hit or miss proposition. It is eminently fair to all concerned as costs are pro-rated among all property contributing to the district.

Washington Square, Inc., proposes that such a district be formed, and have proceeded along this line by obtaining an option on the one piece of property which is suitable for construction of a storage and regulation reservoir for the entire drainage area. This property would be acquired by Washington Square, Inc., and if necessary, preliminary construction could be done by Washington Square to solve immediate problems if it appears that formation of a district into an operating entity would be unreasonably delayed. All such property and works could then be turned over to the district as a portion of the Washington Square Pro-Rata District Cost.

All work would be performed in close cooperation and with the approval of Washington County to ensure that the requirements of the county and future drainage district would be met.

Design Factors

The proposed storage and regulation facilities would be sized to provide storage for peak flows from improved areas to regulate the discharge to that which occurred under unimproved conditions. Preliminary design factors would utilize a 25 year storm intensity with a run-off coefficient of 0.9 for improved areas and 0.25 for unimproved areas.

The drainage area is characterized by shallow saturated silts and clays overlying basalt bedrock. The ground water table, even in the drier months, lies close to the surface. Due to the impermeable bedrock and saturated silty soil conditions, percolation of surface waters into the ground has always been minimal, and overland flows higher than would normally be expected. Final hydraulic analysis should confirm that once the initial fall rains saturate the surface soils run-off is materially greater than the factor of 0.25. If this coefficient does in fact prove to be low, it is our belief that a more realistic figure should be approved by the concerned agencies.

Salient features of the proposed regulating reservoir would be as follows:

A. Construction

Earth dikes, seeded and landscaped, dike slopes probably 3:1. Rock rip-rapping as required for erosion protection and a chain link security fence surrounding the structure.

B. Inlet

Pipe inlet set so overflow water level in the basin will not be materially above top of inlet pipe. Baffles in pond at inlet to deflect incoming water to create maximum stilling and settling action.

C. Outlet

Regulated size of outlet piping to throttle discharge to pre-determined natural run-off rate. Outlet to be a submerged orifice to provide skimming of floating debris and floating oils. At low water, outlet in a depressed sump will allow a concentration of floating debris and oils for removal from sump either manually, mechanically or through use of a material such as "Sorbent-C".

D. Overflow

Emergency overflow weir to pass waters of storms of large magnitude without damage to the storage structure. This weir system would skim floating debris and oils and the stilling action of the reservoir would enable separation of grits and a large portion of the suspended solids.

E. Collection System

Probably a combination of underground piping and open ditches, both lined and unlined. Actual design dependent upon final surveys and county determinations.

It is possible that a formation of a drainage district would not be feasible due to opposition of other property owners in the area. Should this happen, Washington Square, Inc., is prepared to construct and operate storm drain control facilities sufficient to adequately process storm waters from its own property.

Such an individual system could utilize the presently optioned property near the confluence of Ash and Fanno Creeks to construct a storage and regulating basin sufficient to handle storm flows from the shopping center only. Such a system would have to by-pass flows from other private and state properties.

An alternative to the above would be to construct two basins, one each where the drainage from the shopping center drains cross state route No. 217. Construction of this type of system would probably entail less construction costs and problems to Washington Square, however, this would not attenuate the storm drainage now entering Fanno Creek from other properties within the drainage area. For this reason, Washington Square believes that a drainage district approach is the proper solution and should be instituted.

To provide for flow equalization and remove settleable and skimmable debris and oils, the proposed drainage control plan as shown on Drawing No. PC 125 would be designed to suite the following criteria:

1. Peak Run-Off

The drainage area consists of approximately 280 acres which is tributary to the proposed regulating pond. Preliminary analysis indicates that the run-off coefficient from the unimproved land is approximately 0.25, using this figure gives a natural peak run-off rate in the range of 100 C. F. S. maximum. When the improved areas consisting of the shopping center, roadways, industrial buildings and parking areas are added in at a run-off coefficient of 0.90 the peak flow rate increases to 330+ C. F. S. for a twenty-five year storm.

A mass diagram indicates that to regulate the flow to not more than 100 C. F. S. a storage basin of approximately $13 \frac{1}{2}$ acre feet is required. The outlet from the basin would be sized so that when operating under maximum head (25 year storm condition) the discharge would be 100+ C. F. S. During storms of minor intensity the discharge would be proportional to the storage head and should approximate the natural run-off rate for the storm intensity.

2. Removal of Settleable and Floating Debris and Oils

The pond outlet would be located in a depressed sump in one corner of the basin, with the outlet submerged so that no floating debris or oils could enter the pipe. This sump would concentrate all oils and floating material for collection during low-water periods. A proposed system could use trash screens to remove floating debris and a material such as "Sorbent C" to absorb any oils on the water surface.

The inlet to the basin would be baffled with a deflecting wall to create maximum stilling action. At peak flow periods retention time would be in excess of four hours and velocity through the basin would be less than one foot per minute. This should create maximum settling action and effectively remove a great portion of the suspended solids.

At low flow, the inlet flows would be routed through a paved channel to the sump to prevent scour of the bottom of the basin and provide flushing of the heavier solids and grits to a paved grit collection area located in the sump. Removal of such grits would be done manually on an annual or semi-annual basis as may be required.

It is anticipated that the basin proper would not require cleaning for extended periods of time. Should significant quantities of solids be deposited it is proposed to use mechanical equipment such as a small cat-type front-end loader

to collect and remove such material.

The outlet would discharge directly into Fanno Creek and consist of either a paved outfall section or rip rapping of the area to prevent scour of the creek channel.

3. Emergency Overflow Provisions

By allowing additional head or storage capacity in the basin, the normal outlet works could pass flows greater than those anticipated from a twenty-five year storm. To guard against failure of the structure during a catastrophic storm, an emergency overflow structure would be provided. Present thinking indicates a large diameter pipe set with the inlet above normal pond level and baffled with an annular ring to prevent entry of floating debris and oils. An alternate could be a spillway type of structure with a submerged weir to provide skimming action.

4. Basin Cover.

The proposed storage basin would have a surface area of $2\frac{1}{4}$ + _ acres, it is not practical to consider covering a basin of such size. Due to the presence of degradable and animal wastes in surface storm waters a covered basin could cause septic conditions, especially during low water periods. An open basin would be continually purified through exposure to the atmosphere and sunlight. The normal contact with the atmosphere would furnish additional oxygen to assist in

the reduction of such wastes, and result in a superior effluent.

A cover is not recommended.

Cooling Waters

The air conditioning system for the shopping center proper will have a bleed-off rate of approximately 20 G. P. M. Addition of the three major stores with separate systems will give a total bleed-off of approximately 35 G. P. M at a sump temperature of 85°_{+} . Sub-surface drains now installed in the center are flowing in excess of 1 C. F. S. at a summer rate of flow. Addition of the small ($1/16$ C. F. S.) flow from the cooling system will not materially affect the present flows. Temperatures will be stabilized to the existing ground water temperature during passage through the storm drains.

Alternates

Should it become necessary to install regulating basins to accommodate drainage from the shopping center only, topography indicates that two smaller basins incorporating the above features would be a suitable alternate.

Basin No. 1 would provide for a maximum inflow rate of 140_{+} C. F. S. , outlet flow regulated to $42\frac{1}{2}_{+}$ C. F. S. and a storage volume of 5.3 acre feet required.

Basin No. 2 would provide for a maximum inflow rate of 60 C. F. S. , outlet flow regulated to $16\frac{1}{2}_{+}$ C. F. S. and a storage volume of 1.15 acre feet required.

One large basin could be constructed at the proposed location to process the combined total of the above two smaller basins, but would have to provide a by-pass for storm waters not originating on the shopping center.



DEPARTMENT OF ENVIRONMENTAL QUALITY

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

TOM McCALL
GOVERNOR

DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Agenda Item No. 0, September 21, 1973, EQC Meeting

Kruse Way: S. Tigard Interchange
Boones Ferry Road, Sec., FAS 943

Background

On June 7, 1973, the Department received an application from Clackamas County to construct a four lane arterial between Interstate 5 and Boones Ferry Road (hereinafter referred to as Kruse Way) in Clackamas County. On July 27, 1973, the Department received a draft environmental impact statement for the proposed Kruse Way prepared by the Oregon State Highway Division in accordance with guidelines established by FHWA pursuant to the National Environmental Policy Act.

The proposed project termini are at the Interstate 5 South Tigard Interchange on the west, and at Boones Ferry Road on the east. Figures 1 through 3 illustrate the proposed location of the project. Kruse Way would be 1.1 miles long and would provide for 68-foot distance between curbs, four twelve-foot travel lanes, a sixteen-foot median, approximately two feet distance between lanes and curbs, and signalization at major intersections.

