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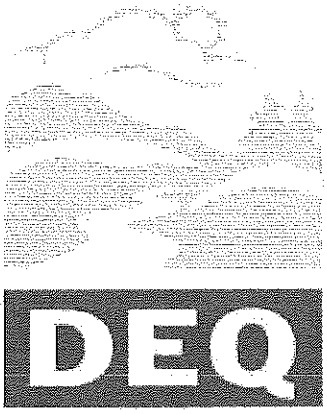
OREGON STATE SANITARY AUTHORITY MEETING MATERIALS



State of Oregon
Department of Environmental Quality

AGENDA

STATE SANITARY AUTHORITY MEETING

10:30 a.m., June 29, 1966

Room 36, State Office Building, Portland

A. Minutes of February 17, 1966, meeting

B. Project plans for February, March, April and May 1966

C. City of Albany sewage treatment needs

D. City of Monroe sewage treatment needs

E. City of Mill City sewage treatment needs

F. Federal Grant Applications (PL 84-660)

G. Douglas County Lumber Company air pollution

H. Frontier Leather Co., Sherwood, air and water pollution

2:00 p.m.

I. Bigger and Better Poultry water pollution

J. Wigwam Waste Burners

(1) Requests for variances

(2) August 11, 1966 deadline

K. Union Carbide progress report

L. North Albany Industrial Area air pollution

OSB4:WS
6/27/66-50

MINUTES OF THE 110th MEETING
of the
Oregon State Sanitary Authority
June 29, 1966

The 110th meeting of the Oregon State Sanitary Authority was called to order by Harold F. Wendel, Chairman, at 10:30 a.m., June 29, 1966, in Room 36 of the State Office Building, Portland, Oregon. The members and staff present were: Harold F. Wendel, Chairman; B.A. McPhillips, John P. Amacher, Chris L. Wheeler, Richard H. Wilcox, M.D., Herman P. Meierjurgen, and Edward C. Harms, Jr., Members; Kenneth H. Spies, Secretary; John Denman, Legal Advisor; E.J. Weathersbee, Deputy State Sanitary Engineer; H.M. Patterson and H.E. Milliken, Assistant Chief Engineers; Dr. Warren C. Westgarth, Laboratory Director; Bryan M. Johnson, H.W. McKenzie, Leo G. Farr and P.D. Curran, Associate Sanitary Engineers; Glen D. Carter and R.A. McHugh, Aquatic Biologists; Harold W. Merryman, Leo L. Baton, J.A. Jensen and Fred M. Bolton, District Engineers; Leonard Pearlman, Assistant Legal Advisor; Fred G. Katzel, Assistant District Engineer; R.B. Percy, Chief Chemist; Clint Ayer, E.A. Schmidt and Lloyd O. Cox, Assistant Sanitary Engineers; and Jim Willcox, Student Trainee.

MINUTES:

It was MOVED by Mr. Wheeler, seconded by Mr. McPhillips and carried that the minutes of the February 17, 1966, meeting be approved as prepared.

PROJECT PLANS:

It was MOVED by Mr. Harms, seconded by Mr. McPhillips and carried that the action taken on the following 63 project plans and engineering reports for water pollution control and 30 project plans for air quality control for the months of February, March, April and May, 1966, be approved:

Water Pollution Control:

Date	Location	Project	Action
2-8-66	Phoenix	Garden O'Gold Subd. sewers	Prov. app.
2-15-66	West Slope San. Dist.	Vista Hills #11 sewers	Prov. app.
2-17-66	Willamina	Sewerage system	Prov. app.
2-18-66	Portland	Terminal #4 sewers	Prov. app.
2-21-66	Springfield	Project Nos. S-49-66 and S-53-66	Prov. app.
2-21-66	Oak Lodge #2	Lateral 2B-5-3A	Prov. app.
2-21-66	Canby	Amrine Road sewer extension	Prov. app.
3-1-66	Woodburn	Senior Estates #7, Phase II sewers	Prov. app.
3-2-66	Portland Tr. Court	Pump Station	Prov. app.
3-2-66	Sweet Home	Molley Road Main 30 sewer	Prov. app.
3-3-66	Green San. District	Sunnyslope Subd. sewers	Prov. app.
3-9-66	Eugene	Sewers BD-66-2,3,7,10,11	Prov. app.
3-9-66	Gresham	Aspen Highland sewers	Prov. app.
3/11/66	Lincoln City	Miracle Village sewers	Prov. app.
3/11/66	Oaklodge #2	Laterals 2A-7-7	Prov. app.
3/11/66	Corvallis	Univ. Park Lateral WL 106	Prov. app.
3/11/66	LaGrande	Safeway Stores sewer relocation	Prov. app.
3/11/66	Talent	Christian Acres #3 sewers	Prov. app.
3/14/66	Gresham	Dellarose Subd. sewers	Prov. app.
3/14/66	Talent	Modifications to sewage treat. plant	Prov. app.
3/14/66	Lincoln Co.	Camp Angell lagoon for USFS	Prov. app.
3/14/66	Central Point	Royal Highlands Subd. sewers	Prov. app.
3/14/66	Gresham	N.E. 172nd Ave. sewer	Prov. app.
3/31/66	North Bend	Prel. report sewage collection	Approved
4/1/66	Bayshore Estates	Sewerage and sewage treatment	Prov. app.
4/6/66	Dundee	Engineering Report-Sewerage	Approved

Date	Location	Project	Action
4/6/66	Warm Springs	West Hills Subd. sewerage	Prov. app.
4/8/66	Wood Village	Pressure line	Prov. app.
4/8/66	La Grande	First Street Sewer	Prov. app.
4/8/66	Westfir	Sewage treatment plant	Prov. app.
4/8/66	Gresham	Camelot Subd. 1st phase sewers	Prov. app.
4/8/66	Rainier	Third Street sewer	Prov. app.
4/8/66	Arlington	Break tank installation	Prov. app.
4/11/66	Oak Lodge San. Dist.	Sewer Ext. 5th & River Road	Prov. app.
4/11/66	Gladstone	Sewer ext.-near Webster Road	Prov. app.
4/19/66	Keizer Sewer Dist. #1	Sewer system	Prov. app.
4/19/66	Mt. Angel	Garfield St. sewer	Prov. app.
4/21/66	Oak Lodge #1	Laterals F-O-7, F-O-7A	Prov. app.
4/21/66	Oak Lodge #2	Lateral 2A-6-7	Prov. app.
4/21/66	The Dalles	Oregon Avenue sewer	Prov. app.
4/21/66	Hines	John Wood's Addn. sewers	Prov. app.
4/26/66	Banks	Sewage treatment plant	Prov. app.
5/2/66	Tillamook Veneer Co.	Sawdust trap	Approved
5/4/66	Hubbard	Sewerage system	Prov. app.
5/9/66	Lane County	Prelim. Report - Scott & Suess	Prov. app.
5/10/66	Wedderburn San. Dist.	Sewerage system	Prov. app.
5/10/66	Siletz Keys	Sewerage system	Prov. app.
5/11/66	Medford	Sewer extensions	Prov. app.
5/13/66	East Salem District	Stortz and Market interceptor	Prov. app.
5/16/66	Preslynn Park S.D.	Sanitary sewers	Prov. app.
5/18/66	St. Helens	Railroad Avenue sewers	Prov. app.
5/18/66	La Grande	N. First Street sewer	Prov. app.

Date	Location	Project	Action
5/18/66	West Slope	Rev. spec. Contr. #9	Prov. app.
5/19/66	Springfield	Sanitary sewer SP-21-66	Prov. app.
5/19/66	Hillsboro	Sewer extensions	Prov. app.
5/20/66	Creswell	Aeration pond-Willamette Poultry	Prov. app.
5/20/66	West Slope	Lateral B-9-4 and B-9-5	Prov. app.
5/20/66	Oak Lodge #2	Lateral 2A-4-2	Prov. app.
5/23/66	Clatskanie	Crown View Subd. sewers	Prov. app.
5/25/66	Millersburg School	Lagoon	Prov. app.
5/25/66	Gresham	North trunk sanitary sewer	Prov. app.
5/25/66	Gladstone	Sewer ext. to Los Verdes Estates	Prov. app.
5/26/66	Eugene	Sewers-Bethel Danebo trunk D	Prov. app.

AIR QUALITY CONTROL:

Date	Location	Project	Action
2/9/66	Wauna Industrial Proposal	Crown Zellerbach	Prov. app.
2/24/66	Clackamas Co.	Incin. Firwood-Elem. School	Add. info. requested
2/28/66	Eastside	Georgia-Pacific Industrial Incinerator	Add. info. requested
3/2/66	Eastside	Geo.-Pac. Corp. Incin. Review	Cond. app.
3/3/66	Multnomah Co.	Mult. Co. Planning Comm. Elmer Hawk open burning permit	Cond. app.
3/4/66	Portland	Grant appl. PL 88-206 in amount of $72,598 for a total of $117,774	Approved
3/8/66	Salem, Mid-Will.APA	Review of performance standards	Comm. Sub.
3/11/66	Eugene, Sch. Dist.#4	Gilham Rd. Elem. Sch. Incin.	Add. info. requested
3/11/66	Eugene, Bethel S.D.#54	Danebo Elem. Sch. Incin.	Cond. app.
3/21/66	SE Portland	Food Giant Incinerator	Cond. app.

Date	Location	Project	Action
3/24/66	Newport	Road & Driveway Co. Controls	Add. Inf. Req.
3/25/66	Beaverton	Valu-Mart No. 11 Incinerator	Not App.
3/29/66	Newport	Chelan Abbey Crematorium Incin.	Add. Plns. Req.
3/31/66	Chemult	Winema Lbr. Co. Proposal for Wigwam Waste Burner	Comm. Subm.
3/31/66	Junction City	Jones Veneer Burner Replacement	Cond. Appr.
3/31/66	Eugene	Park Manor Medical Incin.	Comm. Subm.
3/31/66	Eugene	Jones Veneer Burner Replacement	Cond. Appr.
4/1/66	Beaverton	Incinerator, Valu-Mart #11 (commercial)	Approved
4/14/66	North Bend	Incinerator, North Bend High School Addition	Comm. Subm.
4/14/66	Corvallis	Incinerator, OSU Residence Hall, Unit No. 1, Complex A	Add. Inf. Req.
4/21/66	La Grande	Mt. Emily Division, Boise-Cascade Corp., Emission Test Report	Comm. Subm.
4/27/66	Hermiston	Incinerator, Marlette Coach Co. (Industrial)	Not App.
4/28/66	Detroit	Incinerator, Detroit High School	Add. Inf. Req.
4/29/66	Corvallis	Incinerator, Dixie Elem. School	Not Appr.
5/3/66	Corvallis	Fairplay Elem. School Incin.	Not Appr.
5/3/66	North Bend	North Bayside Jr. High School Incin.	Add. Inf. Req.
5/4/66	Sandy	Firwood Elem. School Incin.	Approved
5/6/66	Pendleton	Blue Mt. Community College, Incin.	Not Appr.
5/9/66	Ashland	Helman Elem. School Incin.	Add. Inf. Req.
5/16/66	Oakridge	Timber Products Co. Used Wigwam Waste Burner	Cond. Appr.

CITY OF ALBANY

An engineering report prepared by the staff and dated June 28, 1966, was read by Mr. Weathersbee. This report has been made a part of the permanent files in this matter.

Mr. William C. Bollman, City Manager, was present to represent the city of Albany. He stated that he thought the report presented by Mr. Weathersbee was fairly complete on what had transpired to date. He said that as soon as the city's consulting engineers have completed or nearly completed the plans and specifications they would have fairly reliable information as to what the expansion of the Albany sewage treatment plant will cost and the city can then submit a bond issue to the voters for their approval. The city council is interested in trying to have a successful bond election the first time. He said that the possibility of holding an election in conjunction with the general election in November is being considered, although there is some feeling among council members that a special election should be held in August or September. He claimed Albany is in a particularly critical situation as far as sewage disposal is concerned as there are three food processing plants involved which have grown considerably and expect further growth and there is also the possibility of an additional food processing industry's being located in the city.

He said the estimated cost of the sewage plant expansion was originally $1,612,500, but since then the estimate has been revised upward. Mr. Bollman stated that as a result of the initial study the engineering firm recommended a waste disposal ordinance be adopted which has been done and which contains a more adequate rate scale for industries. As an example, he said the rate for one industry had increased from $2,000 per year under the old ordinance to $14,000 per year under the new ordinance.

Dr. Wilcox asked that if the flows in the Willamette continue to drop during the summer season would the city be in a position to ask the industries to curtail production during the time of the canning season or shut down completely. Mr. Bollman replied that probably the city could have them shut down. He said those industries within the city could be regulated by the council, but those outside the city could not.

Mr. Wendel pointed out that the present flow in the river at Salem was reported to be only two-thirds of what it was a year ago, and it was critical enough then. He said anyone operating on the river ought to give consideration to this as it may be necessary to take emergency measures on the Willamette on very short notice.

Mr. Denman asked if some of the industries outside the city were using the plant, and Mr. Bollman replied that they were not using city facilities. Mr. Meierjurgen asked if the city had contracted to serve the industries, and the answer was that the new ordinance had been adopted so that industries would pay more toward the cost of operation.

Mr. Bollman said the main industries in question in the city were two frozen food plants and a meat packing plant. Mr. Meierjurgen said that he noted by the report the present sewage plant was designed for a total PE of 32,400, of which 20,000 PE was for industrial wastes. Mr. Bollman said this was approximately so, but because of the increase in industrial waste loading the new plant is being designed for 200,000 PE.

The Chairman asked Mr. Bollman why the city delayed for a year and a half before retaining engineers to prepare final plans after completion of the preliminary report. Mr. Bollman replied that the city did not have money on hand for that purpose, and, therefore, had to make application to the federal government for a planning loan. He said the plans would cost $71,400 to prepare.

There was then considerable discussion by the members regarding the policy of making industry pay its fair share of the cost of waste treatment and disposal, regarding the possibility of providing temporary waste disposal facilities (lagoons) this summer, regarding the adequacy of the proposed sewage plant expansion, and regarding the responsibility of the city and community in not accepting new industry unless and until adequate waste disposal can be provided.

Mr. McPhillips then pointed out that the reason for having Mr. Bollman present at the meeting was to have him submit a proposed time schedule. Mr. Bollman said he could give only a tentative schedule, that the city hoped to hold a bond election this fall, get final plans by November and award contracts in the spring of 1967. He said it is expected the construction will take about a year.

It was MOVED by Mr. Harms, seconded by Mr. Wheeler, and carried that the city of Albany be requested to submit a proposed program and timetable for financing, planning and construction to the Sanitary Authority staff within 15 days and in the event they do not, the Authority then consider citing Albany to show cause why they should not comply with the December 1966, deadline.

CITY OF MONROE

A supplemental engineering report prepared by the staff and dated June 29, 1966, was read by Mr. Merryman. This report has been made a part of the permanent files in this matter.

Mr. Steve Tyler, City Attorney, and Mr. John Dillard, Councilman, were present to represent the city of Monroe. Mr. Tyler stated the city presently has a population of 380 and an assessed valuation of $304,000, that an engineering study and report by CH_2M had been presented to the city council in August, 1965, at which time the maximum cost for treatment and disposal facilities was estimated at $186,000.

Mr. Tyler stated further that the water system for the city now produces less than 30 gallons per minute which is enough for about four families and there are 103 water users, so they also have a water problem. He said there are presently about 60 connections to the city sewer system.

Mr. Tyler said in carrying out the recommendations of the engineers, the city had applied for loans or grants and a condemnation suit has been filed to acquire a site for a proposed lagoon.

After considerable discussion of problems of finance, it was MOVED by Mr. Harms, seconded by Mr. McPhillips, and carried that the city of Monroe be requested to submit a revised time schedule within 15 days or the Sanitary Authority consider citing the city of Monroe to show cause why it should not abate pollution caused in the Long Tom River by the discharge therein of its raw or inadequately treated sewage.

CITY OF MILL CITY

An engineering report dated June 29, 1966, which has been made a part of the permanent files in this matter, was presented by Mr. Joe Jensen, Portland District Engineer.

The Chairman then asked what the pollution load is at the present time in terms of population.

Mr. Jensen replied there are approximately 13 commercial establishments on the north side of the North Santiam River, located between the highway and the river, that are contributing to this old sewer line, which discharges directly into the North Santiam River, with a population equivalent of approximately 75 to 100. Mr. Jensen went on to say that the south side of the river, where the main city is located, is sewered and all the sewage is treated in one big septic tank and a subsurface disposal field. That portion of the city seems to have no problems with its sewage disposal.

Mr. J.C. Kimmel, Mayor, who was present to represent the city, stated that this sewage disposal problem was inherited from the Hammond Lumber Company. He said three years ago a study was made and an estimate of $593,000 was quoted to put in a city-wide sewer system and disposal works. He stated that because this would only benefit 13 or 14 outlets, it was considered impossible to float a bond issue and have it pass. Mr. Kimmel said that if the Sanitary Authority or Marion County would in some way force these people to take care of their sewage, the problem would be solved, but the city is in a position where it has very little power to solve the problem.

Mr. Harms asked if a tax levy had been submitted to a vote of the people.

Mr. Kimmel replied that it had not because the people would be voting on a tax levy which would only be benefiting a small minority of the people.

Mr. Harms asked if the city has maintained the sewer line, to which Mr. Kimmel replied that they had not.

Mr. Denman then stated that apparently it is a private sewer serving those people who have connected their property to it.

It was MOVED by Dr. Wilcox, seconded by Mr. Meierjurgen, and carried that the Sanitary Authority's legal counsel prepare injunction proceedings against the 12 or 13 violators at the earliest possible date.

FEDERAL GRANT APPLICATIONS

The following grant applications which had been submitted to the Authority on or before June 15, 1966, were considered for priorities for grants from the 1967 fiscal year appropriation:

Priority Points	WPC No.	Applicant	Amount Requested
	184	Portland	$ 387,000
	185	Lincoln City	27,150
61	192	Lakeview Subdivision	12,600
59	191	Wedderburn	14,490
56	194	Port Orford	60,060
55	210	Cottage Grove	77,740
53	198	Junction City	75,600
53	196	Springfield	120,960
52	189	Gladstone	7,140
51	203	Gresham	27,450
51	207	N. Roseburg	97,050
50	197	Harrisburg	19,270
45	195	Multnomah County - Fanno Creek	119,700
43	205	Salem	109,200
42	206	Amity	19,350
41	201	Monroe	20,400
40	200	Yoncalla	54,000
40	199	Jefferson	47,700
39	190	Cascade Locks	40,350
39	188	Keizer Co. Sanitary District	4,270
38	208	Oakridge	37,200
38	211	Portland - Linnton-Guilds Lake	668,160
38	212	Portland Sewage Treatment Plant	549,000
38	193	Multnomah Co. Central County S.D	141,970
34	202	Dundee	37,500
34	209	Manzanita	28,800
		Total amount requested	$2,804,110

Mr. Milliken pointed out that the current balance in Oregon's unallocated funds from the 1966 fiscal year appropration for the PL 84-660 federal grant program was $317,620, but that more than this amount is needed for the city of Portland's project No. 184 which was approved last year and is eligible for an increase of $387,000. He pointed out further that the Lincoln City project No. 185, which also had been approved last year but which has not yet gotten under construction, has since been increased in scope and is now eligible for an increase of $27,150.

He stated that although Congress has not yet approved the 1967 fiscal year appropriation bill, it is expected that Oregon's share of the new appropriation will be $1,776,050, and that therefore there will be a total of only $2,093,670 available, compared to the total requests of $2,804,110.

It was MOVED by Mr. Harms, seconded by Mr. Wheeler, and carried that the grant increases in the amounts of $387,000 and $27,150 for Portland project No. 184 and Lincoln City project No. 185, respectively, be approved, that for purposes of federal grant authorization Portland projects Nos. 211 and 212 be combined into one project and be assigned a priority for receipt of the balance in the 1967 federal funds remaining after grant offers have been made to all other eligible projects having equal or higher priority point totals, that priorities be authorized for the other projects listed except for Dundee and Manzanita, which are not ready to go, that the approval of applications and issuance of priorities for the Amity, Cascade Locks, Jefferson, Keizer County Service District, Monroe, Oakridge and Yoncalla projects be contingent upon their having obtained financing for their local share of the project cost by December 1, 1966, and that all grant offers be contingent upon appropriation of funds by Congress.

The meeting was recessed at 12:30 p.m. and reconvened at 2:10 p.m.

DOUGLAS COUNTY LUMBER COMPANY

Mr. Patterson read the staff report on air pollution caused by the Douglas County Lumber Company. This report dated June 29, 1966, has been made a part of the Authority's permanent files in this matter.

Mr. M.L. Hallmark, a partner and acting manager, said he had received a letter requesting that he be present to answer questions that might arise. He explained their situation and stated that each woodworking plant has an entirely different and separate problem. The Douglas County Lumber Company mill started out with a sawmill and had two burners. In those days they were burning all the slab wood as well as the bark. They were not barking the logs or shipping any of the materials. He said they had a problem then but did not think it was

as bad as it is now. They now convert practically all the waste wood into chips and sell 6 to 7 carloads of chips per day which is material they would formerly have burned but which is not being burned at the present time. Mr. Hallmark stated that he realized the members of the Sanitary Authority had tough administrative problems and did not see how they could cope with some of them. He thought the Douglas Lumber Company problem was rather simple in comparison to some of the others. He claimed that no person or committee had ever approached him in regard to air pollution or a nuisance. He said their mill had been in the area for 25 years and in the present location 13 to 14 years, and they certainly do not want to pollute the air or be a nuisance to the public. He mentioned that there is a plywood mill about one-half mile north of them and another sawmill to the south from which he claimed there is smoke and fallout. He did not feel his mill should take the responsibility for every bit of fallout in the area. He said he had just been presented with a copy of a petition with about 150 signatures of people who claim that this fallout is harmful to fish life and plant life. Some of these people live several miles downstream and he did not think this fallout was bothering the fish or plant life. He said the problem is "how to stop it." He said none of the recommendations from the staff of the Authority had convinced him they had any merit. He claimed they have done all sorts of things to help control pollution. They have installed an automatic firing device in the boiler house which Mr. Hallmark thinks has reduced the smoke by at least 40%. He stated this was designed by an engineer and installed at considerable expense. He also stated that they had done all sorts of things to reduce the fallout. They have also installed a collector on the burner, the one that receives the bark dust, but he does not think that has helped much. In the last year they have spent $3,500 on repair of the burners and have recently

installed a core chipper at a cost of between $15,000 to $20,000 to chip the cores that are not saleable. They are now in the process of installing a dust collector on the barker so that they can remove the dust and not have to use water. He stated that nobody has come up with any kind of a definite engineering plan that will assure them that they are going to greatly minimize the fallout problem. He claimed they have talked with people who have the Medford Blowpipe System, which the Authority's staff had recommended they put in, and they cannot see technically any improvement whatsoever as a result of the installation of that system.

Mr. Hallmark stated that they were in the Sugarpine belt in Western Oregon and that they cut from 10 to 15 million feet of Sugarpine per year, and that they pay about $70 to $80 per thousand for those logs. The first 32 feet of those logs weighs about eight pounds per board foot and is so heavy it sinks. When bark which is wet is introduced into the burner and the wet Sugarpine sawdust is added, there naturally is a lot of smoke. He claimed that no matter what is done, there will always be smoke and fallout. Mr. Hallmark said he felt rather embarrassed to come to the meeting and he apologized to the Authority members. He said he thought the people who are complaining should have come to him rather than run to a commission and complain. He said he was not difficult to talk to and he felt the people instead of circulating a petition, should have come to him and discussed the matter. He said he was sure he could circulate a petition and get some of the same people who signed the complaint to sign his petition stating that the mill was not causing a hazard.

Mr. Meierjurgen then asked what other species they cut, to which Mr. Hallmark answered Hemlock, White Fir, Cedar, but mostly Douglas Fir. He said the mill runs almost half of its product on Sugarpine, Ponderosa Pine, and Idaho White Pine, and that they have a payroll of approximately 200 to 300 people in this

plant. He stated that at the moment he did not know how they were going to eliminate this nuisance. He stated that they were selling quite a bit of bark mulch but not enough to help the problem too much, but they do have people who are hauling it away and selling it to gardeners, orchardists, etc. They have a proposition with a local orchardist and, at the mill's expense, are hauling this bark mulch to his orchard for covering some two to three acres to a depth of eight to ten inches. He is going to work that into the ground and then he is going to put some more on the top of the ground to try to determine if it is beneficial to the orchard. They have tried to find markets for the bark but the freight rate to California does not justify shipping it there. He said it was the bark that was causing all the trouble and he did not know at the present time how they were going to solve this problem.

Dr. Wilcox then asked if they had had an engineering study made.

Mr. Hallmark stated that they did not know of an engineer who was capable and that they have had calls from engineers, but they do not seem to be able to do anything about the situation. They are willing to spend the money if someone can recommend an engineer who can actually minimize the smoke and fall-out problem.

Mr. Wheeler asked if they had contacted any private engineering firms to solve the problem.

Mr. Hallmark stated that he was not familiar with firms or qualified engineers who do this type of work.

Mr. Denman asked if they had explored any of the multi-burning systems, to which Mr. Hallmark remarked he did not know what they were. He said he had read about some of the complex systems in the field, but did not think that would work here as they had a pretty big volume.

Mr. Wendel asked that if without the competition of California, would there be enough demand to affect the amount of material being burned.

Mr. Hallmark estimated that the installation of facilities to properly process this material and package it would cost approximately $150,000. He said they have been trying to get the railroad to reduce the rates, but have had no results. He said again he would have felt a lot better if the people had come to him rather than place the burden on the Authority members.

Mr. Wendel asked if the people had come to him if they would have accomplished anything.

Mr. Hallmark replied that they would have worked harder to minimize the nuisance and that he still felt the people had a moral responsibility to have discussed this with him.

Mr. Patterson said he appreciated Mr. Hallmark's comments and said he thought the records should be clarified that the Authority has not necessarily required the use of wigwam waste burners for the disposal of wood waste and that the regulations of the Sanitary Authority in regard to wigwam waste burners were not initiated to solve the lumber industry problem, but were to reduce air pollution. Mr. Patterson referred to letters written to Mr. Hallmark which showed that the staff had made definite recommendations to the company that were never carried out.

Mr. Hallmark then said if it would be agreeable with the Authority the company would call in a competent consulting engineer and cause a study to be made and that they would give a copy of his report to the Authority. He went on to say that he might not necessarily agree with the engineers findings; but if he considered them reasonable and economical, the company would follow them.

Mr. Filbert went on to say that a site had been purchased by Frontier Leather Company on the Columbia River at a cost of $110,000, but that the company had run into a problem with regard to sewer, as the sewer wasn't where it was supposed to have been. The next problem then was working with the city of Portland on either discharging to the city's outfall, or building an outfall paralleling the city's. This matter is under consideration now.

Before construction of the building on the new site can be started, the area will have to be filled in and left to settle, which will take about six months. During that period planning can proceed; detailed design and construction would follow probably in the summer of 1967.

In the meantime since the Frontier Leather Company has a contract with the city of Sherwood, the company is going to make a change in the process to see if the limitation on chloride content can be met. Essentially, the company hopes to have the lagoons out of service as waste treatment ponds by the first of July. The ponds are producing odors now and the company is going to make every effort to stop this. In the past two weeks 24,000 pounds of sodium nitrate have been added. This is an accepted method of supplying oxygen in an environment similar to those in the ponds. So far the company has not met with much success by doing this. The company has another 8,000 pounds on hand and another 30,000 pounds ordered and due to arrive within another week. What the company proposes to do is to get the waste so that the city of Sherwood will accept it in order to get the company through the period the new plant is being built.

In summary Mr. Filbert said Frontier Leather Company realizes the problem that it has and is undertaking an active program to solve it.

Mr. Wendel then asked if it was the company's intention to do this immediately and Mr. Hallmark remarked that as soon as they could find someone who would work for them they would go ahead with the study.

Mr. Patterson then said there should be a reasonable time limit on this and Mr. Hallmark remarked that they would do this as quickly as possible and that he thought that within 60 days they should be able to report on the study.

It was MOVED by Mr. McPhillips, seconded by Dr. Wilcox, and carried that the Sanitary Authority accept the proposition that Douglas County Lumber Co. will call in a competent consulting engineer and cause a study to be made and report back within 60 days, and that a copy of the engineering report be presented to the Authority members so that they could study it in advance of the next meeting; and further that if progress has not been made, which the members of the Sanitary Authority think is satisfactory by that time, the Douglas County Lumber Company will be cited for a hearing to show cause why they should not be enjoined from continuing the nuisance.

FRONTIER LEATHER COMPANY, SHERWOOD, AIR AND WATER POLLUTION

A memorandum report dated June 29, 1966, which has been made a part of the permanent files in this matter was presented by Mr. Bryan Johnson, Associate Sanitary Engineer.

Mr. John Filbert of Cornell, Howland, Hayes and Merryfield Engineers was one of those present to represent the company. He stated that the Frontier Leather Company air and water pollution has been a problem of long standing and that the air pollution has been a real problem since early last summer. He said that in discussions with the staff of the Sanitary Authority, the fact was brought out that Frontier Leather Company was going in for a long-range program to remove that portion of the process from Sherwood which generates the salts or high strength wastes which cause the odor problem.

Mr. Eugene Marsh, Attorney for Frontier Leather Company, stated that the company has recently employed a Mr. Don Nelson from Waukegan, Illinois, who is one of the top men in the tannery business. Mr. Nelson will soon join the firm and he feels that with some additional equipment and changes in the method of tanning, the chloride content can be brought down below 800 ppm. If this can be accomplished, the lagoons could be bypassed and the odor problem should clear up.

Mr. Weathersbee said that he thought Frontier Leather Company is doing about everything that it can do to solve this problem, and that the company will eventually solve it, but he did not know how long the people can or will wait for a solution.

The Chairman stated that it is recommended by the staff that prior to reopening the plant after the July 4 shutdown, an agreement be reached between the company and the Sanitary Authority on a definite method and schedule for abating this entire problem in one way or another, that no additional waste material be discharged to the holding lagoons after July 1, 1966, and that an intensive study of the ponds be immediately initiated to develop methods of hastening and achieving correction of the present odor problem and preventing it from recurring in the future.

The Chairman thought the above recommendations were pretty comprehensive.

Mr. Weathersbee stated that he believed the question is whether the members of the Sanitary Authority would want to establish a date by which time the company shall have solved the problem, or do they want to face up to the fact that they may have to terminate operations.

Dr. Wilcox asked if the city would accept the wastes from the tannery if the chloride content is brought down to 800 ppm.

Mr. Weathersbee stated the company has a contract to that effect.

The Secretary then said that as he understood it, the company would be shutting down for two weeks the first part of July during which time they will do everything then can to alleviate or eliminate the odor from the existing lagoon. The Secretary's recommendation was that if Frontier Leather Company is not successful in eliminating the odor during that period of time, the company should not resume operations which would in any way aggravate the problem. Assuming that they are successful in eliminating the odor from the existing lagoons, resumption of operations should not in any way cause a new odor problem.

Dr. Wilcox asked if the company would have to have a test run in order to determine this.

Mr. Filbert said the company would have to have some sort of a test run in order to determine if the chloride content is down and also to determine the effectiveness of the treatment system additions.

It was MOVED by Mr. Harms, seconded by Mr. McPhillips, and carried that the Authority approve the recommendations of the Secretary, with the exception that test runs be allowed upon prior notification to and approval of the staff.

WILLAMETTE CITY

The Secretary said that on June 24 he received a telephone call and on June 27 a letter from Mr. R.M. Paddock who resides in Willamette City, which is immediately adjacent to Oakridge in Lane County. In March of this year an election was held in that area for the purpose of annexing Willamette City to Oakridge. This was approved by the voters of Oakridge but rejected by the voters of Willamette City. In the Willamette City area no public sewers are

currently available and people have to use their individual septic tank systems which do not function satisfactorily due to unfavorable soil and drainage conditions. The letter received raises the following questions:

"Why should the city of Oakridge be forced to improve its sewage treatment facilities, while Willamette City can go on contributing as much or more to the pollution problems with inadequate septic tank systems? Why should there be a County Health Department or State Sanitary Commission if they are unwilling to step in and see to it that problem areas are cleaned up after residents of these areas have demonstrated that they do not regard the health and safety of their fellow citizens to be their responsibility?"

Mr. Paddock, resident from Willamette City, who was present at the meeting, said that the residents who signed this letter and worked on it feel very strongly that something needs to be done in the area. He claimed it is a health hazard through the winter as there are areas where open ditches have sewage running through them. He said samples were sent in to the State and the reports came back with a very high bacteria count. Mr. Paddock asked for assistance from the Sanitary Authority to solve this problem.

Mr. Harold W. Merryman, district engineer, stated that Mayor Hills from Oakridge has asked for any cooperation possible in the annexation of Willamette City to Oakridge, because the city officials are interested in the proper location of the sewage treatment plant.

The Secretary said that Willamette City is unincorporated. The people in this area did not see fit to annex to Oakridge. If this problem is going to require legal steps to spur the people into action to comply, then the only thing the state or county can do is to proceed against the individual property owners.

Mr. Harms asked if this is a water pollution problem or a public health problem.

Mr. Merryman believed it is more of a public health problem.

The Secretary asked Mr. Paddock if this had been discussed with the Lane County Health Department recently.

Mr. Paddock replied that the Lane County Health Department had been contacted and believed this problem should be approached on an individual basis, but so far there has not been much action in that field.

Mr. Merryman suggested that the Sanitary Authority give whatever assistance it could to the people of the community toward annexation, because for the community of Willamette City to go to waste treatment on its own would be rather difficult financially.

It was MOVED by Mr. Harms, seconded by Mr. Wheeler, and carried that a letter be sent to the Lane County Health Department bringing this matter again to their attention, and pointing out that it has come to the attention of the Sanitary Authority and requesting Lane County to take appropriate action through the Health Department and the District Attorney's office in Lane County, and that the Authority have another report from Mr. Merryman at the next meeting.

BIGGER AND BETTER POULTRY, INC.

An engineering report dated June 28, 1966, which has been made a part of the permanent files in this matter was presented by Mr. Ernie Schmidt.

Mr. Leon Gabinet, Attorney for Bigger and Better Poultry, stated that a letter had been received from the Authority stating that a meeting would be held on this date at which time Mr. C.L. Holmes of Bigger and Better Poultry could come and be heard if he wished. He requested that Mr. Holmes be heard.

Mr. Holmes said that his firm had purchased 186 acres in the Canby area. Plans were drawn up and submitted for financing, but the people backing the financing said it was too much money, at which time plans were made for a smaller building. The new plant will be reduced from 27,000 to 17,000 square feet and should be ready to submit for bids in two to three weeks.

Mr. Weathersbee stated that the staff of the Sanitary Authority had not received the plans for the new disposal system and that they would want to look at them before construction is started.

Mr. Holmes said that as far as his present location is concerned he had another man in charge of the waste disposal system which is located up in the woods, is hard to get to and out of sight, and he was under the impression the waste was being sprinkled, rather than being discharged through an open pipe. Mr. Holmes stated that he personally has taken over the operation of the pipe line, inspecting it every day and making any repairs necessary and seeing that the waste is properly sprinkled.

It was MOVED by Mr. Harms, seconded by Mr. Wheeler, and carried that Mr. C.L. Holmes of Bigger and Better Poultry Company be cited to appear and show cause, if any exists, why an order should not be entered directing him to permanently abate the pollution of Kellogg Creek and drainageways tributary thereto, and that the hearing be held before a hearings officer at the earliest possible time. If the staff desires to further check the disposal facilities for proper operation, this could be done; and if necessary postpone the time of the hearing and report back to the Sanitary Authority at the next meeting.

WIGWAM WASTE BURNERS

Mr. Patterson explained that the regulations pertaining to waste wood wigwam burners had been adopted and became effective August 11, 1965, and that under said regulations certain variances from the Authority's present discharge

regulations were automatically provided for one year from that time. If no action is taken by the Authority the variances from the discharge standards will automatically expire on August 11, 1966. Because of this the staff had prepared a status report on the waste wood wigwam burner question.

Mr. McKenzie then presented a report on waste wood wigwam burners dated June 29, 1966. This report has been made a part of the Authority's permanent files in this matter.

Mr. Wendel asked Mr. Patterson what he would advise the procedure to be.

Mr. Patterson said it is the feeling of the staff that the program is not proceeding fast enough to effect real reduction in air pollution in the communities such as Medford, Springfield, and the Eugene area. The staff, therefore, recommended that the variances expire on August 11, 1966.

Mr. McKenzie went on to explain that the variances with which the Authority members have been concerned to date have all had to do with another part of the regulations which allows a variance from the construction requirements by Authority action. Variances have been granted to mills located in remote areas. The part that the Authority need be concerned about now is the part which stipulates that by complying with the construction requirements of the regulations a mill is automatically given a variance from the requirements regarding smoke discharge, particle fallout rate and suspended particulate matter.

Mr. Wendel then asked if there would be so many in violation after August 11 that the Authority could not handle them.

Mr. Patterson replied that the alternative might be to start with the Associated Oregon Industries Lumbermens Committee to try to develop a program within each area.

The Secretary pointed out that the deadline is established by regulation, so if nothing is done at this meeting, the deadline automatically goes into effect on August 11, 1966, but if the deadline is to be extended, the regulations would have to be amended.

Mr. Harms asked if any request had been received from any organization that the variance be extended.

Mr. Robert Olinger of Associated Oregon Industries said that at the time they were discussing this annual variance, it was their interpretation that for the year it would give them time to attempt to install the items required in the regulations. He stated that he hoped through studies they would be able to develop ways of solving this problem without putting the Sanitary Authority in a position of having to cite every burner operator in Oregon. He said they were in hopes that this variance would be continued at least to the end of the year.

It was MOVED by Mr. Meierjurgen, seconded by Mr. McPhillips and carried that the deadline established in OAR 24-025 (1) for granting certain variances on wigwam waste burners be extended to January 1, 1967.

It was MOVED by Dr. Wilcox, seconded by Mr. Meierjurgen, and carried that the Authority adopt the recommendations of the staff and notify the mills of the action of the Sanitary Authority regarding the following requests for variances:

(1) Gilchrist Timber Company, Gilchrist, located in a sparsely populated area. Recommendation: Variance should be denied.

(2) Hub Lumber Company, Roseburg, planer mill burner used only occasionally for yard cleanup. Recommendation: Variance should be denied.

(3) Edward Hines Lumber Company, Westfir, burner seldom used and located in sparsely populated area. Recommendation: Variance should be allowed.

Requests for extensions of variances previously granted:

(1) Murphy Creek Lumber Company, Grants Pass, delays due to unexpected problems in design and the resulting comprehensive changes in sawdust layout which are prerequisite to chipper installation and subsequent waste burner termination. Recommendation: An extension until August 31, 1966, should be granted.

(2) Tygh Valley Timber Co., Inc., Tygh Valley, renewal of variance granted due to location in a sparsely populated area. Recommendation: Extension until January, 1967, should be granted.

(3) Hult Lumber and Plywood Co., Junction City, (burner at Horton), renewal of variance granted due to location in sparsely populated area. Recommendation: Extension until January, 1967, should be granted.

(4) Park Lumber Co., Estacada, contractor's workload has precluded completion of renovation work as scheduled. Recommendation: Extension should be granted until August 1, 1966, as requested.

(5) Cabax Mills, Plywood Division, Eugene, number of alternate methods of disposal have been investigated, but will require more time to materialize. Recommendation: Extension should be granted until October 1, 1966, by which time a proposed plan and schedule shall have been submitted to and approved by the Authority staff.

(6) Johnson Bros. Lumber Company, Silverton, contract has been signed for sale of all waste. More time is needed to install the equipment needed. Recommendation: Extension should be granted to September 1, 1966, as requested.

(7) Ellingson Timber Co., John Day, (burner at Seneca), renewal of variance granted due to location in a sparsely populated area. Recommendation: Extension until January 1, 1967, should be granted.

(8) Ellingson Lumber Co., Baker, (burners at Unity and Halfway), renewal of variances granted due to location in a sparsely populated area. Recommendation: Variances should be extended for each of the burners until January 1, 1967.

(9) Forest Grove Lumber Co., Forest Grove, delays in delivery of equipment for waste utilization program. Recommendation: Request should be denied for the reason burner is to be retained on a standby basis.

(10) Zip-O-Log Mills, Inc., Eugene, use of burner has been eliminated to extent that it is on emergency standby basis. Recommendation: Request be denied for reason burner is to be retained on standby basis.

(11) Loveness Company, Malin, renewal of variance granted due to location in sparsely populated area. Recommendation: Extension until January 1, 1967, should be granted.

UNION CARBIDE PROGRESS REPORT

A staff report dated June 29, 1966, was read by Mr. Patterson. This report has been made a part of the permanent files in this matter.

It was MOVED by Mr. McPhillips, seconded by Mr. Meierjurgen, and carried that the Sanitary Authority grant conditional approval to Union Carbide's proposal of February 21, 1966, including current additions and plans subject t

1. The company's meeting ambient air standards by June 1967.
2. Continued staff review of the company's proposal, construction progress, and measurement of ambient air.
3. Measurement by the company of the efficiency of the air cleaning equipment installed, and the company's providing the results of the tests together with grain loading and gas flow rates.

4. The company conduct a dust suppression program in the material storage, handling, and transportation area beginning with the current season.

MR. AMACHER

The Chairman then brought to the attention of the other members a very fine tribute to Mr. Amacher which had appeared in the lead editorial of the May 21, 1966, issue of the Roseburg News-Review.

There being no further business, the meeting was adjourned at 5:45 p.m.

Respectfully submitted,

Kenneth H. Spies

Kenneth H. Spies
Secretary

MOTIONS:- S.A. Meeting, June 29, 1966

MINUTES:

It was MOVED by Mr. Wheeler, seconded by Mr. McPhillips and carried that the minutes of the ~~December~~ February 17, 1966, meeting be approved as prepared.

PROJECT PLANS:

It was MOVED by Mr. Harms, seconded by Mr. McPhillips and carried that the action takenon the following 63 project plans and engineering reports for water pollution control and 30 project plans for air quality control for the months of February, March, April and May, 1966, be approved:

CITY OF ALBANY SEWAGE TREATMENT NEEDS:

It was MOVED by Mr. Harms, seconded by Mr. Wheeler, and carried that the city of Albany be requested to submit a proposed program and timetable for plans to the Sanitary Authority staff within 15 days, and if not, the city of Albany be cited in and show cause why they should not comply with the December 1966 deadline.

CITY OF MONROE SEWAGE TREATMENT NEEDS:

It was MOVED by Mr. Harms, seconded by Mr. McPhillips, and carried that the city of Monroe be required to submit a revised time schedule within 15 days for the Sanitary staff to consider before citing the city of Monroe.

CITYOF MILL CITY SEWAGE TREATMENT NEEDS:

It was MOVED by Dr. Wilcox, seconded by Mr. Meierjurgen, and carried that Mr. John Denman, Legal Counsel, prepare an injunction proceeding against the 13 violators within 30 days.

FEDERAL GRANTS:

It was MOVED by Mr. Harms, seconded by Mr. Wheeler, and carried that the applicants for 1967 federal grant application be approved and allowed insofar as the Sanitary Authority is concerned on the last report sheet that was presented, with the exception that project #193 be moved ahead of Project #211 and Project #212, with those projects to be combined into obtaining the remaining amount of funds; and that the approval of priorities of applications of Amity, Yoncalla, Monroe, Jefferson, Keiser San. Dist. #1, and Oakridge be contingent upon obtaining their local share of financing by December 1, 1966.

DOUGLAS COUNTY LUMBER COMPANY AIR POLLUTION:

It was MOVED by Mr. McPhillips, seconded by Dr. Wilcox, and carried that the Sanitary Authority accept the proposition that Douglas County Lumber Company will employ a competent consulting engineer & a copy of the report will be provided ~~have something done and report back to us~~ within 60 days, and that a copy of that report be circulated to the members of the Sanitary Authority so that it can be studied in advance of the next meeting. If progress has not been made, which the members of the Sanitary Authority think is satisfactory by that time, Douglas County Lumber Company will be cited for a hearing to show cause why they should not be enjoined.

FRONTIER LEATHER COMPANY

It was MOVED by Mr. Harms, seconded by Mr. McPhillips, and carried that due to the fact the company will be shutting down for two weeks the first part of July during which time they will alleviate existing odors from lagoons, if they are not successful during that period of time, the company should not resume operations which would aggravate the problem. In other words, resumption of operations should not in any way cause a new odor problem.

WILLAMETTE CITY

It was MOVED by Mr. Harms, seconded by Mr. Wheeler and carried that a letter be sent to the Lane County Health Department bringing this matter to their attention and that it has come to the attention of the Sanitary Authority, and requesting them to take appropriate action through the Health Department and District Attorney's office in Lane County, and have another report from Mr. Harold W. Merryman at our next meeting.

BIGGER AND BETTER POULTRY

It was MOVED by Mr. Harms, seconded by Mr. Wheeler, and carried that Mr. C.L. Holmes of Bigger and Better Poultry be cited to appear and show cause, if any exists, why an order should not be entered directing him to permanently abate the pollution of Kellogg Creek and drainageways tributary thereto, and that the hearing be held before a hearings officer at the earliest possible time.

WIGWAM WASTE BURNERS

(1) It was MOVED by Dr. Wilcox, seconded by Mr. Meierjurgen, and carried that the Authority adopt the recommendations of the staff and notify the mills of the action of the Sanitary Authority

(2) It was MOVED by Mr. Meierjurgen, seconded by Mr. McPhillips, and carried that the variances be extended to January 1, 1967.

UNION CARBIDE

It was MOVED by Mr. McPhillips, seconded by Mr. Meierjurgen, and carried that the Sanitary Authority grant conditional approval of Union Carbide's proposal of February 21, 1966, including current additions and plans subject to:

1. Meeting ambient air standards by June 1967. 2. Continued staff review of the company's proposal, construction progress, and measurement of ambient air. 3. Measurement by the company of the efficiency of the air cleaning equipment installed, and providing the results of the tests together with grain loading and gas flow rates. 4. The company conduct a dust suppression program in the material storage, handling, and transportation area beginning with the current season.

During the month of May, 1966, the following 21 sets of project plans and engineering reports were received and the action taken as indicated by the Water Pollution Control Section:

Date	Location	Project	Action
5/2/66	Tillamook Veneer Co.	Sawdust trap	Approved
5/4/66	Hubbard	Sewerage system	Prov. app.
5/9/66	Lane County	Prelim. Report - Scott & Suess	Prov. app.
5/10/66	Wedderburn San. Dist.	Sewerage system	Prov. app.
5/10/66	Siletz Keys	Sewerage system	Prov. app.
5/11/66	Medford	Sewer extensions	Prov. app.
5/13/66	East Salem District	Stortz and Market interceptor	Prov. app.
5/16/66	Preslynn Park S.D.	Sanitary sewers	Prov. app.
5/18/66	St. Helens	Railroad Avenue sewers	Prov. app.
5/18/66	LaGrande	N. First Street sewer	Prov. app.
5/18/66	West Slope	Rev. spec. Contr. #9	Prov. app.
5/19/66	Springfield	Sanitary sewer SP-21-66	Prov. app.
5/19/66	Hillsboro	Sewer extensions	Prov. app.
5/20/66	Creswell	Aeration pond-Willamette Poultry	Prov. app.
5/20/66	West Slope	Lateral B-9-4 and B-9-5	Prov. app.
5/20/66	Oak Lodge #2	Lateral 2A-4-2	Prov. app.
5/23/66	Clatskanie	Crown View Subd. sewers	Prov. app.
5/25/66	Millersburg School	Lagoon	Prov. app.
5/25/66	Gresham	North trunk sanitary sewer	Prov. app.
5/25/66	Gladstone	Sewer ext. to Los Verdes Estates	Prov. app.
5/26/66	Eugene	Sewers-Bethel Danebo trunk D	Prov. app.

During the month of April, 1966, the following 18 sets of project plans and engineering reports were received and the action taken as indicated by the Water Pollution Control Section:

Date	Location	Project	Action
4/1/66	Bayshore Estates	Sewerage and sewage treatment	Prov. app.
4/6/66	Dundee	Engineering Report-Sewerage	Approved
4/6/66	Warm Springs	West Hills Subd. sewerage	Prov. app.
4/8/66	Wood Village	Pressure line	Prov. app.
4/8/66	La Grande	First Street Sewer	Prov. app.
4/8/66	Westfir	Sewage treatment plant	Prov. app.
4/8/66	Gresham	Camelot Subd. 1st phase sewers	Prov. app.
4/8/66	Rainier	Third Street sewer	Prov. app.
4/8/66	Arlington	Break tank installation	Prov. app.
4/11/66	Oak Lodge San. Dist.	Sewer Ext. 5th and River Road	Prov. app.
4/11/66	Gladstone	Sewer ext.-near Webster Road	Prov. app.
4/19/66	Keizer Sewer Dist. #1	Sewer system	Prov. app.
4/19/66	Mt. Angel	Garfield St. sewer	Prov. app.
4/21/66	Oak Lodge #1	Laterals F-O-7, F-O-7A	Prov. app.
4/21/66	Oak Lodge #2	Lateral 2A-6-7	Prov. app.
4/21/66	The Dalles	Oregon Avenue sewer	Prov. app.
4/21/66	Hines	John Wood's Addn. sewers	Prov. app.
4/26/66	Banks	Sewage treatment plant	Prov. app.

Project Plans

During the month of March, 1966, the following 17 sets of project plans and engineering reports were received and the action taken as indicated by the Water Pollution Control Section:

Date	Location	Project	Action
3/1/66	Woodburn	Senior Estates #7, Phase II sewers	Prov. app.
3/22/66	Portland Trailer Court	Pump Station	Prov. app.
3/2/66	Sweet Home	Molley Road Main 30 sewer	Prov. app.
3/3/66	Green Sanitary District	Sunnyslope Subd. sewers	Prov. app.
3/9/66	Eugene	Sewers ED-66-2,3,7,10,11	Prov. app.
3/9/66	Gresham	Aspen Highland sewers	Prov. app.
3/11/66	Lincoln City	Miracle Village sewers	Prov. app.
3/11/66	Oakridge #2	Laterals 2A-7-7	Prov. app.
3/11/66	Corvallis	Univ. Park Lateral WL 105	Prov. app.
3/11/66	LaGrande	Safeway Stores sewer relocation	Prov. app.
3/11/66	Talent	Christian Acres #3 sewers	Prov. app.
3/14/66	Gresham	Dellarose Subd. sewers	Prov. app.
3/14/66	Talent	Modifications to sewage treatment plant	Prov. app.
3/14/66	Lincoln Co.	Camp Angell lagoon for USFS	Prov. app.
3/14/66	Central Point	Royal Highlands Subd. sewers	Prov. app.
3/14/66	Gresham	N.E. 172nd Ave. sewer	Prov. app.
3/31/66	North Bend	Prel. report sewage collection	Approved

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Project Plans

During the month of February, 1966, the following seven sets of project plans and engineering reports were received and the action taken as indicated by the Water Pollution Control Section.

Date	Location	Project	Action
2-8-66	Phoenix	Garden O'Gold Subd. sewers	Prov. app.
2-15-66	West Slope San.Dist.	Vista Hills #11 sewers	Prov. app.
2-17-66	Willamina	Sewerage system	Prov. app.
2-18-66	Portland	Terminal #4 sewers	Prov. app.
2-21-66	Springfield	Project Nos. S-49-66 and S-53-66	Prov. app.
2-21-66	Oak Lodge #2	Lateral 2B-5-3A	Prov. app.
2-21-66	Canby	Amrine Road sewer extension	Prov. app.

Project Plans and Reports

The following plans or reports were received and processed by the Air Quality Control staff during the month of May 1966:

Date	Location	Project	Action
3	Corvallis	Fairplay Elementary School Incinerator	Not approved
3	North Bend	North Bayside Jr. High School Incinerator	Additional information requested
4	Sandy	Firwood Elementary School Incinerator	Approved
6	Pendleton	Blue Mountain Community College - Incinerator	Not approved
9	Ashland	Helman Elementary School Incinerator	Additional information requested
16	Oakridge	Timber Products Co. Used wigwam waste burner	Conditional approval

Project Plans and Reports

The following plans or reports were received and processed by the Air Quality Control staff during the month of April 1966:

Date	Location	Project	Action
1	Beaverton	Incinerator, Valu-Mart #11 (commercial)	Approved
14	North Bend	Incinerator, North Bend High School Addition	Comments submitted
14	Corvallis	Incinerator, OSU Residence Hall, Unit No. 1, Complex A	Additional information requested
21	La Grande	Mt. Emily Division, Boise-Cascade Corp., Emission Test Report	Comments submitted
27	Hermiston	Incinerator, Marlette Coach Company (industrial)	Not approved
28	Detroit	Incinerator, Detroit High School	Additional information requested
29	Corvallis	Incinerator, Dixie Elementary School	Not approved

Project Plans and Reports

The following plans or reports were received and processed by the Air Quality Control staff during the month of March 1966:

Date	Location	Project	Action
Mar. 2, 11	Eastside	Georgia Pacific Corp. Incinerator Review	Conditional Approval
3	Mult. Co.	Mult. Co. Planning Comm. Elmer Hawk Open Burning Permit	Conditional Approval
4	Portland	Grant Application PL 88-206 in Amount of $72,598 for a Total of $117,774	Approved
8	Salem, Mid-Will. APA	Review of Performance Standards	Comments Submitted
11	Eugene, School Dist. #4	Gilham Rd. Elementary School Incinerator	Additional Information Requested
11	Eugene, Bethel Sch. Dist. #54	Danebo Elementary School Incinerator	Conditional Approval
21	SE Portland	Food Giant Incinerator	Conditional Approval
24	Newport	Road & Driveway Co. Controls	Additional Information Requested
29	Newport	Chelan Abbey Crematorium Incinerator	Additional Plans Requested
31	Chemult	Winema Lbr. Co. Proposal for Wigwam Waste Burner	Comments Submitted
31	Junction City	Jones Veneer Burner Replacement	Conditional Approval
31	Eugene	Park Manor Medical Incinerator	Comments Submitted
31	Eugene	Jones Veneer Burner Replacement	Conditional Approval
25	Beaverton	Valu-Mart No. 11 Incinerator	Not Approved

Project Plans and Reports

The following plans or reports were received and processed by the Air Quality Control staff during February 1966:

Date	Location	Project	Action
Feb. 9	Wauna Industrial Proposal	Crown Zellerbach	Provisional Approval
Feb. 24	Clackamas Co.	Incinerator Firwood-Elem. School	Additional Information Requested
Feb. 28	Eastside	Georgia-Pacific Industrial Incinerator	Additional Information Requested

BEFORE THE SANITARY AUTHORITY

OF THE

STATE OF OREGON

In the Matter of Sewage Disposal by the city of Albany in the Public Waters of the State of Oregon

ENGINEERING REPORT

The Sanitary Authority at its meeting on March 14, 1964, adopted a policy of requiring secondary treatment, or equivalent, as minimum treatment for all effluents discharged into any public waters of the Willamette River basin. Under this policy, all cities and communities in the Willamette Basin which were not already providing secondary treatment were requested to install approved secondary treatment facilities by December, 1966.

In accordance with the above policy, on May 21, 1964, a letter was sent to the city of Albany requesting that they immediately develop and submit to the Sanitary Authority a program for upgrading their sewage treatment plant to provide full secondary treatment by the December, 1966, deadline.

The present Albany sewage treatment plant was constructed in 1954 and was originally designed to provide intermediate treatment equivalent to approximately 65% BOD removal for a total population equivalent (PE) of 32,400. This included an industrial waste load of almost 20,000 PE.

Three plant surveys made by the Sanitary Authority staff prior to May, 1964, indicated treatment efficiencies of less than 50% reduction of BOD, and plant surveys made in June and September, 1964, showed BOD reductions of 32% and 20%, respectively. From data collected during the June, 1964, survey, the waste load being received at the plant was calculated to be equal to the waste load from 88,000 people.

Additional sampling by the engineering firm of Cornell, Howland, Hayes and Merryfield in 1965 showed peak loads of over 18,000 pounds of BOD per day which is equivalent in strength to the wastes from more than 100,000 people. These sizable waste loads coupled with the very low degree of treatment being provided at the Albany sewage treatment plant makes the Albany waste discharges during the peak food processing season the largest waste load discharged to the Willamette River by any municipality.

This is equivalent to the untreated waste load from approximately 65,000 people.

Since our letter of May 21, 1964, requesting immediate development and submission of a program and timetable geared to providing adequately sized secondary treatment facilities by December, 1966, the city of Albany has reported the following accomplishments:

1) It has completed its preliminary engineering study and report (by Cornell, Howland, Hayes & Merryfield and presented to the City Council in mid-January, 1965.)
2) It has proceeded to obtain options on most of the additional land needed to enlarge and upgrade its sewage treatment plant.
3) It has made application for and recently received notice of approval of planning funds from HUD to finance preparation of final engineering plans and specifications for needed improvements to its sewage treatment plant.
4) It has notified Cornell, Howland, Hayes and Merryfield (by letter, June 7, 1966) to proceed with preparation of final plans.

To our best knowledge the City has not yet done the following:

1) It has not, despite numerous requests, both verbal and in writing, submitted a definite proposed program and timetable for planning, financing and constructing needed sewage treatment plant improvements.
2) It has not scheduled a bond election to provide the local share of the costs of such facilities.
3) It chose not to submit an application for a federal construction grant under the PL 84-660 program for the upcoming fiscal year.

Thus while the city of Albany has made some progress towards providing adequate treatment of its sewage and industrial waste loads during the past two years, it appears that it will fall considerably short of complying with the Sanitary Authority deadline of December, 1966, for providing secondary treatment. If the city expects to wait for a federal 660 grant in July, 1967, completion of needed sewage treatment improvements probably cannot be achieved much before the summer of 1968. If their bond election should fail, their sewerage project would be delayed even beyond 1968.

Because the city is somewhat behind the Sanitary Authority's schedule and since it has not submitted a timetable of its own, representatives of the city were requested to be present at today's meeting for the purpose of discussing directly with members of the Sanitary Authority the present status of their program, plans for the future, and particularly their proposed time schedule for providing adequate treatment of their sewage and waste loads.

BEFORE THE SANITARY AUTHORITY

of the

STATE OF OREGON

June 29, 1966

In the Matter of Sewage)
Disposal by the city of)
Monroe in the Public)
Waters of the State of)
Oregon)

SUPPLEMENTAL ENGINEERING REPORT

By way of review: The city of Monroe is a small community of less than 400 people located approximately 25 miles south of Corvallis on U. S. Highway 99W in Benton County, Oregon.

In 1916 a combined sewer system was constructed which terminates in a 24-inch outfall line to the Long Tom River. Most of the homes and structures in the city have either building sewers connected directly or septic tank effluent lines tied into this community collection system. Other establishments within the city are served by individual lines or septic tank systems which discharge to area drainage ditches or discharge directly to the Long Tom River through separate private lines.

There have been numerous complaints from 1959 to the present from downstream property owners and fishermen of objectionable pollution resulting from the discharge of untreated sewage and septic tank effluents into the Long Tom River from the city of Monroe. Field surveys by the Sanitary Authority staff have verified the existence of gross bacteriological pollution and aesthetic nuisance conditions in the Long Tom River caused by sewage discharges by and within the city of Monroe.

The Sanitary Authority has been trying to get the city of Monroe to provide treatment of its sewage wastes since 1942. A chronology of Sanitary Authority actions regarding this matter since 1942 is attached.

At its meeting on September 10, 1964, the Sanitary Authority authorized citing the city before the Authority unless satisfactory progress is maintained by the city towards solving its sewerage problems. Following the September 10 meeting of the Sanitary Authority, the city of Monroe adopted a timetable for planning, financing and constructing adequate sewerage facilities by November 1966.

Since the September 10, 1964, Sanitary Authority directive, the city has completed its preliminary engineering study and has made application to the Housing and Home Finance Administration for a loan to pay for preparation of final engineering plans and specifications. The city has recently advised by letter that it is in the process of filing condemnation proceedings May 1966 (against Mayor Lucas) in order to obtain land for a sewage treatment facility site.

To date we are not aware that the city has either authorized preparation of final plans or scheduled a sewerage bond election. It appears to the staff that at least a certain segment of the Monroe City Council believes that the city should solve its community water supply problems ahead of its sewerage problems. For a number of reasons the city has dropped considerably behind its proposed schedule for providing adequate sewerage facilities and thereby abating raw sewage pollution of the Long Tom River.

Since adequate progress is not being made, a letter was sent to the Monroe City Council on June 10, 1966, requesting that a representative or representatives be present at today's meeting to discuss directly with you the problems and plans of the city relative to advancing its sewerage program. It is hoped that this conference can spur the city to early action so that court action will not be required.

Chronology of Sanitary Authority actions regarding City of Monroe sewerage problem: 1942 - September 9, 1964.

1. March 26, 1942: Letter sent to city advising that discharge of untreated sewage into Long Tom River was in violation of state statutes, and requesting them to proceed with planning for sewage treatment construction and to levy either a sewage service charge or tax to accumulate funds. City pleaded "no funds" and requested engineering assistance from the Sanitary Authority.
2. May 10, 1945: Letter inviting city to participate in summer sampling program to evaluate its sewage treatment problem. No reply.
3. September 29, 1945: Letter to city again calling attention to necessity for planning and accumulating construction funds and requesting progress report. No reply.
4. December 19, 1945: Letter requesting that city give its immediate attention to its sewerage problem and advise the Sanitary Authority of its plans. City replied that they were awaiting our detailed report based on our field investigations.
5. February 1946: Staff survey of city's sewerage facilities.
6. February 25, 1946: Letter following survey of system requesting the city to employ a consulting engineer to prepare plans and specifications and cost estimates, and to develop and adopt an adequate fiscal program.
7. November 21, 1961: Following receipt of complaints from downstream residents and fishermen from 1959-1961, staff surveys revealed considerable degradation of the Long Tom River by the city's discharge of raw sewage. Matter was discussed with several city council members and specific action requested.
8. Summer 1962: Community survey by Sanitary Authority and County Health Department personnel revealed pollution of Long Tom River and grossly insanitary conditions due to malfunctioning individual sewage disposal systems.

9. August 6, 1962: District Engineer appeared before city council and fully discussed needs for sewerage system and requested that the city take definite action to obtain same.

10. November 6, 1962: City voted a sewer millage levy of $1400 annually for 10 years.

11. December 26, 1963: Letter from District Office recapping the history of the city's sewerage problem and again stressing need for a definite program of correction. The city replied that $1400 per year would be available from the water proceeds to add to the $1400 yearly sewer levy. It also indicated its intention of giving consideration to budgeting study funds in the city's 1964-65 budget.

12. February 28, 1964: Letter requesting definite fiscal and construction program by March 19, 1964, if possible.

13. Several discussions between present Mayor Lucas and District Engineer H.W. Merryman during past 18 months specifically about the city's sewerage problems.

14. July 6, 1964: District Engineer discussed matter at meeting of city council. Council was advised of Sanitary Authority policy regarding secondary treatment and the necessity of a definite plan for solving their problem was stressed.

15. August 4, 1964: Letter to the city requesting submission of a satisfactory sewerage program by September 10, 1964, or failing this, it would be recommended to the Sanitary Authority that a public hearing be held.

16. August 26, 1964: District engineer personally requested Mayor Lucas to fully inform Sanitary Authority staff of city's intentions prior to September 10.

17. At its meeting on September 10, 1964, the Sanitary Authority considered the matter of sewage disposal for the city of Monroe and after a thorough discussion adopted the following motion:

> That unless engineers are retained by the city of Monroe within 30 days from the date of this meeting (by November 10, 1964) for the purpose of preparing cost estimates and plans and specifications for the construction of required sewage treatment works, the city of Monroe shall be cited to appear before this Authority to show cause, if any exists, why said city should not be ordered to abate the pollution now being caused by the discharge of its sewage and wastes in the Long Tom River.
>
> It was further moved that the final plans and specifications for the required project shall be completed and submitted to this Authority for review and approval by not later than April 1, 1965.

18. The city of Monroe was informed of the above Sanitary Authority action by letter dated September 15, 1964, in which they were also reminded that the deadline for completion of their sewerage project was December 1, 1966.

19. By letter to the Sanitary Authority dated December 12, 1964, Mayor Lucas advised that an engineering agreement was signed with the engineering firm of Cornell, Howland, Hayes and Merryfield for a preliminary survey to determine sewerage needs, and that application had been made to HHFA for funds to finance both the preliminary and final engineering design.

20. By letter dated January 12, 1965, Mayor Lucas submitted a letter proposing a revised timetable for study, planning and construction as follows:

Complete Study	May 1965
Bond Election	May 1965
Apply for Federal 660 Const. Grant	June 1965
Authorize preparation of final plans	June 1965
Complete final plans	Oct. 1965
Advertise and award contracts	May 1966
Complete project	Nov. 1966

21. By copy of a letter to CH2M dated March 18, 1965, from Mayor Lucas, the Sanitary Authority was advised that the city council had formally authorized CH2M to proceed immediately with the preliminary engineering study in order to meet the May 1965 deadline.

22. By letter to the Sanitary Authority dated April 7, 1965, Mayor Lucas advised that the city had not legally budgeted funds for the engineering study and would, therefore, have to wait for a planning advance from HHFA. Extension of the deadline for completion of the preliminary study to August 1, 1965, was requested. (This requested change in the city's schedule was approved by the Sanitary Authority letter dated April 12, 1965, but the letter pointed out that the remainder of the schedule must be substantially complied with.)

23. Three copies of "Engineering Report on a Preliminary Study of Sewerage Collection and Treatment Facilities" for the city of Monroe were submitted to the Sanitary Authority by CH2M under date of July 30, 1965. (Approved by Sanitary Authority letter of August 25, 1965.)

24. In a telephone conference on September 21, 1965, (Memo 9-21-65) Mr. Sid Lasswell of CH2M advised Mr. Spies that the city of Monroe had authorized CH2M to apply to HHFA for advance planning funds for both water and sewerage works projects. Mr. Lasswell reported that he thought that the city was acting as rapidly as possible.

25. By telephone conference on November 2, 1965, (Memo 11-2-65) Mr. Lasswell and Mr. Weirson of CH2M advised Mr. Spies that they were studying possible lagoon sites and that the city would soon be negotiating for purchase of a site. HHFA had apparently advised the city that a site would have to be purchased before the advance planning loan could be approved. Both Lasswell and Weirson expressed the opinion that the city intended to proceed in good faith to adhere to the time schedule previously agreed to.

26. On November 19, 1965, the Sanitary Authority sent a letter to Mayor Lucas requesting that a progress report relative to the city's sewerage progress be submitted prior to December 17, 1965, in order that the Sanitary Authority members could be advised of the status of the city's progress at the Sanitary Authority meeting to be held December 17. (No such report was received from the city.)

27. On March 4, 1966, the Sanitary Authority received from HUD a copy of a preliminary application (SF 101) which had been filed by the city of Monroe concerning federal assistance for its sewerage project.

28. On March 17, 1966, a letter was sent to Mayor Lucas pointing out that the city was falling behind the agreed on schedule for making sewerage improvements, again requesting a progress report, and stating that if none was forthcoming that the city would be invited to appear at the next Sanitary Authority meeting and report directly to the Sanitary Authority.

29. The Monroe City Attorney, Mr. Steve Tyler, sent a letter dated April 14, 1966, in reply to our March 17 letter, advising that the city had been making preparations to file condemnation proceedings (against the Mayor) to acquire a plant site. Mr. Tyler expressed doubt that the city could acquire the plant site or schedule a bond election before the June 15 deadline for making application for a PL 660 construction grant.

30. On April 18, 1966, (memo April 18, 1966) E. J. Weathersbee called Mr. Tyler to explain that it was not necessary that the city have its plant site prior to making application for a PL 660 construction grant, but that it was important to have the local share of financing arranged by June 15, 1966, to ensure the city of a grant from the next fiscal year's funds. He indicated that he would pass this information on to the City Council at it meeting scheduled for that night.

BEFORE THE SANITARY AUTHORITY

OF THE

STATE OF OREGON

In the Matter of Sewage Disposal) for the City of Mill City in the) Public Waters of the State of) Oregon)

ENGINEERING REPORT

On February 18, 1965 the matter of collection and treatment of the sanitary sewage wastes from the City of Mill City was presented to the Sanitary Authority. It was reported at that time the sanitary sewage wastes from a commercial area of Mill City, located between the North Santiam River and State Highway 22, was being discharged to the North Santiam River. This is raw untreated waste. Approximately 12 or 13 establishments are contributing to this waste discharge.

It was moved by Mr. Harms, seconded by Mr. Wheeler and carried that unless an acceptable program for abating pollution of the North Santiam River by raw sewage discharges within the City of Mill City is submitted within 60 days, the city will be cited to appear before the Sanitary Authority to show cause why an order for abating this raw sewage discharge should not be issued.(1)

Since this action by the Sanitary Authority, an engineering report has been prepared by Worthington Associates, Incorporated, Consulting Engineers. This report indicated that a small sewage treatment facility could be provided at this location at a total cost of $17,350. Additionally, the staff has attended one council meeting, and has made a field investigation of the problem area with the city's consulting engineer.

It was understood that further preliminary engineering was to be conducted with the idea in mind of pumping this waste to the south side of the river to

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(1) From Minutes of the 104th Meeting of the Oregon State Sanitary Authority, February 18, 1965.

the existing Mill City treatment device, or constructing another small septic tank and subsurface unit for this specific discharge. It is understood that although available land is at a premium, soil conditions south of the North Santiam River are conducive to this method of treatment.

The present status is believed to be a stalemate. The additional preliminary engineering has not been performed, and the city has not solved the problem of financing any such project. This problem has been the subject of concern to the staff since 1962.

Since the necessary progress to solve this problem has not been made, a letter was sent to the City Council of Mill City on June 16, 1966, requesting that representatives of the city be present at today's meeting to discuss directly with you their problems and plans relative to solving this raw sewage discharge to the North Santiam River. It is hoped that this conference can result in early action by the city so that more stringent legal measures will not be necessary.

Respectfully submitted,

Joseph A. Jensen
District Sanitary Engineer

Dated: June 29, 1966

PHE-OSBH-25
6/28/66

MEMORANDUM Date: June 27, 1966

To: State Sanitary Authority

From: H. E. Milliken

Subject: Federal Grant Applications

We have been informed that Oregon's allotment of funds under PL 84-660 will be $1,776,050. On November 12, 1965, we were notified that Oregon's share of a supplemental appropriation was $291,900. This amount has never been assigned to a project although "earmarked" for Portland. $25,720 has accumulated from other projects. Consequently we have on hand ~~$317,260~~ $317,620 as of June 15, 1966. Therefore we have a total of

$ 1,776,050	
291,900	
25,720	
$ 2,093,670	available for construction grants at this time.

Portland received a partial grant last time and is due to receive the remainder to make $600,000. Lincoln City has asked for an increase in grant over what was approved last year to provide more complete facilities than those previously under consideration. In addition we have 24 other applications, all totaling $2,804,110 which is $710,440 more than the funds available.

The attached work sheets will more fully explain the procedure used to recommend the allocation of the funds available to the various projects.

This report is respectfully submitted to the State Sanitary Authority to aid in its allocation of federal funds for the 1967 fiscal year beginning July 1, 1966.

WPC-BOH
6-28-66/35

FY 1967 FEDERAL GRANT APPLICATIONS

Applicant	WPC Ore No.	Date Appl. Received	Amount of Grant Request	Proposed Project	Design Population
Amity	206	6-13-66	$19,350	Sewage Lagoon and other eligible structures	1,000
Cascade Locks	190	3-10-66	40,350	Primary sewage treatment plant	1,200
Cottage Grove	210	6-15-66	77,740	Tertiary plant and interceptor	10,000
Dundee	202	6-8-66	37,500	Lagoon, interceptor and outfall	800
Gladstone	189	2-16-66	7,140	Remodel sewage lift station	6,300
Gresham	203	6-9-66	27,450	Interceptor, pump sta., & outfall force Main(Interlachen)	1,500
Harrisburg	197	5-27-66	19,270	Secondary treatment addition	2,000
Jefferson	199	6-7-66	47,700	Treatment and interceptor	1,175
Junction City	198	6-6-66	75,600	Stabilization pond system	7,700
Keiser Co.S.D.	188	11-16-65	4,270	Interceptor	12,000
Lakeview Sub.S.D.	192	3-24-66	12,600	Pumping stations and force mains	1,000
Lincoln City	204	6-10-66	88,200	Expanded STP, pump sta. and pressure sewers	10,000
Manzanita	209	6-14-66	28,800	Outfall, lift station and sewage treatment plant	600
Monroe	201	6-8-66	20,400	Lagoon, pump station, interceptor and outfall	500
Mult. Co.-Central	193	4-8-66	141,970	Sewage treatment plant	Not given
Mult. Co.-Fanno	195	5-6-66	119,700	Expansion of Fanno Creek sewage treatment plant	30,000
N. Roseburg S.D.	207	6-13-66	97,050	Newton Creek interceptor	24,800
Oakridge	208	6-14-66	37,200	Expansion of STP (add secondary)	3,500
Portland L-GL	211	6-15-66	668,160	Phase II Contracts 1, 2 and 3	18,725
Portland STP	212	6-15-66	549,000	Columbia Boulevard STP expansion	593,600
Port Orford	194	5-5-66	60,060	Sewage treatment plant and collection system	750
Salem	205	6-10-66	109,200	South Salem Relief Sewer	10,515
Springfield	196	5-27-66	120,960	South "A" St. Interceptor	8,550
Wedderburn	191	3-16-66	14,490	Pump Station, pressure line, lagoon and outfall	
Yoncalla	200	6-7-66	54,000	Interceptor, lagoon and outfall	1,300
Total (25)			2,804,110		
Available			2,093,670		
Insufficient			$ 710,440		

OSBH WQC
6-29-66/35

FY 1967 Federal Grant Applications

Applicant	Present Population	Assessed Value Per Cap. 50%	Project Cost Total	Project Cost Per Cap.	Bonds Required Amount	Voted	Sold	Other Fiscal Program
Amity	638	$1,550	$ 190,000	298	$ 138,000	FHA Loan	Approved	$10,000 cash. $25,000 comm.ch.
*Cascade Locks	684	1,451	380,000	212		Approved	by EDA	EDA grant $149,650,Loan 190,000
Cottage Grove	4,950	1,944	285,350	58	207,605	x	8-1-66	Includes 20,350 Rev. bonds
Dundee	395	2,458	310,812	788	219,000	No		52,812 conn. charge
Gladstone	4,950	2,070	23,800	5				Cash 6500 Budget 10,500
Gresham-Interlachen	500	1,554	122,500	25				$122,500 direct assess.
Harrisburg	1,134	1,908	64,265	56	40,000	x		
Jefferson	794	1,517	355,000	447	211,000			HUD grant $97,000 applied for
Junction City	1,890	2,928	300,000	159	225,000	x	x	
Keiser CSD	8,500	1,776	2,148,000	252	698,500			$1,449,500 Asses. Bonds
Lakeview Sub. S.D.	500	1,337	328,000	656	21,000	x		EDA Application for 20%
Lincoln City	3,622	2,437	1,931,000	532	150,600			EDA App. for $62,400
Manzanita	450	3,210	289,162	642	216,000	No		Connections $44,362
Monroe	387	1,572	184,000	475	52,000			Cash $8,400
Multnomah-Central	547,713	3,008	488,253	< 1	none			Cash $320,750
Mult.-Fanno Creek	547,713	3,008	399,000	< 1	none			Cash $279,300
N. Roseburg S.D.	6,500	1,430	336,000	52	150,000	x		Cash $92,000
Oakridge	2,311	1,423	124,000	54	87,000	No		
Portland L-GL	443,300	3,251	2,234,700	5	643,440	x		Cash $923,100
Portland STP	443,300	3,251	1,830,000	4	None			Cash $1,281,000
Port Orford	1,138	1,806	349,000	306	125,000	x		Cash $15,000, Count grant $100,000**
Salem	62,861	2,979	364,000	6	None			Cash $254,800
Springfield	23,781	3,086	403,300	17	346,000	x	x	Cash $282,340 from bond sale.
Wedderburn	350	1,692	116,700	333	50,000	x	x	Cash $36,000.Assess etc.16,120
Yoncalla	641	978	355,650	554	139,000	No		Cash 31,575,PL-89-117 x83,000#

* Also Assess Dist. $ 20,000
Conn. Fees 66,000

\# Also conn. Fees 48,075

x Confirmed

FY 1967 Federal Grant Applications

Applicant	Engineering Plans Completed	Priority Points: Assessed Value	Project Cost	Degree Treat.	Pollution Abatement	Readiness: Fiscal	Readiness: Eng'g	Efficient Use of Funds	Total
Amity	90 days	8	9	8	8	13	6	1	53
Cascade Locks	120 days	8	7	4	7	10	2	1	39
Cottage Grove	Complete	7	3	10	9	13	12	1	55
Dundee	180 days	6	10	8	5	2	2	1	34
Gladstone	10 days	7	1	8	10	13	12	1	52
Gresham-Interlachen	10 days	8	2	4	7	13	12	5	51
Harrisburg	5 days	7	3	8	9	10	12	1	50
Jefferson	180 days	8	10	8	9	2	2	1	40
Junction City	Complete July 1,1966	4	6	8	9	13	12	1	53
Keiser Co. S. D. #1	150 days	7	8	8	9	0	2	5	39
Lakeview Sub. S.D.	Complete	8	10	8	8	10	12	5	61
Lincoln City	180 days	6	10	8	8	2	2	5	41
Manzanita	180 days	4	10	8	7	2	2	1	34
Monroe	180 days	8	10	8	10	2	2	1	41
Multnomah-Central	180 days	4	1	8	5	13	2	5	38
Multnomah-Fanno Creek	30 days	4	1	8	6	13	8	5	45
N. Roseburg S. D.	5 days	8	3	8	5	10	12	5	51
Oakridge	To ~~180~~ days	8	3	8	10	2	6	1	38
Portland L-GL Unit 1 60 days; Unit 2 & 3-300		4	1	4	9	13	2	5	38
Portland STP	120 days	4	1	4	9	13	2	5	38
Port Orford	Complete	7	9	10	8	10	12	1	56
Salem	120 days	4	1	8	8	13	2	5	43
Springfield	10 days	4	1	8	10	13	12	5	53
Wedderburn	5 days	8	10	8	7	13	12	1	59
Yoncalla	180 days	9	10	8	8	13	2	1	51

OSBH WQC
6-28-66/25

FY 1967 Federal Grant Applications

Priority Points	WPC Ore No.	Applicant	Amount Requested	Amount Recommended	Cumulative Totals	Remarks
	184	Portland	$ 387,000	$ 387,000	$ 387,000	Completes $600,000
	185	Lincoln City	27,150	27,150	414,150	Increase in 1966 g
61	192	Lakeview Sub'n S.D.	12,600	12,600	426,750	
59	191	Wedderburn	14,490	14,490	441,240	
56	194	Port Orford	60,060	60,060	501,300	
55	210	Cottage Grove	77,740	77,740	579,040	
53	206	Amity	19,350	19,350	598,390	
53	198	Junction City	75,600	75,600	673,990	
53	196	Springfield	120,960	120,960	794,950	
52	189	Gladstone	7,140	7,140	802,090	
51	200	Yoncalla	54,000	54,000	856,090	
51	203	Gresham	27,450	27,450	883,540	
51	207	N. Roseburg S.D.	97,050	97,050	980,590	
50	197	Harrisburg	19,270	19,270	999,860	
45	195	Mult. Co. - Fanno Creek	119,700	119,700	1,119,560	
43	205	Salem	109,200	109,200	1,228,760	
41	201	Monroe	20,400	20,400	1,249,160	
40	199	Jefferson	47,700	47,700	1,296,860	
39	190	Cascade Locks	40,350	40,350	1,337,210	
39	188	Kaiser Co. S.D. #1	4,270	4,270	1,341,480	
38	208	Oakridge	37,200	37,200	1,378,680	
38	211	Portland L-GL	668,160	668,160	2,046,840	
38	212	Portland STP	549,000	46,830	2,093,670	Remainder next yea
38	193	Mult. Co. Central Co.S.D.	141,970			No funds available
34	202	Dundee	37,500			No funds available
34	209	Manzanita	28,800			No funds available
		Total	$ 2,804,110			
		Available	2,093,670			
		Deficit	$ 710,440			

OSBH-WQC
6-28-66/25

[illegible]

Location of [illegible] Station

Sampling Periods	RSB # 15 Bollman Res. 4612 NE Stevens St			RSB # 16 Gun Club		
	[illegible]	[illegible]	V	[illegible]	[illegible]	V
From 4-7-65 To 5-4-65		1200.	75			
From 5-4-65 To 6-1-65	DRY	47.	40			
From 6-1-65 To 6-29-65		52.	35			
* From 6-29-65 To 8-2-65		324.	60			
From 8-2-65 To 9-2-65		220.	65			
From 9-2-65 To 10-4-65		155.	70	9-8 TO 10-4	21.	23
From 10-4-65 To 10-30-65		70.	13.		101.	75
From 10-30-65 To 12-1-65		120.	70		72.	75
From 12-1-65 To 1-4-66		68.	65		65.	70
From 1-4-66 To 2-1-66		39.	55		44.	75
From 2-1-66 To 4-4-66		99.	75		71.	55
From 4-4-66 To 5-2-66		30.	40			

*Results [illegible] [illegible] as [illegible] [illegible] [illegible] [illegible] [illegible] pt. [illegible] Mixup [illegible]

STAFF REPORT

TO : Members of State Sanitary Authority

FROM : Air Quality Control Staff

DATE : June 29, 1966

SUBJECT: Douglas County Lumber Company as a Source of Air Pollution

Douglas County Lumber Company is a combination sawmill and veneer plant located approximately 4 miles north of the city limits of Roseburg, and approximately ½ mile from the community of Winchester which lies between. The plant itself is approximately ¼ mile west of interstate highway #5.

Plant capacity is roughly 370,000 bd. ft. log scale per day. Mr. M. L. Hallmark, a partner and acting manager, has characterized the sawmill portion as a scavenging operation, principal interest being in veneer production.

Principal sources of emission are two wigwam waste burners and two boiler stacks. One waste burner receives sawmill wastes, the other, veneer and remanufacturing plant wastes. The boilers are fueled with wood waste, primarily sawdust and planer shavings. In addition, considerable fallout is generated by waste conveying systems, the greater part of which falls on plant property.

Complaints from residents affected have listed soot, carbon, charcoal, cinders, burnt sawdust, flyash, ashes, and "other airborne material". The complaints have been received intermittently since August 7, 1963, and have included 2 petitions.

Staff activity dates from August 9, 1963, and has included 12 plant surveys and interviews with personnel in responsible charge. Since December, 1965, activity has been focused on an endeavor to obtain compliance with current regulations pertaining to construction and operation of wigwam waste burners, although the boiler plant stack emissions have been discussed on several occasions.

No effective progress has resulted. No corrective measures have been taken to reduce the boiler stack emissions and no modifications or additions to the waste burners have been accomplished as required by the regulation.

Summary

Attached is a synopsis of events and the date of each, covering the staff file on Douglas County Lumber Company as a source of air pollution. In addition, color slides of photos taken from ground level and by aerial survey are available. The aerial survey was made on April 5, 1966, during inversion conditions, and shows a considerable contribution from Douglas County Lumber Company to the pollution of the Winchester-Roseburg air shed.

The file dates from August 7, 1963 and may be summarized as follows:

1.	Time span on records regarding Douglas County Lumber Co. as a source of air pollution:	2 yrs. 9 mo.
2.	No. of reported instances of complaints registered:	7
3.	No. of formal petitions:	2
4.	Total number of petition signatures:	140
5.	Staff field surveys and interviews (total):	12
6.	Number of staff surveys and interviews since Dec. 25, 1965 regarding compliance with waste burner regulations:	6
7.	Letters written to Douglas County Lumber Co.:	10
8.	Letters received from Douglas County Lumber Co.:	6
9.	Steps accomplished by Douglas County Lumber Co. to achieve compliance with waste burner regulations:	none
10.	Steps accomplished by Douglas County Lumber Co. to achieve compliance with regulations governing boiler stack emissions:	none

Conclusions

The discharge of air pollutants by Douglas County Lumber Company has been the subject of frequent complaints to the State Sanitary Authority from neighboring residents for almost three years. The complaints have been reported to Douglas County Lumber Company, and they have been fully advised of the regulations pertaining to air pollution.

The Sanitary Authority staff has repeatedly requested plans for corrective action, but the degree and manner in which the regulations have been continuously violated remains relatively unchanged.

From the record, there appears no basis for belief that any improvement may be expected under a continuation of the policies and procedures thus far employed by the staff in implementing the regulations.

Recommendations:

It is recommended that the staff be authorized and directed to institute the legal procedures necessary to abate the air pollution from Douglas County Lumber Company by the most expedient means.

Chronology

8-7-63 J. Amacher reported complaints from his neighborhood of fall-out from Douglas County Lumber Company.

8-9-63 R. Ott & R. Wood investigated, informed office manager, A. H. Jewell of nuisance emanating from 2 waste burners plus open burning. Jewell expressed hope to correct the problem.

8-14-63 Letter from T. M. Gerow, District Engineer, to M. L. Hallmark, plant manager, confirming staff report and requesting reply by September 6 outlining plans for corrective action.

9-3-63 Letter from M. L. Hallmark to O.S.S.A. advising that open burning had ceased.

4-16-64 Letter from Avery W. Thompson, District Attorney, Douglas County to Dr. R. Wilcox advising of complaint and requesting investigation.

4-23-64 Staff member, Gerow, reported conference with Mr. Hallmark. Open burning reinstituted due to chip car shortage. Waste burners and boiler stack observed to be major source of smoke.

5-18-64 Staff survey reported the following emission levels:

Boiler Stack: Ringleman #5 (smoke)

North Waste Burner: Moderate to heavy smoke, heavy fallout.

South Waste Burner: Light to moderate smoke, heavy fallout.

Approximately 15 to 20 residences nearby surveyed, exhibited quantities of waste burner and soot fallout. Mr. Hallmark stated that in his opinion, the amount of fallout and air

5-18-64 (Cont.) pollution were not unreasonable, and he would be willing to legally defend his position. At the same time, he outlined plans for, a) certain refuse conveying modifications, b) an additional 500 H. P. boiler, and, c) installation of a barker and chipper, which he felt might improve the air pollution problem.

6-8-64 Letter to Mr. Hallmark from H. M. Patterson pointing out stack emission and waste burner fallout in excess of regulations; recommending waste burner improvement per O.S.U. Bulletin #39; and requesting modification of repair completion.

6-15-64 Letter reply from Mr. Hallmark outlining plans for certain changes in operation which would preclude evaluation of the fallout problem until completed. Doubt was expressed concerning ability to improve stack emissions with pine fuel. He reiterated probability of adding a boiler within one year.

6-25-64 Letter reply to Hallmark from Patterson requesting modification when changes completed, and recommending competent advice and study in new boiler purchase.