The project is designed for a traffic volume capacity of 32,000 average daily traffic (ADT) at a service level of "C" (service level C provides for stable flow with significant but acceptable delays). Projected traffic volumes for the proposed facility, based on analysis of traffic assignments developed for the Portland-Vancouver Metropolitan Area Transportation Study (PVMTS) are 10,000 ADT in 1975, 14,000 ADT in 1980, and 28,000 ADT in 1992. If the proposed Kerr Road project, connecting Boones Ferry Road with Interstate 5 near the Capitol Highway intersection, is not constructed then 1990 traffic on Kruse Way would exceed 31,000 ADT.

The area which the proposed project traverses is almost completely surrounded by residential development to the south, north and east and is bounded on the west by Interstate 5. About 60 percent of the proposed project right-of-way will traverse vacant land covered with shrubs, grasses and mixed hardwood, and 40 percent will traverse agricultural land, comprised mostly of pasture and orchard.

Discussion

A. Transportation - the proposed Kruse Way is designed according to needs projected in the Portland-Vancouver Metropolitan Area Transportation Study Plan for 1990. PVMTS is based upon the Interim Land Use Plan developed and adopted by the Columbia Region Association of Governments in October 1970. A basic assumption of this land use plan is that "the automobile will continue to be the predominant means of personal transportation; there will be no developments in mass transit service at a scale which would tend to alter land use patterns." The implementation of the Interim Land Use Plan will result in continuing urban sprawl. The Department has indicated its dissatisfaction many times in the past about planning and designing additional urban highways based upon the assumptions contained in the Interim Land Use Plan. Relying on

the assumptions in this plan for transportation planning automatically preempts significant development of alternative modes of transportation which are crucial for attaining and maintaining compliance with air quality and noise standards.

An apparent result of relying on the Interim Plan is the fact that no plans have been made for developing or utilizing alternative modes of transportation to reduce the traffic loadings projected for the Kruse Way. Even though Department guidelines for the preparation of environmental impact statements for proposed urban highways require a detailed discussion of the feasibility of alternative modes of transportation, no discussion of this important aspect is present in the EIS submitted to the Department. Thus, the Department can only assume that in the planning and design of Kruse Way, no consideration was given to exclusive transit lanes, bicycle paths or use of the existing, little used, rail line connecting Lake Oswego with Beaverton.

Tri-Met presently has two lines (#36 Oregon City-Oswego-South Shore and #37 Tualatin-Oswego-North Shore) in the project vicinity that serve downtown Portland (refer to Figure 4). Neither of these lines has the potential, in its present configuration, to serve the majority of the trips which Kruse Way is planned to serve. Tri-Met has no plans to provide direct service between Lake Oswego and Beaverton even though this service would have the potential to attract many of the Kruse Way trips. The consultant's report prepared for Washington Square on the transit plan for this shopping center recommends that Tri-Met provide transit service from Lake Oswego to Beaverton with intermediate service to Tigard and Washington Square. "This line will by no means satisfy the total transit needs to the southwest communities but it is a start in that direction and may well be warranted on the basis of patronage criteria particularly after Washington Square is in full operation."

Apparently, Clackamas County has not requested Tri-Met to provide such service as a means to reducing the automobile trip

demand between Lake Oswego, Tigard and Beaverton. Neither have they offered Tri-Met an incentive to provide this service such as exclusive transit lanes on the proposed Kruse Way.

In addition, the potential of using an existing rail line connecting downtown Lake Oswego with Tigard, Washington Square and Beaverton to reduce automobile trip demands in the Kruse Way corridor has not been investigated. The Lake Oswego City Council has recommended that this same rail line, which also extends into downtown Portland, be used as an alternative to running buses on Macadam Avenue to downtown Portland from the proposed Lake Oswego park-and-ride station. The concept of utilizing light-rail transit on existing rail lines in the Portland metropolitan area is also strongly encouraged by the Public Utility Commissioner for Rail, Air, Marine, as indicated in the attached letter. Certainly the savings in resources alone merits serious consideration of an alternative mode which already possesses the required right-of-way.

Further, Oregon gas tax revenues are presently available for use in constructing bicycle paths. Again, an alternative mode of transportation which can serve to reduce automobile trips demands has been ignored in the planning and design of Kruse Way.

B. Land Use - as noted in the "background" portion of this report, the proposed Kruse Way would traverse land that is presently vacant or in agricultural uses. The surrounding land is residential.

Presently, there are three planning jurisdictions in the project area: Clackamas County, Lake Oswego, and CRAG. About one-third of the proposed Kruse Way project area on the east is under the planning jurisdiction of Lake Oswego, and two-thirds on the west is under the planning jurisdiction of Clackamas County. The Lake Oswego Planning Commission recommends that the project area under its jurisdiction be developed for commercial use, and for single family and multiple-family residential use. The Clackamas County long-range plan provides for commercial development at the South

Tigard Interchange, high-density residential development immediately to the east of the commercial development, and medium to low density residential development in the lands surrounding the commercial and high-density residential areas.

There are several significant developments underway or planned in the Kruse Way area. Mountain Park, a planned unit development, has a population of approximately 6,000 residents and is expected to double by 1985. An area of about 175 acres just west of Interstate 5, between the South Tigard Interchange and Highway 99W, known as the "Golden Triangle" is being developed into an office park. Washington Square is nearing completion. Plans have been made to develop 300 acres of land just northeast of the South Tigard Interchange as a planned unit development called Mountain Meadows, comprised of 2700 units; there is also commercial development nearer I-5. In order to facilitate such development, Clackamas County has zoned the western third of this 500-acre tract of land for commercial use and the eastern two-thirds for medium-density residential use.

If the land use plans of both Clackamas County and Lake Oswego are implemented, the project area will be converted from vacant and agricultural land use to commercial, high to low density residential and other urban uses. "If water and sewer services and improved access are provided in the near future, pressure may arise to rezone various other areas abutting the proposed project to commercial uses. If these pressures are allowed to go unchecked under local land use controls, there exists a potential for strip commercial development which would result in significantly greater environmental consequences than the project itself."

All of this tremendous development being planned and encouraged by local governmental agencies and private developers has been done with a total lack of planning for alternative modes and complete disregard for the air and noise pollution consequences. For example, the Golden Triangle area near the I-5, Beaverton-Tigard

Expressway and Kruse Way interchange, which is developing as a high-employment area with surrounding high-density residential development, is presently without transit service of any kind. Further, Tri-Met has no plans to provide service. When viewed in light of the fact that this is the area most severely impacted by air and noise pollution, the lack of adequate transit planning is intolerable from an environmental standpoint. The construction of Kruse Way as it is presently designed will compound the environmental impacts caused by automobiles.

C. Air Quality - according to the environmental impact statement submitted for the Kruse Way project, the most severe air quality problems will occur in the area around the Interstate-5 interchange (Golden Triangle). Carbon monoxide levels are expected to exceed State standards in 1975 and 1977. The construction of Kruse Way is expected to increase carbon monoxide levels at the interchange by 10%. Lead concentrations are projected to be 2.1 ug/m^3 which is 0.1 ug/m^3 above levels considered safe by EPA.

Again, the construction of the Kruse Way in combination with the large-scale commercial and residential development and total lack of alternative modes of transportation will contribute significantly to a worsening air quality problem in this area.

D. Noise Levels - the construction of Kruse Way will increase noise levels in the vicinity of the Interstate-5 interchange (Golden Triangle) where noise levels are presently exceeding the proposed Department standards. Kruse Way will substantially reduce traffic and noise on Bonita Road and sections of Carmen Drive. A few houses near the intersection of Carmen Drive and Kruse Way will have major noise impact. Even the Federal guidelines (FHWA) will be exceeded. The most significant noise impact, however, will occur if the Lake Oswego and Clackamas County land use plans are implemented. These plans encourage construction of residential developments near the Kruse Way. If residential development is allowed along Kruse Way, the Department's proposed noise standards

will be exceeded at these residences.

In order to protect against adverse noise levels, some means of noise control must be incorporated in the construction of Kruse Way to protect the homes near the intersection of Kruse Way and Carmen Drive. Further, zoning ordinances must be enacted which will provide a quiet buffer between Kruse Way and existing homes and which will preclude additional residential development near Kruse Way. These elements are lacking in the plans submitted to the Department.

Conclusions

In view of the transportation, land use, air quality and noise impacts delineated above, the proposed Kruse Way should not be constructed until the following plans and information are submitted to and approved by the Department:

1. A balanced transportation plan for the Kruse Way corridor, including:
 - a. Adequate Tri-Met bus service between Lake Oswego, Tigard, Washington Square and Beaverton.
 - b. Exclusive transit lanes and/or preferential treatment for buses from downtown Lake Oswego to Beaverton.
 - c. Bicycle paths from downtown Lake Oswego to Beaverton.
 - d. Light-rail or other appropriate modes utilizing the rail line between Lake Oswego and Beaverton.