9-17-64 Letter from Mr. Patterson to Mr. Hallmark, advising of new complaint of fallout, again calling attention to O.S.U. recommendations on waste burners.

9-18-64 Letter reply from Mr. Hallmark, expressing belief that a new asphalt plant in the area was source of fallout, and advising that completion of the barker and chipper installation had improved their situation.

9-23-64 District engineer, Leo Baton reported no improvement, burner discharge rated Ringleman #4 with considerable fallout, a few smoldering fires observed in the parking area in the accumulated material.

12-2-64 Mr. Baton reported heavy black smoke from both boiler stacks, generally heavy smoke from the waste burner.

8-10-65 Mr. Baton reported nothing being done to alleviate the smoke problem.

8-10-65 Petition received, 74 signatures, requesting O.S.S.A. action concerning Douglas County Lumber Co. and Beaver State Sand and Gravel.

8-11-65 Letter to Mr. Hallmark, advising of the petition.

8-17-65 Reply from Mr. Hallmark, expressing surprise, and the impression that they had greatly reduced their fallout by installing four blowers discharging downward toward the fuel pile. He stated that they believed this a better method than per O.S.U. recommendations. He also expressed willingness to do all they reasonably could to minimize their air pollution problem.

8-19-65 Mr. Hallmark's letter acknowledged.

9-17-65 New complaint reported by letter to Hallmark from Patterson.

9-20-65 Reply from Hallmark claiming progress, describing again the overfire blowers, and requesting copy of petition.

9-22-65 Copy of petition forwarded. Advice of progress requested. Hallmark informed of September 24 schedule asphalt plant removal.

11-3-65 New complaint reported to O.S.S.A. by Douglas County Sanitarian. Complainant alleged mill owner gave him no satisfaction relative to possible solution of the problem.

11-8-65 Letter from Hallmark advising of plans to market shavings, eliminate bark grinder, rebuild sawmill, eliminate remanufacturing, sell chips. This accomplished, one burner would be discontinued.

12-14-65 Petition received, 66 names, complaining of air pollution from waste burners of Douglas County Lumber Company.

12-16-65 Letter, Patterson to Hallmark, advising of the petition.

12-26-65 H. W. McKenzie and Leo Eaton surveyed plant, discussed with Mr. Hallmark the new waste burner regulations and modifications necessary to comply, and recommended against grinding bark before delivering to waste burner. Mr. Hallmark outlined the following plans:

1. Eliminate ground bark from south burner by:
   a) Finding a market, or
   b) Convey to open storage awaiting market, or
   c) Bypass the grinder, conveying bark chunks to burner.
2. Discontinue north burner by February 1, 1966, material to be hogged and sold.
3. Improve boiler stack emissions by installing variable speed motor on fuel feed.

12-30-65 McKenzie again surveyed plant, requested schedule toward compliance. Mr. Hallmark promised:

1. Decision by January 7 on bark grinder by-pass installation.

12-30-65 (Cont.)

2. South burner alterations as required for compliance to be part of program decided on.

3. North burner phase out by February 1 still planned.

2-4-66 Mr. McKenzie again contacted Mr. Hallmark who reported:

1. New plan to discharge ground bark to burner in association with other fuel, producing uniform fuel pile.

2. Plan to by-pass hog grinder if results still unsatisfactory.

3. Postponement in north burner phase-out to March 11.

3-22-66 Telephone call to Hallmark who reported:

1. Ground bark collector tailpipe now centered on fuel pile.

2. Sawmill coarse waste now chipped. Burner now receives sawdust, ground bark.

3. Pyrometer on order.

4-5-66 McKenzie again surveyed plant; contacted Mr. Hanks, mill superintendent, who reported:

1. Need for further adjustment of ground bark collector tailpipe to center discharge on fuel pile.

2. North burner phase-out to be accomplished when south burner capable of handling entire load.

3. Pyrometer still "on order".

Inspection of the boiler plant disclosed that no variable speed control had been installed. Questioned, Mr. Hanks stated, "We're thinking about that".

5-24-66 McKenzie again surveyed plant, at 5:30 p.m. by permission of the second shift superintendent. Appraisal was:

5-24-66 (Cont.)

1. South burner: heavy smoke discharge, largely from surface burning from dense fuel pile. Many openings in shell, no pyrometer, no dampers in tangential overfire ports, underfire and overfire blowers in operation.

2. North Burner: heavy smoke and fallout; large, dense fuel pile of essentially fine material; underfire blower in operation with fire channeling upward thru center of fuel pile; overfire blower discharging toward fuel pile; no effective tangential overfire ports; maintenance man hosing down fallout on conveyors and ground as fire preventive measure. No pyrometer.

3. Boiler stacks: Ringleman 4 to 5 continuous.

6-27-66 Leo Eaton, district engineer, observed emissions from waste burners and boiler stacks. No apparent improvement was reported.

MEMORANDUM REPORT

TO: Members of the State Sanitary Authority

FROM: Water Quality Control Staff

DATE: June 29, 1966

SUBJECT: Frontier Leather Company, Sherwood

At the December 17, 1965, meeting of the Sanitary Authority, Frontier Leather Company of Sherwood presented the following proposals to abate their air and water pollution problems:

1. A new plant site would be selected for that portion of the process discharging high chloride and organic wastes. All hair, salt and fleshings would be removed from the hides at a new and acceptable location, and the tanning and finishing operation would remain at Sherwood. This would be accomplished as soon as possible.
2. Until the new plant was completed, the wastes generated by the entire operation would be discharged to the city of Sherwood's sewage treatment plant on a temporary basis, or if necessary retained in the lagoons to protect the irrigation rights of the users of the receiving streams.

A considerable amount of difficulty has been encountered in obtaining a suitable site for the new plant. No commitments have been made by the company as to when the proposed new plant will be in operation.

On May 6, 1966, the city of Sherwood stopped the discharge of the partially treated effluents from the tannery to the city's sewage treatment system. Since that time the effluent has been discharged to the two lagoons for holding.

The increased loading of dissolved and suspended organic material to the lagoons, combined with the increased rate of biological activity in the ponds, caused by the increase in air and water temperature, has produced a serious odor nuisance condition in the surrounding area.

A petition of complaint regarding this odor condition, bearing 51 signatures and dated June 3, 1966, was received in our office on June 7, 1966. The petition states in part:

> "We, the undersigned, wish to file a complaint with the State Sanitary Authority against the Frontier Leather Company. Said company being located near the N.E. city limits of the city of Sherwood, Oregon.
>
> Cause of the complaint is the foul odor emitting from the ponds and/or aerator used as a liquid waste disposal by the Frontier Leather Company.
>
> These odors are most of the time so strong as to cause nausea, wakefulness at night, decreases value of property to owners, but not to tax assessor, hinders selling of homes and unreasonably interferes with enjoyment of life in the areas affected
>
> This is the beginning of the second year of the above stated condition and we request permanent relief from this air pollution."

A copy of this petition is hereby presented to the Chairman of the Authority.

In the latest proposal, received on June 27, 1966, it is again proposed to relocate a portion of the plant along the Columbia River.

Until the new plant is completed and operative, it is proposed to make certain inplant changes and construct additional treatment facilities to produce an effluent acceptable to the city of Sherwood for discharge to the city's sewer system.

Some portions of this final proposal are not clear to the staff of the Authority, and the following questions are raised:

1. Has a definite and final decision been reached to relocate the beam-house portion of the operation? If so, has a site been obtained and a date of completion established?

2. Will the proposed means of reducing chlorides be continuously effective?

3. It is questionable that effective disposal of wastes by flood irrigation can be accomplished on land when cattle are being pastured. This method of disposal must, at best, be considered as an interim procedure.

This proposed program is ambitious and responsive to the severity of the problem; however, it does not specifically tie down a definite time by which this long-standing water pollution and odor problem will be permanently solved.

It is recommended by the staff that prior to reopening the plant after the July 4 shutdown an agreement be reached between the company and the Sanitary Authority on a definite method and schedule for abating this entire problem in one way or another.

It is also recommended that no additional waste material be discharged to the holding lagoons after July 1, 1966. An intensive study of the ponds should be immediately initiated to develop methods of hastening and achieving correction of the present odor problem and preventing it from reoccurring in the future.

OSBH-WPC
6-28-66/25

REPORT TO

OREGON STATE SANITARY AUTHORITY
ON
AIR AND WATER POLLUTION ABATEMENT PROGRAMS
AT
THE FRONTIER LEATHER COMPANY
SHERWOOD, OREGON

Prepared by
Cornell, Howland, Hayes & Merryfield

21 June 1966

BACKGROUND

The Frontier Leather Company's effluent treatment system presently consists of a screen, primary settling and equalization tanks, an aerated pond, two 3-1/2-acre oxidation ponds, and facilities for pumping the oxidation pond effluent to the Sherwood City sewerage system. Solids removed by the screen and primary settling tanks are trucked away for disposal.

Plans for the facilities were approved by the Oregon State Sanitary Authority, and construction was undertaken during the Winter of 1964-65. The aeration pond was the last facility to be completed and was placed in continuous operation in March 1965.

The Company continued to discharge untreated waste to the Sherwood sewerage system until the fall of 1964. At that time, it became necessary for the company to remove its wastes from the City sewerage system and discharge the waste directly to the oxidation ponds until the aerated pond could be put into operation in March 1965.

The direct discharge to the oxidation pond over a 6-month period greatly overloaded the ponds and set the stage for the odor problems experienced during

the summer of 1965 and this summer. In addition to the overload to the oxidation ponds during their early operation, the ponds have continued to receive a heavy solids loading even after the aerated pond was placed in service. The loading to the ponds, in terms of 5-day BOD per acre per day, has been on the order of 30 to 35 pounds, since the aerated pond was placed in service. This is considered, by most authorities, to be sufficiently low to prevent odors by anaerobic activity in the ponds. Unfortunately, this has not been the case at Frontier Leather. It is believed that the early overload of the ponds, coupled with high solids loading to date and somewhat unusual waste characteristics, including high sulfates, are responsible for the odor problem.

Solids entering the oxidation ponds settle to the bottom. Because of the quantity and nature of these solids, they break down anaerobically, releasing soluble organic matter and odorous gases. The soluble organic matter is further broken down in the pond liquid. In the absence of dissolved oxygen within the pond contents, bacteria breaking down the organic matter began utilizing the oxygen in the dissolved sulfates. The result was the release of the sulfur from solution in the form of hydrogen sulfide. Hydrogen sulfide odors were prevalent around the ponds last summer. Since that time, there appears to have developed a growth of a specific type of bacteria in the oxidation ponds which utilizes the hydrogen sulfide and light in the production of formaldehyde and additional bacterial cells. The result has been a reduction in hydrogen sulfide release, a rise in the organic loading to the ponds which is created by the formaldehyde and additional bacterial cells, and a red cast to the ponds which results from the red pigment in the sulfur reducing bacteria. Although

it appears that hydrogen sulfide release from the ponds has been reduced by the growth of the sulfur producing bacteria, odorous gases of an unidentified makeup are still being released from the ponds.

The discharge of treated waste from the Frontier Leather Company to the City of Sherwood's sewerage system is regulated by a contract signed between the two parties on 24 April 1964. After completion of the pretreatment system, Frontier Leather began discharging treated wastes to the City sewerage system in the Spring of 1965. Tests made on the discharge during the Spring of 1965 indicated that the characteristics of the effluent being pumped to the City met all requirements of the Contract, with the exception of the stipulated maximum chloride content. A maximum chloride content in the discharge was set by contract at 800 milligrams per liter. With the knowledge that conditions of the Contract could not be met, the Frontier Leather Company discontinued discharge to the City's sewerage system in the Spring of 1965. A temporary revision of the Contract allowing discharge of chloride-bearing effluent having a maximum chloride concentration of 1,500 milligrams per liter was signed during the Summer of 1965. This expired in August of 1965. A second 90-day modification of the Contract,allowing for the discharge of effluent containing not more than 3,000 milligrams per liter, expired this May.

The chloride content of the tannery effluent has, in the past year, averaged around 3,200 milligrams per liter. The City has been unable to show any detrimental effect of the chloride discharge to their sewerage system. The tannery spent considerable time and money demonstrating that paint damage to the City's sewage treatment plant was not caused by tannery discharge and in showing that the discharge of the tannery's effluent to the City system would not in any way impair the efficiency of the plant or physically damage the plant.

The Frontier Leather Company has asked the City on several occasions during the past year to allow revision of the Contract to provide for discharge of between 4,000 and 5,000 milligrams per liter of chloride in the waste. Tied to these requests has been a promise that, if the additional chloride would be accepted, the tannery would instigate waste treatment additions and modifications to eliminate odor production.

In the past the Company felt that it was not advisable to construct expensive waste treatment facilities if they could not find a point of ultimate discharge.

PRESENT PLAN OF ACTION

On 10 May 1966 the Frontier Leather Company was informed by the City of Sherwood that its request for a permanently revised contract allowing a higher discharge of chlorides was being denied. On 31 May 1966, discussions were held on the subject with representatives of the Oregon State Sanitary Authority staff. During the past four weeks the following course of action has been decided upon and is being implemented.

1. The Company will implement plans to relocate the beam-house portion of its operation from the Sherwood plant to a plant to be constructed on the Columbia River. It is in this operation that the bulk of the organic and inorganic solids are contributed to the plant's effluent. Removal of the operation from Sherwood will leave the finishing operation. The effluent from this operation will be much more compatible with the Sherwood environment. The Oregon State Sanitary Authority staff is being kept informed of all plans for waste treatment and disposal at the new site.

2. Until a new plant is placed in operation it will be necessary to change the tanning process at Sherwood to obtain an effluent more amenable to treatment and one acceptable to the City of Sherwood under conditions of the Contract between the City and the Company. To this end, Mr. Donald Nelson has been retained to replace Mr. Egon Steiner as manager of the Frontier Leather Company. Mr. Nelson will be taking over management of the tannery during the early part of July 1966. Mr. Nelson has obtained a good deal of experience in tannery operation in Illinois. As of this writing we plan to have a member of our staff back in Waukegan, Illinois, to continue formulation of an approach to the effluent disposal problem and gather information on Midwest tannery operations.

Mr. Nelson's first task on assuming his duties at Frontier Leather Company will be to reduce the chloride content of the plant effluent to a level below 800 milligrams per liter. Mr. Nelson has indicated that he can do this by using green hides in place of salted hides in the leather production. In addition, Mr. Nelson will eliminate additions of most or all sodium chloride in the tanning operation. Other organic and inorganic materials will be used in place of sodium chloride. It is Mr. Nelson's belief that, although the production of leather will be somewhat more costly at the plant after implementation of these changes, the quality of the end product will remain high.

Mr. Nelson plans other process changes which will result in the improvement of the effluent characteristics. Among these is the reclamation and sale of hair from the hides as a by-product and a decrease in lime usage.

Implementation of all changes will begin on about 18 July 1966 after placing the tannery back in operation following a 2-week vacation which will shut the tannery down during the first two weeks of July.

3. The attached figure outlines effluent treatment additions. The plan calls for construction of a second aerated pond, a secondary clarifier, an irrigation pump and piping to irrigate the clarified effluent on tannery property, and sludge handling facilities. Use of the second aerated pond will provide a more stable aerated pond effluent and will act as a backup unit to the one existing aerated pond with its single aerator. The new secondary clarifier will collect biological and inorganic solids in the flow from the aerated ponds. A portion of the solids will be returned to the aerated ponds and a portion will be wasted. The waste solids will be pumped initially to the primary settling tanks where they will be pumped and hauled to disposal. The return of solids to the head of the aerated ponds will result in a more desirable level of sludge concentration in these aerated ponds. The resulting system will then be operated as a long-term extended aeration plant. It is anticipated that the higher solids concentration in the aerated ponds will materially reduce a foaming problem now experienced on the one aerated pond. This foaming carries solids onto the sides of the pond banks where they decompose and produce some local odor.

It is anticipated that the clarified effluent from the secondary clarifier will be compatible with limits set in the waste treatment Contract between the City and the Company. Provisions will be made, however, for future chemical coagulation of the flow to the clarifier should this be necessary to meet discharge requirements.

The nature of the treated tannery effluent is expected to change materially with changes in the leather production process and in effluent treatment. To ascertain this character, the Company will undertake a sampling and testing program on the treated effluent immediately after changes are completed. During this period of testing, and prior to discharge of treated effluent to the City's sewerage system, the tannery proposes to pump the treated effluent to a portion of their property for flood irrigation. Any runoff will be collected and discharged to the oxidation ponds. It is not anticipated that an odor problem will result from irrigation of the treated effluent since this effluent will have a low BOD, approximately 100 milligrams per liter, and a low suspended solids content.

Implementation of these plans have proceeded at the date of this writing to the purchase of the aerator for the second aerated pond, excavation of the second aerated pond, and design of the secondary clarifier. Tentative scheduling calls for fabrication of the secondary clarifier to begin during the week of 27 June. It is expected that fabrication will be completed on or before 8 July. Tentative plans call for completion of effluent treatment modifications and additions by 15 July 1966.

This admittedly is very ambitious scheduling; however, everything possible is being done to implement this schedule.

4. The use of an irrigation system for disposal of treated effluent, until the characteristics of that effluent are defined, has been discussed above. This means that the oxidation ponds which have been the source of odor problems to date will essentially be removed from service by 1 July 1966.

Realizing that it has a responsibility to eliminate odors from the ponds even after they are no longer being used, the Company proposes to continue sodium nitrate additions and will take all other steps feasible to reduce or eliminate odors. Twenty-Four thousand pounds of sodium nitrate were added to the pond contents during the middle of this month. Another 8,600 pounds are on hand and 30,000 pounds are on order and due to arrive at any time. Following removal of these ponds from service the sodium nitrate will be added in controlled amounts. It is expected that a point of equilibrium will soon be reached with regard to odor production. Odor production will soon die off. Frontier Leather Company has contracted to have a fence installed around their effluent treatment operation to screen this and piles of leather splits from public view. The fence being installed this week and next is of the cyclone type with the vertical red wood slats woven onto the steel fabric. Where not required to screen the area from public view, stock fence will be placed around the treatment system and the land to be irrigated. Plans are to graze cattle on the grass in this area to keep the growth down.

In addition to this improvement the Company has stated its intentions to improve the tannery buildings proper and the grounds around the buildings. This will be done as a part of a new policy to improve public relations.

SUMMARY

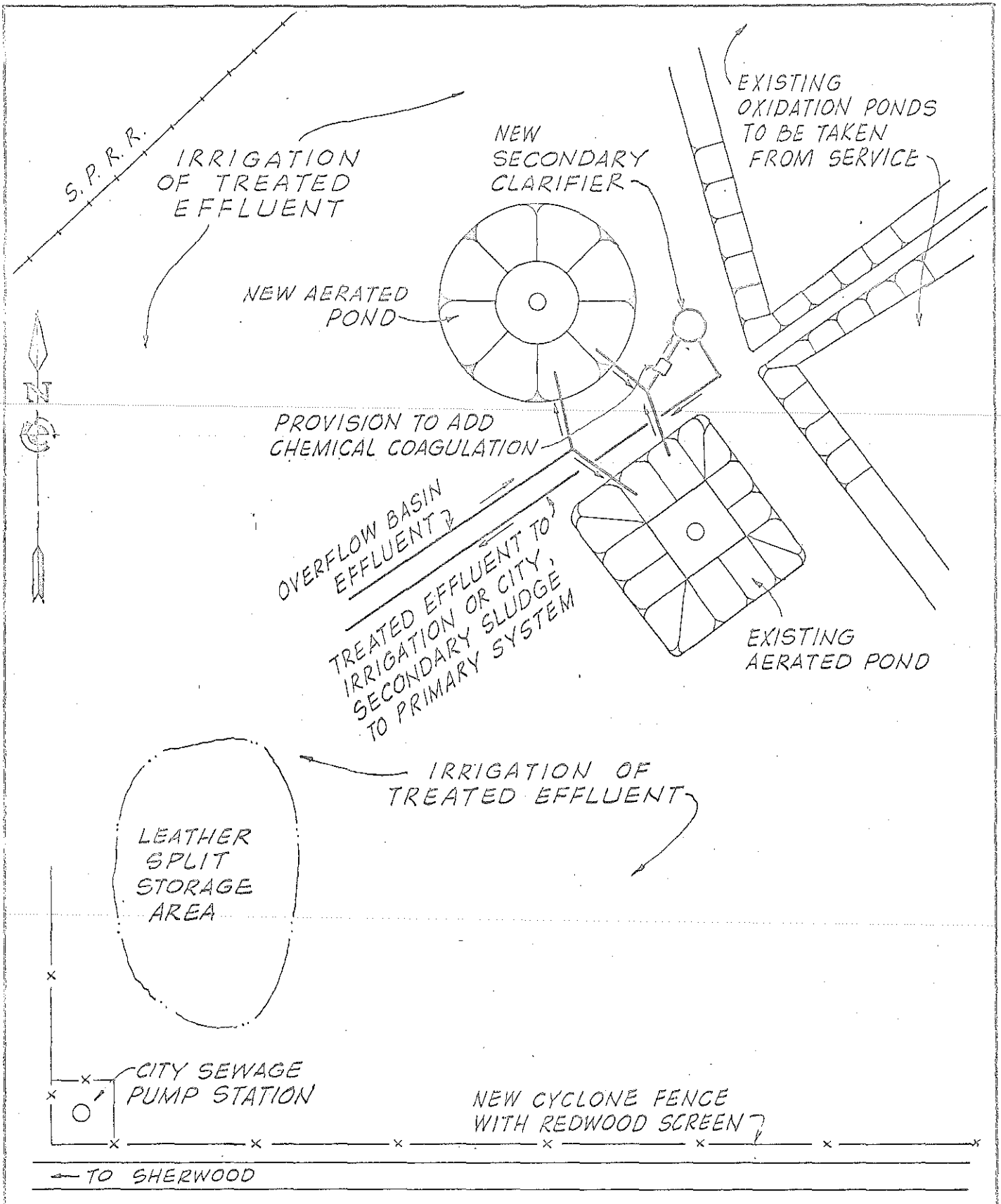
We believe that the Frontier Leather Company has fully recognized the problem of water and air pollution abatement and has taken substantial steps to solve a particularily difficult waste disposal problem. The program

herein described is being undertaken at a considerable expense to the Company. Any suggestions that can be offered to the Company to improve the air pollution and water pollution abatement program would be welcomed. The Company is now making an all-out effort to solve its problems and asks for cooperation from all concerned.

CORNELL, HOWLAND, HAYES & MERRYFIELD

John W. Filbert

John W. Filbert



MODIFICATIONS AND ADDITIONS
BEING MADE TO THE FRONTIER
LEATHER COMPANY'S EFFLUENT
TREATMENT SYSTEM
22 JUNE 1966

C9737.0

BEFORE THE SANITARY AUTHORITY

OF THE

STATE OF OREGON

In the Matter of Waste Discharge)
by Bigger'n Better Poultry Inc.)
into The Public Waters of Kellogg) ENGINEERING REPORT
Creek, State of Oregon)

Based on investigations made by and the files of the Sanitary Authority, the following information is presented in reopening the matter of discharge of industrial wastes without adequate and approved treatment by Bigger'n Better Poultry Incorporated to private lands and drainageways connected to Kellogg Creek, thereby causing a public nuisance and pollution of public waters of Clackamas County, Oregon.

Bigger'n Better Poultry Incorporated is located in Land Claim No. 38, T2S, R2E, Clackamas County, Oregon. The lessee-operator is Mr. Clifford Holmes, and the mailing address is 6300 S.E. McNary Road, Milwaukie, Oregon.

The area surrounding the plant is rapidly developing into a high-type residential area, and Kellogg Creek which drains the area passes through yards and has been incorporated into the landscaping of many nice homes on its way to the Willamette River at Milwaukie.

The plant prepares poultry for retail and commercial market. The birds are killed, eviscerated and either packed whole or cut up. Operation is somewhat variable depending upon market requirements, but runs to 6,000 birds per day usually three days per week.

Blood from the killing station is recovered separately and sold. Eviscerating wastes are collected in drums and hauled to a rendering plant. Feathers are removed by a belt conveyer and dumped directly into a truck for hauling away. Liquid wastes amounting to from 40,000 to 65,000 gallons per operating day and

containing some blood, detergent, feathers, small solids and dissolved organic matter, are passed through a small baffled screening tank. It is the liquid waste from this tank that must be consistently disposed of in acceptable manner.

The Sanitary Authority's file concerning this matter dates back to 1960 when the plant was rebuilt and enlarged after being partly destroyed by fire. Mr. Holmes was informed at that time that proper waste disposal must be provided, but the then existing inadequate facilities were continued in use without improvement. As a result, a hearing was held in the matter before the State Sanitary Authority on January 30, 1964. Mr. Holmes was given 60 days to prepare an engineered proposal for waste disposal. This he was able to do, and with the understanding that the firm would be moved to a new location by May 1965, a plan of irrigation was accepted as a temporary measure of waste disposal, providing the irrigated area was cleared of debris and the grass kept mowed.

It is now over a year past the time which Bigger'n Better forecasted as the date they would be moved, and there is yet no definite date we can depend on for ending the operation at Milwaukie. Land has been purchased at a site near Canby, but they have been able to go no further. Meanwhile the staff has found that Mr. Holmes has not been irrigating according to his proposal of May 1964. He is using only a small fraction of the area proposed in the plan, and at the same time is irrigating on steep ground deemed unsatisfactory for this use in 1964. The debris and high grass has not been cleared from the irrigated area.

A general lack of necessary operation and maintenance is apparent. In August 1965 waste was allowed to discharge openly to the ground through a broken line. In the early spring of this year (1966) Mrs. Paola's well was flooded and contaminated by waste water discharged through a broken line. In May of this year (1966) liquid waste was openly dumped on the ground out the end of the irrigation system. Each time this happens, the water runs to a small creek

which is a tributary to Kellogg Creek. When the neighbor whose property Mr. Holmes' irrigation line crossed objected to the stream pollution and asked him to remove his line, Mr. Holmes then ran his waste water straight down the hill in the drainageway which had prompted the Sanitary Authority hearing in 1964. When this was stopped and irrigation resumed, there was still more escapement of waste at the solids separator and other places for various reasons with runoff to the Kellogg Creek tributary. In addition, offal collected by the solids separator is shoveled over the bank toward the creek and allowed to rot in the open.

Conclusions and Recommendations:

1. A public nuisance, and pollution of Kellogg Creek and an unnamed tributary thereof in Clackamas County, Oregon, is caused by periodic discharge of inadequately treated industrial wastes from Bigger'n Better Poultry Incorporated.

2. The Sanitary Authority has sought to obtain an acceptable solution to this problem since 1960. A hearing on January 30, 1964 resulted in a proposal for waste disposal which has not been adhered to and satisfactory abatement has not been demonstrated.

3. It is recommended that the Sanitary Authority hearing, begun January 30, 1964, be reconvened, and that Mr. C. L. Holmes be cited to appear and show cause, if any exists, why an order should not be entered directing him to permanently abate the pollution of Kellogg Creek and drainageways tributary thereto.

Respectfully submitted,

Ernest A. Schmidt
Assistant District Engineer

Dated: June 28, 1966

PHE-OSBH-20
6/28/66

IW 1-2 Bigger'n Better Poultry Inc. (Clackamas County) June 23, 1966

Chronology of events since acceptance of waste disposal plan in May 1964 to date:

June 11, 1964	Letter to Mr. Cliff Holmes accepting waste disposal plan providing waste leaking from screening and holding tank is controlled, and irrigated area is cleared of tall grass and obstructing buildings. Necessity for careful attention to operation and maintenance is emphasized.
September 29, 1964	Mr. Cliff Holmes called to discuss new site he was contemplating moving to near Canby. He was asked to submit an engineered proposal for waste disposal.
February 23, 1965	Mr. Ed Enegren called to inquire if the Sanitary Authority had imposed a deadline on Bigger'n Better's operations at the Milwaukie site and to report that Mr. Holmes' waste was running down the hill and ponding on the flat area below.
March 5, 1965	Telephone call from Bill Murphy, Clackamas County Sanitarian, reporting that Cliff Holmes had purchased two farms in the Canby area and requested our help in evaluating the new site.
March 18, 1965	Fred Katzel, Associate Sanitary Engineer, inspected Mr. Holmes' new site. Mr. Katzel asked for percolation test results.
March 29, 1965	Letter from Haner, Ross & Sporseen, engineering firm, with report on survey of new site for conditions related to waste disposal by irrigation.
April 8, 1965	Letter from Werner S. Storch, Consulting Engineer, informing us that he had been engaged by Mr. Cliff Holmes to prepare plans for a new plant near Canby. Preliminaries were to be completed April 15, 1965 and final working drawings by May 10, 1965. He said he would submit prints to this office. (To date, we have seen no plans on Bigger'n Better's new site.)
April 12, 1965	Letter to Mr. Cliff Holmes approving his new site for waste disposal providing a properly designed and operated pre-treatment device is installed. Final plans and specifications for waste treatment were asked for.
August 27, 1965	Fred Katzel inspected Mr. Holmes' site and found waste discharging directly to the ground due to a broken line, and the ground was saturated where they were sprinkling. Waste therefore was running off the field into the small tributary to Kellogg Creek.
August 31, 1965	Mr. Clifford Holmes called to confirm changes in his sprinkler setup. He indicated he was using only 1/16 of the area leased for irrigation and was not moving the sprinklers periodically. He also reported he had purchased more land at Canby and would send plans for the offal room.

April 18, 1966	Mr. Ernie Schmidt, Assistant District Engineer, called Mr. Cliff Holmes to determine status of plant. Mrs. Holmes reported they hope to be moved by the end of the summer (1966) but did not really know for sure. Mr. Schmidt again asked for waste disposal plans.
May 9, 1966	Telephoned complaint from Mr. Charles Darby, 16400 S.E. Ormae, regarding Bigger'n Better dumping waste in woods above Paola property and allowing it to run to Kellogg Creek via a small tributary.
May 10, 1966	Telephoned complaint from Mr. Hungerford, 16333 S.E. Dagmar Road, regarding Bigger'n Poultry dumping wastes in stream which passes through his property.
May 11, 1966	Ernie Schmidt, Assistant District Engineer, inspected Bigger'n Better with Mr. Charles Darby and another neighbor Mr. Ray Wakefield, 16454 S.E. Ormae. There was much evidence of waste dumpage in the woods and evidence of waste having been discharged to the stream. Mr. Holmes was not irrigating, and it was discovered that he was discharging his waste to a ravine below his plant. He was contacted and notified of violation.
May 13, 1966	Ernie Schmidt reinspected Bigger'n Better and found them repairing irrigation system.
May 23, 1966	Ernie Schmidt again inspected Bigger'n Better with Mr. Holmes. They were irrigating but much of the waste was discharging through a broken joint and passing to the creek.
May 25, 1966	Reinspection of Bigger'n Better with Mr. Holmes by Ernie Schmidt showed waste still getting away at the solids separator due to heavy spray and much leakage of waste from pipelines between the buildings and separator. Sprinklers were being operated on the steep property down-hill from the plant. The irrigated leased area was in the same condition as 6/11/64. (Tall grass and obstructions) The ground was saturated with water.
June 15, 1966	Letter to Mr. Clifford Holmes advising him of reopening of hearing against Bigger'n Better Poultry to determine his intentions in controlling pollution of Kellogg Creek and its tributary.

STAFF REPORT:

TO : Members of State Sanitary Authority

Mr. Harold F. Wendel, Chairman
Dr. Richard H. Wilcox, Member
Mr. Chris L. Wheeler, Member
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. John Amacher, Member

FROM : Air Quality Control Staff

DATE : June 29, 1966

SUBJECT: Wigwam Waste Burner Program, Status and Observation

THE GOAL: MORE EFFICIENT COMBUSTION

The wigwam waste burner was originally developed to prevent the spread of fire. (A pamphlet published by the Pacific Fire Rating Bureau specifies construction in detail). Our regulation pertaining to the construction and operation of wigwam waste burners stipulates certain modifications designed to enable more efficient combustion with a resulting reduction in the discharge of air pollutants. The concept is basic to combustion engineering, and applies the principles of Time, Temperature, and Turbulence.

THE COMBUSTION ENGINEERING CONCEPT

Under this concept, fuel delivered to the conical-shaped fuel pile in the burner progresses thru three phases, or zones, within the pile. First, the moisture is driven off; then the volatiles; and finally, at the bottom inside of the pile, the remaining carbon is burned.

Forced underfire air provides the oxygen necessary to burn the carbon. Heat and products of combustion from the burning carbon pass outward thru the fuel pile, driving the volatiles from the intermediate layer. These volatile gases require oxygen to burn, which is provided by the introduction of overfire air. The resulting combustible gas mixture burns around and above the fuel pile, providing the heat necessary to dry the outer layer of fresh fuel.

The wigwam burner shell serves to confine the gas mixing and burning process so that it can proceed completely and efficiently, and with the air/gas ratio under control. The shell also acts to reflect heat back to the fuel pile, aiding its drying. Its height provides stack effect which induces air to enter thru the overfire air ports.

The overfire air ports are commonly called "tangentials" because they are of the nature of short sleeves mounted so that their discharge is tangent to the inside surface of the burner shell. They thus induce a circumferential motion to the air and gas flow within the shell, increasing turbulence and distance (Time) of travel manyfold. They must be fitted with dampers, so that the air/fuel ratio can be controlled. An excess of oxygen over that actually required must be provided to assure that enough oxygen actually reaches the gas or suspended particle to be burned. In burning, they create a layer of carbon dioxide around themselves which acts as a shield. This must be penetrated by gas motion (Turbulence).

On the other hand, too much excess air cools the process and acts to inhibit it. A pyrometer, or temperature measuring device, in the exit gases is thus required as a means of determining when the correct amount of overfire air is being admitted. (There is a direct relationship between excess air, exit temperature, and smoke discharge.)

In practice, it has been found that at 600 degrees only slight smoke is visible, and that at 700 degrees and over, it is barely perceptible if at all.

IMPLEMENTATION

Initial step in implementation consisted of a mailing by OSU to a list of 93 timber products firms. This included the regulatory requirements, and a bulletin explaining the concept and the engineering calculations required in proper sizing of burner, underfire air system, and overfire air ports.

The OSSA staff followed this in November with a mailing to the same list, consisting of a copy of the regulation, and a cover letter offering staff assistance in implementation.

In December, a program of personal field survey and assistance was undertaken. It has been a continuing project, under a policy of first effort in areas of greatest concentration and need.

A typical survey call begins with contact with the plant manager or superintendent. First, the concept and combustion engineering principles behind the regulation are explained, then the stipulated requirements. A visit to the burner, or burners, follows. Inadequacies are pointed out, and recommendations discussed. Notes are taken concerning plant capacities, quantities and types of fuel utilization plans, and any other pertinent data. When appropriate, the mill is provided with a copy of the regulation, OSU Bulletin #34, and a list of contractors and instrument suppliers. Request is made for an estimated schedule for compliance.

STATUS TABULATED

To date, 104 waste burners have thus been surveyed. From the accumulated data, it is possible to form an analysis and arrive at general conclusions. Some concept of the potential improvement in emissions to be anticipated may also be estimated. The data is presented in the attached tabulation.

Caution should be exercised in developing conclusions from the data. It should be borne in mind that in most cases only the one, initial contact has been made. In some cases, this was the first knowledge the mill had of the concept, purpose, or requirements of the regulation. In others, lack of information as to available system designs, instruments, and practices had deterred investment.

In general, the status tabulated is thus true only of conditions pertaining at the time of the initial survey. Follow-up calls have been made only in situations involving major emissions in sensitive localities. At the present point in time, a higher percentage of compliance than that shown may thus be assumed. A spirit of cooperation has been almost universal; although a lack of enthusiasm in some instances has indicated the advisability of early follow-up.

FACTORS DELAYING COMPLIANCE

It can be stated axiomatically that notification solely by mail has proven ineffective in inducing compliance. In those instances where, on the first visit, a mill was found to have already complied or was in process of installing the required modifications, the necessary impetus had almost always been provided by personal contact from a district engineer, a local authority officer (Eugene-Springfield), a local association (Medford), or a contractor. (This does not condemn direct-mail methods as a device to inform, but of notification only as an adequate device to induce action.)

In many cases, this form of inertia can be attributed to a lack of understanding. A mill manager hesitates to embark on an item of capital expenditure until he is sure that he will "do it right the first time".

The necessity of accomplishing the necessary construction during a shutdown or a long weekend limits the possibilities for scheduling the work. Superimposed on this is the fact that only four contracting firms in the state are actively engaged in this type of work. The only available solution in many cases is a "do-it-yourself" project, and here again, technical know-how is lacking.

A major inhibiting factor, and one of increasing incidence, is optimism concerning the prospect of total utilization and thus burner phase-out. In almost all cases, this is unrealistic, if for no other reason than that the burner would still be needed for standby in the event of a breakdown in hog or chipper, or in the customer's plant, or in transportation. Our advice has been that a burner on standby must be in compliance before it can be placed in service.

FACTORS REDUCING EFFECTIVENESS

Effectiveness of compliance in reducing emissions is subject to two principal negative influences: a) lack of burner operator proficiency, and b) insufficient fuel with which to reach the desired temperature. From the tabulation, it will be seen that only 7 of the 81 burners were rated as exhibiting proficient operation, and 22 of the 81 were observed to have insufficient fuel, in relation to the size of the burner, with which to reach a temperature of 600 degrees.

Knowledgeable operation can be developed thru education. The principal shortcomings are quite simple: a lack of appreciation for the value of a plus 700 degree temperature, and a lack of knowledge as to how it may be reached.

Insufficient fuel will become an increasing problem as utilization of wood waste progresses. The end result is almost universally a burner too large for the fuel load, but needed as standby for the full volume of fuel it will receive in the event of breakdown in a critical part of the saleable waste material flow.

SUMMARY

Implementation of the wigwam waste burner program to date has consisted of notification by mail, to a list of 933 timber product firms, of the regulatory requirements; and a program of industrial survey and assistance by personal contact with mill management. 104 waste burners are represented in the survey.

From the accumulated data and experience certain conclusions can be drawn as to program needs and methods and an estimate may be made as to the projected effectiveness of the present regulation. Caution must be exercised in developing conclusions from the data, however, as the data is based primarily on conditions observed at time of first contact. For example, percentage of compliance as of this date is undoubtedly higher than shown.

There does appear to be significance and validity in the low percentage of proficiency in operation reported, (7 out of the 81, or 8.7%).

The projected estimate of "potential exit temperature" must, however, be qualified because 20 are classed as "unknown". Eliminating the 20, the percentage of burners with capability of 600 degrees or over becomes 62.5%. This appears to somewhat parallel the OSU estimate of a ½ to 2/3 reduction in emissions to be anticipated with total industry compliance.

Potential exit temperature capability, however, means "with proficient operation". The need for education seems evident.

The 37.5% with insufficient fuel with which to reach 600 degrees remains a problem. Several solutions suggest themselves, but most require pioneering and experimentation with alternate incineration devices, which must thus be industry generated. As burners falling into the "insufficient fuel" category lack the capability of operating without excessive emissions, compliance with the existing regulation does not solve the problem.

Under Subdivision 4 of the regulation, pertaining to the construction and operation of wigwam waste burners, those in compliance are granted a variance until August 11, 1966 from the requirements of Subdivision 1, Discharge Standards. Thus, unless extended by Authority action, the variance will soon expire and owners of burners in the "insufficient fuel" category will be subject to application of those regulations limiting allowable smoke discharge, particle fallout rate, and suspended particulate matter. An applicable regulatory device is thus already provided, although its use involves field sampling techniques, which would likely require additional manpower to effect, considering the number of potential violators.

104 WIGWAM WASTE BURNERS

STATUS OF COMPLIANCE WHEN SURVEYED

(December 1, 1965 - June 15, 1966)

	Total	Jackson	Lane	Douglas	Umatilla Baker	Yamhill	Clackamas	Coos	Marion Linn	Josephine
ROUGH ESTIMATE OF COVERAGE %		90%	30%	80%	80%	50%	20%	10%	10%	10%
NUMBER SURVEYED	104	21	30	20	8	6	7	5	3	4
EVALUATION PENDING: TOTAL	23	5	10	2	0	2	0	2	0	2
To be replaced	5	3	1	0	0	0	0	1	0	0
To be discontinued	12	2	4	1	0	2	0	1	0	2
Construction in progress	3	0	3	0	0	0	0	0	0	0
Special (experimental)	1	0	0	1	0	0	0	0	0	0
Variance recommended	2	0	2	0	0	0	0	0	0	0
TOTAL PERTINENT TO THIS STUDY	81	16	20	18	8	4	7	3	3	2
FACILITIES REQUIRED:										
In physical compliance	28	11	9	3	2	0	0	2	1	1
Sound structure	56	13	14	9	7	1	5	2	2	2
Forced underfire air system	61	12	17	11	5	3	6	2	3	2
Adjustable overfire ports	42	10	13	6	5	1	2	2	1	2
Pyrometer in use/on order	29/8	11/2	9/1	4/3	1/2	0/0	0/0	2/0	1/0	1/0
OPERATIONAL EFFECTIVENESS										
Proficient	7	2	0	1	2	0	1	0	1	0
Potential exit temperature (projected Ent.) (Unknown	20	1	8	6	3	0	1	0	0	1
Under 600°	23	6	4	5	2	0	3	2	1	0
600°	15	1	0	5	1	3	3	1	1	0
700° plus	23	8	8	2	2	1	0	0	1	1
Difficult fuel	4	1	0	1	0	0	0	2	0	0
Insufficient fuel	22	6	4	5	2	0	3	1	1	0
On standby	4	1	0	0	2	1	0	0	0	0
Uncooperative	3	0	0	3	0	0	0	0	0	0

A

MEMORANDUM

TO : Members of State Sanitary Authority

Mr. Harold F. Wendel, Chairman
Dr. Richard H. Wilcox, Member
Mr. Chris L. Wheeler, Member
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. John Amacher, Member

FROM : Air Quality Control Staff

DATE: : June 29, 1966

SUBJECT: Requests for Variance from Regulations Adopted August 17, 1965 and effective January 1, 1966, Pertaining to Wigwam Waste Burners.

The following is a tabulation of requests for variance which have been received and upon which Authority action is required, together with staff recommendations.

1. GILCHRIST TIMBER COMPANY
Gilchrist, Oregon

Basis for Request: Location in sparsely populated area.

Discussion: Waste burner is in process of reconstruction bordering on complete replacement. Established policy, with concurrence of legal counsel for Associated Oregon Industries, has been that all replacement burners must be constructed in complete compliance. Verbal discussions with the mill manager has disclosed that omission of an underfire air system is of prime interest. Mill is approximately 3/8 mile from company town of Gilchrist, near highway 97.

Recommendation: A variance should be denied.

2. HUB LUMBER COMPANY
Roseburg, Oregon

Basis for Request: Planer mill burner used only occasionally for yard cleanup, does not develop sufficient temperature to comply with regulations.

Discussion: Located in a densely populated area of the city of Roseburg, across the street from a public school, this mill has been the subject of complaints. The cleanup material could be disposed of in their sawmill burner, or by other means.

Recommendation: A variance should be denied.

3. EDWARD HINES LUMBER COMPANY
West Fir, Oregon

Basis for Request: Burner seldom used and located in a sparsely populated area.

Discussion: Basis for request appears valid, based on staff field survey. Variance recommended by V. Adkison, Director, Lane County Air Quality Control.

Recommendation: A variance should be allowed. Granted Jan 1, 1976

B

MEMORANDUM:

TO : Members of State Sanitary Authority

Mr. Harold F. Wendel, Chairman
Dr. Richard H. Wilcox, Member
Mr. Chris L. Wheeler, Member
Mr. Herman P. Meierjurgen, Member
Mr. B. A McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. John Amacher, Member

FROM : Air Quality Control Staff

DATE : June 29, 1966

SUBJECT: Requests for Extensions of Variances Previously Granted, from Regulations Adopted August 17, 1965 and Effective January 1, 1966 Pertaining to Wigwam Waste Burners.

The following is a tabulation of requests for variance extensions received to date, together with staff recommendations:

1. MURPHY CREEK LUMBER COMPANY
6890 Williams Highway
Grants Pass

Basis for Request: Delays due to unexpected problems in design and the resulting comprehensive changes in sawmill layout which are prerequisite to chipper installation and subsequent waste burner termination. Extension to August 31, 1966 requested.

Discussion: Our policy is to encourage burner termination. The request seems quite reasonable.

Recommendation: An extension until August 31, 1966 should be granted. OK

2. TYGH VALLEY TIMBER COMPANY, INC.
Tygh Valley

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

2. TYGH VALLEY TIMBER CO., INC. (cont.)

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January, 1967 should be granted.

3. HULT LUMBER AND PLYWOOD COMPANY
P. O. Box 407
Junction City

NOTE: The request refers to the company's burner at Horton.

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January, 1967 should be granted.

4. PARK LUMBER COMPANY
Estacada

Basis for Request: Contractor's work load has precluded completion of renovation work as scheduled. Extension requested until August 1, 1966.

Discussion: Request appears reasonable and no complaints have been received.

Recommendation: An extension should be granted until August 1, 1966, as requested.

5. CARAX MILLS, PLYWOOD DIVISION
P. O. Box 377
Eugene, Oregon

Basis for Request: A number of alternate methods of disposal have been investigated. Three solutions appear to hold promise, but will require more time to materialize.

Discussion: The original variance was granted until May 15, 1966, by which time it was considered that an alternate means of disposal could be found. V. Adkison, Lane County, Air Quality Control, concurs in the difficulty of finding an alternate means. The methods so far investigated appear to relate to conversion or utilization of the remaining material. It is suggested that investigations also include such methods as combustion in a suitably designed multiple chamber incinerator, and of scrubber treatment of wigwam burner exit gases.

Recommendation: An extension should be granted until October 1, 1966, by which time a proposed plan and schedule shall have been submitted to and approved by the Authority staff.

6. JOHNSON BROS. LUMBER COMPANY
Silverton, Oregon

Basis for Request: A contract has been signed for sale of all waste. More time is needed to install the equipment needed. Extension requested to September 1, 1966.

Discussion: The request appears reasonable, and the purpose laudable.

6. JOHNSON BROS. LUMBER COMPANY (Cont.)

Recommendation: The extension should be granted to September 1, 1966, as requested. The mill should be advised of the necessity for compliance if the burner is to be retained on a standby basis.

7. ELLINGSON TIMBER COMPANY
John Day, Oregon

NOTE: The request refers to the company's burner at Seneca.

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January 1, 1967 should be granted.

8. ELLINGSON LUMBER COMPANY
Baker, Oregon

NOTE: The request refers to the company's burners at Unity and Halfway.

Basis for Request: Renewal of variances granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: Variances should be extended for each of the burners until January 1, 1967.

9. FOREST GROVE LUMBER COMPANY
Forest Grove

Basis for Request: Delays in delivery of equipment for waste utilization program. Extension requested until December 31, 1966.

Discussion: Letter of request also states that burner will be retained on a standby basis. Staff policy has been that standby burners must be in compliance before being placed in operation.

Recommendation: The request should be denied for the reason that the burner is to be retained on a standby basis.

10. ZIP-O-LOG MILLS, INC.
P. O. Box 3391
Eugene

Basis for Request: Use of the burner has been eliminated to the extent that it is on an emergency standby basis, used no oftener than every 60 to 90 days while repairing breakdowns of the hogging or chipping equipment.

Discussion: Staff policy has been that standby burners must be in compliance before being placed in operation.

Recommendation: The request should be denied for the reason that the burner is to be retained on a standby basis.

11. LOVENESS COMPANY
Malin

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January 1, 1967 should be granted.

WIGWAM WASTE BURNER MONITORING PROGRAM

SPRINGFIELD

October 1965 to June 1966

SUMMARY

This study was undertaken in order to evaluate the effectiveness of the current regulations. Essentially, the study consisted of measurement of smoke, haze, fallout, dust and dirt near the wigwam waste burners before alterations, required by state regulations, were made. Later, after the required alterations have been accomplished, these same parameters will be measured in order to determine the change in burning characteristics.

Four sampling stations were located generally north and south of six wigwam waste burners in east Springfield. Four additional waste burners are located close by.

Random sampling days were selected with a randon number table. From October 24, 1965 to June 27, 1966, a total of 66 random days were selected. These days included 11 Sundays and 8 Saturdays. This sampling schedule ranged from 5 to a maximum of 10 days per month.

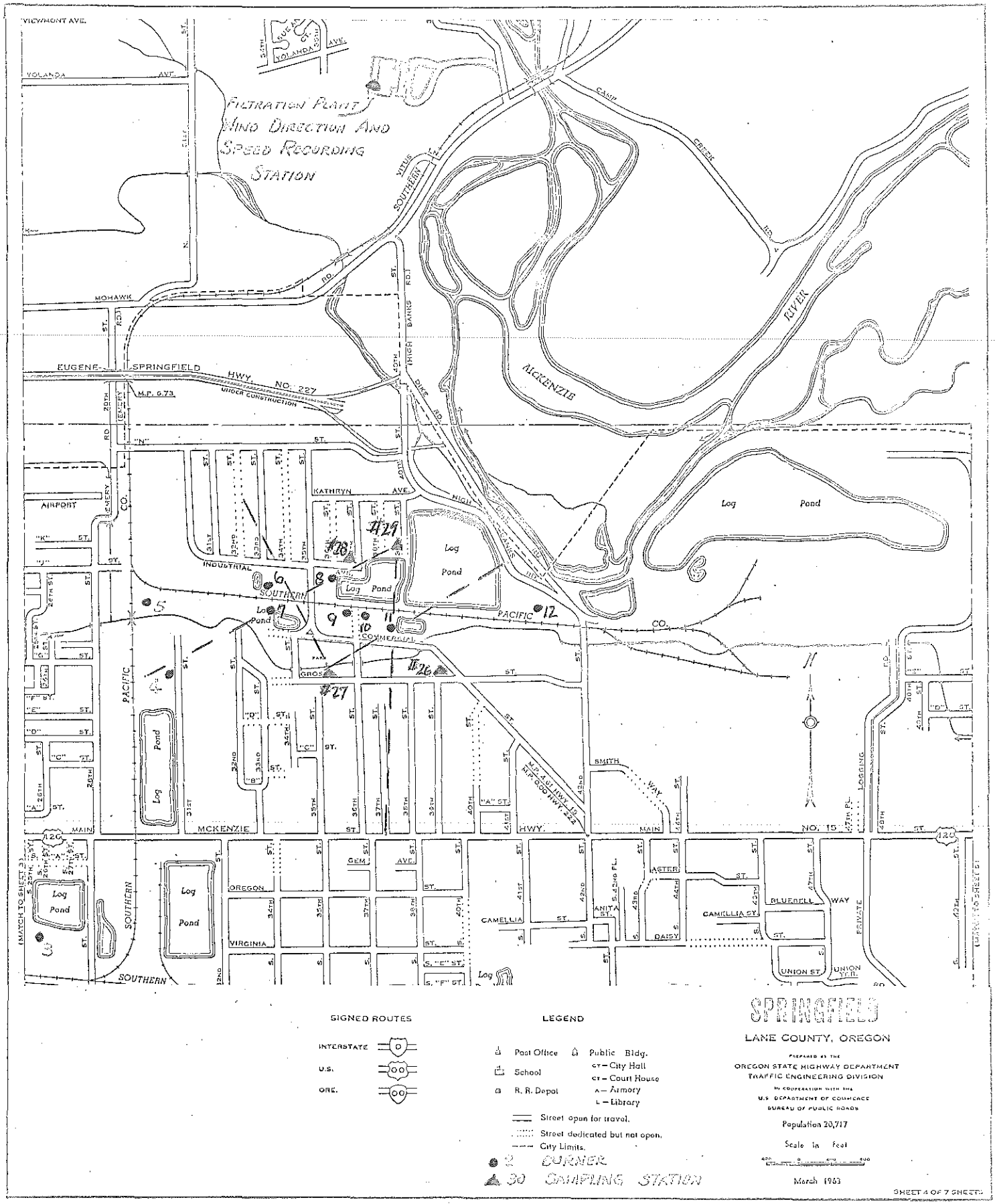
The fallout samples were collected at 4 stations; 2 north and 2 south of the burners. These monthly samples are collected continuously without regard to wind direction.

The high volume (suspended particulate) samples were collected at two stations, two of which were directional set to operate when wind was from the direction of the waste burners and the third high volume was non-directional and operated 24 hours per day. These three samplers were operated on the random sampling days.

Two haze-smoke samplers were also located at these stations; one north and one south of the burners. These tape machines were operated to produce 3-hour samples, for 24 hours, on the random sampling days.

CONCLUSIONS

1. No trend or reduction was found in the particle fallout, suspended particulate or soiling (haze-smoke) index during the sampling period.
2. Only one of the six wigwam waste burners was found to be in compliance with the regulations and this burner has been in compliance for only the last two weeks.
3. All particle fallout samples collected exceed 21 tons/square mile/month. If the regulatory limit for residential and commercial areas is used, then 19 of the 27 monthly samples (70%) exceed the allowable limit. If the regulatory limit for heavy industry areas is used, then 16 of the 27 monthly samples (60%) exceed the allowable limit.
4. Fourteen of the 99 suspended particulate samples (14.1%) collected exceed the regulatory limit. The two directional samplers located downwind from the wigwam waste burners exceeded the non-directional, continuous, 24-hour sampler 78% and 100% of the time.
5. There were 357 of the 538 soiling index (haze-smoke) sample spots or 66% which exceeded the 1.0 COHS 1,000 feet. We associate the 1.0 COH value with relatively clean atmosphere.
6. Considerable baseline data has been obtained for comparison with data collected after the burner alterations have been made. Additional samples should be collected for comparison purposes when the burners are operated in compliance with the regulations. If atmospheric conditions are then acceptable, then the regulations should continue to be enforced. If the resulting atmospheric conditions are not acceptable, then revision of the regulations should be considered.



SIGNED ROUTES

INTERSTATE 0

U.S. 00

ORE. 00

LEGEND

Post Office
School
R. R. Depot
Public Bldg.
CH – City Hall
CT – Court House
A – Armory
L – Library

Street open for travel.
Street dedicated but not open.
City Limits.

2 CORNER
30 SAMPLING STATION

SPRINGFIELD

LANE COUNTY, OREGON

PREPARED BY THE
OREGON STATE HIGHWAY DEPARTMENT
TRAFFIC ENGINEERING DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

Population 20,717

Scale in Feet

400 0 400 800

March 1963

SHEET 4 OF 7 SHEETS

Page 3

PARTICULATE FALLOUT SUMMARY

Location of Fallout Stations

SAMPLING PERIODS DATE	Spr-#26 Coffman Res. 3940 E St.		Spr-#27 Simonson Res. 3482 E St.		Spr-#28 Karey Res. 1150 N 37th		Spr-#29 Cross Res. 1192 N 39th		Background Eugene Airport		No. of stations exceeding:	
	*	TM	*	TM	*	TM	*	TM	*	TM	15 TM	30 TM
From: 10-24-65 To: 11- 1-65	60	64	45	49	71	75	88	92	—	4	4	4
From: 11- 1-65 To: 12- 1-65	33	44	11	22	36	47	49	60	—	11	3	3
From: 12- 1-65 To; 1- 3-66	4	24	8	28	14	34	17	37	—	20	1	0
From: 1- 3-66 To: 2- 2-66	15	21	No sample received		32	38	35	41	—	5.8	2	2
From: 2- 2-66 To: 3- 1-66	29	35	15	21	66	72	45	51	—	5.9	3	2
From: 3- 1-66 To: 4- 1-66	32	42	14	24	39	49	25	35	—	10	3	2
From: 4- 1-66 To: 5- 2-66	31	38	14	24	35	42	33	40	—	6.7	3	3
				Total times regulations were exceeded							19	16
				Total samples collected							27	27

*This value is sample value less background station value

TM = Tons/mile^2/month

WIGWAM WASTE BURNER MONITORING PROGRAM

SPRINGFIELD *

October 24, 1965 to April 3, 1966

High Volume Filter Analysis (Suspended Particulate)

Item	Station #27 Wind Directional-Only	Station #29 Wind Directional-Only	Station #29 (24 hr.) 24 Hour Sampler
Number of sampling periods	30	29	40
Total hours operated	202.5	167.4	960
Maximum hours operated per day	14.1	14.8	24
Minimum hours operated per day	0.5	1.1	24
Median hours operated per day	6.6	4.1	24
Maximum particulate per day (ug/m^3)	395.	578.	218
Minimum particulate per day (ug/m^3)	16.	40.	23
Median particulate per day (ug/m^3)	92.	111.	58.5
Number of times Sta. #27 exceeded Sta. #29 (24 hrs) in particulate (ug/m^3) **	14 78%		
Number of times Sta. #29 exceeded Sta. #29 (24 hrs) in particulate (ug/m^3) **		18 100%	

* Stations that operated for an insufficient period of time on any given day were omitted in the above summary.

** Only days that had all three stations operating were used in this comparison.

Of 99 samples collected near the burners only 19 (19.2%) exceeded the state regulations assuming a background of 0 ug/m^3.

Of 99 samples collected near the burners only 14 (14.%) exceeded the state regulations using the median background of 37 ug/m^3.

WIGWAM WASTE BURNER MONITORING PROGRAM

SPRINGFIELD

October 1965 to June 1966

SOILING INDEX

A total of 538 soiling index sample spots were analyzed. Of these 538, a total of 181 (34%) were less than 1.0 COHS/1000'. A total of 357 (66%) were in the range 1.0 to 5.4 COHS/1000'.

Category	< 1	< 2	< 3	< 4	< 5	< 6
Number of Samples	181	222	78	43	9	4
% of Total Samples	34%	41%	14%	8%	2%	1%

WIGWAM WASTE BURNER MONITORING PROGRAM

SPRINGFIELD

October 1965 to June 1966

Soiling Index

Item	Number of Days
1. Total number sampling days when wind from quadrant sampled by Station #29 (Cross)	21
2. Total number days Station #29 value exceeds Station #27 value	14
% of total	67%
3. Total number days wind blew toward both stations	30
4. Total number days both stations (#27 Simonson, #29 Cross) exceed 1.0 COHS/1000'	17
% of total	57%

WIGWAM WASTE BURNER MONITORING PROGRAM

SPRINGFIELD-EUGENE-MEDFORD*

January 20 to April 3, 1966

SUSPENDED PARTICULATE

Item	Sprfld	Eugene		Medford	
	Sta. #29 Cross	Sta. #32 City Hall	Sta. #33 City Air-port	Sta. #17 Court House	Sta. #18 County Extension
Number of sampling periods	18	19	21	22	4
Total hours operated	432	456	504	528	96
Maximum particulate per day (ug/m^3)	187	177	97	326	213
Minimum particulate per day (ug/m^3)	24	12	12	31	145
Median particulate per day (ug/m^3)	60	70	36	117	201
Number of times Medford exceeds Springfield Median value** % of total samples				12 66%	4 100%
Number of times Medford less than Springfield Median value** % of total samples				6 33%	0 0%

* Springfield data obtained from stations 800' to 1500' from burner. Eugene and Medford data represents community data and samplers are two to three miles from the burners.

** Only samples when both places were sampled on same day. This occurred on 18 of the 22 days, otherwise the percentages would be 73% and 27% respectively.

WIGWAM WASTE BURNER MONITORING PROGRAM

SPRINGFIELD-MEDFORD*

1965 - 1966

CATEGORY	SOILING INDEX			
	Springfield		Medford	
	Number	% of Total	Number	% of Total
< 1	181	34	75	48
< 2	222	41	55	35
< 3	79	14	17	10.3
< 4	43	8	9	5.7
< 5	9	2	1	< 1
< 6	4	< 1	0	0
Total	538	100	157	100

* Springfield data obtained from stations 800' to 1500' from the burners. Medford data represents community data and samplers are two to three miles from the burners.

MEDFORD COMMUNITY SURVEY

January to May, 1966

PARTICULATE FALLOUT SUMMARY

SAMPLE PERIOD	Medford #17 County Court House		Medford #18 Extension Center		Medford #7 Airport		Number of stations exceeding	
	*	TM	*	TM	*	TM	15 TM	30 TM
From: 1-3-66 To: 2-2-66	18	27	7	16	--	9	1	0
From: 2-2-66 To: 4-1-66	9	16	7	14	--	7	0	0
From: 4-1-66 To: 5-4-66	10	19	9	18	--	9	0	0
Total times regulations were exceeded							1	0
Total samples collected							6	6

TM = Tons per square mile per month.
* = This value is sample value less background station value (Airport)

MEDFORD COMMUNITY SURVEY

January 21 to April 3, 1966

SUSPENDED PARTICULATE

Of 26 samples collected, only 6 (23%) exceeded the state regulations assuming a background of 0 ug/cubic meter.

Of 26 samples collected, only 4 (15%) exceeded the state regulations using a background level of 10 ug/cubic meters.

MEDFORD COMMUNITY SURVEY

January 21 to March 26, 1966

SOILING INDEX

A total of 157 soiling index sample spots were analyzed. Of these 157, a total of 75 (48%) were less than 1.0 COHS/1000'. A total of 82 (52%) were in the range 1.0 to 4.4 COHS/1000'.

48% <1
83% <2
94% <3
99% <4

Category	<1	<2	<3	<4	<5
Number of Samples	75	55	17	9	1
% of Total Samples	48	35	11	6	<1

A

MEMORANDUM

TO : Members of State Sanitary Authority

Mr. Harold F. Wendel, Chairman
Dr. Richard H. Wilcox, Member
Mr. Chris L. Wheeler, Member
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. John Amacher, Member

FROM : Air Quality Control Staff

DATE: : June 29, 1966

SUBJECT: Requests for Variance from Regulations Adopted August 17, 1965 and effective January 1, 1966, Pertaining to Wigwam Waste Burners.

The following is a tabulation of requests for variance which have been received and upon which Authority action is required, together with staff recommendations.

1. GILCHRIST TIMBER COMPANY
Gilchrist, Oregon

Basis for Request: Location in sparsely populated area.

Discussion: Waste burner is in process of reconstruction bordering on complete replacement. Established policy, with concurrence of legal counsel for Associated Oregon Industries, has been that all replacement burners must be constructed in complete compliance. Verbal discussions with the mill manager has disclosed that omission of an underfire air system is of prime interest. Mill is approximately 3/8 mile from company town of Gilchrist, near highway 97.

Recommendation: A variance should be denied.

2. HUB LUMBER COMPANY
Roseburg, Oregon

Basis for Request: Planer mill burner used only occasionally for yard cleanup, does not develop sufficient temperature to comply with regulations.

Discussion: Located in a densely populated area of the city of Roseburg, across the street from a public school, this mill has been the subject of complaints. The cleanup material could be disposed of in their sawmill burner, or by other means.

Recommendation: A variance should be denied.

3. EDWARD HINES LUMBER COMPANY
West Fir, Oregon

Basis for Request: Burner seldom used and located in a sparsely populated area.

Discussion: Basis for request appears valid, based on staff field survey. Variance recommended by V. Adkison, Director, Lane County Air Quality Control.

Recommendation: A variance should be allowed.

OSBH-ACP
6/22-26-2

MEMORANDUM:

TO : Members of State Sanitary Authority

Mr. Harold F. Wendel, Chairman
Dr. Richard H. Wilcox, Member
Mr. Chris L. Wheeler, Member
Mr. Herman P. Meierjurgen, Member
Mr. B. A McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. John Amacher, Member

FROM : Air Quality Control Staff

DATE : June 29, 1966

SUBJECT: Requests for Extensions of Variances Previously Granted, from Regulations Adopted August 17, 1965 and Effective January 1, 1966 Pertaining to Wigwam Waste Burners.

The following is a tabulation of requests for variance extensions received to date, together with staff recommendations:

1. MURPHY CREEK LUMBER COMPANY
6890 Williams Highway
Grants Pass

Basis for Request: Delays due to unexpected problems in design and the resulting comprehensive changes in sawmill layout which are prerequisite to chipper installation and subsequent waste burner termination. Extension to August 31, 1966 requested.

Discussion: Our policy is to encourage burner termination. The request seems quite reasonable.

Recommendation: An extension until August 31, 1966 should be granted.

2. TYGH VALLEY TIMBER COMPANY, INC.
Tygh Valley

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

2. TYGH VALLEY TIMBER CO., INC. (cont.)

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January, 1967 should be granted.

3. HULT LUMBER AND PLYWOOD COMPANY
P. O. Box 407
Junction City

NOTE: The request refers to the company's burner at Horton.

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January, 1967 should be granted.

4. PARK LUMBER COMPANY
Estacada

Basis for Request: Contractor's work load has precluded completion of renovation work as scheduled. Extension requested until August 1, 1966.

Discussion: Request appears reasonable and no complaints have been received.

Recommendation: An extension should be granted until August 1, 1966, as requested.

5. CABAX MILLS, PLYWOOD DIVISION
P. O. Box 377
Eugene, Oregon

Basis for Request: A number of alternate methods of disposal have been investigated. Three solutions appear to hold promise, but will require more time to materialize.

Discussion: The original variance was granted until May 15, 1966, by which time it was considered that an alternate means of disposal could be found. V. Adkison, Lane County, Air Quality Control, concurs in the difficulty of finding an alternate means. The methods so far investigated appear to relate to conversion or utilization of the remaining material. It is suggested that investigations also include such methods as combustion in a suitably designed multiple chamber incinerator, and of scrubber treatment of wigwam burner exit gases.

Recommendation: An extension should be granted until October 1, 1966, by which time a proposed plan and schedule shall have been submitted to and approved by the Authority staff.

6. JOHNSON BROS. LUMBER COMPANY
Silverton, Oregon

Basis for Request: A contract has been signed for sale of all waste. More time is needed to install the equipment needed. Extension requested to September 1, 1966.

Discussion: The request appears reasonable, and the purpose laudable.

6. JOHNSON BROS. LUMBER COMPANY (Cont.)

Recommendation: The extension should be granted to September 1, 1966, as requested. The mill should be advised of the necessity for compliance if the burner is to be retained on a standby basis.

7. ELLINGSON TIMBER COMPANY
John Day, Oregon

NOTE: The request refers to the company's burner at Seneca.

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January 1, 1967 should be granted.

8. ELLINGSON LUMBER COMPANY
Baker, Oregon

NOTE: The request refers to the company's burners at Unity and Halfway.

Basis for Request: Renewal of variances granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: Variances should be extended for each of the burners until January 1, 1967.

9. FOREST GROVE LUMBER COMPANY
Forest Grove

Basis for Request: Delays in delivery of equipment for waste utilization program. Extension requested until December 31, 1966.

Discussion: Letter of request also states that burner will be retained on a standby basis. Staff policy has been that standby burners must be in compliance before being placed in operation.

Recommendation: The request should be denied for the reason that the burner is to be retained on a standby basis.

10. ZIP-O-LOG MILLS, INC.
P. O. Box 3391
Eugene

Basis for Request: Use of the burner has been eliminated to the extent that it is on an emergency standby basis, used no oftener than every 60 to 90 days while repairing breakdowns of the hogging or chipping equipment.

Discussion: Staff policy has been that standby burners must be in compliance before being placed in operation.

Recommendation: The request should be denied for the reason that the burner is to be retained on a standby basis.

11. LOVENESS COMPANY
Malin

Basis for Request: Renewal of variance granted due to location in a sparsely populated area.

Discussion: Basis for the original variance appears unchanged.

Recommendation: An extension until January 1, 1967 should be granted.

STAFF REPORT:

TO : Members of State Sanitary Authority

Mr. Harold F. Wendel, Chairman
Dr. Richard H. Wilcox, Member
Mr. Chris L. Wheeler, Member
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. John Amacher, Member

FROM : Air Quality Control Staff

DATE : June 29, 1966

SUBJECT: Report on the Air Pollution Abatement Program at the Union Carbide Metals Division's St. Johns Plant.

In accordance with a resolution passed at the December 17, 1965 State Sanitary Authority meeting, Union Carbide's Metals Division has proposed additional air pollution controls on furnaces No. 1 and No. 4 and has indicated that No. 3 will be kept down permanently. In addition, the company is modifying and adjusting the carbide mix exhaust and scrubber system to increase its capacity and efficiency, and has proposed entering a joint study program with the Sanitary Authority staff to more accurately measure and define the air pollution problem in the St. Johns area.

While the staff does not have all data concerning plant emissions and equipment efficiencies to fully evaluate all aspects, it is the opinion of the staff that the company proposal seems technically sound and should result in a significant reduction in emissions from the plant.

Conclusions

The staff recommends that the Sanitary Authority grant conditional approval of the proposal of February 21, 1966 including current additions and plans subject to:

1. Meeting ambient air standards by June, 1967.
2. Continued staff review of the company's proposal, construction progress, and measurement of ambient air.
3. Measurement by the company of the efficiency of the air cleaning equipment installed, and providing the results of the tests together with grain loading and gas flow rates.
4. The company conduct a dust suppression program in the material storage, handling, and transportation area beginning with the current season.

APPENDIX TO

STAFF REPORT ON UNION CARBIDE

The status of the air pollution abatement program at Union Carbide's Portland works at the time of the December 17, 1965 Sanitary Authority meeting was as follows:

1. Furnace No. 1, making calcium carbide, was covered, had a gas-offtake with a scrubber system, and a tap-hole exhaust which did not include a scrubber.
2. Furnace No. 3, which made a variety of iron, silicon, and manganese alloys, had no cover or controls. It had been down since November, 1965, and its status with respect to future use was uncertain.
3. Furnace No. 4, making the same products as No. 3, was covered. It had a gas-offtake with scrubber. The offtake was to be rebuilt in January, 1966 to improve its collection efficiency.
4. Part of the yard area was used for storage of open stock piles of raw materials. There was no dust control system on these.

The company had submitted a proposal on July 14, 1965 which included:

1. Curtailing production when the weather was, in the company's judgement, unfavorable for dispersion of pollutants.
2. Operating the furnaces as effectively as possible to minimize emissions.
3. Making modifications to the wet dust collector on the carbide packaging line to improve its efficiency.
4. Rebuilding the gas-offtake on No. 4 furnace to increase its collection and scrubber efficiency.

In that same letter, the company claimed there were other significant sources of air pollution in the St. Johns area.

The Sanitary Authority staff had informed the company in September, 1962, that its emissions were giving fallout and suspended particulate values in excess of legal limits. A series of conferences followed, leading eventually to the company's proposal of July 14, 1965. That proposal was accepted as part of a stepwise program, and an overall program was requested. In its report of December 17, 1965, the staff concluded that further controls on the calcium carbide furnace (No. 1) were needed, a cover and control system were necessary for No. 3 furnace, and that not enough equipment descriptions and specific data were available to evaluate the proposed changes on No. 4 furnace.

The Sanitary Authority on December 17, 1965 requested the company to submit by March 1, 1966, a plan and time schedule for an overall air pollution control schedule, that agreement on such a schedule be reached by June 30, 1966, and construction of required facilities proceed as soon as possible. The company made a proposal on February 21, 1966 which included these points:

1. Install a scrubber in the tap-hole exhaust system of No. 1 furnace, to be completed by January, 1967.
2. Increase the capacity of the scrubber on the No. 1 furnace offtake, to be completed by June, 1967.
3. Install a second gas-offtake system and venturi scrubber for No. 4 furnace, to be completed by September, 1966.

In subsequent conferences, the company proposed a joint study of air quality in the St. Johns area. There would be two purposes for this study; to measure the concentration of pollutants in the ambient air, and either to substantiate or to refute the company's contention

that other sources are responsible for a significant part of that area's air pollution problem. Also, in those conferences, the company has indicated that it has no intention of starting up No. 3 furnace again. On a visit in May, 1966, Sanitary Authority staff members noted that the furnace electrodes had been removed and the company was digging out the material remaining in the furnace.

The staff agreed in a letter dated March 22, 1966 that the time schedule submitted was in agreement with the December 17, 1965 meeting, and accepted the proposal on condition that ambient air standards be met by June, 1967.

The company has submitted plans and data on its proposal of February, 1966 for Sanitary Authority staff review. The general approach of the proposal is to capture the dust-laden gases in the furnace or close to the sources before the gases are diluted with so much ambient air that excessively bulky equipment would be needed for adequate treatment. The improvements on No. 1 and No. 4 furnaces (increasing scrubber capacity on No. 1 and adding another offtake on No. 4) are intended to capture the gases before they escape to the atmosphere; the scrubber on No. 1 tap-hole exhaust is intended to scrub out fume from the tapping operation which is now blown to the atmosphere.

Adjustments are being made on the wet dust-collector system on the carbide packaging line, as proposed in the company's letter of July 14, 1965. These adjustments are intended to prevent plugging in the ductwork, increase the overall capacity and increase the scrubber efficiency.

The company will submit copies of purchase orders showing delivery dates for the equipment to be used in their program. At this time, the only forseeable reasons for the company's not being able to meet the schedule it proposed in February would be delays in manufacturers' deliveries.

MEMORANDUM:

TO : Members of State Sanitary Authority

Mr. Harold F. Wendel, Chairman
Dr. Richard H. Wilcox, Member
Mr. Chris L. Wheeler, Member
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. John Amacher, Member

FROM : Air Quality Control Staff

DATE : June 29, 1966

SUBJECT: North Albany Area

The staff has conducted preliminary surveys in the North Albany area which included Western Kraft Corporation, Duraflake Company Corporation, Wah Chang Corporation and Edwards Bros. Lumber Company.

The primary intent of this program was to update current programs and reduce visible emissions.

All industries in the survey have been requested to stop open burning.

EDWARDS BROS. LUMBER COMPANY:

The wigwam waste burner is in compliance with our regulations; however, current production of about 50,000 bd. ft./8-hr. shift is considerably under the 150,000 bd. ft. capacity. At present insufficient waste materials are discharged to the burner to maintain a high temperature.

WAH CHANG CORPORATION:

The staff has again initiated the company's submission of fluoride monitoring test data from the Columbium-tantalum separations section and a fume control system for equipment cleaning area of the zirconium reduction area has been completed. Efficiency test results have been requested and are expected at an early date.

DURAFLAKE COMPANY:

No surveys had been conducted by the staff in recent years.

Duraflake Company is having a study completed pertaining to emission problems relating to collectors and transfer units by Cornell, Howland, Hayes & Merryfield.

The staff has requested a copy of the report be submitted for review and although it was expected that the report would be received by June 20, no submission has been received.

The company has been requested to develop alternate methods of disposal for excess sanderdust which is currently being open burned.

WESTERN KRAFT:

The staff is currently receiving monthly reports from Western Kraft Corporation and is in the early phase of initiating a sampling program in the area.

The company has initiated (1) a pilot study to reduce visible emissions, (2) started meteorological studies to determine feasibility of improved stack discharge, (3) reviewed their blow heat recovery system to assure maximum if not 100% recovery, (4) will have new recovery furnace installed and in operation in early July which will reduce overload to the existing furnaces, (5) tests have been conducted to determine efficiency of the oxidation system and why low efficiencies have been obtained in the past and, (6) the staff has initiated monitoring studies in the area.

WESTERN KRAFT CORPORATION

Albany, Oregon

June 23, 1965

Mr. H. M. Patterson, Chief
Air Quality Control
Oregon State Sanitary Authority
1400 Southwest 5th Avenue
Portland, Oregon 97201

Dear Mr. Patterson:

I would like to submit the following as a report of our progress with our various air quality control projects during the last few weeks.

Visible Emissions: The pilot plant to determine the effect of mixing recovery and power boiler stack gases is completed and some preliminary data has been collected. It appears that mixing the gases will result in a reduction of the visible emissions. Additional data must be collected to determine the extent of the opacity reduction under a range of atmospheric conditions and in the various possible recovery and power boiler gas mixing ratios. We expect to complete this study in July.

Meteorological Study: Our weather measuring instruments are operating satisfactorily and providing us with continuous data. This data is available in our files if you would like to use it in any of your work.

A detailed proposal from North American Weather Consultants has arrived and we will enter into a definite contract with them quite soon for the work to be done next fall.

Recovery Boiler Installation: The recovery boiler installation is proceeding on schedule and we expect to have it operating around the Fourth of July. The boil-out of the interior parts is in progress and is very near completion.

Lime Kiln: The flash dryer for No. 2 lime kiln is in progress. The work has been slowed somewhat in order to concentrate on the recovery boiler startup. However, we expect that the flash dryer will be completed in August.

Oxidation Tower: Our work on the oxidation towers has been proceeding satisfactorily. We completed some maintenance and revision work on the plates of No. 1 tower and have improved the air-liquor ratios on both towers. As a result of this, the oxidation efficiencies for the last month were 69.8% on No. 1 tower and 61.8% on No. 2 tower. The efficiencies in the last two weeks have all been in the 70% to 90% range.

The replacement of all the plates in No. 2 tower with the more porous plates is still scheduled for shortly after the Fourth of July. This replacement should further improve its performance.

Area Survey: We are working on a method of monitoring hydrogen sulfide in the industrial area surrounding the mill site. This data would be similar to the fall out data we are now collecting. If we are successful with this project, we will let you know immediately of our results.

Production: The estimated average pulp production for the month of June is about the same as last month, namely 440 air dry tons per day.

All other factors affecting our air quality control program are the same as reported last month. In general we are satisfied with our progress to date and you can be assured of our continued effort and cooperation.

Sincerely,

WESTERN KRAFT CORPORATION

W. H. Buxton
Technical Superintendent

WHB:jkr
cc: K. H. Spies
H. W. Merryman
C. R. Duffie
F. M. Hammack
R. M. Sheffer

LIST OF MATERIALS IN NOTEBOOKS

1. March 18, 1966, letter of transmittal from J. M. McEwen
2. March 18, 1966, letter of transmittal from Pallthorp
3. March 25, 1966, letter of transmittal from J. M. McEwen
4. April 7, 1966, letter from J. M. McEwen
5. April 7, 1966, letter from Ralph Scott
6. Rough draft of our letter

Weyerhaeuser Company
Pulp and Paperboard Division

Springfield Branch
Springfield, Oregon 97477

March 18, 1966

Mr. Kenneth H. Spies
Oregon State Sanitary Authority
P.O. Box 231
Portland, Oregon 97207

Dear Mr. Spies:

Today, we are sending you under separate cover two sets of the plans and specifications for our proposed effluent treatment pond.

This material was prepared by Cornell, Howland, Hayes & Merryfield.

Very truly yours,

J. M. McEwen
Branch Manager

JMM:bh

cc: Mr. H. W. Merryman

KHS
3/25/66

CORNELL, HOWLAND, HAYES & MERRYFIELD
ENGINEERS AND PLANNERS
1600 WESTERN AVENUE • CORVALLIS, OREGON 97330
TELEPHONE: AREA CODE 503/752-4271
OTHER OFFICES IN: SEATTLE • BOISE • PORTLAND

18 March 1966

Record No. C4059.1

Oregon State Sanitary Authority
1400 S. W. Fifth Avenue
Portland, Oregon

Gentlemen: Weyerhaeuser, Springfield

The Plans and Specifications for the effluent treatment pond for Weyerhaeuser Company at Springfield have been completed and forwarded to the Company. They will forward copies to you for your review and approval.

The system is designed for the following:

Pumping Capacity to Pond:	1 pump operating, 4,600 gpm 2 pumps operating, 5,400 gpm
Pond:	Surface Area - approximately 23 acres Water Depth - 12 feet Lined with PVC - 10 mil
Aeration:	Four 75-hp Yeomans surface aerators Aeration Tower - 5,000 ± gpm
Effluent Pumps:	Two Pumps - 5,000 gpm each
Flow Measurement:	
Pond Influent	Propeller Meter
Pond Effluent	Propeller Meter

Design is continuing on the collection trenches, pump station, and piping for in-plant separation of flows. This portion of the work, which will be done by force account, will include controls, alarms, and nutrient feed.

The pH of the pond influent will be measured and continuously recorded. This signal will be used to adjust the pH to near neutral by the addition of alkaline flow. The pH of the pond effluent will be continuously measured. Facilities, including storage and a feeder, will be provided for the addition of ammonia to the pond influent. If necessary, it will be possible to add phosphorous by drip-feeding phosphoric acid.

Weyerhaeuser personnel are continuing to collect data on volume and strength of various plant flows. Because of the press of time, the pond design has been based on present data available from Weyerhaeuser Company records and experiences. Pond and aeration capacity has been provided in excess of what is thought to be necessary to obtain the desired treatment in the pond.

A letter report is being prepared by the Weyerhaeuser staff and Russ Blosser which will summarize the flow and BOD information for the mill streams. This report will be forwarded to your office.

Sincerely,

CORNELL, HOWLAND, HAYES & MERRYFIELD

Robert E. Pailthorp

REP/d

cc: Mr. Tom Miksch
Mr. Russ Blosser

Weyerhaeuser Company
Pulp and Paperboard Division

Springfield Branch
Springfield, Oregon 97477

Mr. Kenneth H. Spies
Oregon State Sanitary Authority
P.O. Box 231
Portland, Oregon 97207

March 25, 1966

Dear Mr. Spies:

A report on the anticipated loads on the proposed waste treatment system is attached.

The anticipated load may be summarized as follows:

	Pounds BOD per Day
Untreated Effluent ----------	1500
Log Pond Overflow ----------	600
Treatment Plant Effluent ----	1900
Total Load ----------	4000

The treatment plant effluent assumes a load of 12,600 pounds of BOD per day to the plant and an 85% efficiency to give 1900 pounds of BOD per day in the effluent. The size of the secondary treatment pond has been increased to about 11.4 days' retention at 5000 GPM.

Estimates of the BOD of the untreated effluent and log pond overflow are more conservative (higher) than previous estimates. In-plant recovery systems and better operation are expected to keep the load to the treatment plant low enough so the effluent can be maintained at 1900 pounds of BOD per day as production is increased to 1150 tons per day. There is also a reasonably good chance that the untreated effluent or the log pond overflow may be reduced to maintain a 4000-pound total BOD per day if the treatment plant effluent exceeds 1900 pounds per day. During the summer season there is also the capability of sending up to 4300 pounds of BOD per day to the irrigation system to reduce the load to the treatment system.

Very truly yours,

J. M. McEwen
Branch Manager

JMM:bh
Attach.

cc: Mr. H. W. Merryman
Mr. J. O. Julson

Estimated BOD Loads with
Operation of Waste Treatment System
March 24, 1966

INTRODUCTION

This report outlines the liquid effluent handling scheme for the Weyerhaeuser Pulp and Paperboard Division at Springfield, Oregon. This document was prepared at the request of the OSSA staff as an aid in the evaluation of the Weyerhaeuser Company treatment system to meet a 4000 lbs. of BOD discharge during the low river flow months.

In December 1965 it was made known to the Oregon State Sanitary Authority that consideration was being given to expansion of the land disposal system which has been in use as an effluent treatment device for some years.

After a critical evaluation the decision was made to select another form of biological treatment. The plan selected is more flexible and versatile than land disposal alone since use of the latter may be limited during periods of high rainfall. The system chosen incorporates these essential components:

(1) Segregation of essentially all streams containing BOD and settleable solids.

(2) Sedimentation of these effluents.

(3) Biological treatment of the settled effluent in aerated stabilization basins.

(4) Separate disposal of a portion of the high BOD low volume effluent streams in a stand-by irrigation system if required, to reduce the discharged BOD load to the desired level.

(5) Supplemental aeration of the log pond contents to reduce the BOD load at this source.

These engineering plans for construction of this project are actively under way since it is the intent of the company to have the treatment system in operation by July 1 for the summer low river flow period of 1966. The detailed engineering plans for the treatment system have been made by the consulting firm of Cornell, Howland, Hayes & Merryfield, and were forwarded to your office on March 18, 1966. This report is intended to supplement the detailed engineering plans.

Effluent Segregation and Collection System

Those streams which carry essentially all of the BOD and settleable solids will be segregated and by the addition of collection sumps and appropriate piping be routed to primary sedimentation. These include:

(1) Paper machine process waters.

(2) Floor drains in processing and storage areas which may carry intermittent losses of settleable solids and BOD.

(3) Evaporator condensates.

(4) Pulp mill sewers which carry attrition losses of oxygen demanding effluent.

Of the total BOD load from the pulping and paper making operation routine flow measurements and analyses show that about 90% of the total BOD load exists in the machine process waters, pulp mill sewer and condensates. This load is present in a maximum flow of 4200 GPM. The attrition losses of fiber and BOD from floor drains in process and storage areas which constitute about 2% of the total BOD load will be collected in a flow at approximately 800 GPM and routed to treatment.

About 92% of the total BOD load from pulping and paper making is therefore confined in the 5000 GPM which will be segregated and sent to treatment. These streams also carry essentially all the settleable solids of organic nature and should be adequately removed in the 30-hour retention provided for in the sedimentation basin. Residual lime solids in streams not biologically treated will be settled in an existing earthen sedimentation basin.

Projection of BOD Load

The BOD load per ton of pulp produced is tabulated in Table 1 for those months where the data are available for 1964, 1965 and to date during 1966. Prior to expansion the BOD load generated averaged 16.0 lbs./ton of pulp in 1964 and 15.3 lbs./ton of pulp during the first three months of 1965.

After expansion the load went up (Table 1) and then was reduced to 16.9 lbs./ton of pulp produced in December. During January and February planned experimental work created an increase in the BOD load. This work has terminated and the load has in recent weeks been 15.8, 14.5, and 12.2 lbs./ton of pulp. At present production levels the load generated in pulping and paper making is about 15,000 lbs./day.

General Description of the Effluent Treatment Plant and Effluent Characteristics

The combined segregated effluent to primary sedimentation will have a maximum flow of about 5000 GPM or 7.2 MGD. It will be settled for approximately 30 hours where essentially complete settleable solids removal can be expected. A sufficient amount of high pH effluent from the recovery area (estimated 100 GPM) will be mixed with the settled effluent to adjust the pH level to about 7 to assure conditions for maximum biological activity. The nitrogen and phosphorous for biological nutrient will be metered to the settled effluent prior to delivery to the aerobic treatment facilities.

The 7.2 MGD of flow to the treatment plant is estimated to have a BOD of approximately 210 ppm. After 11.4 days' retention in the aeration basin equipped with 300 HP of aeration equipment (4 - 75 HP units) the final effluent BOD concentration is estimated to be about 31 ppm representing an 85% BOD reduction during the summer months.

Adequacy of the System

The effluent handling system is designed to provide adequate treatment for reducing the BOD load to 4000 lbs./day. Based on estimates by the National Council for Stream Improvement from previous laboratory work on similar effluents and existing field installations 85% BOD removal in the aeration basin can be obtained during the summer months. The residual untreated BOD load from the pulping and paper making process is estimated at 1500 lbs./day based on the internal mill surveys. The BOD load from the log pond will be 600 lbs./day. The BOD load which can be handled by the aeration

basin and not exceed the total 4000 lbs./day load is:

$$1900 \div 0.15 = 12{,}600 \text{ lbs./day}$$

Should the potential BOD load to the aeration basin be in excess of 12,600 lbs./day during the summer months, the desired fraction of high BOD effluent can be routed to land disposal with existing facilities which have been recently enlarged. About 90 acres is available and equipped for land disposal by irrigation if necessary, although it is intended to maintain this system as an insurance feature for the overall effluent handling scheme.