If b., c., or d. is not feasible, a detailed transportation study which delineates the reasons why it is not feasible must be submitted to the Department.

2. A land use plan, including appropriate zoning ordinances for enforcement, which will avoid adverse impacts upon air quality and noise from future land use developments in the Kruse Way area. This zoning ordinance should include off-street parking and zoning ordinances consistent with air quality and noise level objectives and the alternative modes of transportation delineated in 1. above.

3. Design of appropriate noise control measures to protect the homes near the intersection of Kruse Way and Carmen Drive from noise levels in excess of Department standards.

Director's Recommendation

The Director recommends that the Commission issue an order prohibiting the construction of Kruse Way until such time as the plans and information requested in this report are approved by the Department. In addition to Clackamas County, the Columbia Region Association of Government, Oregon Department of Transportation and other appropriate local governmental agencies should be notified of this action.



DIARMUID F. O'SCANNLAIN

Attachments

MJD:en

September 14, 1973

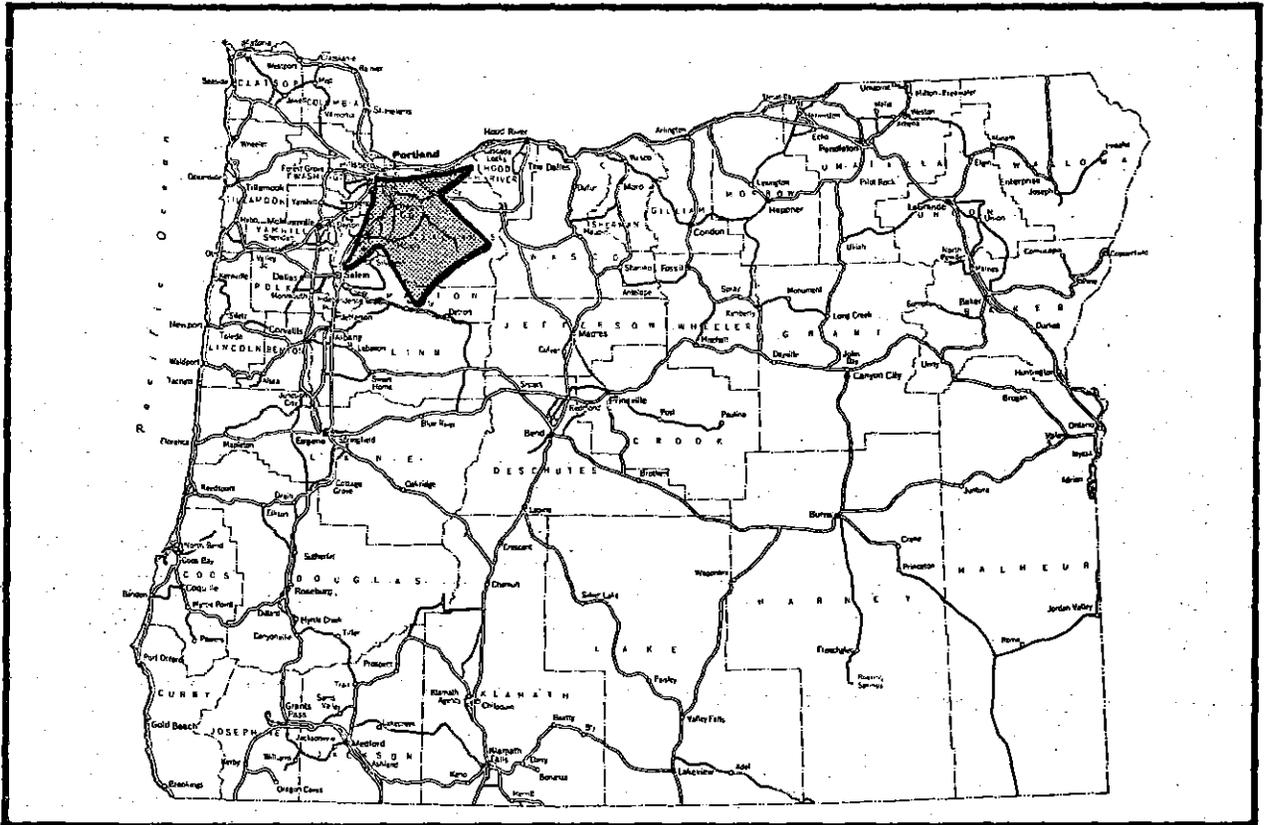


Figure 1

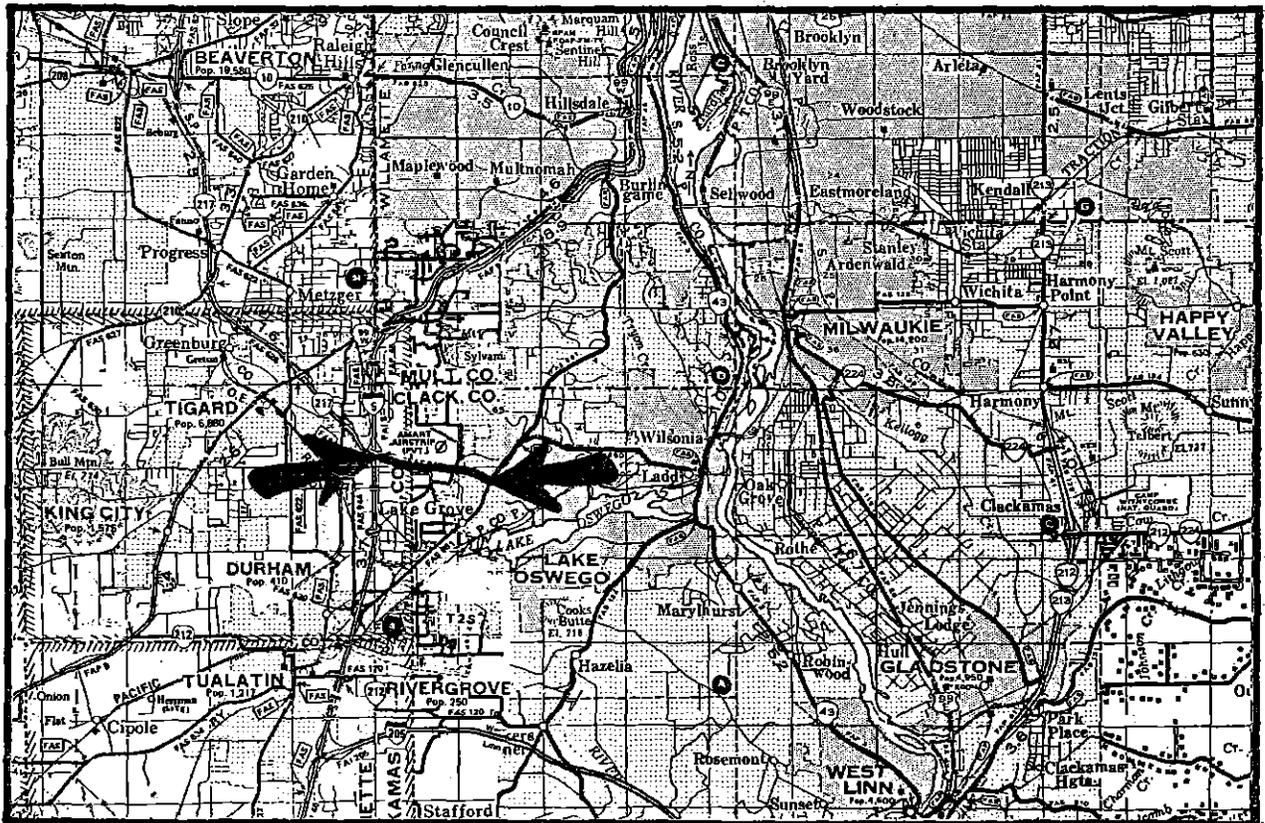


Figure 2

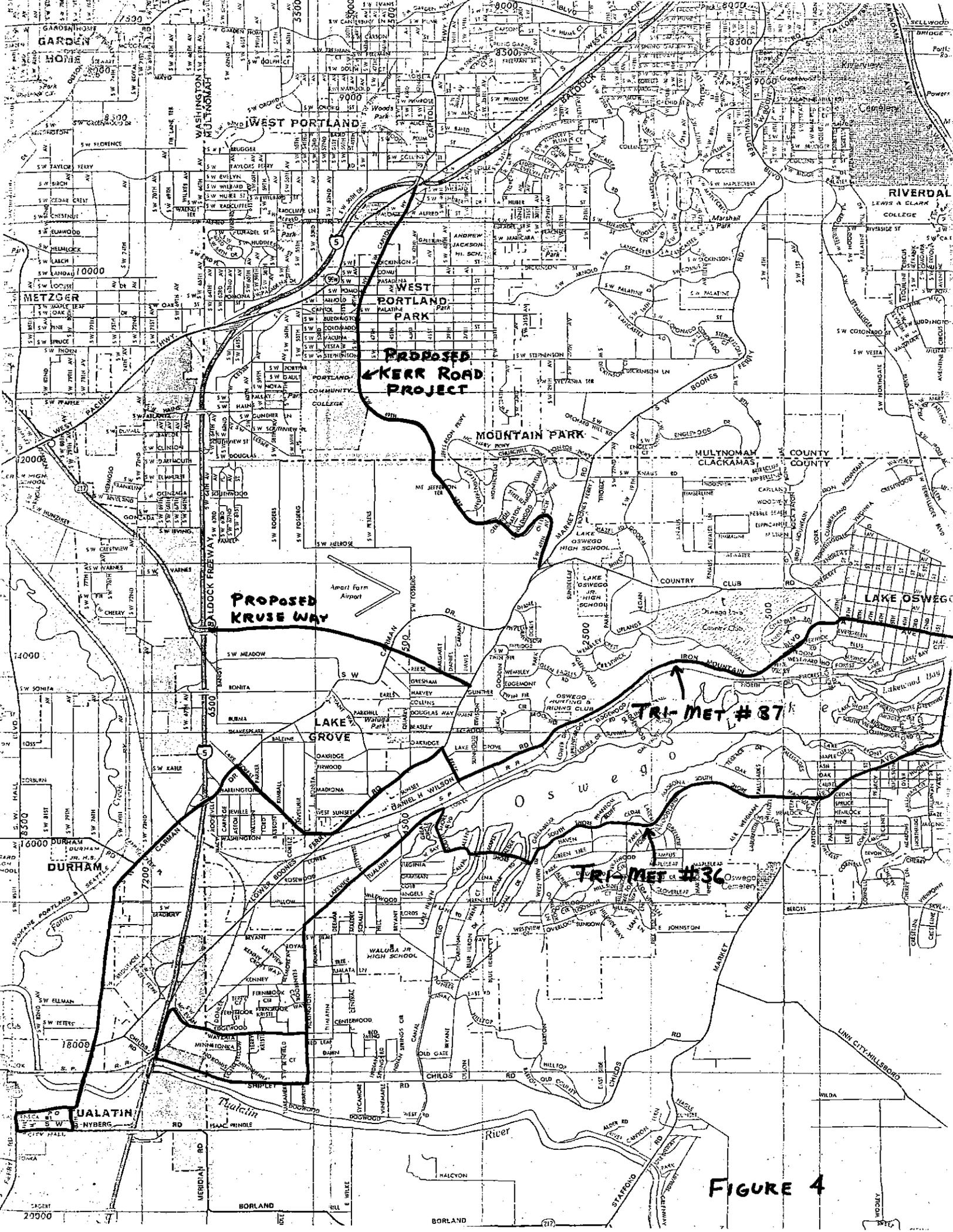
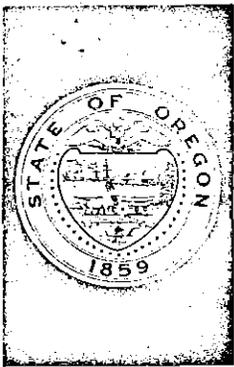


FIGURE 4



**PUBLIC UTILITY COMMISSIONER
OF OREGON**

JUL 20 1973

PUBLIC SERVICE BUILDING • SALEM 97310 • Telephone (503) 378-6659

July 17, 1973

TOM McCALL
GOVERNOR

RICHARD W. SABIN
Commissioner

Mr. Edward F. Wagner
Director of Planning & Research
4314 S. E. 17th Avenue
Portland, Oregon 97202

*Mike:
How's this
for opening?*

Re: Transit alternatives in the Portland area

Dear Mr. Wagner:

In Tuesday's meeting at City Hall I mentioned that there was an article a couple of years ago in Traffic Quarterly which described the "rapid tramway" concept and its possible application in this country.

Enclosed is a copy of that article from the October, 1970 issue of Traffic Quarterly. As you can see from a quick review of pages 522-523, the concept has gained wide acceptance in Europe.

After our meeting, Lon Topaz and I checked out the present condition of the old Portland Traction right-of-way from the east approach of the Hawthorne Bridge through the City of Gladstone. There appear to be no encroachments on it, except at Waverly Golf Course where the right-of-way is apparently being integrated with the golf links. There should be no major physical problem re-establishing the Hawthorne Bridge connection via the existing lead track which connects the switching lead with Water Street.

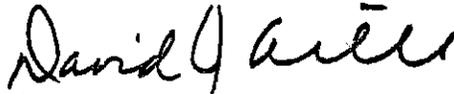
While we realize that Tri-Met has serious reservations about entering the rail transit field, we feel that utilization of the Portland Traction right-of-way to serve the fast growing Milwaukie-Oak Grove-Gladstone and Gresham areas would be an ideal alternative to an extremely expensive and disruptive Mt. Hood freeway-transit project. The Milwaukie-Oak Grove area strongly supported the old interurban system to the bitter end, despite the dilapidated condition of its equipment and roadbed, and lack of connecting transit "feeder" service. (Patronage for the interurban lines in 1950 was 1,476,000; in 1952 1,491,000; 1954, 1,259,000; and the vast majority of this was generated between Portland and Milwaukie-Oak Grove.) The rapid tramway concept would require a relatively small capital outlay compared with other alternatives, could be easily integrated with existing rail use of the right-of-way on the non-abandoned portions, integrates well with existing "park-and-ride" plans and would serve a large low-to-middle income suburban area which strongly supported a vastly inferior service