Our experience has shown that conservatively 15,000 gals./acre/day can be land disposed or 1.35 MGD on the existing 90 acres.

We have at hand the facilities to deliver to the land disposal operation:

(a) 300 GPM condensates with a BOD of 600 ppm or 2160 lbs. BOD/day, and

(b) 600 GPM of paper machine effluent with a BOD of 300 ppm or 2160 lbs. BOD/day,

for a total of 4,320 lbs. of BOD/day.

The existence of these irrigation facilities provides sufficient flexibility to:

(a) Reduce the BOD load to 4000 lbs./day with a residual untreated load of 2100 lbs./day and total load for treatment in excess of 16,900 lbs./day.

(b) Extend the time of treatment in the aeration basin, thereby increasing treatment efficiency since the flow to irrigation would not require stabilization treatment.

(c) Afford the opportunity of substituting low BOD streams for treatment in the stabilization basin equivalent to the flow treated by irrigation, hence reducing the untreated residual load.

The facilities are therefore being provided for handling the BOD load from a projected pulping operation of 1150 tons/day with a BOD load of 16 lbs./ton of pulp produced. This load of 16 lbs./ton is in excess of the present BOD load of 15 lbs. BOD/ton of pulp produced as well as in excess of that load which experience has shown is the load from this operation once the system is analyzed and brought into desired operating procedure. The facilities as designed and under construction are therefore considered adequate for the treatment of the present BOD load of about 15,000 lbs./day, as well as the future BOD load at full production capacity. They do not include any BOD load reductions accounted for by internal improvements now under way and those that may be developed in the future.

These statements are supported by the following material balance at design production levels:

1150 T/day @ 16 lbs. BOD/ton ----------	18,400 lbs./day
Less residual untreated from Pulp and Paper ---	1,500
	16,900
To irrigation ----------	4,300
To treatment ----------	12,600

The estimated discharged load at maximum production is:

Residual untreated ----------	1,500 lbs./day
Log Pond ----------	600
From treatment plant (12,600 x 0.15) -----	1,900
	4,000 lbs./day

Table 1

Date	Production T / Day	BOD from Pulp and Paper Lbs. / Day	BOD Lbs. /Ton Pulp	
1964				
January	421	8,460	20.1	
February	414	7,120	17.2	
March	430	7,320	17.0	
April	426	5,820	13.7	
May	417	6,770	15.8	
December	406	4,980	12.2	Avg. 16.0
1965				
January	435	6,250	14.4	
February	416	6,830	16.4	
March	397	6,000	15.1	Avg. Jan. thru March - 15.3
September	674	16,964	25.2	
October	772	15,192	19.7	
November	884	16,430	18.7	
December	934	15,710	16.9	
1966				
January	923	17,635	19.1	
February	990	18,290	23.5	
March (Week 1)	824	14,510	15.8	
March (Week 2)	1050	15,250	14.5	
March (Week 3)	1048	12,700	12.2	

EAUS

Weyerhaeuser Company
Pulp and Paperboard Division

Springfield Branch
Springfield, Oregon 97477

KHS

Mr. Kenneth H. Spies
Oregon State Sanitary Authority
P.O. Box 231
Portland, Oregon 97207

April 7, 1966

Dear Mr. Spies:

In your letter of March 10, 1966 you request that plans be prepared for a diffuser line to be installed at the Springfield pulp mill outfall.

At the time the mill was built in 1949, it was arranged that the mill outfall be constructed as to release the effluent only along the south bank of the McKenzie River. Early in 1963 the question of changing the method and means of effluent discharge to a diffuser-type line was discussed with one of your staff members. It was then felt that such a change seemed not to be in the best interest of protecting the river waters.

While we do not necessarily disagree with the request made in your March 10 letter, we do feel that such a change should be approached carefully and preceded and supported by biological considerations and an evaluation program which includes soil and rock studies, river current studies at high and low rates of flow and an evaluation of the characteristics of the mill effluent after the new treatment plant is in operation.

We have already contacted Cornell, Howland, Hayes & Merryfield, a consulting engineering firm familiar with the type of construction which would be required to make the requested change. At present that firm is under a very heavy schedule but has agreed to make qualified people available for this project within the next 90 days. As you know, we are also consulting with Russell Blosser of the National Council for Stream Improvement in order to have the benefit of his expertise in this matter.

We will go forward with the required studies in order to reach a conclusion at the earliest feasible time and will keep you currently advised of developments.

Very truly yours,

J. M. McEwen
Branch Manager

JMM:bh

cc: Mr. H. W. Merryman
Mr. R. O. Blosser
Mr. R. E. Pailthorp
Mr. J. O. Julson

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Federal Water Pollution Control Administration
Pacific Northwest

570 Pittock Block
Portland, Oregon 97205

April 7, 1966

Mr. Kenneth Spies
Secretary and Chief Engineer
Oregon State Sanitary Authority
P. O. Box 231
Portland, Oregon 97207

Dear Mr. Spies:

On April 6, 1966, in your office, we had opportunity to review the waste treatment proposals advanced by Weyerhaeuser Co., Springfield. Such new and added facilities are intended to correct the conditions of water pollution reportedly existing in the McKenzie River due to waste discharge from this industry.

The proposal presented appears to be in conformance with known, accepted and practiced application of this advanced means of waste treatment in the pulp and paper industry. We have recently had reason to review plans for a new mill which may be constructed on the Flathead River in Montana. Similar means of secondary treatment will be employed. Application of this means of oxygen demand reduction is evidently gaining in popularity as knowledge of the art and science increases, paralleled by increased demands for biological oxidation of weaker waste streams from mill processing. Kamloops Pulp at Kamloops, B. C. is employing this means and the Federal Department of Fisheries, Canada, is requesting similar treatment for all new Kraft mills constructed on the Frazer River watershed. We also have knowledge of such treatment means employed by Riegel Paper Co., N. Carolina; Crown-Zellerbach, Ohio; Packaging Corp. of America, Ohio; and Whippary Paperboard Co., Pennsylvania.

Review of plans indicates facilities for primary treatment and satisfactory biological oxidation for the oxygen demand load measured by the industry. We trust these values are correct, and must be accepted lacking any additional information. However, several items were not completely clear, or warrant comment, as follows:

1. Presently available holding lagoons are employed for primary treatment. This practice will probably develop problems as sludge accumulation. Time is evidently not sufficient to install mechanically cleaned primary facilities to meet this summer's low flow in the stream. However, such a primary unit with mechanical sludge collection, and adequate disposal, will eventually be required.

2. What are the opportunities for preventing short-circuiting of wastes between inlet and outlet in the aeration basin? If the lagoon rotates clock-wise due to placement of aerators, perhaps the best outlet location is as shown. Is this fact fairly well confirmed so that maximum retention time is realized without dead pockets reducing the holding time?

3. The use of available irrigation disposal appears to bear a somewhat casual relationship to the total treatment picture. On the basis of figures presented by the industry, it appears that the spray-irrigation disposal system must be employed to reduce the raw waste load for aeration to those figures used for design purposes. As I read the data, total load is 18,400 pounds BOD/day. If 2,100 pounds BOD is assumed from log pond and dilute weak waste streams untreated, 16,300 pounds remain for aeration. Design calls for 12,600 pounds BOD/day meaning that irrigation disposal of 3,700 pounds of BOD/day must at least occur during periods of maximum treatment needs to permit, on the basis of proposed treatment efficiencies, a stream loading of 4,000 pounds BOD/day.

4. It seems doubful that any fine biological floc discharged in lagoon effluent will survive in the turbulence of the McKenzie River. Should any final sedimentation facilities be necessary, these may be added later. However, it would seem advisable to develop adequate means to distribute wastes across the stream rather than continue the single shore-line outlet now employed. If slime control is dependent on any assumed ratio of pounds BOD to cfs in the stream, then the maximum dilution available should be reached as rapidly as possible.

We appreciated the opportunity for review and comment on these waste treatment proposals. The Weyerhaeuser Co. and Oregon State Sanitary Authority are to be complimented for developing, on the basis of best present available data and information, an answer to the problems on the McKenzie River. These facilities will be the first of this type, treating weak wastes, in the Northwest and may well hasten the day when similar means are employed to correct other difficulties of a similar nature, which may exist in the region.

Sincerely yours,

Ralph H. Scott
Industrial Wastes Engineer

Mr. John McEwen
Resident Manager
Weyerhaeuser Corporation
Springfield, Oregon

Re: IW 2-1 Weyerhaeuser, Springfield

Dear Mr. McEwen:

The following refers to the proposal for reducing the liquid waste discharges from your Springfield Kraft pulp and paperboard mill as described by the plans which were transmitted by your letter dated March 18, 1966, and the report of estimated BOD loads which was submitted with your letter of March 25, 1966.

The system of treatment and disposal as proposed incorporates these essential components:

1) Segregation of essentially all waste streams which contain concentrations of BOD or settleable solids.

2) Sedimentation of these effluents to remove the settleable solids in existing waste holding ponds which have capacity to provide an average retention period of approximately 30 hours for the wastes to be treated.

3) Biological treatment of the settled effluents in a 23-acre aerated stabilization basin which has been designed to provide at least 85% treatment for a waste inflow of 5,000 GPM and a BOD load of 12,600 lbs./day.

4) Capability of disposing of up to 4300 #/day of BOD by irrigating 900 GPM of strong wastes on 90 acres of prepared land as may be required to keep BOD discharges to the river to not more than 4,000 #/day during periods of low river flow.

5) Supplemental aeration of the log pond to reduce the BOD contribution from this source to no more than 600 #/day.

Under this plan, you propose to collect and treat, or dispose of on land, approximately 92% of the total BOD load from the mill. The remaining 8% of

the mill BOD load exists in such low concentrations and in such large volumes of process waters as to make secondary treatment extremely difficult. Anticipated BOD loads are summarized as follows:

BOD balance at design production levels

1150 tons per day at 16 #BOD per ton	18,400 #/day
Less residual untreated from pulp and paper mill	1,500
	16,900 #/day
To irrigation	4,300
To treatment	12,600 #/day

BOD discharge at maximum production

Residual untreated	1,500 #/day
Log pond after aeration	600
Treatment plant effluent (12,600 x 0.15)	1,900
Discharge to river	4,000 #/day

The success of these treatment facilities will depend upon the company's ability to keep the waste loading within the proposed limits.

The above proposed plan appears to provide satisfactory means of reducing your liquid waste discharges to the McKenzie River such that reasonable and adequate water quality will be maintained therein in accordance with the public policy of the state of Oregon. The proposed facilities and procedures are therefore hereby tentatively approved subject to the following conditions:

1) Land disposal of wastes shall be recognized as a regular and essential part of the overall waste reduction system, and shall be operated at maximum capacity and effectiveness throughout each irrigation season so as to minimize during the corresponding periods of low river flow the waste loads discharged to the McKenzie River.

2) Properly sized primary sedimentation facilities of more conventional design which include provisions for continuous, effective removal of settled sludge and adequate sludge disposal shall be provided if the existing waste holding ponds should prove to be inadequate for this purpose.

3) After start-up of the proposed treatment facilities, tests and studies shall be conducted by the Company to determine the need for, and the increase in treatment efficiency that could be derived from the addition of final sedimentation units, and properly designed and approved final sedimentation facilities shall be provided if they are shown by the tests and studies to be needed.

4) A more adequate system for discharging the company's liquid waste effluents into the McKenzie River, which will best protect and preserve the aesthetic conditions, water quality and aquatic life of the river, shall be developed and installed by not later than January 1, 1967.

5) The proposed treatment system shall be operated at maximum efficiency year round and may be shut down only for minimum periods during times of high river flow as may be required for essential maintenance and under such conditions as may be prescribed at the time by the Sanitary Authority.

It is recommended that consideration be given to dividing the aeration basin into a minimum of two cells to reduce the possibility of short circuiting of wastes through the basin, to provide greater flexibility in operation and to facilitate maintenance without shutting down the entire treatment system.

It is the statutory responsibility of the State Sanitary Authority to restore and preserve the natural purity of the waters of the state of Oregon. This obligation is constant and continuous, and over a period of years changes

in local conditions may occur which cannot be anticipated at the present time. Approval of these plans, therefore, must be and is but tentative and conditional, dependent upon changing conditions, construction of these facilities in accordance with the plans submitted, and proper functioning of the facilities after they have been placed in operation.

The Sanitary Authority reserves the right to stipulate conditions under which these waste treatment and disposal facilities are to be operated and to require changes when circumstances so warrant.

Very truly yours,

EJW:lb

cc:

cc:

STAFF REPORT

Air Pollution in the Vicinity of the Weyerhaeuser Mill, Springfield, Oregon

OREGON STATE SANITARY AUTHORITY

April 14, 1966

In December, 1963, Weyerhaeuser Company announced its intentions to increase the capacity of its kraft pulp and paperboard mill at Springfield from 400 ADT/day to 1150 ADT/day.

Prior to the Company's announcement, the Sanitary Authority had not, since 1959, received complaints indicative of an area atmospheric pollution problem originating from the Weyerhaeuser Springfield mill. Complaints had been received of odors associated with and apparently emanating from the waters of the McKenzie River. It was, therefore, believed that for the years immediately preceding the announcement of expansion that the emission of air contaminants from the Springfield mill was, except for the river odor problem, under reasonably satisfactory control.

Immediately following the announcement numerous and repeated complaints of objectionable odors in the atmosphere and in the river water were received and much concern was expressed about probable increases in air and water pollution as a result of the proposed pulp and papermill expansion.

The Weyerhaeuser Company proposed to install the most modern air quality control facilities and to employ all known techniques to keep air polluting emissions from its expanded operations to a minimum. It also proposed to reduce emissions from its existing mill by reducing the overload on the old recovery furnaces and installing a more efficient scrubber on one of its existing lime kiln stacks.

The Sanitary Authority, by letter dated September 14, 1964, tentatively approved the Company's proposal for controlling air and water pollution at its expanded Springfield mill subject to the condition "that if proposed methods for controlling air and water pollution are not entirely successful as represented

by the Company such further control, disposal or treatment of air and water polluting wastes will be provided as required to prevent or eliminate validly objectionable air or water pollution."

Another condition of approval was that certain stack and kiln emission data be submitted that would be representative of air pollution emissions both before and after expansion of the operation.

Stack emission data were submitted to the Sanitary Authority by Weyerhaeuser Company. (At this time we wish to correct an error in the emission data presented at the February 18, 1966, session of this hearing. At the February 18 session Mr. Weathersbee reported discharges of hydrogen sulfide and methyl mercaptan from the recovery furnace and lime kiln stacks to be within the range of 13,860 - 35,580 #/day prior to expansion, and between 20,838 - 56,528 #/day of hydrogen sulfide and methyl mercaptan after expansion. These values as reported were too high by a factor of about 10 and should be corrected to 1655 - 4252 #/day before expansion and 2509 - 6563 #/day after the expansion.)

It was further clearly stated in the Sanitary Authority letter of approval that it was the intention of the Sanitary Authority that no increases in air or water pollution shall occur, after a reasonable period of adjustment, as a result of the Company's expanded operations.

Numerous surveys have been conducted by the air quality control staff of the Sanitary Authority and the staff of the Eugene-Springfield air quality control district to determine atmospheric conditions in the Eugene-Springfield area both before and after the Weyerhaeuser mill expansion. These surveys consisted of the following tests and procedures:

1) Particle fallout tests to determine the fallout in the area of total particulate matter and sodium, calcium and sulfate ions.
2) AISI tape sampler tests to determine H_2S levels.
3) Odor surveys to determine the intensities and frequencies of characteristic kraft odors.
4) Continuous monitoring for atmospheric sulfur dioxide, since February 8, 1966.
5) Specific monitoring for total mercaptans.

Particle Fallout Tests

On March 2, 1964, seven particle fallout stations were established in residential areas from which complaints had been received in the vicinity of the Weyerhaeuser mill. The locations of these stations are shown on Figure 1. A summary of the fallout data collected in 1964, before expansion in 1965, and after expansion to April 1, 1966, is shown on Table I.

The fallout data show that fallout of Na^+, Ca^{++} and $SO_4^=$ are consistently higher at Stations 14 and 19 than at the other stations. However, all values at all stations are not uncommonly high for an urban area.

The data do not indicate the existence of a widespread area fallout problem either before or after expansion. The fallout of particulate salt cake (Na_2SO_4) could possibly cause localized metal corrosion problems in areas adjacent to the mill. Seven written complaints of automobile paint damage and one complaint of farm equipment corrosion have been received since the mill expansion from people who live very close to the Weyerhaeuser mill. Seven of those complaints were investigated and spotting of paint on car bodies and corrosion of metal trim were observed but the cause of the unusual amount and type of corrosion could not be determined by direct short-term observation. Long term corrosion studies would be necessary to determine whether or not a significant corrosion problem exists.

H_2S Sampling

Pre-expansion Period:

During the 5-week period April 20, 1964, to June 5, 1964, AISI lead acetate tape samplers were operated at Stations 19, 22, and 20 shown on Figure 1, to determine area hydrogen sulfide levels. Of the 2413 half-hour samples collected during this period none showed any tape discoloration and all were reported as less than 1 ppb of H_2S being present. During the 13 weeks period, September 16 through December 22, 1964, 560 half-hour samples and 669 one-hour samples were collected at Station 22 and 577 one-hour samples were collected at Station 19. Of the 1799 total samples collected during this period, 110 or approximately 6% showed discoloration of the tape indicating the presence of H_2S but still registered less than 1 ppb of H_2S. Nine samples registered greater than 1 ppb; the maximum value being 3.1 ppb of H_2S.

Post-expansion Period:

Beginning February 10, 1966, AISI tape samplers were operated until April 7, 1966, at the 8 stations shown on Figure 2. These data are summarized in Table II. One thousand and eighty four 3-hour samples were collected. Of these, 280 or approximately 26% showed discoloration of the tape indicating presence of H_2S. The highest value registered was 6.6 ppb. In addition 833 one-hour samples were collected at the same 8 stations. Of these, 59 or approximately 7% showed discoloration of the tape. The highest value recorded was 1.6 ppb of H_2S, but 32 of the 59 positive samples showed concentrations of H_2S above 1 ppb.

These data show that H_2S occurs intermittently over a widespread area in measurable concentrations, but the concentrations measured were in all instances far below published toxic levels.

Odor Surveys

General area and downwind odor surveys were begun August 26, 1964, and conducted as staff time permitted through April 5, 1966. All odor surveys were conducted following procedures which utilize a numerical rating of the intensity of odor observed as follows:

#0 - Imperceptible

#1 - Threshold, or just detectable

#2 - Distinct and definite odor

#3 - Strong enough to attempt avoidance

#4 - Overpowering and intolerable for any length of time

Downwind of plant odor surveys were conducted prior to and after the expansion of the plant. These data are contained in Tables III and IV, and summaries are shown below together with downwind survey data collected in 1959:

	Pre-Expansion		Post Expansion
	Oct. 1 and 2 1959	Aug. 26, 1964 March 4, 1965	Aug. 5, 1965 April 5, 1966
Odor Intensity	101 observations	126 observations	163 observations
#0	48.5%	13%	24%
#1	47.5%	53%	19%
#2	4 %	32%	28%
#3		2%	29%

The above data show that kraft-type odors can be readily detected in the general area downwind of the mill at odor levels ranging from threshold to strong. These data also indicate that higher intensity odor levels occurred a greater percentage of the time after expansion than before expansion.

Area odor surveys were conducted after the plant expansion, beginning on July 16, 1965, and continuing through April 5, 1966. A total of 61 surveys involving 2517 separate odor observations were conducted using the 11 fixed stations shown on Figure 3. These data are shown in Table V and are summarized as follows:

Survey Period - July 1965 to April 1966

No. of Surveys	Number observations	% of Surveys above Threshold Odor Level	Odor Intensities (% of total observations) #0	#1	#2	#3	#4
61	2517	87%	84%	8%	5%	3%	0

The above data show that kraft odor values of threshold concentrations or greater were observed in the widespread residential areas, represented by the selected sampling stations, during 87% of the surveys made in the approximately 8 month period from July 16, 1965, to April 5, 1966. It was also found that the higher intensity odors usually occur in a relatively narrow band downwind of the mill. This accounts in part for the higher intensity observations being a relatively low percentage of the total of all area observations made at the selected fixed stations.

Sulfur Dioxide Sampling

A Beckman Model K sulfur dioxide analyzer with a range of 0-2 ppm SO_2 was operated continuously from February 8 - 28, 1966, at the East Springfield Fire Station and operated continuously from February 28 - April 5, 1966, at the Eugene water treatment plant. The purpose was to determine the level of SO_2, if any, in area atmosphere. No sulfur dioxide was recorded at either station.

Monitoring for Total Mercaptans

On March 30, 1966, specific sampling for mercaptans was conducted at the Hayden Bridge water treatment plant and at the De Foor logging truck stop, Stations No. 5 and 7 respectively, as shown on Figure 2.

Four samples were collected and mercaptans were found to be present in all samples in the range of 12 to 219 ppb mercaptans as CH_3SH. These sample results are shown in Table VI and indicate that mercaptans may exist in the area in higher concentrations than H_2S and may be largely responsible for the objectionable odors. Additional sampling in the area specifically for mercaptans will be conducted to further test this hypothesis.

TABLE I

Springfield Fallout Data
Summary of Particle Fallout & Chemical Analysis
of Fallout Sampling Stations 1964-1966

(Values in T/sq/ mi./mo.)

	Springfield #14 Lynch Residence			Springfield #15 Yolanda Elementary			Springfield #17 Thurston Sr. High School		
	1964	1-4-65 to 7-1-65	7-1-65 to 4-1-66	1964	1-4-65 to 7-12-65	7-12-65 to 4-1-66	1964	1-4-65 to 4-12-65	7-8-65 to 4-1-66
PARTICLE FALLOUT									
No. of Samples	10	5	9	10	5	9	10	5	9
Maximum	31	20	30	19	8	11	21	15	20
Minimum	3.2	12	6.4	3.0	4	2.8	6	11	5
Median	16.	14	22	8.5	6.1	7.0	14	12	15
Average	18.5	15.8	22.4	9.	6.0	6.7	13.6	12.6	12.9
CALCIUM									
No. of Samples	2	3	9 (4)	4	5	9 (0)	8	5	9 (1)
Maximum	0	0	1.5	0	0	0	0.4	0	0.8
Minimum	0	0	0	0	0	0	0	0	0
Median	0	0	0	0	0	0	0.4	0	0
Average	0	0	.3	0	0	0	0.5	0	.09
SODIUM									
No. of Samples	2 (2)	5	9	7	5	9	7	6	9
Maximum	1.1	0.8	1.9	0.3	0.1	0.6	0.8	0.7	1.0
Minimu,	.9	0.2	0.1	0.1	0.01	0.09	0.1	0.4	0.4
Median	1.0	0.4	1.0	0.2	0.1	0.3	0.6	0.5	0.6
Average	1.0	0.44	1.0	0.2	0.1	0.3	0.5	0.5	0.6
SULFATE									
No. of Samples	2	5	9	9	5	9	9	6	9
Maximum	3.4	2.9	5.5	1.5	1.3	1.5	2.0	2.2	2.3
Minimum	1.6	1.5	1.2	0	0	0.2	0.1	1.1	1.0
Median	2.5	2.0	3.5	0.5	0.1	.9	1.5	1.4	1.7
Average	2.5	2.2	3.5	.5	0.4	.84	1.2	1.6	1.6

Springfield Fallout Data (cont.)
(Values in T/sq. mi./mo.)

TABLE I (cont.)

	Springfield #19 Rainbow W. D.			Springfield #20 E. Sprfld. Fire Station			Springfield #21 Mohawk Elementary	
	1964	1-4-65 to 7-1-65	7-1-65 to 4-1-66	1964	1-4-65 to 7-1-65	7-1-65 to 3-1-66	1964	7-22-65 to 4-1-66
PARTICLE FALLOUT								
No. of Samples	6	6	9	5	6	7		8
Maximum	42	17	34	20	26	17		10
Minimum	10	10	14	5.3	11	9		1.6
Median	22	15.5	18	15.	13	13		6.2
Average	22.5	14.3	21.2	13.9	14.8	13.0		5.6
CALCIUM								
No. of Samples	7	5	9	5	6	7		8
Maximum	0.1	0	1.8	0	0	0		0.7
Minimum	0.1	0	0	0	0	0		0
Median	0.1		0	0	0	0		0
Average			0.3	0	0	0		.09
SODIUM								
No. of Samples	6	6	9	5	5	7		8
Maximum	2.5	1.1	4.1	0.8	0.8	0.9		0.4
Minimum	0.5	0.6	0.4	0.2	0.3	.2		0.05
Median	1.2	0.7	1.9	0.3	0.4	.4		.20
Average	1.4	0.8	2.1	0.4	0.5	.35		.23
SULFATE								
No. of Samples	6	6	9	5	6	7		8
Maximum	4.3	2.1	4.1	1.8	2.1	2.0		.8
Minimum	0.4	1.3	0.4	0.0	0.9	0.8		0.4
Median	2.0	1.4	1.9	0.6	1.1	1.3		0.5
Average	2.2	1.6	2.1	0.7	1.4	.78		0.46

SPRINGFIELD FALLOUT DATA (Cont.)
(Values in T/sq. mi./mo.)

TABLE I (cont.)

	Springfield #22 Ott Residence		Springfield #25 McKenzie - 54	Springfield #23		Springfield #24	
	1964	1-4-65 to 7-1-65	8-2-65 to 4-1-66	1-4-65 to 7-1-65	7-1-65 to 4-1-66	1-4-65 to 7-1-65	7-1-65 to 1-3-66
PARTICLE FALLOUT							
No. of Samples	5	6	8	6	9	6	9
Maximum	19	24	24	53	47	22	29
Minimum	7	8	9.3	23	25	11	11
Median	12	11	18	35.5	34	12	21
Average	12.8	13	17	38	36.0	13.7	19.8
CALCIUM				No Chemical Analysis on Stations #23 and #24			
No. of Samples	4	6	8				
Maximum	0	0	0.2				
Minimum	0	0	0				
Median			0				
Average			0.02				
SODIUM							
No. of Samples	4	6	8				
Maximum	0.5	0.7	1.0				
Minimum	0.3	0.4	.2				
Median	0.3	0.5	.4				
Average	0.4	0.6	.45				
SULFATE							
No. of Samples	4	6	8				
Maximum	1.7	2.0	2.6				
Minimum	0	0.9	.7				
Median	0.6	1.5	1.05				
Average	0.8	1.5	1.16				

TABLE II

AISI HYDROGEN SULFIDE TAPE SAMPLER

3-Hour Sampling Period

	Location of Sampler	Distance & Direction from Plant	Hours Operated	No. of Samples Collected	No. of Samples Sulfides were Detected	% of Samples Sulfides were Detected	No. Samples > 1 ppb	Highest Value Recorded
1.	Eugene City Hall 3-22 to 4-5	6.8 miles W.	--	--	--	--	--	--
2.	Cross Residence 3-11 to 4-1	0.8 mile W	499	183	36	20%	1	2.9 ppb
3.	Springfield Fire Station 2-10 to 2-28 3-11 to 4-1	0.7 miles S	932	298	9	3.0%	--	$\leq$ 0.4 ppb
4.	Jaqua Residence 3-1 to 3-4 3-11 to 3-18	3. miles NW	80	33	8	24%	1	6.6 ppb
5.	Filter Plant 2-28 to 4-1	1.4 miles NNW	811	244	4	2%	--	$\leq$ 0.5 ppb
6.	Myers Residence 3-22 to 4-1	0.7 miles N	238	81	69	85%	--	$\leq$ 0.9 ppb
7.	DeFoor Residence 3-11 to 4-1	0.9 miles E	500	166	101	61%	1	1.8 ppb
8.	Texaco Station 3-22 to 4-1-66	1.2 miles SE	238	79	53	67.1%	--	$\leq$ 0.9 ppb
			Total	1084	280			

As measured during the reported sampling periods, sulfides as hydrogen sulfides were shown to be present in concentrations below those known to cause health effects but above nuisance values.

TABLE II

AISI HYDROGEN SULFIDE TAPE SAMPLER

1 Hour Sampling Period

	Location of Sampler	Distance & Direction from Plant	Hours Operated	No. of Samples Collected	No. of Samples Sulfides were Detected	% of Samples Sulfides were Detected	No. Samples > 1 ppb	Highest Value Recorded
1.	Eugene City Hall 4-5 to 4-7	6.8 miles W.	49	49	5	19%	1	1.1 ppb
2.	Cross Residence 4-1 to 4-7	0.8 mile W	144	141	2	2%	1	1.2 ppb
3.	Springfield Fire Station 4-1 to 4-7	0.7 mile S	145	145	0	--	--	--
4.	Jaqua Residence 4-5 to 4-7	3. miles NW	48	48	0	--	--	--
5.	Filter Plant 4-1 to 4-7	1.4 miles NNW	94	92	0	--	--	--
6.	Myers Residence 4-1 to 4-7	0.7 mile N	148	149	16	11%	15	1.9 ppb
7.	DeFoor Residence 4-1 to 4-7	0.9 mile E	144	146	17	12%	8	1.6 ppb
8.	Texaco Station 4-1 to 4-7	1.2 miles SE	62	63	19	30%	7	1.6 ppb
			Total	833	59			

SUMMARY OF DOWNWIND

WEYERHAEUSER ODOR SURVEY RESULTS

Springfield 1964 - 1966

The odor intensity recorded is based on the following intensity scale ranging from 0 to 4:

#0 No odor or no odor of designated component
#1 Threshold level of the component
#2 Definite odor of component
#3 Strong odor of component
#4 Overpowering odor of component

PRE-PLANT EXPANSION FIELD DATA TABLE III

DATE	No. of Sta.	No. 0's	No. 1's	No. 2's	No. 3's	No. 4's	Total No. Obs.
8/26/64	6	2	4	--	--	--	6
8/28/64	6	2	4	--	--	--	6
9/ 1/64	6	2	3	1	--	--	6
9/ 3/64	6	1	4	1	--	--	6
9/ 9/64	6	--	5	1	--	--	6
9/10/64	6	1	5	--	--	--	6
9/17/64	6	--	4	2	--	--	6
9/22/64	6	1	1	4	--	--	6
9/29/64	6	4	2	--	--	--	6
10/ 4/64	6	--	3	3	--	--	6
10/14/64	6	--	5	1	--	--	6
10/21/64	6	--	4	2	--	--	6
10/28/64	6	--	2	4	--	--	6
11/ 6/64	6	1	4	1	--	--	6
11/16/64	6	--	4	2	--	--	6
1/ 4/65	6	--	3	3	--	--	6
1/12/65	6	--	1	3	2	--	6
1/26/65	6	1	3	2	--	--	6
2/ 4/65	6	--	1	4	1	--	6
2/23/65	6	--	2	4	--	--	6
3/ 4/65	6	1	3	2	--	--	6
Totals	126	16	67	40	3	0	126
% of Total Observations	--	13%	53%	32%	2%	--	--

Between August 1964 and March 1965, a total of 21 odor surveys were conducted downwind of the plant. Of the 126 single determinations, 13% were classified as 0; 53% were classified as Number 1; 32% were classified as Number 2; and 2% were classified as Number 3.

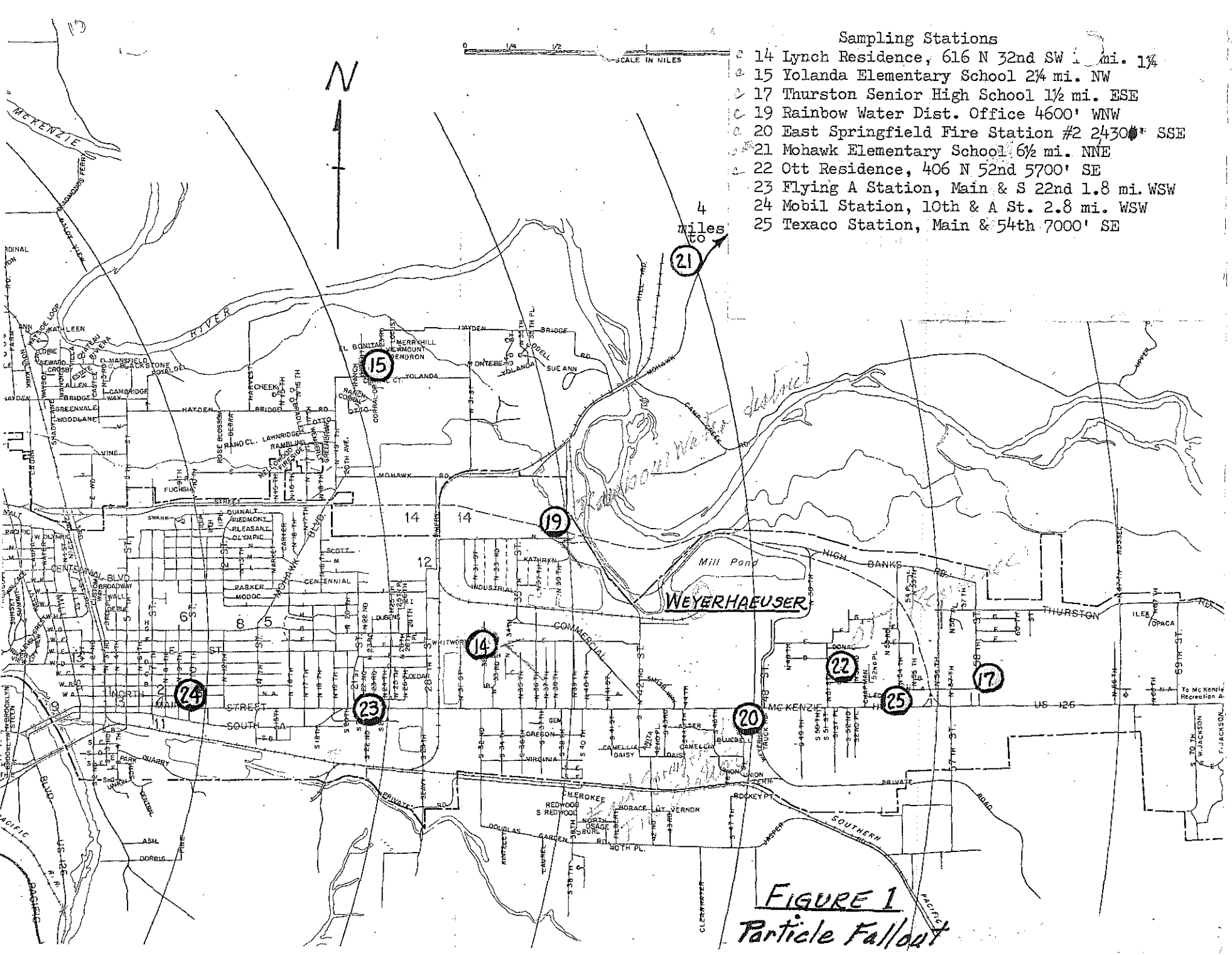


FIGURE 1
Particle Fallout

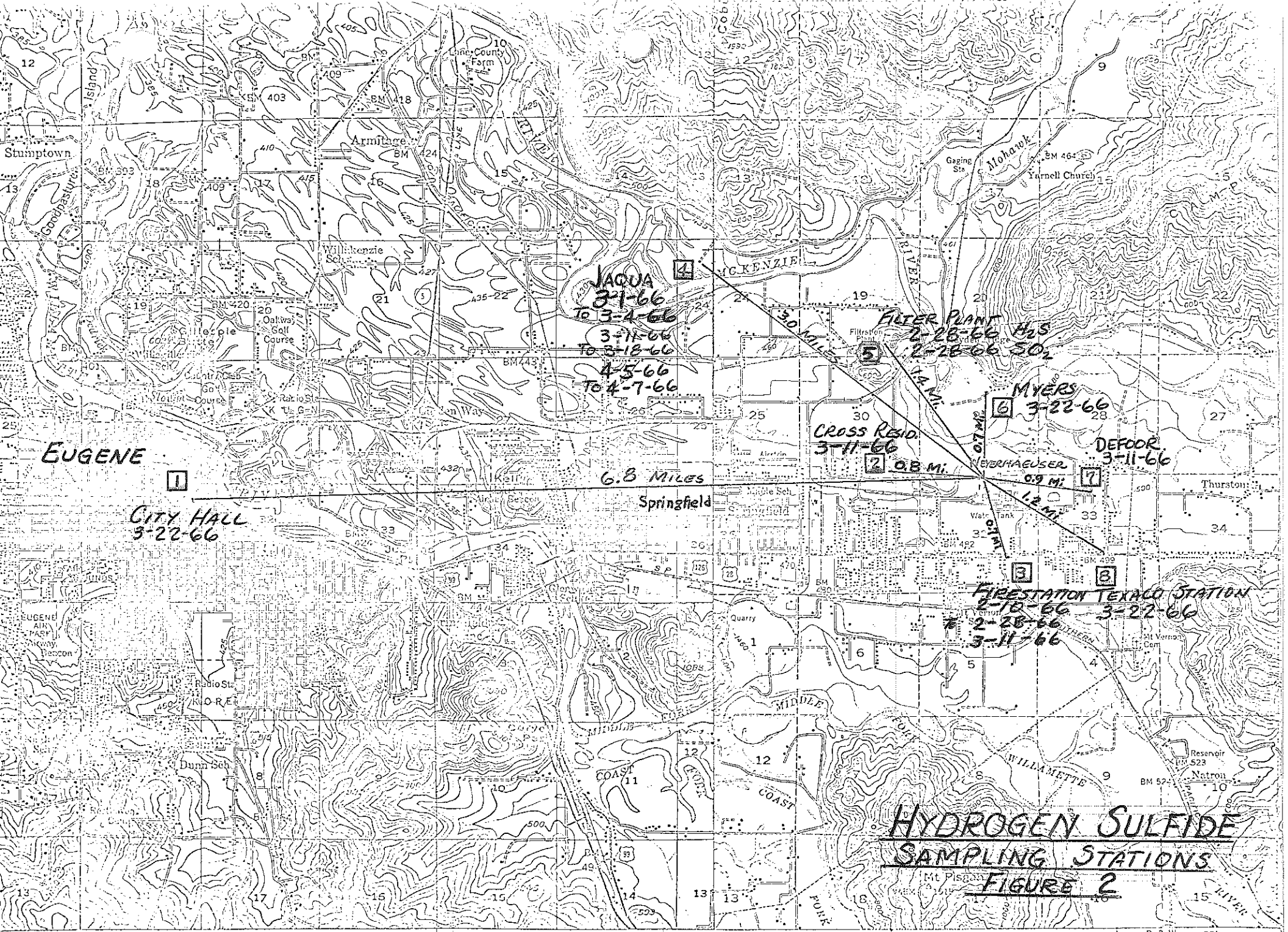

EUGENE
1
CITY HALL
3-22-66
6.8 Miles
Springfield
JACQUA
3-1-66
To 3-4-66
3-11-66
To 3-18-66
4-5-66
To 4-7-66
4
CROSS REGIO
3-11-66
2
0.8 Mi.
5.0 Miles
1.4 Mi.
FILTER PLANT
2-28-66 H2S
2-28-66 SO2
5
MYERS
3-22-66
6
0.7 Mi.
WEYERHAEUSER
0.9 Mi.
1.2 Mi.
DEFOOR
3-11-66
7
0.7 Mi.
3
FIRESTATION
2-10-66
2-28-66
3-11-66
TEXACO STATION
3-22-66
8
HYDROGEN SULFIDE
SAMPLING STATIONS
FIGURE 2
Stumptown
Armitage
Willakenzie Sch.
Oakway Golf Course
Eugene Airport
Dunn Sch.
Yarnell Church
Gaging Sta.
Thurston
Mt Vernon Cem.
Reservoir
Natron
Mt Pisgah
Quarry
Water Tank
Fillerstop Plant
Airstrip
Radio Sta.
KORE
Mohawk
McKENZIE
RIVER
WILLAMETTE
RIVER
MIDDLE FORK
COAST FORK
COAST
SOUTHERN PACIFIC
R. 3 W.
R. 2 W.
1340000 FEET (NORTH)
1350000 FEET (SOUTH)
123°00'
498000m E.
ROSEBURG 63 MI.
GRANTS PASS 132 MI.
ROAD CLASSIFICATION
1963
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1963
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
LGF
Revised 3-22-66
Miles

TABLE IV

POST-PLANT EXPANSION FIELD DATA

DATE	No. of Sta.	No. 0's	No. 1's	No. 2's	No. 3's	No. 4's	Total No. Obs.
8/ 5/65	1	1	--	3	--	--	4
9/ 1/65	2	2	3	2	1	--	8
9/ 3/65	3	5	3	4	--	--	12
9/10/65	1	2	1	1	--	--	4
9/24/65	2	1	4	2	1	--	8
10/ 1/65	1	--	3	1	--	--	4
10/13/65	2	3	3	2	--	--	8
10/20/65	1	2	2	--	--	--	4
11/ 2/65	1	3	1	--	--	--	4
11/ 9/65	2	1	2	5	--	--	8
1/24/66	4	1	1	4	1	--	7
1/27/66	1	--	--	--	4	--	4
1/28/66	1	--	--	--	4	--	4
2/ 4/66	1	--	--	--	1	--	1
2/ 7/66	1	--	--	1	3	--	4

ODOR SURVEY FIELD DATA SINCE FEBRUARY 18, 1966

DATE	No. of Sta.	No. 0's	No. 1's	No. 2's	No. 3's	No. 4's	Total No. Obs.
3/ 4/66	2	0	0	3	5	0	8
3/7/66	1	0	0	0	4	0	4
3/ 8/66	5	3	3	7	1	0	14
3/18/66	3	3	1	2	6	0	12
3/22/66	4	7	1	3	5	0	16
3/25/66	3	2	3	2	5	0	12
4/ 1/66	3	3	0	3	6	0	12
4/ 5/66	1	0	0	0	1	0	1
Totals	46	39	31	45	48	0	163
% of Total Observations		24+%	19+%	28%	29%		

Between August 1965 and April 1966, a total of 23 odor surveys were conducted where data was recorded on odor levels under the plume. Of the 163 single determinations, 24% were classified as Number 0; 19% were classified as Number 1; 28% were classified as Number 2; and 29% were classified as Number 3.

TABLE V

SUMMARY OF ODOR SURVEYS

Weyerhaeuser - Springfield

The odor intensity recorded is based upon the following intensity scale ranging from 0 - 4:

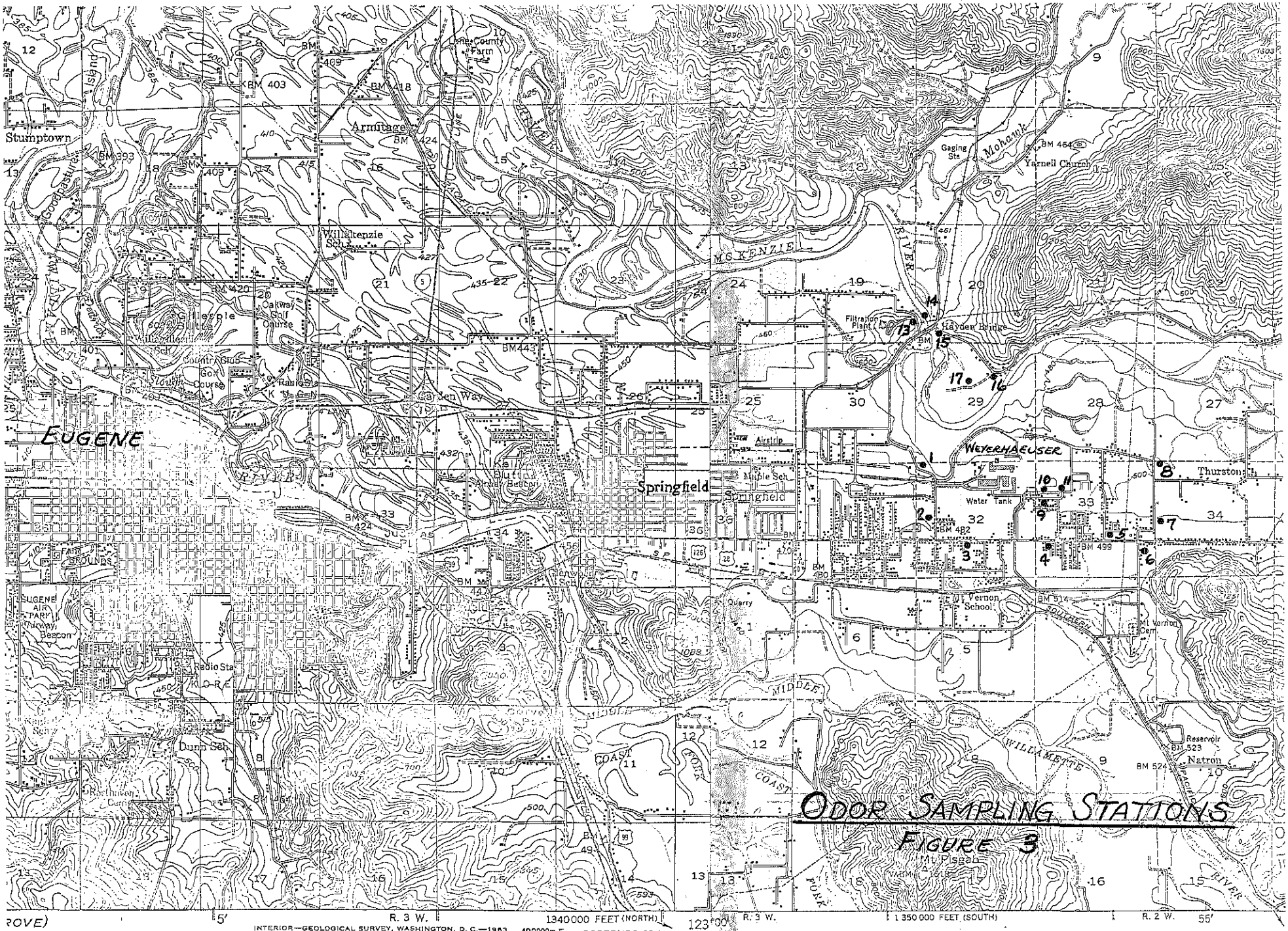
#0 No odor or no odor of designated component
#1 Treshold level of the component
#2 Definite odor of component
#3 Strong odor of component
#4 Overpowering odor of component

Date of Survey	Observations in Intensity Range					Number of Observations
	#0	#1	#2	#3	#4	
7/16/65	27	7	2	4	0	40
7/19/65	11	9	0	0	0	20
7/20/65	22	4	1	0	0	27
7/22/65	18	4	0	2	0	24
7/27/65	19	11	3	3	0	36
7/29/65	20	5	5	2	0	32
8/ 3/65	22	6	7	1	0	36
8/ 5/65	32	3	8	1	0	44
8/ 5/65	38	5	1	0	0	44
8/10/65	40	4	0	0	0	44
8/10/65	33	7	4	0	0	44
8/27/65	44	0	0	0	0	44
8/27/65	41	1	1	1	0	44
9/ 1/65	32	5	4	3	0	44
9/ 1/65	33	5	5	1	0	44
9/ 2/65	26	10	7	1	0	44
9/ 3/65	40	3	1	0	0	44
9/ 3/65	40	1	3	0	0	44
9/10/65	42	1	1	0	0	44
9/10/65	39	2	3	0	0	44
9/20/65	30	9	5	0	0	44
9/21/65	30	10	4	0	0	44
9/24/65	35	9	0	0	0	44
9/24/65	32	5	6	1	0	44
10/ 1/65	36	6	2	0	0	44
10/11/65	44	0	0	0	0	44
10/ 8/65	44	0	0	0	0	44
10/ 8/65	39	4	1	0	0	44
10/12/65	28	13	3	0	0	44
10/13/65	44	0	0	0	0	44
10/13/65	32	9	2	1	0	44
10/20/65	42	2	0	0	0	44
10/20/65	44	0	0	0	0	44
10/26/65	38	5	1	0	0	44
11/ 2/65	43	1	0	0	0	44
11/ 2/65	38	16	0	0	0	44
11/ 4/65	41	1	2	0	0	44
11/ 9/65	40	0	4	0	0	44

TABLE V (cont.)

SUMMARY OF ODOR SURVEYS Weyerhaeuser - Springfield (cont.)

Date of Survey	Observations in Intensity Range					Number of Observations
	#0	#1	#2	#3	#4	
11/ 9/65	41	2	1	0	0	44
11/18/65	44	0	0	0	0	44
11/23/65	40	1	3	0	0	44
1/19/66	37	5	1	1	0	44
1/24/66	41	1	2	0	0	44
1/27/66	40	0	0	4	0	44
1/28/66	40	0	0	4	0	44
2/ 4/66	44	0	0	0	0	44
2/ 7/66	40	0	1	3	0	44
3/ 4/66 a.m.	15	0	5	0	0	20
3/ 4/66 a.m.	40	0	2	2	0	44
3/ 4/66 p.m.	40	0	1	3	0	44
3/ 7/66 p.m.	44	0	0	4	0	44
3/ 8/66 a.m.	44	0	0	0	0	44
3/ 8/66 a.m.	3	3	7	1	0	14
3/18/66 a.m.	40	0	1	3	0	44
3/18/66 a.m.	16	3	2	3	0	24
3/22/66 a.m.	33	1	4	6	0	44
3/25/66 a.m.	33	4	2	5	0	44
4/ 1/66 a.m.	34	1	3	6	0	44
4/ 5/66 a.m.	43	1	0	0	0	44
4/ 5/66 a.m.	36	4	4	0	0	44



R. 3 W. | 1340000 FEET (NORTH) | 123°00' | R. 3 W. | 1 350 000 FEET (SOUTH) | R. 2 W.

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1963

498000m.E. ROSEBURG 63 MI. GRANTS PASS 132 MI.

ROAD CLASSIFICATION 1963

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

LGF

REVISED 3-22-66

MILES

AIR POLLUTION AUTHORITY
OREGON STATE BOARD OF HEALTH

TABLE VI

LABORATORY REPORT

Sample Number 19985 - 19988 Date Received

Source of Sample Springfield, Oregon

Trade Name or Type of Sample (Mercaptan) Impinger

Analyzed for Total Mercaptans in Air

Method used " A Spectrophotometric Method for Determination of Mercaptans in Air "
Industrial Hygiene Journal December 1960

Results of Analysis

Lab. No. AQC OSBH	Location	Date	Time Sampled	Air Volume Liters	PPB Mercaptans as CH_3SH
19985	Hayden Bridge Water Treatment Plant	3-30-66	1050-1120	15.	140.
19986	Defoor Logging Truck Shop. Near west fence	3-30-66	1413-1428	6.4	219.
19987	Defoor Logging Truck Shop. Near west fence	3-30-66	1429-1509	17.0	12.
19988	Defoor Logging Truck Shop. Near West fence	3-30-66	1515-1545	13.5	119.

Remarks: Organic sulfide odor was present at the sample sites during sampling, sample locations were selected so that the samples were collected down wind from the plant site.

Date completed April 1, 1966

Date reported April 1, 1966

R. B. Percy + R A Johnson
Chemist

R. B. Percy and R. A. Johnson

Summary and Conclusions

1. Since the announcement by the Weyerhaeuser Company of the proposed expansion of its Springfield kraft pulp and paperboard mill, and continuing to the present time, the Sanitary Authority has received numerous and repeated complaints of objectionable characteristic kraft-type odors from residents of the Eugene-Springfield area.

2. Since the start-up of the expanded facilities the Sanitary Authority has received eight written complaints of automobile paint damage and accelerated metal corrosion alleged to have resulted from mill discharges.

3. Stack emission data submitted to the Sanitary Authority by the Weyerhaeuser Company show that since start-up of the expanded facilities the discharge of particulates and odorous materials has increased by 1 1/3 to 1 1/2 times, and the volume of gaseous discharges has increased approximately 2 2/3 times that which was being discharged prior to the expansion.

4. Particle fallout data collected to date at seven particle fallout stations have not demonstrated a significant area fallout problem attributable to the Weyerhaeuser mill either before or after expansion.

5. Reported instances of automobile paint spotting and unusual metal corrosion were observed in areas adjacent to the mill, but the cause could not be determined by direct, short-term, visual observation.

6. Extensive surveys conducted in the Eugene-Springfield area show that H_2S occurs intermittently over widespread areas in levels at or in excess of threshold odor levels, but measured concentrations were in all instances far below published levels considered to have adverse health effects.

7. It is concluded from extensive odor surveys conducted in the Eugene-Springfield area that kraft type odors occur at such intensities and frequencies so as to constitute a widespread area odor nuisance. Higher intensity levels of kraft-type odors were observed with greater frequency downwind of the Weyerhaeuser mill after expansion than before expansion.

8. Limited sampling specifically for mercaptans indicates higher levels of mercaptans than hydrogen sulfides in the area. Further sampling is required to determine the relative importance of mercaptans to the area odor problem.

9. Continued testing and sampling of all parameters is needed to further define atmospheric pollution in the area and to determine and evaluate seasonal effects.

STAFF REPORT

Air and Water Pollution in the Vicinity of the Weyerhaeuser Mill, Springfield, Oregon

Oregon State Sanitary Authority

December 13, 1965

(Revised 2/15/66)

In December 1963, the Weyerhaeuser Company announced its intention to increase the capacity of its Kraft pulp and paper mill at Springfield from 400 ADT/day to 1150 ADT/day.

Representatives of the Weyerhaeuser Company met with members of the Sanitary Authority staff several times during early 1964 and presented the company's proposal for accomplishing this expansion with purportedly:

1) no additional water withdrawal from the McKenzie River.
2) no further aggravation of the water pollution problem and perhaps some improvement with regard to decreased BOD's to the river during the extreme low flow periods, and reductions in odors associated with the river waters.
3) little or no increase in the area air pollution problem.

As a result of a petition signed by some 75 residents of the Eugene-Springfield area, the Sanitary Authority held a public hearing in Eugene on June 18, 1964, to hear local testimony prior to acting upon the proposed expansion. The concensus of the testimony given at the June 18 meeting was that no additional air or river pollution should be allowed to occur as a result of the expansion.

Sanitary Authority physical and chemical data and river surveys indicated that river conditions had been generally good since 1961 when the company had begun to irrigate a substantial portion of its strong wastes during periods of low river flows.

After considering the company's record of success in solving its air and water pollution problems in the past, and the company's proposal to utilize the most advanced equipment, techniques and procedures in its expanded operations, the Sanitary Authority, by letter dated September 14, 1964, tentatively approved the company's proposal for controlling air and water pollution at its Springfield mill expansion, subject to the following continuing conditions:

1) That if proposed methods for controlling air and water pollution are not entirely successful as represented by the company, such further control, disposal or treatment of air and water polluting wastes will be provided as required to prevent or eliminate validly objectionable air or water pollution.

2) That complete irrigation disposal data and observed river conditions shall be routinely reported in addition to liquid waste data already being submitted.

3) That certain stack and kiln discharge data be submitted that would be representative of air pollution emissions both before and after expansion of operations.

4) That in order to provide reasonable surveillance and control of the start-up and break-in of the new facilities the company shall agree to meet with the Sanitary Authority staff prior to start-up of the new facilities and at least quarterly thereafter as long as reasonable progress is being made and until all pollution problems are satisfactorily resolved.

It was further clearly stated in the Sanitary Authority letter of approval that it was the intention of the Sanitary Authority that no increases in air or water pollution shall occur, after a reasonable period of adjustment, as a result of the company's expanded operations.

The Weyerhaeuser Company had throughout the summer of 1963, prior to the expansion, been able to maintain generally good conditions in the McKenzie River. This was accomplished by limiting its average BOD discharges during the low-flow season to less than 4,000 BOD/day. Fiber discharges during this period averaged between 4,000 and 5,000 #/day. The mill effluent discharges during the critical low-flow period of 1963 were on the order of 7 MGD and the minimum monthly river flow was 1,853 cfs.

In addition to regular monthly sampling runs made during each month of 1963 to collect physical and chemical data on the river, four biological surveys were made on the river below the Weyerhaeuser outfall by Sanitary Authority biologists in the period June-October, 1963. Some slime growth, but no measurable harm to bottom organisms or aquatic life, was observed prior to start-up of irrigation disposal of wastes in early June, 1963, and again in October, 1963, after irrigation had stopped.

Some degradation of the river for a distance of approximately 1½ miles below the Weyerhaeuser outfall, in the form of increased algae, some slime, odor and reduced bottom fauna, was noted by Sanitary Authority biologists in August of 1964. River conditions were reported to be like those in 1961 and 1962. Not as bad as conditions from 1949-1960; but not as good as those in 1963. Average BOD and fiber discharges during July and August of 1964 were approximately 5,000 #BOD/day and from 2,000 to 4,000 #fiber/day. Mill discharges averaged approximately 7¼ MGD and river flows averaged around 2,000 cfs.

On April 12, 1965, Mr. McEwen, Manager of Weyerhaeuser's Springfield plant, called to report that slime had begun to build up rapidly in the river and that as a remedial measure they would start immediately to irrigate their strong wastes. At that time approximately 6,500 #BOD/day was being discharged into river flows of approximately 4,000 cfs. Sanitary Authority biologists made a survey of the river below the Weyerhaeuser outfall on April 16, 1965, and reported "a proliferation of green algae growth, but no visual evidence of bacterial slime."

Through the month of June, 1965, BOD discharges were reduced, by irrigation of strong wastes, to less than 4,000 #/day and river conditions outside of the immediate influence of the Weyerhaeuser outfall were considered by the Sanitary Authority staff as generally acceptable.

In July, 1965, certain units of the new production facilities were placed in partial operation and beginning with a significant spill of black liquor to the river due to an equipment malfunction on July 18, numerous complaints of odor and river pollution were received.

Sanitary Authority biologists were not able to observe conditions resulting from the July 18 liquor spill until July 23, 1965. At that time general foaming and dark colored waste waters were observed in the stream for two miles below the Weyerhaeuser outfall.

On August 18, 1965, representatives of the Sanitary Authority and the Weyerhaeuser Company met at the Springfield mill and discussed the status of construction and start-up of the new facilities. At this meeting, the situation was reported by the company to be progressing reasonably satisfactorily and that every possible precaution was being taken to prevent further spills of strong wastes. Several residents of the area were present and complained of polluted river conditions and odors, but these conditions were attributable to the equipment malfunction and liquor spill of July 18 and problems expected to be associated with start-up of new facilities.

Company management expressed confidence in being able to reduce its waste discharges to below the nuisance causing level as per its original proposal and Sanitary Authority approval.

On September 27, 1965, Mr. Spies sent a letter to Mr. McEwen stating among other things that:

"An inspection by Sanitary Authority biologists on the preceding day (September 20, 1965) had disclosed that at the Station ½ mile below the outfall a lush growth of bacterial slime (Sphaerotilus) blanketed the stream bottom. Microscopic analysis of the material showed it to be about 50% slime, 45% wood fibers and 5% diatoms and other decayed organic debris. In back waters along the river's edge, the sloughed material in some places was as much as 4 to 6 inches deep.

At a station one mile below the mill's outfall, there was also considerable bacterial slime which was composed of 50% slime and 45% fibers. These growths caused a "cementing" of the material on the river bottom."

Mr. Spies' letter also pointed out that the Sanitary Authority staff was very much concerned about the excessive amounts of fibers contained in the downstream slime growths, and requested that adequate steps and precautions be taken immediately so that the observed pollution would be abated without delay and not be permitted to happen again.

On October 27, 1965, Mr. Edison L. Quan, Sanitary Authority biologist, made a comprehensive survey and collected samples from the McKenzie River above and below the Weyerhaeuser outfall.

His conclusions, based on chemical and biological samples and field observations, were reported as follows:

1) For several miles below the mill outfall, the bottom organic material was predominantly comprised of Sphaerotilus and wood fibers.
2) The Weyerhaeuser mill waste effluent discharged to the McKenzie River had generated a sufficient growth of Sphaerotilus on the river bottom to substantially reduce the aquatic insect populations in both variety and volume for several miles below the outfall.
3) The Weyerhaeuser mill effluent in the McKenzie River had produced foam on and odor in the water (for 7 miles) which has impaired the aesthetic qualities inherent to the river.

Mr. Quan also concluded that the above conditions were not caused by a single recent release of strong wastes, but were started and nourished over an appreciable period of time prior to the survey.

A follow-up inspection on November 17, 1965, showed that the river had risen and fallen sharply and carried away most of the slime and algae. Only trace amounts of Sphaerotilus slime were found growing on the rocks at Patrick's Orchard. On December 17, 1965, Mr. Quan conducted a second comprehensive biological survey and collected samples from the McKenzie River for the 10-mile distance between Bellinger's Boat Landing upstream of the Weyerhaeuser outfall and Coburg Bridge below the Weyerhaeuser outfall. Almost the exact polluted river conditions found in October and reported above were again found in December. Flows in the McKenzie River increased substantially toward the end of December, 1965, and have since that time provided sufficient dilution of the discharged wastes to prevent the build-up of heavy slime growths. However, odors from the river were detected by members of the Sanitary Authority staff in January and February, 1966, as far downstream as Coburg Bridge.

Waste discharges to the McKenzie River have substantially increased since the start-up of the expanded facilities in July, 1965. For the month of July, 1965, with an average production of only 352 ADT of pulp and paper per day, average waste discharges amounted to 6,180 #BOD/day and 3,680 #fiber/day.

In August, for an average daily production of 621 ADT of product the BOD and fiber discharges had risen to 10,915 #BOD/day and 11,150 #fiber/day. The mill effluent discharge had likewise more than doubled to an average daily discharge of 15.7 MG.

For September, 1965, comparative average figures were 674 ADT/day of production, 15,360 #BOD/day, 16,700 #fiber/day, and 19.9 MGD of waste waters discharged into an average river flow of 2,250 cfs.

By October, 1965, average production was approximately 750 ADT/day and BOD and fiber discharges were reduced to approximately 13,000 #/day and 7,000 #/day, respectively.

Since October, 1965, fiber discharges have been further reduced to an average discharge of approximately 3,300 #/day, but the BOD loads discharged to the river have continued to rise with increases in production. The average BOD discharge for the month of January, 1966, was reported by the company as being in excess of 19,000 #/day.

Several equipment malfunctions, start-ups and shut-downs have caused single day releases of strong wastes which considerably exceeded these average figures and which have contributed to the causing of critical conditions in the McKenzie River from the standpoint of fish and other aquatic organisms as well as nuisance conditions objectionable to people.

The discharges during the 1965 low river flow season were far above the less than 4,000 #/day of BOD that the Weyerhaeuser Company proposed to maintain during periods of low river flows, and the average BOD discharges during the high river flow months are now more than double those discharged before the mill expansion.

Stack emission data submitted to the Sanitary Authority by Weyerhaeuser shows that before the 1965 expansion the discharges from its recovery furnace and lime kiln stacks varied between 8,095 - 21,355 #/day of particulates and from 13,860 - 35,580 #/day of hydrogen sulfide and methyl mercaptan. After expansion, the combined discharges from both the old and new recovery furnace and kiln stacks were shown to vary between 11,892 - 28,522 #/day of particulates and between 20,838 - 56,528 #/day of hydrogen sulfide and methyl mercaptan. The gas volume being discharged to the atmosphere after expansion are approximately 2 2/3 the gas volume discharged before the expansion.

Forty-seven area and river surveys made by engineers of the Sanitary Authority Air Quality Control staff and staff members of the Lane County Air Quality Control District since July 16, 1965, have determined that objectionable river odor conditions have occurred on a more-or-less continuing basis since start-up of the new facilities and that an increase in the area air pollution problem in the form of increased frequency and intensity of odors, increased discharge of corrosive materials, and a widening of the area affected, has occurred.

It was expected that some difficulties would be encountered when the new facilities were placed in operation. However, the waste discharges and resulting river and area odor conditions have considerably exceeded those which were expected or should have been permitted to occur.

SUMMARY

1) After start-up of its new expanded production facilities in July 1965, the Weyerhaeuser mill at Springfield increased its BOD load to the river by 3 to 5 times over the less than 4,000 #/day which the mill previously maintained during periods of low stream flows and which the Sanitary Authority tentatively approved for discharge after start-up and break-in of the expanded facilities, and has more than doubled BOD discharges during months of high river flows as compared to such discharges prior to the expansion.

2) After start-up of the new facilities the company increased its fiber discharges to the river over that previously discharged during low flow periods by some 5 to 20 times. Maximum weekly average discharges of fiber rose to 19,300 #/day in September. (Fiber discharges had been reduced by January, 1966, to an average for the month of 3,150 #/day.)

3) Since start-up of the expanded facilities the discharge of particulates and odorous materials has increased more than 1½ times, and the volume of gaseous discharges has increased approximately 2 2/3 times that which was being discharged prior to the expansion.

4) These increased waste discharges have caused biological pollution of the McKenzie River, aesthetically unacceptable odor conditions on the river and odor nuisances in the area atmosphere.

5) These conditions have been aggravated somewhat by accidental waste discharges resulting from several equipment malfunctions and process upsets normally associated with start-up and run-in of new facilities and slightly lower than usual river flows; however, the routine or scheduled releases of wastes have, since start-up, greatly exceeded those which can be discharged without causing excessive air and water pollution problems.

INDEX

OREGON STATE SANITARY AUTHORITY
Air Quality Control
1400 S. W., Fifth Avenue
Portland 1, Oregon

ODOR SURVEY PROCEDURES

Background

The lack of suitable field equipment to describe odor nuisance conditions has encouraged the use of an odor survey procedure by the Oregon Air Pollution Authority. While these surveys are not quantitative, an effective qualitative measurement of odor intensity may be established. Referring to this odor survey method John Von Bergen has stated [1] "no other present method of analysis is capable of distinguishing between, and correctly reporting so large a variety of chemical substances, by a single operation."

Since the odor survey procedure is qualitative in nature, human variations as well as humidity, temperature or other variables do not appear to affect the correlation of numerical odor intensity data. This was partially substantiated by L. H. Beck [2] in a study of alcohols and esters. He found that, (a) subjects can make quantitative odor intensity matches which are consistent in repeated trials and (b) in broad trends the data of one subject agrees with that of another.[3]

Intensity Scale

Kerka and Kaiser, and the experts previously given, agree on the statistical correlation of the generalized subjective odor scale as follows:

#0 - No odor or no odor of the designated component.

#1 - Threshold level of the component.

#2 - Definite odor of component.

#3 - Strong odor of component.

#4 - Overpowering odor of the component.

Instructions

1. Odor surveys should not be attempted when the observer has a cold or any other physical deficiency that reduces the average sense of smell. Tobacco products should not be used for at least one hour prior to the odor observation time (tobacco decreases odor perception level of the individual.)[4]

2. Exposure to high concentrations of odor immediately before making observations should be avoided.

3. Odor survey observations should be limited to periods of good olfactory perception. High concentrations of an odor may limit survey period to 10 - 15 minutes before moving to an odor free location to recover sense of smell before resuming the observations.

4. Odor "sniffs" are made on the minute every minute. Where two "0" observations are recorded in two consecutive minutes, relocate an observation station where the odor is present and resume the survey.

5. Information such as location, suspected source, date, observer's name should be shown on the survey field report. The form should also include the location of the observing station, time, wind direction, and inversion or other weather conditions. Any changes in odor component should be noted under "Other Description."

Bibliography

1. John Von Bergen, Industrial Odor Control
Journal Air Pollution Cont. Assoc. 8, 101-03 (Aug. 1958)

2. Amos Turk, Appraisal of Odor Problems.
Air Repair 4, 3-6 (Aug. 1954)

3. L. H. Beck et. al. Observations on Olfactory Intensity. Annuals N.Y. Acad. Sci. 58, Art. 2, 225 (1954)

4. W. F. Kerka and E. R. Kaiser. An Evaluation of Environmental Odors. Golden Jubilee Meeting of APCA, June 2-6, 1957. 57-1.

REFERENCES FOR H_2S AND ORGANIC SULFIDE

THRESHOLD LEVELS AND EFFECTS FROM PUBLISHED LITERATURE

I Odor Perception Levels

Compound	Threshold	Description	References
H_2S	1-80 ppb	Rotten eggs	1 (a), 2, 7
Methyl Mercaptan	41 ppb		7
Dimethyl Sulfide	3.7-430 ppb		7
n-Propyl Mercaptan	1.6 ppb		7
Organic Sulfides (mercaptans)	0.3-40 ppb	Decayed cabbage or onion, skunk	2, 3, 7

Note: The literature on organic sulfides is scanty. Most authorities agree they are perceptible at concentrations a tenth that of H_2S.

Their odors are described as like rotten vegetables, skunk, or just unpleasant or nauseating.
Ref 1 (a) states sensitive people may detect H_2S and organic sulfides down to 1 ppb.

II Levels of Record

The best discussion is in reference 1 (c). Measurements reported there were made during a study of air pollution in the Lewiston, Idaho--Clarkston, Washington area. The measurements were specific for hydrogen sulfide, and the levels were:

0-2 ppb	70-90% of the time in commercial and restricted parts of the cities.
3-9 ppb	28% Lewiston commercial district 7% Residential district above Lewiston
$\geq$ 10 ppb	3.7% Lewiston commercial district 0.5% Residential district
The average was around	2 ppb
Daily maximum was	14.4 ppb
2-hour maximum	51 ppb

The principle source was a kraft mill about 1 mile from Lewiston, and two miles from Clarkston. The levels measured are near the low limit of published minimum odor perception levels. Unfortunately, levels of organic sulfides were not specifically measured. The levels of all odorous gases together were enough to generate vigorous complaints and eventually an official request from the Clarkston mayor for a Public Health Service study of the problem.

III Occupation Health Consideration, Toxic Effects

The American Council of Industrial Hygienists has allowed H_2S at 10 ppm for eight hours as a threshold limit concentration. This would presumably be for healthy humans who would be exposed for only eight hours per day. Obviously, levels in ambient air must be lower to prevent nuisance levels and levels injurious to the health of the very young and very old, and to people already suffering respiratory diseases.

Reference 3 has a table as follows:

H_2S ppm	Local Effects	Systemic Effects
10 ppm	Threshold	Threshold
50	Irritant to conjunctival & corneal epithelium	
50-100	Eye & respiratory tract irritation in one hour	
100-150		Slight systemic symptoms after several hours
150	Olfactory nerve paralysis	Fatal in 8-48 hours
200	Pulmonary edema after long exposure	Nervous system depression
250-350		Fatal in 4-8 hours
350-450		Fatal in 1-4 hours
500-600		Excitement, headache, dizziness, unconsciousness, death in ½-1 hr.
600-700		Rapid collapse, death in 2-15 min.
700-2000		Cessation of respiration, rapidly fatal

Note: 10 ppm, the threshold exposure, is 10,000 ppb, 200 times the maximum measured in Lewiston.

The organic sulfides are less toxic, and by factors of 20-140 (4).

IV Paint Damage

Reference 1, pp 73 and 118 states that blackening of paint by H_2S depends on several factors, the least of which is the concentration of H_2S. The concentration only affects the rate of blackening, but any concentration will, in time, blacken paint if other conditions are present. These are:

1. The paint must contain lead pigments.

2. The paint film must be wet, regardless of humidity.

IV Paint Damage (Continued)

3. The surface should be weathered (presumably discontinuous), at least not glossy.

Note that the type of lead pigment is not important, and that the blackening varies directly with the amount of lead present. (See also reference 8)

V Silver Tarnishing

Reference 1, pp 108-117, contains a description of experiments with silver tarnishing, of electroplated samples, in the Lewiston, Idaho--Clarkston, Washington area. Normal ambient temperatures in that region (monthly averages from November to April, the time of the study reported in this reference, ranged from 32 to 53°F) had practically no effect on the tarnish rate, and the critical level of humidity for silver to tarnish, if it exists at all, is very low.

A short period of high H_2S concentration can have a drastic effect on silver, tarnishing it so badly it becomes almost insensitive to lower levels. The mechanism is one of forming an almost impervious film of silver sulfide. The reference notes that an atmosphere conducive to silver tarnishing would probably be similarly conducive to accelerated corrosion of other metals and alloys, notably iron and steel.

In reference to both of the foregoing sections, the OSSA's Air Quality section has noted that where gaseous sulfide levels are high enough to be a continuing odor nuisance, (about 10 ppb) often there is also paint damage to the extent that the life of a coat of paint is decreased by a half or more, and that metal corrosion (automobile trim and even panels, metal window and door sashes) also is accelerated.

VI Standard Adopted by State Laws

Two states, New York and California, have written limits on allowable H_2S in their standards. New York (5) has set 0.10 ppm (100 ppb) for 1 hour as the ambient air quality objective. California (6) has defined these levels:

"Adverse"	"Serious"	"Emergency"
Sensory irritation possible	Alteration in bodily function, likely to lead to chronic disease.	Acute sickness, death in sensitive people.
0.1 ppm for 1 hour	5 ppm-Interfere with appetites of sensitive people. Loss of smell at 100 ppm for exposure to 15 min.	Several hundred ppm-Acute sickness and death, neurotoxicity.

References:

1. A study of Air Pollution in the Interstate Region of Lewiston Idaho and Clarkston, Washington. Public Health Service, Division of Air Pollution. 1964.

   a. Page 73, Quoting Wright, R. H., "The Reduction of Odors from Kraft Pulp Mills". Technical Bulletin #27. British Columbia Research Council, Vancouver, Canada. 1961;and others.

   b. Ibid, Page 75.

   c. Ibid, PP 74-92

2. Dudley, H. C. and J. M. Dalla-Valle. A Study of the Odors Generated in the Manufacturing of Kraft Paper. Technical Association Papers 22: 312-315, 1939.

3. American Association for the Advancement of Science. Air Conservation, 1965. Page 69.

4. Bergstrom, H. Pollution of Water and Air by Sulfate Mills. Pulp and Paper Magazine of Canada. 54: 135-140, November 1953.

5. New York State Air Pollution Control Board.

6. California Administrative Code.

7. Manufacturing Chemists Association. Air Pollution Manual, 1952. Chapter 5, pp 16-17 (Table III).

OSEH - AQC
4/13/66 - 50

Occupational Health Section
Oregon State Board of Health

Sample Study at:
Pulp & Paperboard Division
Weyerhaeuser Company
Springfield, Oregon

TABLE I

	Location	Chemical	Concentration (ppm)
1.	Top floor in old digester building.	Hydrogen Sulfide	<1[1]
		Sulfur Dioxide	<0.005[2]
		Total Mercaptans as CH_3SH	1.2[3]
2.	Outside front porch, wet-end old paper machine building.	H_2S	<1
		SO_2	<0.005
		Total Mercaptans as CH_3SH	0.04
3.	Roof of new recovery building, lower level downdraft from on dis-olving tank vent.	H_2S	<1
		SO_2	0.012
		Total Mercaptans as CH_3SH	0.07
4.	Kamyr digester building, outside control room.	H_2S	1
		SO_2	<0.005
		Total Mercaptans as CH_3SH	2.08
5.	Seventh floor platform (in open) facing old recovery furnace stack at old recovery furnace building.	H_2S	<1
		SO_2	<0.01
		Total Mercaptans as CH_3SH	0.07

1. Unico Kitagawa indicator tube; interferences - SO_2 and mercaptans; variation 20% (Air Samoling Instruments, ACGIH, B-7-7).

2. Midget Impinger collection variation 5% using West & Gaeke, Anal. Chem. 28, 1816 - 19, Dec. 1956.

3. Frit bubbler collection; Moore, H. et. al., AIHA 21, 466-470, Dec. 1960; variation 3-7%.

RRO/cjg

Division of Preventive Medical Services
OCCUPATIONAL HEALTH SECTION

OREGON STATE BOARD OF HEALTH

OFFICE REPORT OF OCCUPATIONAL HEALTH SERVICE

Date of Report March 31, 1966

Name of Employment Place Weyerhaeuser Company, Pulp & Paperboard Division

Address P.O. Box 275, Springfield, Oregon 97477

Date Visited March 10, 11, 1966 by Darrel D. Douglas and Ronald E. Ott

Persons Seen: Mr. McEwen, Branch Manager; Mr. Lennard, Chemical Engineer; Dr. McGill

Insurance Carrier: SIAC____ Other x (Specify) Self insured

Visit Basis: Self-initiated____ Request by St. Hlt. Officer O.D. Rep.___ Revisit___ Other___

Nature of Health Problem Potential chemical exposure to toxic gases

Total Persons Employed 380 Number Involved & Location 365 men on 4 shifts, 15 women

Type of Service Given General occupational health survey and technical study.

Schedule For Followup: No____ Yes x Date

NARRATIVE:

A kraft pulp mill of this type may be essentially divided into wood chip digestion, into pulp and paper, and, chemical recovery. In the initial production of pulp, approximately 90% Douglas Fir chips are fed from their four chip silos at either their old digester building or to their Kamyr continuous digester. There are seven batch digesters with capacities varying from 32 to 38 tons chip capacity each, at the old digester building. Recycled white liquor and dilute black liquor are added prior to closure and subsequent digestion of each batch. Two blow tanks are used in conjunction with these digesters. At their new continuous digester, chips with white liquor and dilute black liquor are continuously added to the top of the tall digester where they subsequently flow downward as they digest in the upper portion and the pulp is initially washed in the lower portion of the digester. The digester continuously blows through its one blow tank. Lines from the old digester building blow tanks and the new blow tank both connect to the gas accumulator and heat exchanger units where condensable vapor is condensed and the noncondensable vapor sent to the vaposphere located on the roof of the old digester building. Noncondensable gases from the vaposphere are continuously fed to any one of their three kilns. Their #3 kiln is the new kiln.

From the old digester blowdown tanks the pulp subsequently passes through four vacuum pulp washers where the pulp on the initial drum is washed using black liquor. After washing the pulp, chemical additives including alum, clay, wet strength resin, sulfuric acid, dyes and imported repulped pulp are added as necessary prior to being fed to the two higher density machines on paper #1. From the Kamyr digester the pulp is sent through two barimetric-type washers, repulp and chemical additive tanks and finally to the one high density tank prior to being run through paper machine #2. The capacity of the old and new paper machines are approximately 400 and 700 tons per day of paper respectively. A turpentine recovery system is used at the Kamyr digester.

Copies to:
SIAC x
LHD ____
OTHER ~~x~~ Lane County Health Department

Air Quality Cont'd

OH-20A 9/55

Black liquor from vacuum washers near the old digestors passes through their old black liquor tower and three sets of seven multiple evaporators prior to being burned in their two black liquor recovery furnaces. The capacity of these furnaces is approximately 150 air dried tons each. The air discharged from each furnace passes through a Cottrell electrostatic precipitator prior to being discharged from the company's old tall stack. Two Bergstrom towers are used to strip the malodorous gas (primarily believed to be butyl mercaptan) from the gas accumulator and multiple effect evaporators. The gas effluent from the Bergstrom towers pass directly into the base of the old tall stack.

Spent black liquor from the first stage wash at the new digester passes through their oxidation tower, through one set of eight multiple effective evaporators and finally to their 900 air dried ton capacity black liquor recovery furnace. The gas passes through the Koppers electrostatic precipitator prior to being discharged into the atmosphere through an indused draft stack.

The result of the reaction in each of the recovery furnaces produces green liquor which is primarily a combination of sodium carbonate and sodium sulfide. These are subsequently reacted with lime to form caustic (sodium hydroxide) and calcium carbonate. The calcium carbonate is reduced to calcium oxide again in their kilns. Each of their three kilns has a scrubber where the extent of mal-odor removal is a function of the pH of the white water used in these scrubbers. According to Mr. Lennard, any sulfur dioxide in the kilns would originate from the burning of lime mud and the extent of its subsequent release would depend upon the pH of the scrubber water.

Medical & Sanitation

The firm provides preplacement physical examinations. Their staff physician is Dr. Arne Jenson. Two day nurses are employed and one male nurse is employed on the swing shift.

A first aid kit is located at every work area in the plant according to Mr. Lennard.

An evaluation of all restroom facilities at the plant showed them to be adequate in number, however, the men's kiln restroom was noted to need cleaning; also the paper machine #1 and old recover furnace men's restroom were both noted to need cleaning or painting and the water removed from the floor.

Rainbow district city water is used for drinking water and city sewers are used for waste disposal.

No lunchroom as such is used for the men in this division.

Potential Chemical Exposure

Tests were taken using Kitagawa indicator tubes for sulfur dioxide and hydrogen sulfide at the following areas: top floor of old digestor building; roof of the new recovery building on lower level adjacent to the east dissolving tank stack; outside front porch on the wet end of the old paper machine; Kamyr digester control room area; and in the open atmosphere on a seventh floor platform in the old recovery building facing the old stack. Concentrations of chemicals found in all cases except one showed negligible sulfur dioxide and hydrogen

sulfide concentrations. The one exception was approximately one ppm hydrogen sulfide found at the Kamyr digester.

Samples were collected using impingers for collection of mercaptans and sulfur dioxide at the locations previously described for subsequent analysis by the Air Quality Control Section.

Evaluation of unknown odors in the vicinity of the turpentine recovery unit at the Kamyr tower may be investigated using University of Washington's Infra-Red Spectrophotometer and Mass Spectrophotometer as necessary.

Based upon the concentrations of sulfur dioxide, hydrogen sulfide, and mercaptan as hydrogen sulfide, found using the indicator tubes together with odors observed and an in plant process survey, no health hazard is believed to be present from inhalation of either chemical vapors or gases at this plant.

Noise Study

The results of noise studies taken at both their old and new paper machines are attached to the letter to the firm. Requirements and recommendations are given in the letter.

RRO/cjg

S-5A 5/49

Office Memorandum • OREGON STATE BOARD OF HEALTH

To : Dr. Sullivan Date: April 1, 1966

From : Ronald E. Ott and Darrel D. Douglas

Subject: Weyerhaeuser Company, Pulp & Paperboard Division
Springfield, Oregon

An occupational health engineering survey was made at the above plant on March 10 and 11, 1966. The entire plant was evaluated to determine if there were vapors, fumes, or mists generated in the plant which could result in a health hazard to the employees. Where it was considered necessary or pertinent, air samples were taken to determine the concentration of material in the atmosphere. Based upon the engineering survey and the results of the field tests, it could be stated that no gases, fumes, or mists were found in concentrations which would constitute a health hazard to employees.

Because of the air pollution questions which have arisen concerning this plant and its relations with the community, we would like to relate certain observations noted during the survey which, although not significant to occupational health questions, may be pertinent to air pollution problems.

1. Based upon past experience, our survey of the paper making process, and discussions with the mill engineering staff, it is our opinion that mercaptans constitute the greatest possible source of malodor in communities located downwind from the mill. While the total amount of malodorous material emitted may be small, it should be remembered that meteorological concentrations will, at times, tend to concentrate their odors at the base of the foothills. This is particularly true during the evening hours.

2. Hydrogen sulfide and methyl mercaptan from the two recovery furnace stacks are probably the primary source of lead base paint darkening, but not necessarily the prime source of the malodorous intensity. The major source of malodorous material from the new recovery furnace stack at the present time is due to underdesign of the new black liquor oxidation tower. The design criteria used to figure the oxidation capacity for this tower did not consider a factor involved in oxidation at the old plant. The company realized this shortly after the new plant started in operation and efforts were immediately made to construct a new black liquor oxidation tower. It is understood that this new tower should be in operation in August of this year. The black liquor oxidation apparatus at the old recovery furnace is considered adequate and should require no change.

3. One of the highest intensity sources of nuisance malodor could be the mercaptans, particularly butyl mercaptan originating at the old and new multiple effect evaporators. Condensing vapors at these evaporators concentrate in what are known as "hot wells" and escape into the atmosphere here. Also, malodors are stripped from liquor at their old "hot wells" in Bergstrom towers and through their old tall stack (Bergstrom towers originally installed as water pollution control device).

4. Another potential source of hydrogen sulfide and mercaptan is the lime kiln. In this case the amount of malodors that are released to the

atmosphere will vary depending upon the pH of the process wash water used to scrub the gases emitted from the lime kilns. As the water stays or increases in caustic strength, the amount of malodorous material released will decrease.

5. Hydrogen sulfide and mercaptan malodors also appear to come from process leaks from the new Kamyr processing units.

HWD/ajc

S-5A 5/49

Office Memorandum • OREGON STATE BOARD OF HEALTH

To : Weyerhaeuser File Date: April 1, 1966

From : Ronald R. Ott and Darrel D. Douglas

Subject: Weyerhaeuser Company, Pulp and Paperboard Division, Springfield, Oregon

An occupational health engineering survey was made at the above cited mill on March 10 and 11, 1966. Based upon an evaluation of the field tests and process information obtained, concentrations of sulfurous gases were not found to approach levels known to constitute health hazards to employees by inhalation. Additional in-plant atmospheric samples were collected for subsequent analyses for mercaptans and sulfur dioxide by the Air Quality Control Section, Division of Sanitation and Engineering.

Based upon past experience on process survey and discussions with the mill engineering staff it is our opinion that mercaptans constitute the greatest possible chemical source of mal-odor in communities some distance downwind from the mill. Also, meteorological conditions may at times tend to concentrate the mal-odors at the base of the foot hills. This particularly true during the evening hours.

Insofar as the overall contribution to air pollution, hydrogen sulfide and methyl mercaption from the two recovery furnace stacks would be the primary source of lead base paint darkening potential, although not necessarily a prime source of mal-odor intensity. It is our understanding that the black liquor oxidation equipment at the old recovery furnace is adequate; however, the oxidation tower at the new furnace was designed on the basis of oxidation capacity at their old furnaces. Once the new design was in operation the company learned that the oxidation capacity of their new tower had not taken into account the black liquor oxidation by the old initial vacuum drum pulp washer in contrast to their non-oxidizing new barometric-leg initial drum pulp washer. Black liquor is used to wash pulp on the initial drum of washers. It is understood that a new black liquor oxidation tower should be constructed and in operation by August of this year.

Another potential source of hydrogen sulfide and mercaptan is their lime kilns where the release of mal-odors to the atmosphere is a function of the causticity of the white water used in the kilns pre-stack scrubbers. The mal-odors would primarily originate from the mud being burned with negligible amounts of mal-odors originating from oxidized non-condensible gases originating at the vapor-sphere (from all digesters).

In general hydrogen sulfide and mercaptan mal-odors are also believed to originate from process leaks at the new Kamyr continuous digester. Mercaptan, in particular noxious butyl mercaptan, can be emitted at the steam vacuum ejector leg side (all multiple effect evaporators) through the hot wells into the atmosphere. Hot well condensates from the old multiple effect evaporators are currently being stripped of mal-odorous gases (primarily believed to be butyl mercaptan) in the two Bergstrom towers prior to release into the atmosphere through the company's old tall stack.

RRO:mh

cc Air Quality Control

S-SA 5/49

Office Memorandum •

OREGON STATE BOARD OF HEALTH

To : Weyerhaeuser, Springfield file

Date: April 6, 1966

From : Ronald R. Ott

Subject: Mine Safety Appliance & Kitagawa Indicator Tube Calibration

Actual Static Concentration (Parts Per Million - Volume)	MSA	Kitagawa
20	10	10
10	5	8
5	3	4
1	1	1

The indicator tube calibrations were performed using dilution of Matheson laboratory test H_2S gas in the occupational health "Scotchpak" calibration bag. Results showed at least 50% variation from actual concentrations above 10 parts per million for both types of indicator tubes to approaching less than 20% at one part per million for the Kitagawa.