Mr. Edward F. Wagner
July 17, 1973
Page -2-

in the past and has received relatively little in the way of new transportation facilities since the late 1930's, when the Oregon City "superhighway" (U.S. 99E) was constructed. From a safety standpoint the right-of-way between the Hawthorne Bridge and Milwaukie is ideal--extremely few grade crossings (no major ones) and very little exposure to private residences. Further, such a project would mesh well with environmental objectives and would seem to be unique enough to be a natural for a demonstration-type project.

Please let us know if we can be of further assistance.

Cordially,



David J. Astle
Administrator
Railroad Division

DJA:br
cc: William Dirker
Dennis Moore

Enclosure



9/6
→ JKR

**COUNTY OF CLACKAMAS
DEPARTMENT OF PUBLIC WORKS**

902 ABERNETHY ROAD, OREGON CITY, ORE. 97045

JOHN C. McINTYRE, Director

Phone 655-8521

June 6, 1973

Columbia Willamette Air Pollution Authority
1010 N. E. Couch Street
Portland, Oregon 97232

Enclosed please find copy of Notice of Construction and Application for Approval form for construction of a 4-lane urban arterial between Boones Ferry and the South Tigard Interchange.

This proposed facility has gone through Corridor and Design hearings and an environmental impact statement is in the process of being prepared by the Oregon State Highway Department. The final draft of this impact statement should be available by June 13, 1973. A copy of this statement will be submitted to you as soon as it is available.

JOHN C. McINTYRE - Director of Public Works

By

WINSTON W. KURTH - County Engineer

/mak

Enclosure

WJK 6/28

RECEIVED
JUN 7 1973

COLUMBIA - WILLAMETTE
AIR POLLUTION AUTHORITY

Attention: Columbia Willamette Air Pollution Authority
1010 N.E. Couch Street
Portland, Oregon 97232

NOTICE OF CONSTRUCTION AND APPLICATION FOR APPROVAL

To Construct or Modify an Air Contaminant Source

NOTE: An Approval to Construct must be obtained prior to construction. The Columbia-Willamette Air Pollution Authority will review the application and will send its recommendations to the D.E.Q. for their final action to approve or deny the project. An environmental impact statement or other information may be requested within 30 days of receipt of this N-C.

Business Name: Clackamas County Phone: 655-8521

Address of Premises: 902 Abernethy Road City: Oregon City Zip: 97045

Nature of Business: Political Subdivision of State of Oregon (Public Works)

Responsible Person to Contact: John C. McIntyre Title: Public Works Director

Other Person Who May Be Contacted: Winston W. Kurth Title: County Engineer

Corporation Partnership Individual Government Agency

Legal Owner's Address: Clackamas County City: Oregon City Zip: 97045

Description of Highway and its Intended Use. (Please include 2 copies of Plot Plan showing proposed construction) 4 lane urban arterial connecting

Boones Ferry with South Tigard Interchange.

Estimated Cost: \$ 1,000,000.00

Estimated Construction Date: 1974 Estimated Operation Date 1975

Name of Applicant or Owner of Business: Clackamas County

Title: John C. McIntyre Phone: 655-8521

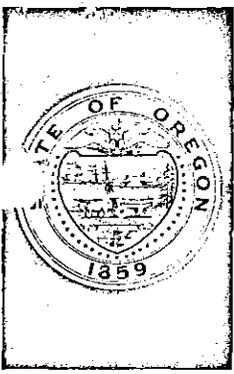
Signature: *John C. McIntyre* Date: _____

Applicability: This Notice of Construction Requirement Pertains

1. To areas within five miles of the municipal boundary of any city having a population of 50,000 or greater.
2. Any parking facility used for temporary storage of 50 or more motor vehicles or having two or more levels of parking for motor vehicles.

RECEIVED
Date Received
JUN 7 1973

Grid _____ N/C



DEPARTMENT OF ENVIRONMENTAL QUALITY

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229-5383

TOM McCALL
GOVERNOR

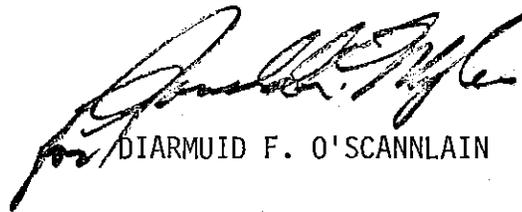
DIARMUID F. O'SCANNLAIN
Director

MEMORANDUM

To: Environmental Quality Commission
From: Director
Subject: Agenda Item P, September 21, 1973, EQC Meeting

Tax Credit Applications

Attached are review reports on 9 Tax Credit Applications. These applications and the recommendations of the Director are summarized on the attached table.



DIARMUID F. O'SCANNLAIN

WEG:ahe

September 14, 1973

Attachments

1. Tax Credit Applications and Director Recommendations

TAX CREDIT APPLICATIONS

| <u>Applicant</u> | <u>Appl. No.</u> | <u>Facility</u> | <u>Claimed Cost</u> | <u>% Allocable to Pollution Control</u> | <u>Director's Recommendation</u> |
|--|------------------|---|---------------------|---|----------------------------------|
| Roseburg Lumber Company Flakeboard Division | T-477 | Particulate Emission Control System | \$1,768,279.79 | 80% or more | Issue |
| Boise Cascade Corporation Paper Group | T-459 | TRS Gases Monitoring System | 26,016 | 80% or more | Issue |
| Boise Cascade Corporation Paper Group | T-460 | Multichamber Incinerator | 90,027 | 80% or more | Issue |
| Boise Cascade Corporation Paper Group | T-462 | Black Liquor Oxidation Tank | 146,652 | 80% or more | Issue |
| Boise Cascade Corporation Paper Group | T-463 | Relocation of Secondary Air Duct & Additional Air Fan | 135,771 | 80% or more | Issue |
| Boise Cascade Corporation Paper Group | T-466 | Scrubbers on Smelt-Dissolving Tank Vents | 140,745 | 80% or more | Issue |
| Linnton Plywood Association | T-474 | Sanderdust Emission Control System | 46,175.83 | 80% or more | Issue |
| Publishers Paper Company Molalla Division | T-478 | Wigwam Waste Burner Modification | 36,435 | 80% or more | Issue |
| Publishers Paper Company Portland Division | T-481 | Sanderdust Emissions Control System | 34,673 | 80% or more | Issue |

WEG:ahc

September 14, 1973

Date 8-8-73

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

1. Applicant

Roseburg Lumber Co.
Flakeboard Division
P. O. Box 1088
Roseburg, OR 97470

The applicant operates a flakeboard manufacturing facility located at Dillard, Oregon.

This application was received June 18, 1973.

2. Description of Claimed Facility

The facility claimed in this application which controlled particulate emissions from the flakeboard manufacturing operations is described to consist of the following:

1. 44 - cyclones
2. 25 - Flex-Kleen baghouse filters
3. 9 - Rotoclone wet scrubbers
4. 3 - Carter-Day grit separators
5. Necessary feeders, blowers, conveyors, foundations, structural steel framework, motors and electrical control centers.

The construction of the facility was started in May, 1970, and was completed in March, 1973.

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

Facility Costs: \$1,797,566.71 (Accountant's certification was provided).

3. Evaluation of Application

Although the Department had not yet established a formal program for the review and approval of project plans and specifications at the time this facility was started, the company and the Department did hold joint discussions regarding the emission control techniques and equipment that would be used on this project. In all cases, the highest and best practical emission control technology was required by the Department and was employed by the company in the completed facility.

The materials handling and the emission controls for the flakeboard plant are subdivided into nineteen (19) separate systems, each one of which operates for

a specific phase of the manufacturing operation. Final emissions from both of the particle dryer systems are controlled by Rotoclone wet scrubbers. Final emissions from all of the other systems are controlled by Flex-Kleen baghouse filter units.

Limited testing of emission rates from three (3) previously existing dryer cyclones conducted by the company before the present control system was installed indicated a particulate discharge rate of about 66 lb/hour or about 276 tons/year. With the new scrubber control system added to these same three (3) cyclones in the present installation, it is estimated that the particulate emissions were reduced to about 15 lbs/hour or about 33 tons/year.

A similar situation prevails for the total plant. The Department estimated total particulate emissions from the plant to be about 1300 tons/year prior to this installation. Since the completion of this facility, the total particulate emissions from the plant are estimated to be less than 500 tons/year. This would indicate a reduction of particulates emitted to the atmosphere achieved by this control facility of about 800 tons/year.

The company, in accordance with their forthcoming Air Contaminant Discharge Permit, will be required to submit test results and data demonstrating actual emission rates from each of the facility's emission discharge sources to the Department for review and approval on or before December 31, 1973.

It is considered that the following items and their costs should properly be classed as material handling equipment and not control equipment eligible for tax relief certification:

| | |
|---|-----------------------------|
| 1. <u>Sander 1, Line 1 Hog</u> Screw Conveyor | \$18,081.50 |
| 2. <u>Dust Control Systems</u> (2) Belt Conveyor unloaders to screen #1 | 2,318.82 |
| 3. <u>Line 2 Sander</u> Screw Conveyors Bins for conveyors | 6,547.50 <u>2,339.10</u> |
| Total | \$29,286.92 |

Through the exclusion of the foregoing items, the total amount of costs for this facility would be reduced from 1,797,566.71 to \$1,768,279.79.

It is concluded that this facility did reduce the emission of particulate discharges to the atmosphere through the use of the highest and best practicable technology and control equipment available at the time the facility was installed.

The costs of this facility for Tax Relief Certification purposes should be reduced to \$1,768,279.79.

4. Director's Recommendation

It is recommended that a Pollution Control Facilities Certificate bearing the costs of \$1,768,279.79 with 80% or more of the costs allocated to pollution control be issued for the facility claimed in Tax Application T-477.

RAR:sb
8/29/73

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

1. Applicant

Boise Cascade Corporation
Paper Group
St. Helens, OR

The applicant owns and operates a bleached draft pulp and paper mill on Kaster Road near St. Helens, Oregon.

2. Description of Facility

The facility is described to be a system for continually monitoring TRS gases in the mill's lime kiln and recovery furnace stacks.

Facility Cost: \$26,016

The facility was placed in operation in June, 1970.

Certification is claimed under the 1969 Act. Percentage claimed is 100%.

3. Evaluation

Providing continual monitoring of TRS (odorous) gases from recovery furnaces and lime kilns at kraft mills has been required since 1969. The facility described in this application was installed in response to that requirement. The monitoring devices are not necessary for routine process control, since other instrumentation provides necessary and sufficient information for that purpose. Therefore, it is concluded that no economic function is served by this facility and its purpose was, and remains, pollution control.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$26,016 be issued for the facility claimed in Tax Application T-459, with more than 80% allocated to pollution control.

Date 8/15/73

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

1. Applicant

Boise Cascade Corp.
Paper Group
St. Helens, OR 97051

The applicant owns and operates a bleached kraft pulp and paper mill near St. Helens, Oregon.

2. Description

The facility is described to be a multichamber incinerator for the incineration of solid waste (mostly, paper and packaging materials).

Facility cost: \$90,027 (An accountant's certification was provided).

Certification is claimed under the 1969 Act. Percentage claimed is 100%.

The facility was completed and placed in operation on April 1, 1970.