The MSA H_2S tube can be accurately interpreted down to one part per million. A zero reading on the MSA H_2S tube, following MSA instructions, would mean one part per million or less as hydrogen sulfide.

RRO/ejg

cc Air Quality Control

Jim Patterson

FORM S-27

OREGON STATE BOARD OF HEALTH
STATE OFFICE BUILDING
1400 S. W. 5TH AVENUE
PORTLAND, OREGON 97201

TELEPHONE:
AREA CODE 503
DAYS—226-2161
AFTER HOURS—222-1500

MAILING ADDRESS:
P. O. BOX 231
PORTLAND, OREGON 97207

Mr. J. M. McEwen
Branch Manager
Pulp & Paperboard Division
Weyerhaeuser Company
P.O. Box 75
Springfield, Oregon 97477

Dear Mr. McEwen:

We are submitting a supplemental report to the letter submitted to you on March 31, 1966. This report includes the in-plant sample data just recently completed by the State Board of Health laboratories.

As you will note in Table I, chemical constituents sampled at locations as described included hydrogen sulfide, sulfur dioxide, and total mercaptans.

Based upon the engineering survey and these sample results, it can be stated that no gases, fumes, or mists were found in concentrations which would constitute a health hazard to employees.

Sincerely,

Ralph L. Sullivan, M.D.
Director
Occupational Health Section

RLS/bjz

Enclosure

cc Dr. Hobill
Air Quality Control

COPY

AIR POLLUTION AUTHORITY

OREGON STATE BOARD OF HEALTH

LABORATORY REPORT

Sample Number 19989--19994 Date Received _____

Source of Sample Weyerhauser Co. Springfield, Oregon-Plant Area

Trade Name or Type of Sample Impinger (Fritted glass bubbler)

Analyzed for Total Mercaptans, expressed as Methyl Mercaptan

Method used "A Spectrophotometric Method for the Determination of Mercaptans in Air" Industrial Hygiene Journal December 1960

Results of Analysis

Lab. No. AQCOSBH	Station Location	Date	Time	Air Volume Liters	PPM Mercaptan as CH_3SH
19989	Blank				
19990	Top floor, old Digester Bldg.	3-11-66	1107-1123	38.4	1.2
19991	Outside front porch, wet-end old paper machine	3-11-66	1344-1409	13.8	0.04
19992	Roof of new recovery bldg, lower level-down draft from one dis. tank vent stach.	3-11-66	1256-1316	22.0	0.07
19993	Kamyr digester bldg. outside control room	3-11-66	1421-1443	52.3	2.08
19994	7th flr. platform facing old recovery furnace stack at old recovery bldg.	3-11-66	1506-1530	40.3	0.07

Remarks: _____

Date completed April 1, 1966 Date reported April 4, 1966

L. B. Lacy
Chemist

R. B. P.

AIR POLLUTION AUTHORITY
OREGON STATE BOARD OF HEALTH

LABORATORY REPORT

Sample Number 19785 to 19789 Date Received

Source of Sample Weyerhauser Co. Pulp & Paperboard Division
Occupational Health Section-Springfield, Oreg. Samples from inplant area.

Trade Name or Type of Sample Impinger

Analyzed for SO_2 Sulfur Dioxide

Method used West Method (P-rosaniline hydrochloride)

Results of Analysis

3-11-66

AQC Lab. No.	Location Collected	Time Collected	PPM SO_2
19785	Top floor old digester bldg.	1112 to 1123	0.0
19786	Roof of new recovery bldg. lower level *	1301 to 1311	0.012
19787	Outside front porch, wet end old paper machine	1350 to 1400	0.0
19788	Kamyr digester bldg. outside control room	1431 to 1441	0.0
19789	7th floor platform facing old recovery furnace stack at old recovery bldg.	1510 to 1520	Trace (<0.01)

Remarks: * Sample No. 19786 In down draft from one dissolving tank vent stack.

Date completed March 24, 1966

Date reported March 24, 1966

Robert B. Percy
Chemist

Robert B. Percy, Air Quality Control Sec.

S-5A 5/49

Office Memorandum

OREGON STATE BOARD OF HEALTH

To : E. J. Weathersbee & H. M. Patterson Date: March 30, 1966

From : C. A. Ayer

Subject: AP-7 Springfield, Weyerhaeuser

I compared my calculations with Jim Leonard's on H_2S, MM, and Total Solids. We compared maximum values, and agreed on these numbers (within less than 1%):

CATAGORY & SOURCE	GAS FLOW	EFFLUENT, LB/DAY	TOTALS
Old Recovery Furnace	174,000 cfm @ 270°F		
H_2S	114 ppm	1020 lb/day	
MM	57 ppm	1290 lb/day	3110 lb/day
New Recovery Furnace	300,000 cfm at 305°F		
H_2S	86 ppm	2250 lb/day	
MM	22 ppm	814 lb/day	3064
Old Lime Kiln	36,500 cfm @ 158°F		
H_2S	16 ppm	63 lb/day	
MM	30 ppm	167 lb/day	230
New Lime Kiln	59,700 cfm @ 167°F		
H_2S	13.7 ppm	87 lb/day	
MM	8.0 ppm	72 lb/day	159
Grand Total, Maximum Odorous Material, lb/day			6563 lb/day

Total Solids, Maximum Amounts

New Recovery Furnace	0.107 grains/ft^3	6670 lb/day	
Old Recovery Furnace	0. 55	19950	See Note
New Lime Kiln	0. 04	1497	
Old Lime Kiln	0. 19	1420	28537 lb/day

Note: The 19,950 lb/day for the Old Recovery Furnace has been reduced, although Mr. Leonard did not say by how much. When asked if that represented the figure for the furnace while it was overloaded, he replied, "Something like that", but did not elaborate further.

/ph

S-5A 5/49

Office Memorandum

OREGON STATE BOARD OF HEALTH

To : E. J. Weathersbee & H. M. Patterson Date: March 30, 1966

From : C. A. Ayer CA

Subject: AP-7 Springfield, Weyerhaeuser

Here are corrected emission data from Weyerhaeuser's February 11, 1966 letter, broken down by source and comparing before and after start-up values.

CATAGORY & SOURCE	BEFORE START-UP	AFTER START-UP	INCREASE
Total Solids, lb/day			
Old Recovery Furnace	6690 - 19950 lb/day	6690 - 19950 lb/day	
New Recovery Furnace		3300 - 6670	
Total	6600 - 19950 lb/day	9990--26620 lb/day	
Old Lime Kiln	1405 lb/day	1405 lb/day	
New Lime Kiln		497	
Total	1405 lb/day	1902 lb/day	
Total Solids, Furnaces & Kilns	8095 - 21355 lb/day	11892 - 28522 lb/day	1⅓ - 1½ times
Odorous Material (Hydrogen Sulfide and Methyl Mercaptan) lb/day			
Old Recovery Furnace	1313 - 3910 lb/day	1144 - 3110 lb/day	
New Recovery Furnace		1180 - 3064	
Total	1313 - 3910 lb/day	2324 - 6174 lb/day	
Old Lime Kiln	342 lb/day	27 - 230 lb/day	
New Lime Kiln		158	
Total	342 lb/day	185 - 388 lb/day	
Total Odorous Furnaces & Kilns	1655 - 4252 lb/day	2509 - 6563 lb/day	1½ times
Water Vapor (Calculated as Liquid Water) gal/day			
Old Recovery Furnace	253,000 - 288,000 gal/day	253,000 - 288,000 gal/day	
New Recovery Furnace9		360,000 - 416,000	
Total	253,000 - 288,000 gal/day	613,000 - 704,000 gal/day	
Old Lime Kiln	80,300 gal/day	80,300 gal/day	
New Lime Kiln		149,000	
Total	80,300 gal/day	299,300 gal/day	
Total Furnaces & Kilns	333,300 - 356,300 gal/day	842,300 - 933,300 gal/day	2½ times

CATAGORY & SOURCE	BEFORE START-UP	AFTER START-UP	INCREASE
Gas Volumes, ft^3/min at 60° F			
Old Recovery Furnace	110,000 - 125,000 cfm	110,000 - 125,000 cfm	
New Recovery Furnace		178,000 - 205,000	
Total	110,000 - 125,000 cfm	188,000 - 330,000 cfm	
Old Lime Kiln	30,700 cfm	30,700 cfm	
New Lime Kiln		80,200	
Total	30,700 cfm	110,900 cfm	
Total Furnaces & Kilns	140,700 - 155,700 cfm	389,900 - 440,900 cfm	2 2/3

Weyerhaeuser Company
Pulp and Paperboard Division

Springfield Branch
Springfield, Oregon 97477

February 11, 1966

Oregon State Sanitary Authority
P.O. Box 231
Portland, Oregon 97207

Attention: Mr. Ely J. Weathersbee
Deputy State Sanitary Engineer

Gentlemen:

This is in reply to your letter of February 3 requesting information and materials on our proposals for air and water protection. The following numbered paragraphs correspond with the numbered requests made in your letter.

(1) A revised flow sheet and a load chart are enclosed.

(2) We have retained the Cornell, Howland, Hayes & Merryfield engineering organization of Corvallis, Oregon, to prepare the engineering plans and specifications. They advise us that these will be available by March 26.

(3) Emission data for the recovery and kiln stacks for expansion conditions is enclosed.

(4) Air pollution should be significantly reduced by the installation of an oxidation system substantially larger than the one presently in operation for the new mill. Equipment delivery is the limiting factor for installation. The unit is scheduled to be in full operation on August 1, 1966. It should be in partial operation and improve our present system on June 1, 1966. Drawings presently available are enclosed.

The proposed pond location is in an area zoned for heavy industry. There are only a few dwellings near this area. There are also dwellings near the available alternate sites. A log pond and operating industries help to separate the proposed pond site from dwellings in the area. The pond would be located as far as possible from existing dwellings along 42nd Street.

You made a telephone request for an estimate of the maximum capability of our proposed system. Our load chart gives an estimated 3760 lbs. of BOD per day for the final effluent to the river. We cannot prudently project any less load for our operation even though we feel the estimates are conservative. As you know, the projected load of less than 4 lbs. of BOD per ton of pulp produced is an extremely low value.

Very truly yours,

J. M. McEwen
Branch Manager

JMM:bh
Encls.

cc: Mr. H. W. Merryman

Interoffice Communication

Weyerhaeuser Company
Pulp and Paperboard Division

Date February 10, 1966

Location Springfield

Subject Emission Data for Oregon State Sanitary Authority

To Mr. Oliver Morgan

From Mr. J. S. Leonard

The following data are representative of the emission effluents from the recovery stacks in early 1966:

	Old Recovery		New Recovery	
	Pre-Startup	Early 1966		
*Total Solids (grains/ft.^{3})	0.21 - 0.55	0.21 - 0.55	0.061	0.107
Na^+ as Na_2SO_4(grains/ft.^{3})	0.19 - 0.50	0.19 - 0.50	0.056	0.097
Ca^{++} as CaO (grains/ft.^{3})	None		None	
Bromine Demand (Mg/ft.^{3})	26 - 58	26 - 58	22 - 26	
Hydrogen Sulfide (ppm)	63 -163	44 -114	39 - 86	
Methyl Mercaptan (ppm)	21 - 57	21 - 57	9 - 22	
Exit Temperature ° F.	250°-270°	250°-270°	292°-305°	
Exit Velocity (fps)	51 - 58	51 - 58	38 - 45	
Stack Flow (cfm)	153,000-174,000	153,000-174,000	260,000-300,000	
% H_2O	28	28	28	

FOR T REPORT FEB. 16, THESE TAKEN A MINIMA

MAXIMA MAY NOT BE CORRECTLY TRUE.

(*All data given at stack conditions)

The higher figures for solids loading on the old recovery than those previously submitted are a result of improved sampling techniques. The new figures are considered accurate assessments of the values both before and after start-up. The sample point is now in a better location and an improved sample device is being used.

The following data are representative of emission effluents from the lime kiln stacks:

	Old Lime Kiln Stacks		New-Lime-Kiln Stack
	Before Start-Up	Early 1966	
*Total Solids (grains/ft.^{3})	0.19	0.19	0.04
Na^+ as Na_2SO_4(grains/ft.^{3})	0.15	0.15	0.03
Ca^{++} as CaO (grains/ft.^{3})	0.035	0.035	0.01
Bromine Demand (Mg/ft.^{3})	19.0	6 - 10	4.5
Hydrogen Sulfide (ppm)	43	(4.0 - 16.0)	13.7
Methyl Mercaptan (ppm)	31	(2.0 - 30.0)	8.0
Exit Temperature ° F.	158°	158°	167°
Exit Velocity (fps)	21.6	21.6	35
Stack Flow (cfm)	36,500	36,500	59,700
% H_2O	32	32	37

(*All data given at stack conditions)

Certain improvements in the wet end scrubbers of the old lime kilns have led to a reduced malodor emission from these sources.

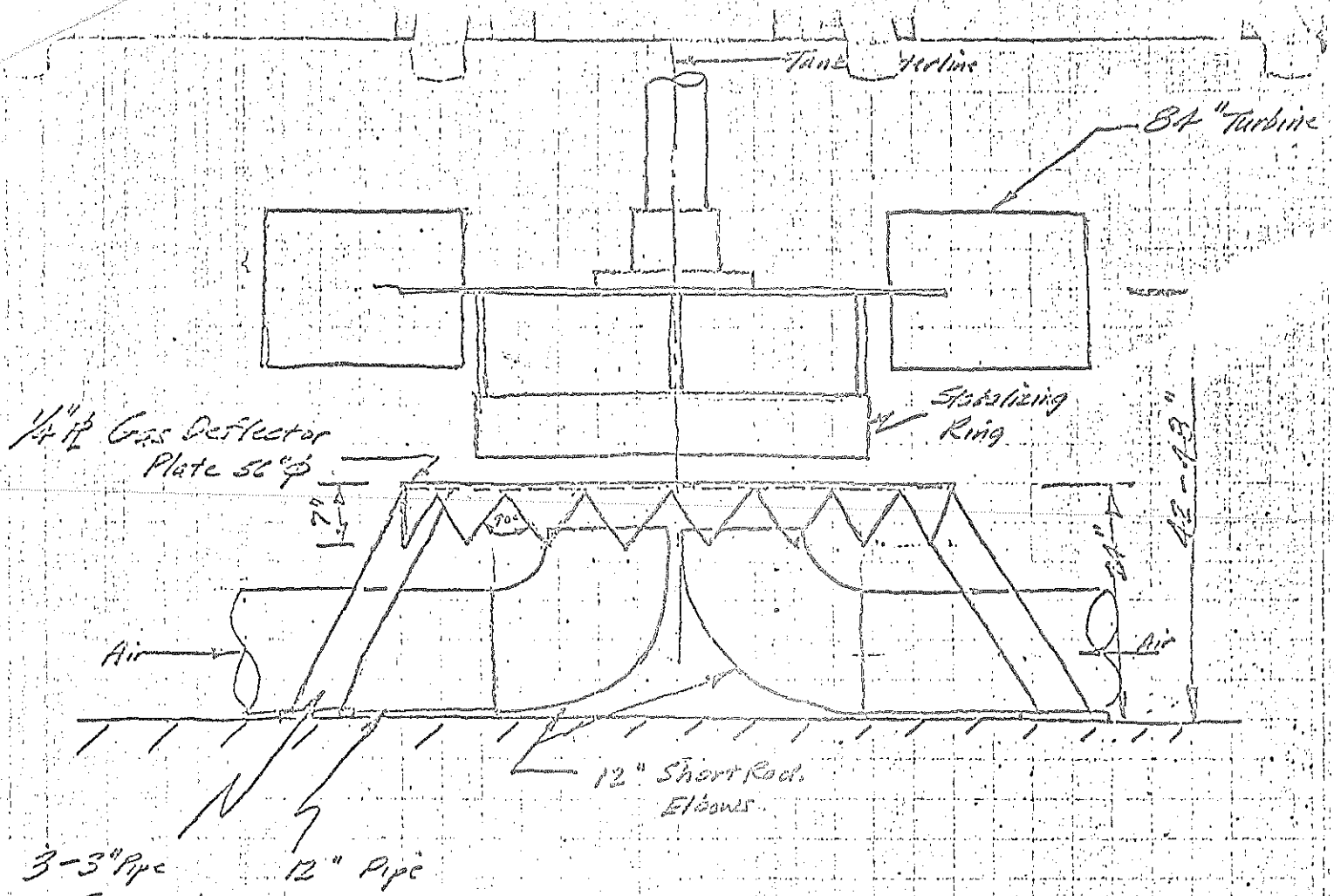
J S Leonard Jr.

J. S. Leonard

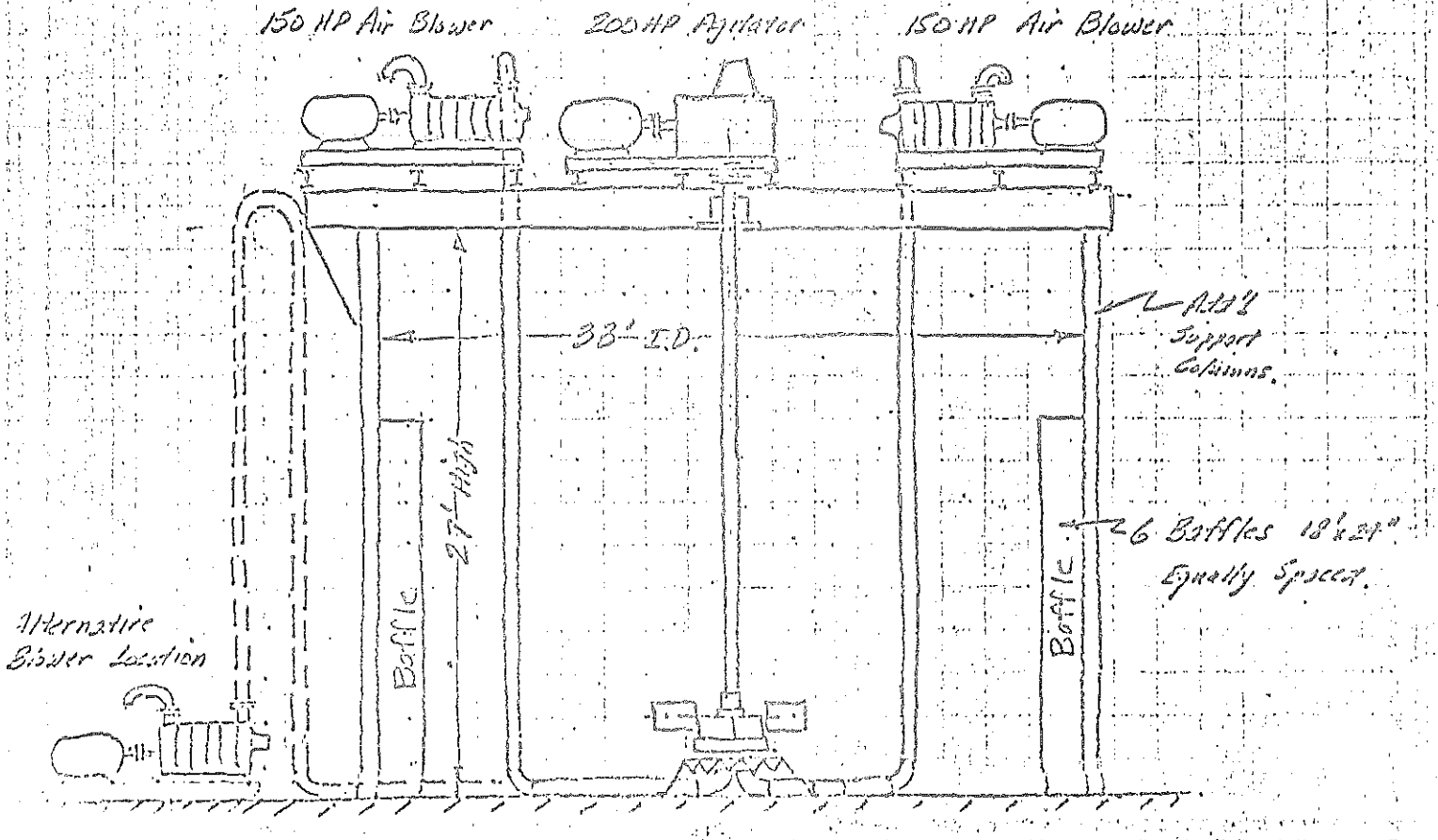
JSL:mn

OXIDATION TANK CONSTRUCTION SCHEDULE

Order agitators, defoamers and blowers ----	1-18-66
Order Motors ----------	1-28-66
Order Pumps ----------	2-15-66
Order Instrumentation ----------	2-18-66
Break ground for Foundations ----------	2-21-66
Order Tank ----------	3- 1-66
Install Piping ----------	3-15-66
Complete Foundation ----------	3-31-66
Start Construction of Tank (on site) ------	4- 1-66
Start Wiring ----------	4- 5-66
Complete Tank ----------	4-29-66
Install Blowers and Defoamers completed ---	5-20-66
Primary Start-Up - 90% complete ----------	5-30-66
Receive 200 HP Drive Gear ----------	6-30-66
Complete ----------	7-30-66

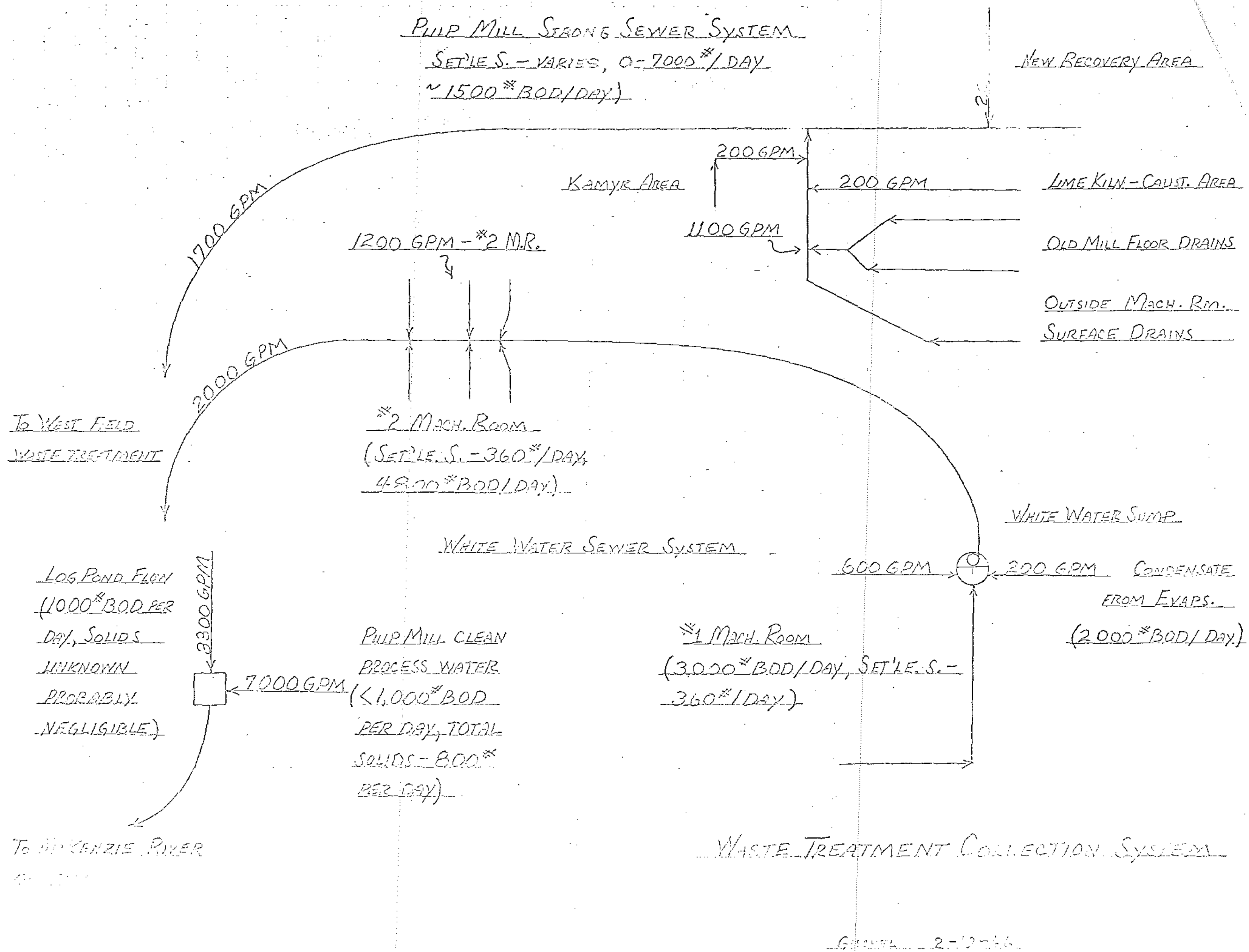


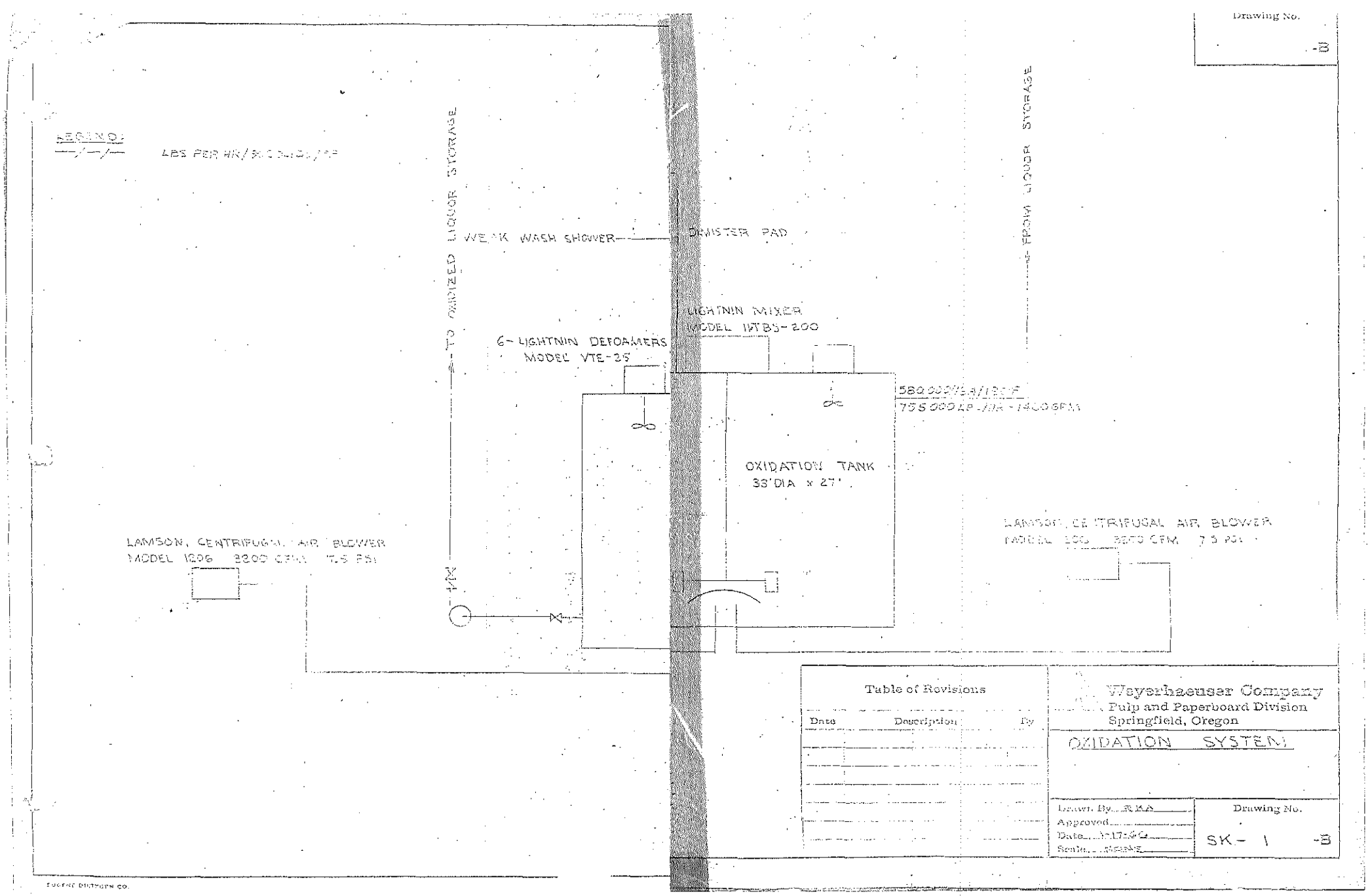
GAS INLET PIPING & DEFLECTOR



LOAD CHART

	Flow - GPM			BOD - Lbs./Day		
	Past	Actual	Predicted	Past	Actual	Predicted
No. 1 Sump	4800	6300	5050	5800	5800	400
No. 1 Machine White Water	800	600	600	4500	3000	3000
Evaporator Condensate	-	250	250	-	2000	2000
Hot Well	-	400	400	-	400	0
No. 2 Machine Sewer Flow	2700	2700	1500	5400	5400	600
No. 2 Machine White Water	1200	1200	1200	4800	4800	4800
Retention Pond	3000	1500	1500	2300	1500	1500
Log Pond	3300	3300	3300	1000	1000	500
Load Untreated						1500
20% of Treated Loading						2260
Total Load to Sewer						3760


PULP MILL STRONG SEWER SYSTEM
SET'LE S. - VARIES, 0-7000 #/DAY
~1500 # BOD/DAY)
NEW RECOVERY AREA
200 GPM
KAMYR AREA
200 GPM
LIME KILN - CAUST. AREA
1100 GPM
OLD MILL FLOOR DRAINS
OUTSIDE MACH. RM.
SURFACE DRAINS
1700 GPM
1200 GPM - #2 M.R.
2000 GPM
TO WEST FIELD
WASTE TREATMENT
#2 MACH. ROOM
(SET'LE S. - 360 #/DAY,
4800 # BOD/DAY)
WHITE WATER SUMP
WHITE WATER SEWER SYSTEM
600 GPM
200 GPM
CONDENSATE
FROM EVAPS.
(2000 # BOD/DAY)
LOG POND FLOW
(1000 # BOD PER
DAY, SOLIDS
UNKNOWN
PROBABLY
NEGLIGIBLE)
3300 GPM
PULP MILL CLEAN
PROCESS WATER
(<1,000 # BOD
PER DAY, TOTAL
SOLIDS - 800 #
PER DAY)
7000 GPM
#1 MACH. ROOM
(3000 # BOD/DAY, SET'LE S. -
360 #/DAY)
TO MCKENZIE RIVER
WASTE TREATMENT COLLECTION SYSTEM



Drawing No.

-B

Table of Revisions		
Date	Description	By

Weyerhaeuser Company
Pulp and Paperboard Division
Springfield, Oregon

OXIDATION SYSTEM

Drawn By RKA
Approved
Date
Scale

Drawing No.
SK- 1 -B

EUGENE BLUEPRINT CO.

SUMMARY

ODOR SURVEYS

1. A statistical analysis of the down wind odor data showed a statistically significant difference between the mean of the pre-expansion observations and the mean of the post-expansion observations at the p=0.05 level of significance (95% confidence level).

   Qualifications of data used include effects of time of day, day of week, location of sample, and the control of differences between samplers.

2. During steady wind conditions (of speed and direction) the mill odor seems to occur in a narrow band, and was usually smelled only at the sample stations beneath or very near the plume.

3. Although no #4, "Overpowering odor of the component" value was recorded, one check odor survey with two other observers showed that much of the odor data may have been collected at a ~~lower limit of~~ lesser sensitivity.

4. Although the odor surveys detected odor only in the down wind direction from the mill, wind direction data shows some variable winds with interesperced calms. It is not known to what extent these meteorological conditions produce odors simultaneously at numerous survey points although odor may have been recorded at only one point.

5. These odor surveys produced only limited "numerical" data but the data does verify the numerous citizen complaints.

6. Steady evening and night winds caused mill odors to be detected from 7 to 20 miles from the mill.

7. Insufficient "extent of odor" or "area of odor spread" for specific meteorological conditions was collected but the limited amount collected does agree in a general way with citizen complaints.

Weyerhaeuser - Springfield
April 11, 1966

Summary of Odor Data

Background:

Odor surveys are conducted following procedures outlined in the Sanitary Authority staff field manual titled, "Odor Survey Procedures". These procedures use a numerical rating of the intensity of the odor observed as follows:

0 - Imperceptible
1 - Threshold, or just detectable
2 - Distinct and definite odor
3 - Strong enough to attempt avoidance
4 - Overpowering and intolerable for any length of time.

References and experience have indicated that odor intensities vary logarithmically with concentration of the malodor, that is, an increase of almost ten times in concentration is necessary to perceive a change from one intensity level to another, i.e., intensity Number 1 to intensity Number 2. On this basis an odor monitoring survey was adopted using a fixed course random sampling procedure to determine frequency and intensity of odors. Consideration was also given to the subjective attitude relative to odor complaints, that is, the complainant and public are not so concerned of the intensity of an unpleasant odor as that the unpleasant odor is present at all. Of the 11 stations established, a predominate number (8) were located in residential complaint areas westerly and southwesterly of the plant. During winds prevailing from the southwest, as occur in winter months, lower odor intensity values would be expected at the established stations.

Downwind Odor Surveys

Odor surveys conducted on October 1 and 2, 1959, downwind of the plant at five stations varying from 2,800 ft. to approximately 4½ miles from the source gave the following intensity values. Of 101 observations, 48.5% were classified as 0; 47.5% as Number 1; and 4% as Number 2.

Between August 1964 and March 1965 a total of 21 odor surveys were conducted downwind of the plant. Of the 126 single determinations, 13% were classified as 0; 53% were classified as Number 1; 32% were classified as Number 2; and 2% were classified as Number 3.

Between August 1965 and April 5, 1966, a total of 23 odor surveys were conducted downwind of the plant where data was recorded on odor levels directly under the plume. Of the 163 single determinations, 24% were classified as Number 0; 19% were classified as Number 1; 28.0% were classified as Number 2; and 29% were classified as Number 3.

Odor Surveys July 1965 to February 1966

Forty-seven surveys were conducted from July 16, 1965 through February 7, 1966 and 1,975 odor observations were made. On 40 of the 47 odor surveys, odor intensities of threshold or stronger were recorded and 15.7% of the total observations were recorded as threshold or above in intensity. On 31 of the 47 surveys, odor intensities of Number 2 or "definite odor" of the component was observed. On 16 of the 47 surveys, the odor intensity was observed as Number 3 or "strong odor".

The results of the surveys made away from the prevailing wind directions and the increased receipt of complaints show that odors may more generally prevade the total area than previously.

A graph of the index of "odor intensity per observation" has a downward trend of odor levels from July to November 1965. Since July of 1965 the fluctuations are believed indicative of wind changes (meteorological conditions) and plant operations.

~~The highest values were obtained during July, August, and September when the predominant wind directions were from the mill toward the sample stations.~~

~~The lowest values were obtained during October and November when the predominant wind directions were not from the mill toward the sample stations.~~

Odor determinations were made in the McKenzie River at the boat ramp of Armitage State Park approximately 7½ miles downstream from the plant outfall. Of the 21 odor surveys made since August 27, 1965, 9 surveys showed an odor was present in the water at the state park. An odor was not noticeable some distance back from the river bank but the odor could be detected between October 13, 1965 and January 1966.

~~It is a common occurrence to smell~~ The mill odor has been smelled 12 miles from the mill near the Eugene airport with gentle evening east winds. The mill odor was also smelled as far away as 20 and 27 miles north along Interstate Route 5 near the Brownsville overpass under south wind conditions. The mill odor was also relatively strong near the intersection of the Coburg and Old Mohawk Roads approximately three airline miles north of the plant with a gentle south wind.

Odor Surveys March 1966 to April 1966

Fourteen surveys were conducted from March 4, 1966 through April 5, 1966 and 542 odor observations were made. On 13 of the 14 odor surveys, odor intensities of "threshold level" or stronger were recorded and 12.7% of the total observations were recorded as threshold or above in intensity. On 11 of the 14 surveys, odor intensities of Number 2 or "definite odor" of the component was observed. On 9 of the 14 surveys, the odor intensity was observed as Number 3 or "strong odor".

The graph of the index of "odor intensity per observation" shows a definite upward trend of odor levels since February 1966.

Only two of the "odor intensity per observation" values obtained during March and April 1966 were below the median value for the period July to February 1966.

An odor was present in the McKenzie River during 3 of the 11 surveys made at Armitage Park.

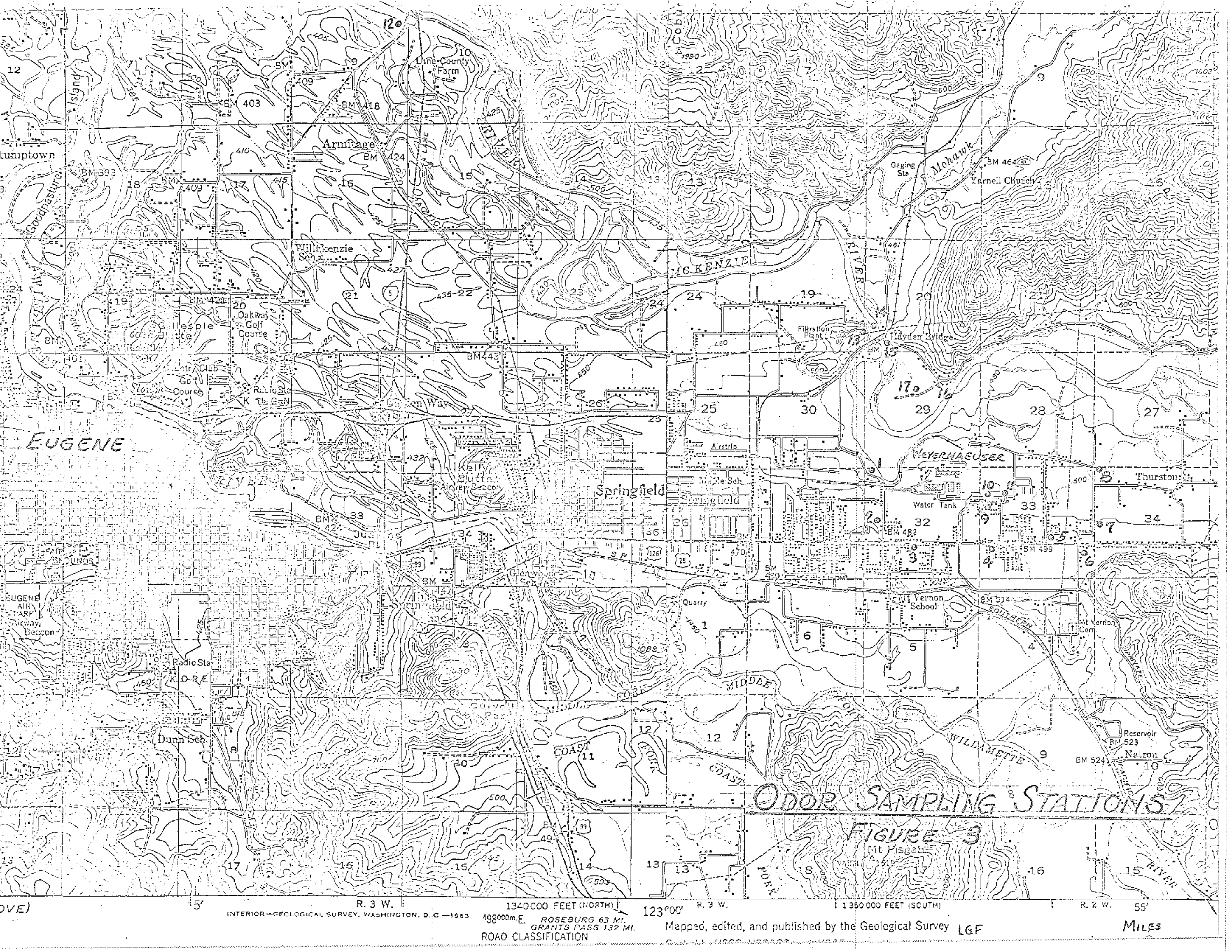
The following tabulation shows an increase in the occurance of higher intensity odors during March and April. This may be caused in part by the change in the direction of the prevailing winds to predominantly northerly or north westerly winds.

Date	Odor Intensity Level			
	≥ #1	#1	#2	#3
July 1965 to February 1966	85% of surveys	15.7% of total observations	66% of surveys	34% of surveys
March and April 1966	90% of surveys	12.7% of total observations	79% of surveys	64 % of surveys

Summary

A statistical analysis of the odor surveys was made. This analysis showed that there is a statistically significant increase ($P = 0.05$) in frequency and level of odor occurance since the plant expansion.

There are some qualifications of the data used. These include effects of time of day, day of week, location of sample and the control of differences between samplers.