3. Evaluation

Prior to the installation of this incinerator, paper too contaminated for re-use and packaging materials were dumped on the plant site. Frequent accidental fires made the providing of another disposal means necessary. The incinerator was proposed by the company, and reviewed and approved by the Columbia-Willamette Air Pollution Authority. Stack samples taken after installation have indicated compliance with the applicable emission regulations. There is no economic return from this installation. It is concluded that the installation was installed solely for pollution control.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$90,027 be issued for the facility claimed in Tax Application T-460, with more than 80% allocated to pollution control.

CAA:sb
8/15/73

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

1. Applicant

Boise Cascade Corp.
Paper Group
St. Helens, OR 97051

The applicant owns and operates a bleached kraft pulp and paper mill near St. Helens, Oregon.

2. Description

The claimed facility is a strong black liquor oxidation tank.

Facility cost: \$146,652 (An accountant's certification was provided).

Certification is claimed under the 1969 Act. Percentage claimed is 100%.

The facility was placed in operation on October 28, 1971.

3. Evaluation

The mill installed weak black-liquor oxidation facilities in 1967, reducing TRS (odorous gas) emissions from several hundred parts per million to a range of 40-80 ppm. The facility in this application is an additional stage of oxidation, applied to strong (evaporated) black liquor, and was installed for the purpose of reducing TRS emissions to an average of 10 ppm, in order to comply with the TRS limits which will be effective in 1975 (originally 17.5 ppm, now 15 ppm for this furnace).

Although more sulfur is retained in the recovery system, its value is insufficient to equal even the cost of utilities for this facility. Therefore, on a basis both of intent and lack of economic return, it is concluded that the facility was installed solely for pollution control.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$146,652 be issued for the facility claimed in Tax Application T-462, with more than 80% allocated to pollution control.

CAA:sb
8/15/73

Date 8/17/73

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

TAX RELIEF APPLICATION REVIEW REPORT

1. Applicant

Boise Cascade Corporation
Paper Group
St. Helens, OR

The applicant owns and operates a bleached kraft pulp and paper mill on Kaster Road near St. Helens, Oregon.

2. Description of Facility

The facility is described to be the relocation of the secondary air duct and an additional secondary air fan for Number 1 recovery furnace.

Facility Cost: \$135,771

The facility was completed and placed in operation in July, 1971.

Certification is claimed under the 1969 Act. Percentage claimed is 100%.

3. Evaluation

The evolution of TRS (odorous) gases from conventional kraft mill recovery furnaces may take place at two points, from direct contact evaporators (where furnace gases contact black liquor in order to evaporate water from the liquor) or from the furnace combustion zone itself. Black liquor oxidation (bubbling air through black liquor to oxidize sulfides to thiosulfates) has been used to prevent evolution of TRS gases at the direct contact evaporator, and was applied to TRS control at the St. Helens mill. However, evolution of TRS from the combustion zone continued at a rate which was in violation of the existing standard of 70 ppm. The trouble was found to be poor combustion, arising from inadequate and poorly distributed secondary air, which in these furnaces supplies most of the oxygen for combustion.

The Company proposed an extensive rebuild of the secondary air system, including augmenting the air supply and introducing it at different locations so that the air would be distributed in the combustion zone more effectively. The proposed new distribution was intended to make more certain that combustible gases and air would be contacted in the furnace. The Department of Environmental Quality reviewed and approved the proposal.

Upon completion of the facility, TRS emissions dropped from the 200-400 ppm range to the 18-35 ppm range, on the order of a 90% decrease.

There is no economic return, in that the sulfur retained in the system is insufficient to repay the investment. Therefore, it is concluded that the facility was installed originally solely for pollution control and no economic return has resulted from its completion.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$135,771 be issued for the facility claimed in Tax Application T-463, with more than 80% allocated to pollution control.

CAA:sb
8/17/73

Date 8/17/73

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

1. Applicant

Boise Cascade Corporation
Paper Group
St. Helens, OR

The applicant owns and operates a bleached draft pulp and paper mill on Kaster Road near the City of St. Helens, Oregon.

2. Description of Facility

The facility is described to be scrubbers on the smelt-dissolving tank vents of No. 1 and No. 2 recovery furnaces.

Facility Cost: \$140,745

The facilities were placed in operation in December, 1971 (No. 1 furnace) and April, 1972 (No. 2 furnace).

Certification is claimed under the 1969 Act. Percentage claimed is 100%.

3. Evaluation

The applicable limit for particulate discharges from smelt-dissolving-tank vents is 0.5 pounds of particulate per ton of pulp. In 1969, when the first kraft mill emission regulation was adopted, the vents at the St. Helens mill were emitting 2 pounds per ton. Some improvements to the existing particulate controls were attempted without success. The scrubbers which are the subject of this application were then proposed, and after review and approval by the Department of Environmental Quality, were installed. The scrubbers currently limit particulate emissions to 0.3 pounds per ton.

The company presented an economic analysis which indicated that the value of particulate recovered was sufficient to yield a 5.2% return on investment. However, the analysis did not include depreciation. With the inclusion of depreciation, the rate of return is negative.

It is concluded that the facilities described in this application were installed for pollution control and that there is no economic return being realized from them.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$140,745 be issued for the facility claimed in Tax Application T-466, with more than 80% allocated to pollution control.

Date 8/3/73

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

1. Applicant

Linnton Plywood Association
10504 W. St. Helens
Portland, OR 97203

The applicant operates a plywood manufacturing facility at Portland, Oregon.

This application was received June 11, 1973. The report from Columbia Willamette Air Pollution Control Authority was received July 17, 1973.

2. Description of Claimed Facility

The facility claimed in this application is described as a sanderdust emission control system and consists of the following:

1. Carter-Day Bay House Filter unit-Model RJ55.
2. Acme #15 blower
3. Westinghouse #3045 blower
4. Necessary ducts, foundations, electrical controls, etc.

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

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

Facility costs: \$46,175.83 (Accountant's certification was provided).

3. Evaluation of Application

This facility was installed to control sanderdust emissions to the atmosphere from the previously existing cyclones. Columbia Willamette Air Pollution Control Authority approved the program and the plans and specifications for this installation. The Authority has inspected the complete installation and has determined that it does control particulate emissions in accordance with emission limitations established by regulations.

4. Conclusions

This facility does operate as planned and did reduce emissions of sanderdust particulate to the atmosphere.

5. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$46,175.83 with 80% or more of the cost allocated to pollution control be issued for the facility claimed in Tax Application T-474.

RAR:sb
8/3/73

Date August 9, 1973

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

1. Applicant

Publishers Paper Company
419 Main Street
Oregon City, OR 97045

This applicant operates a sawmill and planing mill near Liberal, Oregon.

This application was received July 18, 1973. The report from Columbia-Willamette Air Pollution Authority was received August 2, 1973.

2. Description of Claimed Facility

The facility claimed in this application is described as a modification of a wigwam waste burner and consists of the following:

1. Top Damper
2. Under-fire and Over-fire Air Systems
3. Ignition System
4. Temperature Recording System
5. Automatic Control System

The claimed facility was completed and put into service in June 1971.

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

Facility Costs: \$36,435 (Accountant's Certification was provided).

3. Evaluation of Application

This facility was installed in accordance with a Columbia-Willamette Air Pollution Control Authority approved program and reviewed plans and specifications. The Authority has inspected the completed facility and has confirmed that the facility is capable of continuous operation in accordance with the emission limitations established by OAR, Chapter 340, Section 25-020.

Application T - 478
August 9, 1973
Page 2

Because of the existing regulations concerning operation of wigwam waste burners in Clackamas County, this wigwam waste burner operates under a yearly variance condition established by the Authority.

It is concluded that this facility does operate satisfactorily and did reduce air contaminant discharges to the atmosphere.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the cost of \$36,435 with 80% or more of the cost allocated to pollution control be issued for the facility claimed in Tax Application T - 478.

RAR:e

Date 8-21-73

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

1. Applicant

Publishers Paper Company
419 Main Street
Oregon City, OR 97045

The applicant operates a sawmill and plywood manufacturing facility in Portland, Multnomah County, Oregon.

This application was received August 13, 1973.

2. Description of Claimed Facility

The facility claimed in this application for the control of sanderdust emissions to the atmosphere is described to consist of the following:

1. Radar WF-198" diameter baghouse filter unit.
2. Necessary foundations, ducts, steel framework and electrical control system.

The claimed facility was completed and placed in operation in May, 1972.

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

Facility Costs: \$34,673 (accountant's certification was provided).

3. Evaluation of Application

This facility was installed in accordance with plans and specifications approved by the Columbia-Willamette Air Pollution Authority. The Authority has inspected and tested the completed facility and has confirmed that the installation does operate as planned and does reduce emissions of sanderdust particulate to the atmosphere.

Prior to the installation of this facility, sanderdust emissions from the sander system were observed to have an opacity of about 40% and had an estimated emission rate of about 20 lbs/hours. After the baghouse filter was placed in operation, sanderdust emissions were controlled so that there were no visible emissions and the emission rate was reduced to 0.3 lb/hour as determined by tests conducted by the authority.

It is concluded that this facility does operate satisfactorily and did reduce air contaminant discharges to the atmosphere.

4. Director's Recommendation

It is recommended that a Pollution Control Facility Certificate bearing the costs of \$34,673 with 80% or more of the cost allocated to pollution control be issued for the facility claimed in Tax Application T-481.

RAR:en



DEPARTMENT OF ENVIRONMENTAL QUALITY

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

TOM McCALL
GOVERNOR

NOTICE OF PUBLIC HEARING AND INTENDED ACTION

DIARMUID F. O'SCANNLAIN
Director

On September 21, 1973, beginning at 10 A.M., the Environmental Quality Commission will hold a public hearing in the Public Service Building, second floor auditorium, 920 S.W. Sixth Avenue, Portland, Oregon, to receive and consider testimony pertaining to the adoption of amended administrative rules pertaining to the procedures for the issuance of National Pollutant Discharge Elimination System (NPDES) permits pursuant to ORS 449.083, as amended by Section 6, Chapter 835, Oregon laws, 1973, and FWPCA Amendments of 1972, P.L. 92-500, October 18, 1972.

Temporary rules were adopted May 29, 1973. With the exception of minor modifications the rules proposed for adoption are the same as the temporary rules.

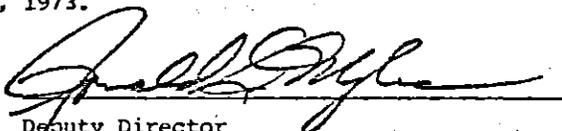
The proposed amendments to the rules formulate procedures for the application, review and issuance of NPDES permits, including the requirement for public notice and the opportunity for public hearing on NPDES permit applications. Procedures for modification, denial, suspension, revocation and transfer of NPDES permits are also included in the proposed amendments.

Copies of the proposed rules may be obtained by writing the Director, Department of Environmental Quality, 1234 S.W. Morrison, Portland, Oregon 97205 (phone 229-5696).

Interested parties may present their data, views or arguments either orally or in writing, at the hearing or may submit them to the Director, in writing, prior to the hearing for inclusion in the hearing record.

The Environmental Quality Commission will preside over and conduct the hearing.

Dated this 20th day of August, 1973.


Deputy Director
Department of Environmental Quality

Proposed Amendments to
OAR Chapter 340, Division 1,
Subdivision 4

A new paragraph, which reads as follows, shall be added to OAR Chapter 340, Division 1, Subdivision 4, between Sections 14-005 and 14-010.

14-007 EXCEPTION.

The procedures prescribed in this Subdivision do not apply to the issuance, denial, modification and revocation of National Pollutant Discharge Elimination System (NPDES) permits issued pursuant to the Federal Water Pollution Control Act Amendments of 1972 and acts amendatory thereof or supplemental thereto. The procedures for processing and issuance of NPDES permits are prescribed in OAR Chapter 340, Sections 45-005 through 45-065.

Proposed Amendments to

OAR Chapter 340, Division 4, Subdivision 5

Sections 45-005 through 45-030 of OAR 340 Division 4, Subdivision 5 are hereby repealed and the following are enacted in lieu thereof:

45-005 PURPOSE

The purpose of these regulations is to prescribe limitations on discharge of wastes and the requirements and procedures for obtaining waste discharge permits from the Department.

45-010 DEFINITIONS, AS USED IN THESE REGULATIONS UNLESS OTHERWISE REQUIRED BY CONTEXT:

- (1) "Commission" means the Environmental Quality Commission.
- (2) "Department" means Department of Environmental Quality.
- (3) "Director" means the Director of the Department of Environmental Quality.
- (4) "Discharge or disposal" means the placement of wastes into public waters, on land or otherwise into the environment in a manner that does or may tend to affect the quality of public waters.
- (5) "Disposal system" means a system for disposing of wastes, either by surface or underground methods; and includes sewerage systems, treatment works, disposal wells and other systems.
- (6) "Federal Act" means Public Law 92-500, known as the Federal Water Pollution Control Act Amendments of 1972 and acts amendatory thereof or supplemental thereto.
- (7) "Industrial waste" means any liquid, gaseous, radioactive or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade or business, or from the development or recovery of any natural resources.
- (8) "NPDES permit" means a waste discharge permit issued in accordance with requirements and procedures of the National Pollutant Discharge Elimination System authorized by the Federal Act and of OAR Chapter 340, Sections 45-005 through 45-065.
- (9) "Navigable waters" means all navigable waters of the United States and their tributaries; interstate waters; intrastate lakes, rivers and streams which are used by interstate travelers for recreation or other purposes or from which fish or shellfish are taken and sold in interstate commerce or which are utilized for industrial purposes by industries in interstate commerce.
- (10) "Person" means the United States and agencies thereof, any state, any individual, public or private corporation, political subdivision, governmental agency, municipality, copartnership, association, firm, trust, estate or any other legal entity whatever.
- (11) "Point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

- (12) "Pollutant" means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.
- (13) "Pre-treatment" means the waste treatment which might take place prior to discharging to a sewerage system including but not limited to pH adjustment, oil and grease removal, screening and detoxification.
- (14) "Public waters" or "waters of the state" include lakes, bays, ponds, impounding reservoirs, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland, or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters) which are wholly or partially within or bordering the state or within its jurisdiction.
- (15) "Regional Administrator" means the regional administrator of Region X of the U. S. Environmental Protection Agency.
- (16) "Sewage" means the water-carried human or animal waste from residences, buildings, industrial establishments or other places, together with such ground water infiltration and surface water as may be present. The mixture of sewage as above defined with wastes or industrial wastes, as defined in subsections (7) and (23) of this section, shall also be considered "sewage" within the meaning of these regulations.
- (17) "Sewerage system" means pipelines or conduits, pumping stations, and force mains, and all other structures, devices, appurtenances, and facilities used for collecting or conducting wastes to an ultimate point for treatment or disposal.
- (18) "State" means the State of Oregon.
- (19) "State permit" means a waste discharge permit issued by the Department in accordance with the procedures of OAR Chapter 340, Sections 14-005 14-050 and which is not an NPDES permit.
- (20) "Toxic waste" means any waste which will cause or can reasonably be expected to cause a hazard to fish or other aquatic life or to human or animal life in the environment.

- (21) "Treatment" or "waste treatment" means the alteration of the quality of waste waters by physical, chemical or biological means or a combination thereof such that the tendency of said wastes to cause any degradation in water quality or other environmental conditions is reduced.
- (22) "Waste discharge permit" means a written permit issued by the Department in accordance with the procedures of OAR Chapter 340, Sections 14-005 through 14-050 or 45-005 through 45-065.
- (23) "Wastes" means sewage, industrial wastes and all other liquid, gaseous, solid, radioactive or other substances which will or may cause pollution or tend to cause pollution of any waters of the state.

45-015 PERMIT REQUIRED.

- (1) Without first obtaining a state permit from the Director, no person shall:
 - (a) Discharge any wastes into the waters of the state from any industrial or commercial establishment or activity or any disposal system.
 - (b) Construct, install, modify, or operate any disposal system or part thereof or any extension or addition thereto.
 - (c) Increase in volume or strength any wastes in excess of the permissive discharges specified under an existing state permit.
 - (d) Construct, install, operate or conduct any industrial, commercial or other establishment or activity or any extension or modification thereof or addition thereto, the operation or conduct of which would cause an increase in the discharge of wastes into the waters of the state or which would otherwise alter the physical, chemical or biological properties of any waters of the state in any manner not already lawfully authorized.
 - (e) Construct or use any new outlet for the discharge of any wastes into the waters of the state.

- (2) Without first obtaining an NPDES permit, no person shall discharge pollutants from a point source into navigable waters.
- (3) Any person who has a valid NPDES permit shall be considered to be in compliance with the requirements of Subsection (1) of this section. No state permit for the discharge is required.
- (4) Although not exempted from complying with all applicable laws, rules and regulations regarding water pollution, persons discharging wastes into a sewerage system are specifically exempted from requirements to obtain a state or NPDES permit, provided the owner of such sewerage system has a valid state or NPDES permit. In such cases, the owner of such sewerage system assumes ultimate responsibility for controlling and treating the wastes which he allows to be discharged into said system. Notwithstanding the responsibility of the owner of such sewerage systems, each user of the sewerage system shall comply with applicable toxic and pretreatment standards and the recording, reporting, monitoring, entry, inspection and sampling requirements of the commission and the Federal Act and federal regulations and guidelines issued pursuant thereto.
- (5) Each person who is required by Subsection (1) or (2) of this section to obtain a state or NPDES permit shall:
 - (a) Make prompt application to the Department therefor;
 - (b) Fulfill each and every term and condition of any state or NPDES permit issued to such person;
 - (c) Comply with applicable federal and state requirements, effluent standards and limitations including but not limited to those contained in or promulgated pursuant to Sections 204, 301, 302, 304, 306, 307, 402 and 403 of the Federal Act, and applicable federal and state water quality standards;
 - (d) Comply with the Department's requirements for recording, reporting, monitoring, entry, inspection and sampling, and make no false statements, representations or certifications in any form, notice, report or document required thereby.

45-020 NON-PERMITTED DISCHARGES

Discharge of the following wastes into any navigable or public waters shall not be permitted:

- (1) Radioactive, chemical, or biological warfare agent or high level radioactive waste.

- (2) Any point source discharge which the Secretary of the Army acting through the Chief of Engineers finds would substantially impair anchorage and navigation.
- (3) Any point source discharge to navigable waters which the Regional Administrator has objected to in writing.
- (4) Any point source discharge which is in conflict with an areawide waste treatment and management plan or amendment thereto which has been adopted in accordance with Section 208 of the Federal Act.

45-025 PROCEDURES FOR OBTAINING STATE PERMITS

Except for the procedures for application for and issuance of NPDES permits on point sources to navigable waters of the United States, submission and processing of applications for state permits and issuance, renewal, denial, transfer, modification and suspension or revocation of state permits shall be in accordance with the procedures set forth in OAR Chapter 340, sections 14-005 through 14-050.

45-030 APPLICATION FOR NPDES PERMIT

- (1) Any person wishing to obtain a new, modified or renewal NPDES permit from the Department shall submit a written application on a form provided by the Department. Applications must be submitted at least 180 days before an NPDES permit is needed. All application forms must be completed in full and signed by the applicant or his legally authorized representative. The name of the applicant must be the legal name of the owner of the facilities or his agent or the lessee responsible for the operation and maintenance.
- (2) Applications which are obviously incomplete or unsigned will not be accepted by the Department for filing and will be returned to the applicant for completion.
- (3) Applications which appear complete will be accepted by the Department for filing.

- (4) If the Department later determines that additional information is needed, it will promptly request the needed information from the applicant. The application will not be considered complete for processing until the requested information is received. The application will be considered to be withdrawn if the applicant fails to submit the requested information within 90 days of the request.
- (5) An application which has been filed with the U. S. Army Corps of Engineers in accordance with section 13 of the Federal Refuse Act or an NPDES application which has been filed with the U. S. Environmental Protection Agency will be accepted as an application filed under this section provided the application is complete and the information on the application is still current.

45-035 ISSUANCE OF NPDES PERMITS

- (1) Following determination that it is complete for processing, each application will be reviewed on its own merits. Recommendations will be developed in accordance with provisions of all applicable statutes, rules, regulations and effluent guidelines of the State of Oregon and the U. S. Environmental Protection Agency.
- (2) The Department shall formulate and prepare a tentative determination to issue or deny an NPDES permit for the discharge described in the application. If the tentative determination is to issue an NPDES permit, then a proposed NPDES permit shall be drafted which includes at least the following:
 - (a) Proposed effluent limitations,
 - (b) Proposed schedule of compliance, if necessary,
 - (c) And other special conditions.
- (3) In order to inform potentially interested persons of the proposed discharge and of the tentative determination to issue an NPDES permit, a public notice announcement shall be prepared and circulated in a manner approved by the Director. The notice shall tell of public participation opportunities, shall encourage comments by interested individuals or agencies and shall tell of the availability of fact sheets, proposed NPDES permits, applications and other related documents available for public

inspection and copying. The Director shall provide a period of not less than 30 days following the date of the public notice during which time interested persons may submit written views and comments. All comments submitted during the 30-day comment period shall be considered in the formulation of a final determination.

- (4) For every discharge which has a total volume of more than 500,000 gallons on any day of the year, the Department shall prepare a fact sheet which contains the following:
 - (a) A sketch or detailed description of the location of the discharge;
 - (b) A quantitative description of the discharge;
 - (c) The tentative determination required under section 45-035 (2);
 - (d) An identification of the receiving stream with respect to beneficial uses, water quality standards, and effluent standards;
 - (e) A description of the procedures to be followed for finalizing the permit; and,
 - (f) Procedures for requesting a public hearing and other procedures by which the public may participate.
- (5) After the public notice has been drafted and the fact sheet and proposed NPDES permit provisions have been prepared by the Department, they will be forwarded to the applicant for review and comment. All comments must be submitted in writing within 14 days after mailing of the proposed materials if such comments are to receive consideration prior to final action on the application.
- (6) After the 14-day applicant review period has elapsed, the public notice and fact sheet shall be circulated in a manner prescribed by the Director. The fact sheet, proposed NPDES permit provisions, application and other supporting documents will be available for public inspection and copying.
- (7) The Director shall provide an opportunity for the applicant, any affected state, or any interested agency, person, or group of persons to request or petition for a public hearing with respect to NPDES applications. If the Director determines that useful information may be produced thereby, a public hearing will be held prior to the Director's final determination.

- (8) At the conclusion of the public involvement period, the Director shall make a final determination as soon as practicable and promptly notify the applicant thereof in writing. If the Director determines that the NPDES permit should be denied, notification shall be in accordance with section 45-050. If conditions of the NPDES permit issued are different from the proposed provisions forwarded to the applicant for review, the notification shall include the reasons for the changes made. A copy of the NPDES permit issued shall be attached to the notification.
- (9) If the applicant is dissatisfied with the conditions or limitations of any NPDES permit issued by the Director, he may request a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director within 20 days of the date of mailing of the notification of issuance of the NPDES permit. Any hearing held shall be conducted pursuant to the regulations of the Department.

45-040. RENEWAL OR REISSUANCE OF NPDES PERMITS

The procedures for issuance of an NPDES permit shall apply to renewal of an NPDES Permit.

45-045 TRANSFER OF AN NPDES PERMIT

No NPDES permit shall be transferred to a third party without prior written approval from the Director. Such approval may be granted by the Director where the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the NPDES permit and the rules of the Commission.

45-050 DENIAL OF AN NPDES PERMIT

If the Director proposes to deny issuance of an NPDES permit, he shall notify the applicant by registered or certified mail of the intent to deny and the reasons for denial. The denial shall become effective 20 days

from the date of mailing of such notice unless within that time the applicant requests a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department.

45-055 MODIFICATION OF AN NPDES PERMIT

In the event that it becomes necessary for the Department to institute modification of an NPDES permit due to changing conditions or standards, receipt of additional information or any other reason pursuant to applicable statutes, the Department shall notify the permittee by registered or certified mail of its intent to modify the NPDES permit. Such notification shall include the proposed modification and the reasons for modification. The modification shall become effective 20 days from the date of mailing of such notice unless within that time the permittee requests a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department. A copy of the modified NPDES permit shall be forwarded to the permittee as soon as the modification becomes effective. The existing NPDES permit shall remain in effect until the modified NPDES permit is issued.

45-060 SUSPENSION OR REVOCATION OF AN NPDES PERMIT

- (1) In the event that it becomes necessary for the Director to suspend or revoke an NPDES permit due to non-compliance with the terms of the NPDES permit, unapproved changes in operation, false information submitted in the application or any other cause, the Director shall notify the permittee by registered or certified mail of his intent to suspend or revoke the NPDES permit. Such notification shall include the reasons for the suspension or revocation. The suspension or revocation shall become effective 20 days from the date of mailing of such notice unless within that time the permittee requests a hearing before the Commission or its authorized representative.

Such a request for hearing shall be made in writing to the Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to the regulations of the Department.

- (2) If the Department finds that there is a serious danger to the public health or safety or that irreparable damage to a resource will occur, it may, pursuant to applicable statutes, suspend or revoke an NPDES permit effective immediately. Notice of such suspension or revocation must state the reasons for such action and advise the permittee that he may request a hearing before the Commission or its authorized representative. Such a request for hearing shall be made in writing to the Director within 90 days of the date of suspension and shall state the grounds for the request. Any hearing shall be conducted pursuant to the regulations of the Department.

45-065 OTHER REQUIREMENTS

Prior to commencing construction on any waste collection, treatment, disposal or discharge facilities for which a permit is required by section 45-015, detailed plans and specifications must be submitted to and approved in writing by the Department as required by ORS 449.395; and for privately owned sewerage systems, a performance bond must be filed with the Department as required by ORS 449.400.

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