ODOR SAMPLING STATIONS
FIGURE 3
EUGENE
Springfield
Thurston
Weyerhaeuser
McKenzie River
Mohawk
Hayden Bridge
Filtration Plant
Armitage
Willakenzie Sch.
Oakway Golf Course
Gillespie Butte
Lane County Farm
Stumptown
Goodpasture Island
Kelly Butte
Airstrip
Water Tank
Mt Vernon School
Mt Vernon Cem
Quarry
Yarnell Church
Gaging Sta
Reservoir
Natron
Mt Pisgah
Middle Fork
Willamette
Coast Fork
Dunn Sch.
Radio Sta
Eugene Air Park
Southern Pacific
R. 3 W.
R. 2 W.
123°00'
55'
5'
1340000 FEET (NORTH)
1 350 000 FEET (SOUTH)
498000m.E.
ROSEBURG 63 MI.
GRANTS PASS 132 MI.
ROAD CLASSIFICATION
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1953
Mapped, edited, and published by the Geological Survey
LGF
MILES


Mohawk P.O. (Donna)
Mohawk River
Gaging Sta
Yarnell Church
McKenzie River
Filtration Plant
Hayden Bridge
Camp Creek Ridge
Camp Creek Sch
Camp Creek Cemetery
Camp Creek
Walterville
Spillway
Dam
Airstrip
Maple Sch
Springfield
Water Tank
Thurston
Thurston School
Levee
Hendricks Br
Quarry
Mt Vernon School
Mt Vernon Cem
Southern Pacific
Middle Fork Willamette River
Reservoir
Natron
Wallace Creek
Cedar Creek
Mt Pisgah
Private

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS - August 1965

Date 1965	No. of Sta.	% 0's	% 1's	% 2's	% 3's	Total No. Obs.	Prevailing Wind	Remarks
July 16	10	68	17	5	10	40	5/10 NW, 4/10 W-NW, 1/10 W	
19	5	55	45	0	0	20	NW	Cloudy
20	9	81	15	4	0	27	6/9 S-Sw, 1/9 W, 2/9 W-NW	Cloudy with rain, eastern new stack not operating.
22	6	75	17	0	8	24	2/6 W, 1/6 W-NW, 2/6 NW 1/6 N	No smoke from old tall R & W stack but a trace from one of the new ones
27	9	53	31	8	8	36	5/9 NW, 4/9 W	Tall R & W stack emitting large quantities of smoke
29	8	62	16	16	6	32	5/8 NW, 2/8 W-NW, 1/8 W	During this survey the intensity of the individual stacks varied considerably
Aug. 3	9	61	17	19	3	36	5/9 W, 4/9 NW	Cloudy with heavy smoke from eastern new stack
~~5~~	~~11~~	~~78~~	~~10~~	~~11~~	~~1~~	~~80~~	~~11/22 W, 16/22 N, 3/22 N-NE~~ 2/22 NW	~~Heavy smoke from eastern R & W stack~~
~~10~~	~~11~~	~~83~~	~~12~~	~~5~~	~~0~~	~~88~~	~~1/22 N-NW, 6/22 None, 1/22 W-SW, 3/22 W, 7/22 NW, 4/22 W-NW~~	~~Slightly cloudy, no smoke from the two new stacks, boiler stack giving off heavy black smoke, plant area very smokey~~

See next sheet

* Conducted by Eugene-Springfield Program

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1965	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Aug. 5 a.m.	11	73	7	18	2	0	44	W 22/22	Heavy smoke from eastern R & W stack
p.m.	11	87	11	2	0	0	44	N 12/22, NNE 6/22, NW 4/22	
10 a.m.	11	91	9	0	0	0	44	None 12/22, NNW 2/22 WSW 2/22, W 6/22	Slightly cloudy, no smoke from the two new stacks, boiler stack giving off heavy black smoke, plant area very smokey
p.m.	11	75	16	9	0	0	44	NW 14/22, WNW 8/22	
27 a.m.	11	100	0	0	0	0	44	N 12/22, NE 6/22, NW 4/22	Medium cloud cover, tall R & W stack discharging heavily, smoke is rising very high. Scum odor @ river
p.m.	11	93	2	2	2	0	44	N 20/22, NW 2/22	
Sept. 1 a.m.	11	73	11	9	7	0	44	W 14/22, WSW 4/22, NW 2/22, NWN 2/22	Clear and mild, west new stack and tall R & W Stack discharging heavily. Odor from plant irritating to throat. Strong wind in a.m.
p.m.	11	75	11	11	3	0	44	W 12/22, WNW 8/22, NW 2/22	
* 2 p.m.	11	59	23	16	2	0	44	WNW 22/22	Inversion; gusty wind plus heavy blown saw-dust
3 a.m.	11	91	7	2	0	0	44	NE 10/22, N 8/22, NW 2/22, None 2/22	Slightly cloudy and cool, tall R & W stack
p.m.	11	91	2	7	0	0	44	NW 10/22, NNW 6/22, NNE 4/22 N 2/22	& west new stack operating

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1965	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Sept 10 a.m.	11	95	2	2	0	0	44	W 10/22, SSW 4/22, SE 2/22, SW 2/22, S 2/22, WNW 2/22	Clear and cook, west new stack and tall R & W stack discharging heavily. White material blowing, visible with black background
p.m.	11	89	4	7	0	0	44	W 14/22, WSW 4/22, NW 2/22 WNW 2/22	No odor at river
* 20 p.m.	11	68	21	11	0	0	44	W 10/22, NW 10/22, SW 2/22	Clear inversion haze 15 mph wind
* 21 p.m.	11	68	23	9	0	0	44	NW 12/22, WNW 10/22	Haze; clear day, gusty wind 15-20 mph
24 a.m.	11	80	20	0	0	0	44	WNW 16/22, W 4/22, NW 2/22	Sunny; inversion in a.m. @ 3000'; no smoke a.m. from new stacks; R & W & boiler smoking-see picture
p.m.	11	73	11	14	2	0	44	W 12/22, WNW 10/22	White material blowing, visible with dark background
Oct. 1 a.m.	11	82	14	4	0	0	44	WNW 11/22, W 6/22, NW 4/22 WSW 1/22	Haze overcast, increasing in p.m. New westerly red stack emitting, tall R&W stack emitting, power house intermittent, dark brown at times, Wind 3-5 mph
p.m.	11	100	0	0	0	0	44	W 13/22, NW 4/22, WSW 4/22 SW 1/22	
8 a.m.	11	100	0	0	0	0	44	None 22/22	A.M. vapor rise verticle to 2000' & then moves northerly. Very good dispersion. Sunny & clear p.m. Sunny, clear, very light balmy breeze, 2-5 mph. All stacks emitting except E new red stk. Very intense emission a.m. ligh
p.m.	11	89	9	2	0	0	44	Calm 2/22, NW 2/22, W16/22 SW 2/22	

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1965	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Oct. *12 a.m.	11	64	30	6	0	0	44	NW 6/22, NNW 10/22, NNE 4/22 ENE 2/22	Inversion with fog, some light rain, fog, very little air circulation
13 a.m.	11	100	0	0	0	0	44	None 13/22, SE 3/22, S 2/22 NW 2/22, W 2/22	Early morning fog, 10:00 a.m. scattered high fog, sunny; all stacks emitting except easterly new red stack. Heavy steamy vapor field irrigation sprays working. Air odor at river
p.m.	11	73	20	5	2	0	44	W 14/22, NW 8/22	
20 a.m.	11	95	5	0	0	0	44	E 8/22, S 6/22, SE 4/22, SSE 2/22, ESE 2/22	Only very light intermittent breeze at start of sample run, increased to 10 mph & gusty. Wind change during sample run. All stacks emitting except westerly new red stack. Effluent spray system operating west and south of plant. Fine white sawdust blowing, p.m. inversion at 3000'. Power stack emitting black smoke. Two new red stacks not emitting Wind change in middle of run. Fine white sawdust blowing. Odor from river, no odor from air
p.m.	11	100	0	0	0	0	44	None 16/22, W 6/22	
*26 p.m.	11	86	12	2	0	0	44	Calm 6/22, E 16/22	Inversion, slash burning in valley

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1965	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Nov. 2 a.m.	11	98	2	0	0	0	44	Calm 17/22, ESE 2/22, NE 2/22 E 1/22	Plume overhead at station #1. Plume raised about 200' above stack and was then moving horizontal with easterly wind at about 1000'. Weather very hazy, visibility about 2 or 3 miles. Sun visible thru haze. Effluent sprays not operating near E Street & 42nd. Sprays are operating south of plant. Plume began moving south about 10:30 a.m. All stacks emitting except easterly new red. Odor first noted 23 miles north of plant on Hwy 5 @9:30.
p.m.	11	86	14	0	0	0	44	W 11/22, WNW 8/22, Calm 3/22	Plume moving easterly on west wind. Effluent spray west of 42nd near E. st. are working; those east of 42nd St. not working those south of plant are working. Visibility less than a.m. estimated at about 1 3/4 miles. Some white powder blowing with wind, some stuck to windshield. Car top is specked when stopped at sample stations. Same stack emissions as a.m. No odor from river, no odor from air at river.

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1965	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Nov. *4 p.m.	11	93	2	5	0	0	44	E 14/22, Calm 8/22	Clear, good circulation since 11/3/65. Wind is from east at ground level west at upper levels.
9 a.m.	11	91	0	9	0	0	44	E 22/22	Sunny, looping type stack emission. Some very fine white wind blown material spray systems working west of pland, not working sout of plant. Dark brown-black emission from stack moving to N.W at about 3000'. Irregular foam & dark brown effluent to bon 100 yardsbelow effluent line of Hayden Bridge
p.m.	11	93	5	2	0	0	44	Calm 12/22, E 8/22, SE 2/22	0.7 Cloud cover, no shadow fume rising vertically to dispersion. Effluent spray operating east of 42nd at E St. No others observed in operation. Definite odor from river, some odor from air at bank, none further back from river. More foam than usual. State park employee said foam was 3 or 4 inche deep out in river at one time. He said its worse just after it rains. He said it's difficult for him to tell whether the odor is from plant thru air or from water.

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1965	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Nov. 18 p.m.	11	100	0	0	0	0	44	South 22/22	100% cloud cover, beginning to rain, moderate emission all stacks except easterly new stack. Looping fume stack emission. No effluent spray systems operating. Definite mill odor at Armitage State Park but could not pin down to river. Small amount of foam on river.
*23 p.m.	11	91	2	7	0	0	44	East 22/22	Clear in Springfield. Overcast, but no low level inversion. Good stack dispersion. Upper level clouds moving from South to North. Overcast at 3000'.

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1966	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Jan. 19 p.m.	11	84	11.4	2.3	2.3	0	44	West 18/22, WNW 4/22	100% overcast, very cold, visibility up to one mile, less at times. Emissions from tall red-white stack, some from power stack, large emission from westerly new red stack, none from easterly new red stack. Effluent spray systems not working. Some white wind-blown material noted at Station #10 and #11. Not sufficient to collect sample, some noted on car. Odor noted at river, none back 50' to 100' from river. Little or no wind.
24 a.m.	11	93.2	2.3	4.5	0	0	44	S 14/22, Calm 5/22 S.E. 2/22, S.E. 1/22	Rain, 100% overcast, visibility 1 mile before noon increasing to about 2 miles at noon. Effluent spray systems not working, south wind. Strong odor at entrance road to water plant (#3 or #4). Much less at end of effluent pipe (#1 or #2). Odor at state park near water, less odor (#2) than on 1-19-66 but more foam. No odor back 100' from river at state park. Intensity/observation less today than on 1-19-66 because south wind is not in direction of sampling stations.

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1966	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS.	Prevailing Wind	Remarks
Jan 27, p.m.	11	91	0	0	9	0	44	Calm 7/22, East 11/22, SE 4/22	Sample 6-8 p.m., clear & cool, stars and moon visible no effluent sprays operating. Tall R/W Stack, power stack and westerly new red stack emitting. Very little foam at Armitage Park, no odor at river of back from river
Jan 28, a.m.	11	91	0	0	9	0	44	E 18/22, Calf 4/22	Sample 4-6a.m. clear, cool, frost on grass, no effluent sparys operating, tall R/W stack, power stack & westerly new red stack emitting. Very little foam at Armitage Park, no odor at river of back from river. Windshield, hood, top and most horizontal projections of state car covered with white fallout coke.

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1966	No. Of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Feb. 4 a.m.	11	100	0	0	0	0	44	Calm 10/22, W 5/22 S. W. 4/22, S 3/22	100% overcast, raining, visibility 1 mi. no effluent spray systems working. Upper air movement from WSW, W and SW. Weather changed to sunny at Armitage Park, 95% overcast. Small amount foam. Heavy flow from outfall pipe, much lt. brown color, some foam, strong odor #3, under plume and at Hayden Bridge Richfield Station Odor level #2 at Mohawk-Coburg Rd Intersection.
7 p.m.	11	91	0	2.2	6.8	0	44	East Wind 22/22	Clear, moonlight vapor blown horizontal after rising few feet above stack, ground fog from upper canyon at station #7. White fallout on windshield at station #1 removed with windshield wipers.

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1966	No. Of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. OBS	Prevailing Wind	Remarks
Mar. 4 a.m.	11	91	0	2	7	0	44	E 22/22	Cloudy, Temp. from 44° F, Wind from East in a.m. steady until 1:30 p.m. (then plume verticle). At 3:00 pm wind from East again. Steady rainfall at 5 pm. MSA tube operated at Sta. #1 & company parking lot. No reaction after 25 min. of pulsing. 2nd MSA tube operated under plume No reaction Temp. 54°F at Armitage Park. No odor at River.
Additional Odor Samples									
4 a.m.	5	0	75	25	0	0	20	E 10/10	
Mar 4 p.m.	11	91	0	4.5	4.5	0	44	E 22/22	
Mar. 7 p.m.	11	91	0	0	9	0	44	E 22/22	Rain, 11pm temp 43°F, MSA tube #1 Sta #1 and sta. Spr. #29. No change in color. MSA tube #2 at Vanc. Ply Log Dump under plume. No change in color No odor at river.
Mar 8 a.m.	11	100	0	0	0	0	44	SE 12/22, S 10/22	Rain, 8 am Temp. 53°F, MSA tube #3 under plume in bean field, 0.75 mi. from plant, no change in color. Same MSA tube operated under plume 1.25 mi. from plant. No apparent change in color. Wind from SE at 8:30 changed to S at 10 am. No odor at river.
Additional Odor Samples									
8 a.m.	5	21	21	50	7	0	14	S 10/10	

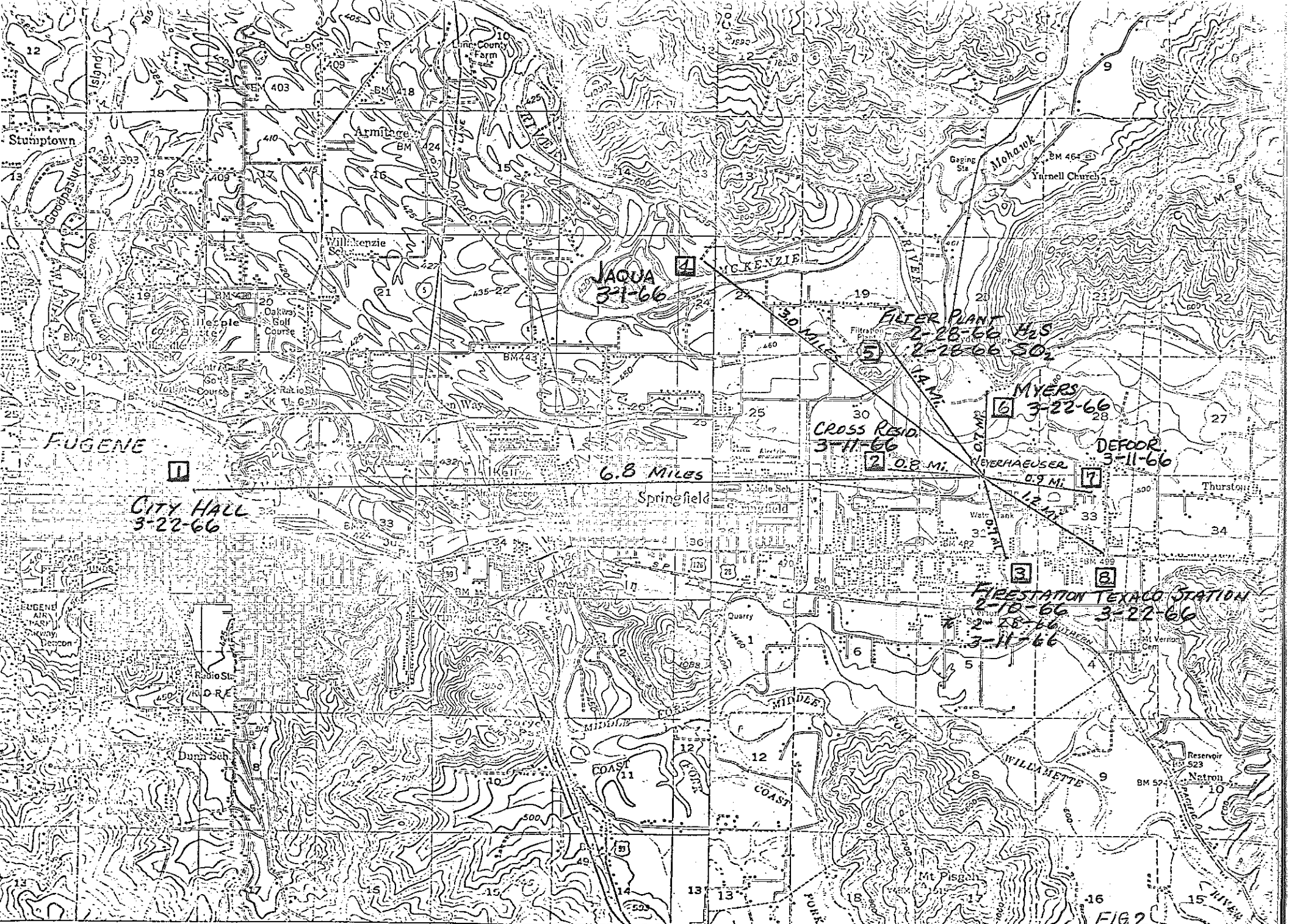
2/

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1966	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. Observ.	Prevailing Wind	Remarks
March 18 a.m.	11	91	0	2	7	0	44	E 14/22, ESE 2/22 Calm 6/22	Mostly cloudy at 0930 to 100% cloud at 11:30 am. Temp range from 50° F to 63° F Total 45 to 50 pulses gave no reaction on MSA tube in vicinity of Station #1. White FO on car
ADDITIONAL ODOR SAMPLES									
18 a.m.	6	67	13	8	12	0	24	S 8/12, SW 4/12	
22 a.m.	11	75	2	9	14	0	44	W 16/22, NW 6/22	Early fog breaking up about 9:45 am. Bright sunshine until sundown. Cool 48° F in am. to balmy pm. Total 60 pulses no reaction near stations #9 and #11 due East of plant at Max. odor. White FO on car.
25 a.m.	11	75	9	5	11	0	44	W 20/22 WSW 2/22	Bluish haze in am, visibility to 4 mi. sunny all day plume blown to E after rising few ft. warm, temp 58° to 62½° F. No odor from river at Armitage Park, but threshold odor from air in evening. White FO on car windshield. No reaction to MSA tube in am or on MSA tube in pm.

SUMMARY OF WEYERHAEUSER ODOR SURVEY RESULTS

Date 1966	No. of Sta.	% 0's	% 1's	% 2's	% 3's	% 4's	Total No. Observ.	Prevailing Wind	Remarks
April 1 a.m.	11	77	2	7	14	0	44	W 12/22, NW 6/22 WNW 4/22	Clear & sunny, temp. 60° to 65° F No MSA determination made. No odor sample at river. Much white FO noted under plume and on car.
5 a.m.	11	98	2	0	0	0	44	W 22/22	Clear & sunny, no temp.or MSA readings made. Some white fallout on car. Odor from both river and air at Armitage State Park
a.m.	11	82	9	9	0	0	44		
a.m.	11	80	18	2	0	0	44		



ROVE)

LOCATION OF H_2S TAPE SAMPLERS

FIG 2

LGF

Revised 3-22-66

HYDROGEN SULFIDE (Continuous Monitoring)

I. Purpose: The purpose of using the AISI Hydrogen Sulfide Sampler was to determine quantitatively the presence of sulfides as hydrogen sulfide.

II. Description and Procedure: American Iron and Steel Institute (AISI) hydrogen sulfide Model E and F units were placed in operation to continuously monitor the atmosphere. The unit draws air at a rate of about .25 cfm (each machine must be calibrated) through a spot on a lead-acetate impregnated filter paper tape and if hydrogen sulfide is present the tape is darkened. The amount of hydrogen sulfide present is determined by an optical density measurement. At a one-hour cycle time the unit can measure hydrogen sulfide concentrations in the range of 1 to 400 parts per billion (ppb).

The samplers have an air filter to remove particulate matter and a humidifier, and air discharged from the pump and sample tape is purified by passage through a soda lime tube into the face plate to maintain a positive pressure and prevent contamination of the tape by the outside air.

The optical density instrument (transmissometer) was read to the nearest per cent (about 0.3 ppb or 0.0003 ppm). Variations in the tape density occur but this error was reduced by resetting the transmissometer on each side of the sample spot. Uncompensated errors caused by tape density would be an average 1.1 percentage units.

Fading of the spots may occur. For spots with initial light transmission to 70% fluctuations rarely exceed 2-3%, and for initial values of 70-75% gains of about 5% in 6-8 days may occur. For lighter spots 75-90% light transmission no initial fading occurred but some may occur in 4 days.

Since most of our samples were in the 90% and greater range and steps were taken to seal samples and return to the laboratory for reading as early as possible, it is concluded our values are on the conservative side. The U.S. Public Health Service in the Lewiston-Clarkston Study report fading of the collected tape is not a problem. In the same report it was concluded that the AISI H_2S tape sampler results compared with the wet methylene blue sampling procedure within 1 ppb 84 and 85% of the time.

AISI samplers were placed in a perimeter in stages around the Weyerhaeuser Company plant at varying distances of 0.7 mile to 6.8 miles until a total of eight samplers were continuously operating starting on February 10, 1966, as shown on the attached map.

Sampling period cycles on all machines were set for three hours and values reported individually above 1 ppb and in groups for those values below 1 ppb. Values below 1 ppb are considered significant since they are three-hour interval average values and it is possible that the actual discoloration occurred during any interval or intervals between 0 and three hours.

On April 1, 1966, the AISI hydrogen sulfide samplers were set on a cycle of one hour, that is each sampler would collect one sample each hour.

A tabulation of the sample results follows for both the three-hour and one-hour sampling periods.

III. Conclusions: Within instrument limits the presence of sulfides as hydrogen was shown to be present in concentrations above the threshold odor level and at levels high enough to slowly tarnish silver and blackening of lead base paints.

Weyerhaeuser Co., Springfield, 4-8-66

TABLE II

AISI HYDROGEN SULFIDE TAPE SAMPLER

3 Hour Sampling Period

	Location of Sampler	Distance & Direction from Plant	Hours Operated	No. of Samples Collected	No. of Samples Sulfides were Detected	% of Samples Sulfides were Detected	No. Samples > 1 ppb	Highest Value Recorded
1.	Eugene City Hall 3-22 to 4-5 -66	6.8 miles W.	--	--	--	--	--	--
2.	Cross Residence 3-11 to 4-1	0.8 mile WNW	499	183	36	20%	1	2.9 ppb
3.	Springfield Fire Station 2-10 to 2-28 3-11 to 4-1	0.7 miles S	932	298	9	3.0%	--	$\leq$ 0.4 ppb
4.	Jaqua Residence 3-1 to 3-4 3-11 to 3-18	3. miles NW	80	33	8	24%	1	6.6 ppb
5.	Filter Plant 2-28 to 4-1	1.4 miles NNW	811	244	4	2%	--	$\leq$ 0.5 ppb
6.	Myers Residence 3-22 to 4-1	0.7 miles N	238	81	69	85%	--	$\leq$ 0.9 ppb
7.	DeFoor Residence 3-11 to 4-1	0.9 miles E	500	166	101	61%	1	1.8 ppb
8.	Texaco Station 3-22 to 4-1	1.2 miles SE	238	79	53	67.1%	--	$\leq$ 0.9 ppb

As measured during the reported sampling periods, sulfides as hydrogen sulfides were shown to be present in concentrations below those known to cause health effects but above nuisance values.

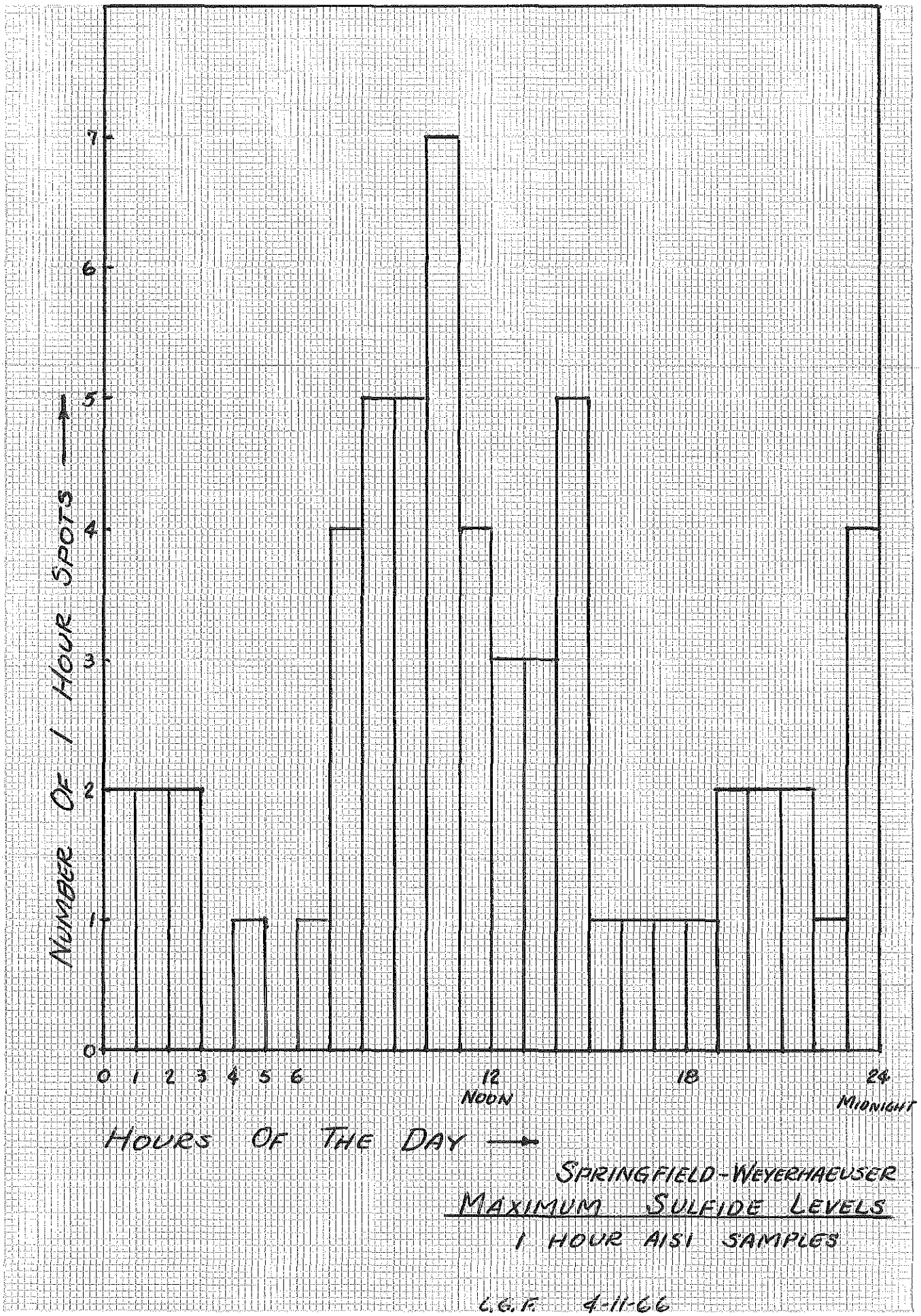
TABLE II

AISI HYDROGEN SULFIDE TAPE SAMPLER

1 Hour Sampling Period

	Location of Sampler	Distance & Direction from Plant	Hours Operated	No. of Samples Collected	No. of Samples Sulfides were Detected	% of Samples Sulfides were Detected	No. Samples > 1 ppb	Highest Value Recorded
1.	Eugene City Hall 4-5 to 4-7	6.8 miles W.	49	49	5	19%	1	1.1 ppb
2.	Cross Residence 4-1 to 4-7	0.8 mil WNW	144	141	2	2%	1	1.2 ppb
3.	Springfield Fire Station 4-1 to 4-7	0.7 mile S	145	145	0	--	--	--
4.	Jaqua Residence 4-5 to 4-7	3. miles NW	48	48	0	--	--	--
5.	Filter Plant 4-1 to 4-7	1.4 miles NNW	94	92	0	--	--	--
6.	Myers Residence 4-1 to 4-7	0.7 mile N	148	149	16	11%	15	1.9 ppb
7.	DeFoor Residence 4-1 to 4-7	0.9 mile E	144	146	17	12%	8	1.6 ppb
8.	Texaco Station 4-1 to 4-7	1.2 miles SE	62	63	19	30%	7	1.6 ppb

Wind WNW 57.4% of time
NNE 29.4% " "



SPRINGFIELD-WEYERHAEUSER

MAXIMUM SULFIDE LEVELS

1 HOUR AISI SAMPLES

C. G. F. 4-11-66

Analysis of Pre & Post Plant Expansion: Springfield

There is a significant difference between the fallout of Na^+, as collected, the pre expansion samples having a mean significantly lower ~~mean~~ than the post expansion mean. At the p .05 level i.e. one chance in 20 of a difference this great occuring by chance alone.

There is a significant difference between the fallout of SO_4, as collected. The pre expansion samples having a mean significantly lower than the post expansion samples' mean. At the p .01 level, ie. one chance in one hundred that a difference this great could have occurred by chance alone.

Sorry I didn't have time to do any more,

Phil Kyle

P.S. Remember the limitations of your sample collection.

1 copy [illegible]
from Philip Kyle

S Weigel cc [illegible]

[illegible]

[illegible] 14 15 17 19 20 22

AP7 - Springfield - Weyerhaeuser Co.

Springfield - Weyerhaeuser Co. - Ott Rec.

Start 1405 9-16-64 } 298 Spots Calculated Timing Cycle
Stop 1145 9-22-64 } .555 hrs/spot = 33⅓ min/spot

Start 1200 9-22-64 } 262 spots
Stop 1430 10-3-64 } 560

	Spot #	% Trans
	27	97%
	53	100%
Machine HS-2	73	100%
	75	95%
	86	100%
	102	95%
	119	100%
	252	94
	262	98

Calculated Timing Cycle = 1 hr. 5 min.

1.1

< 1.6

Start 1430 10-3-64 } Total 281 spots
Stop 1100 11-11-64 } Machine was stuck on #281 - apparently with a time malfunction.

Machine HS-2	Spot Number	% T	
	28	96	
	46	98	
	91	89	5.1
	97	91	2.5
	103	90	2.8
	114	91	2.6
	134	94	1.6

841

In addition to these spots the tape was definitely stained for the following spot numbers. 30, 31, 32, 33, 34, 42, 54, 64 71, 72, 79, 89, 91, 84, 85, 86, 87, 88, 89, 90, 92, 94, 95, 96, 98, 99, 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 115, 116, 117, 118, 119, 121, 125, 126 132, 133, 135, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 156, 157, 159, 161, 162, 165, 166, 169, 170, 171, 172, 216, 217 219, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236

107

Start 11-19-64 } 1700pm
Stop 12-22-64 }

Machine HS-1

Start	1700	11-19-64	302 spots	All spots essentially 100% T
Stop	1400	12-15-64	Machine ran out of tape	

start	1400	12-15-64	86 spots
stop	1315	12-22-64	

1229
569

Springfield Weyerhaeuser Co. – Rainbow WD

H_2S – AISI Tape Sampler

Machine HS-1

Start	1440	9-16-64
stop	1530	10-9-64

242 spots

#158 90% Trans.
#151 97% Trans.
#242 ≥ 90% Trans. est.

Machine HS-1 — 10-9-64 / 11-19-64 — Machine – Malfunction – Spool not put on properly

Machine HS-4 — 11-24-64 / 12-22-64 — 1500 on spot #5; 1335

335 spots all essentially 100%T

242
335
577

H_2S Sampling Springfield 1964

Re: Weyerhaeuser Kraft Mill

Mc Ewen Residence ± 30 min cycle

From	1930	4-20-64	171 spots all essentially 100% transmissibility.
To	1515	4-24-64	
From	1515	4-24-64	176 spots all essentially 100% trans
To	1635	4-28-64	
From	1730	5-12-64	245 spots - all essentially >95% - 100% T
To	1530	5-18-64 tape out	

592

Ott Residence ± 30 min cycle

From	1555	5-19-64	75 spots - all essentially >95 - 100% trans
To	1515	5-22-64	
rom	0945	5-24-64	378 spots all essentially > 95 - 100% trans
To	1300	6-3-64 Tape ran out	

453

E. Springfield Fire Station ± 30 min cycle

From	1930	4-20-64	45 min. cycle this run only 17 spots all essentially > 95-100% Trans
To	0800	4-21-64	
From	0800	4-21-64	154 spots all essentially > 95-100% Trans.
To	1445	4-24-64	
From	1445	4-24-64	130 spots all essentially > 95-100% trans.
To	0850	4-27-64	
From	1000	5-13-64	330 spots all essentially > 95-100% trans
To	0845	5-20-64	
From	0940	5-28-64	363 spots all essentially > 95-100% trans.
To	1000	5-29-64	
F m	1000	5-29-64	384 spots all essentially > 95-100% trans.
To	1535	6-5-64	1369

2453

None of the tapes examined showed any spot discoloration.
Timing cycles on the machines should be checked before being used again

Summary Odor Observations by HWM & VJA as Noted on HV filter envelopes

McEwen Residence			Intensity
4-27-64	0920		1
4-28-64	1630		1

Ott Residence			
5-24-64	0920		1
5-23-64	0920	52nd & Main	2
5-28-64	1020		0
5-31-64	0850		1
6-2-64	1400		1
6-4-64	1730		1

Rainbow Water District Office		
5-31-64	0935	2
6-5-64	1600	2

Fire Station – No observations noted

Visibility

6-3-64 ¼ mi 28th & Q st.

AIR POLLUTION AUTHORITY
OREGON STATE BOARD OF HEALTH

TABLE 6

LABORATORY REPORT

Sample Number 19985 - 19988 Date Received

Source of Sample Springfield, Oregon

Trade Name or Type of Sample (Mercaptan) Impinger

Analyzed for Total Mercaptans in Air

Method used " A Spectrophotometric Method for Determination of Mercaptans in Air "
Industrial Hygiene Journal December 1960

Results of Analysis

Lab. No. AQC OSBH	Location	Date	Time Sampled	Air Volume Liters	PPB Mercaptans as CH_3SH
19985	Hayden Bridge Water Treatment Plant	3-30-66	1050-1120	15.	140.
19986	Defoor Logging Truck Shop. Near west fence	3-30-66	1413-1428	6.4	219.
19987	Defoor Logging Truck Shop. Near west fence	3-30-66	1429-1509	17.0	12.
19988	Defoor Logging Truck Shop. Near West fence	3-30-66	1515-1545	13.5	119.

Remarks: Organic sulfide odor was present at the sample sites during sampling, sample locations were selected so that the samples were collected down wind from the plant site.

Date completed April 1, 1966

Date reported April 1, 1966

R. B. Percy & R. A. Johnson
Chemist

R. B. Percy and R. A. Johnson

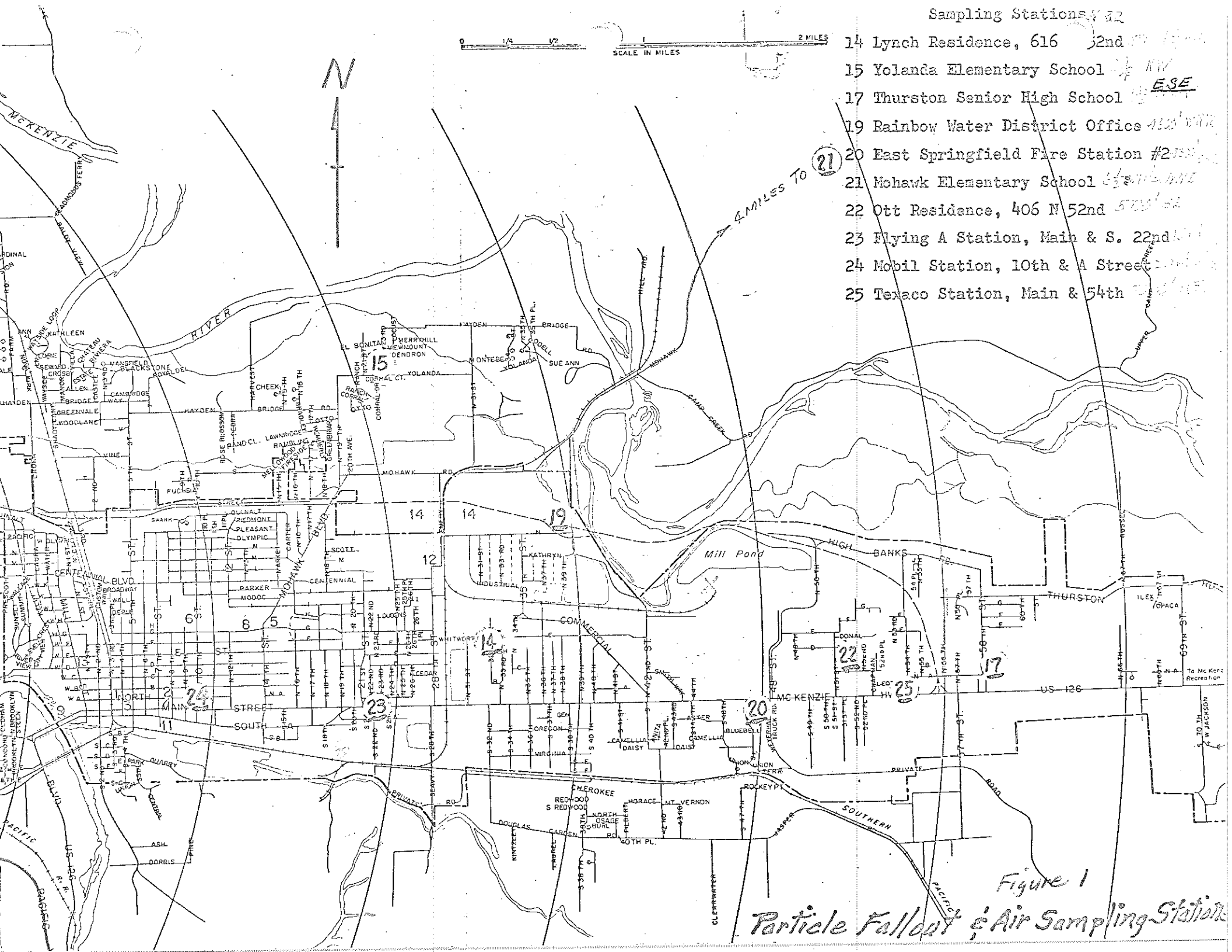

Sampling Stations
14 Lynch Residence, 616 52nd
15 Yolanda Elementary School
17 Thurston Senior High School
19 Rainbow Water District Office
20 East Springfield Fire Station #2
21 Mohawk Elementary School
22 Ott Residence, 406 N 52nd
23 Flying A Station, Main & S. 22nd
24 Mobil Station, 10th & A Street
25 Texaco Station, Main & 54th
4 MILES TO 21
SCALE IN MILES
0 1/4 1/2 1 2 MILES
N
McKENZIE
RIVER
Mill Pond
MAIN STREET
MOHAWK BLVD
CENTENNIAL BLVD
COMMERCIAL
HIGH BANKS
THURSTON
MC KENZIE
US 126
SOUTHERN PACIFIC R.R.
Figure 1
Particle Fallout & Air Sampling Stations

TABLE I

Springfield Fallout Data
Summary of Particle Fallout & Chemical Analysis
of Fallout Sampling Stations 1964-1966

(Values in T/sq/ mi./mo.)

	Springfield #14 Lynch Residence			Springfield #15 Yolanda Elementary			Springfield #17 Thurston Sr. High School		
	1964	1-4-65 to 7-1-65	7-1-65 to 4-1-66	1964	1-4-65 to 7-12-65	7-12-65 to 4-1-66	1964	1-4-65 to 4-12-65	7-8-65 to 4-1-66
PARTICLE FALLOUT									
No. of Samples	10	5	9	10	5	9	10	5	9
Maximum	31	20	30	19	8	11	21	15	20
Minimum	3.2	12	6.4	3.0	4	2.8	6	11	5
Median	16.	14	22	8.5	6.1	7.0	14	12	15
Average	18.5	15.8	22.4	9.	6.0	6.7	13.6	12.6	12.9
CALCIUM									
No. of Samples	2	3	9 (4)	4	5	9 (0)	8	5	9 (1)
Maximum	0	0	1.5	0	0	0	0.4	0	0.8
Minimum	0	0	0	0	0	0	0	0	0
Median	0	0	0	0	0	0	0.4	0	0
Average	0	0	.3	0	0	0	0.5	0	.09
SODIUM									
No. of Samples	2 (2)	5	9	7	5	9	7	6	9
Maximum	1.1	0.8	1.9	0.3	0.1	0.6	0.8	0.7	1.0
Minimu,	.9	0.2	0.1	0.1	0.01	0.09	0.1	0.4	0.4
Median	1.0	0.4	1.0	0.2	0.1	0.3	0.6	0.5	0.6
Average	1.0	0.44	1.0	0.2	0.1	0.3	0.5	0.5	0.6
SULFATE									
No. of Samples	2	5	9	9	5	9	9	6	9
Maximum	3.4	2.9	5.5	1.5	1.3	1.5	2.0	2.2	2.3
Minimum	1.6	1.5	1.2	0	0	0.2	0.1	1.1	1.0
Median	2.5	2.0	3.5	0.5	0.1	.9	1.5	1.5	1.7
Average	2.5	2.2	3.5	.5	0.4	.84	1.2	1.6	1.6

Springfield Fallout Data (cont.)
(Values in T/sq. mi./mo.)

	Springfield #19 Rainbow W. D.			Springfield #20 E. Sprfld. Fire Station			Springfield #21 Mohawk Elementary	
	1964	1-4-65 to 7-1-65	7-1-65 to 4-1-66	1964	1-4-65 to 7-1-65	7-1-65 to 3-1-66	1964	7-22-65 to 4-1-66
PARTICLE FALLOUT								
No. of Samples	6	6	9	5	6	7		8
Maximum	42	17	34	20	26	17		10
Minimum	10	10	14	5.3	11	9		1.6
Median	22	15.5	18	15.	13	13		6.2
Average	22.5	14.3	21.2	13.9	14.8	13.0		5.6
CALCIUM								
No. of Samples	7	5	9	5	6	7		8
Maximum	0.1	0	1.8	0	0	0		0.7
Minimum	0.1	0	0	0	0	0		0
Median	0.1		0	0	0	0		0
Average	0.0		0.3	0	0	0		.09
SODIUM								
No. of Samples	6	6	9	5	5	7		8
Maximum	2.5	1.1	4.1	0.8	0.8	0.9		0.4
Minimum	0.5	0.6	0.4	0.2	0.3	.2		0.05
Median	1.2	0.7	1.9	0.3	0.4	.4		.20
Average	1.4	0.8	2.1	0.4	0.5	.35		.23
SULFATE								
No. of Samples	6	6	9	5	6	7		8
Maximum	4.3	2.1	4.1	1.8	2.1	2.0		.8
Minimum	0.4	1.3	0.4	0.0	0.9	0.8		0.4
Median	2.0	1.4	1.9	0.6	1.1	1.3		0.5
Average	2.2	1.6	2.1	0.7	1.4	.78		0.46

SPRINGFIELD FALLOUT DATA (Cont.)
(Values in T/sq. mi./mo.)

	Springfield #22 Ott Residence		Springfield #25 McKenzie - 54	Springfield #23		Springfield #24	
	1964	1-4-65 to 7-1-65	8-2-65 to 4-1-66	1-4-65 to 7-1-65	7-1-65 to 4-1-66	1-4-65 to 7-1-65	7-1-65 to 1-3-66
PARTICLE FALLOUT							
No. of Samples	5	6	8	6	9	6	9
Maximum	19	24	24	53	47	22	29
Minimum	7	8	9.3	23	25	11	11
Median	12	11	18	35.5	34	12	21
Average	12.8	13	17	38	36.0	13.7	19.8
CALCIUM							
No. of Samples	4	6	8	No Chemical Analysis on Stations #23 and #24			
Maximum	0	0	0.2				
Minimum	0	0	0				
Median			0				
Average			0.02				
SODIUM							
No. of Samples	4	6	8				
Maximum	0.5	0.7	1.0				
Minimum	0.3	0.4	.2				
Median	0.3	0.5	.4				
Average	0.4	0.6	.45				
SULFATE							
No. of Samples	4	6	8				
Maximum	1.7	2.0	2.6				
Minimum	0	0.9	.7				
Median	0.6	1.5	1.05				
Average	0.8	1.5	1.16				

	SPR-14 616 N. 32nd	SPR-15 Yolanda Elem. School	SPR-17 Thurston Senior School	SPR-19 Rainbow water Dist. Bldg.
11-2-65 12-1-65	30. 55	9. 28	9. 35	27. 40
12-1-65 1-3-66	26. 75	5. 80	8. 65	17. 55
1-3-66 2-2-66	22. 70	3. 10	5. 45	1-3 ic 2-1 14. 55
2-2-66 3-1-66	18. 50	9.5 50	20. 50	34. 55
3-1-66 4-1-66	22. 50	2.8 17	9. 22	14. 40

Location of Pollutant Stations

	Spr # 20 East Sprfld Fire Stn #2			Spr # 21 Mohawk Elem. School			Spr # 22 Ott Res. 406 N 52nd			Spr # 23 Mobil Stn. Main & S 22nd			Spr # 24 Mobile Stn. 10th & A St.			Spr # 25 McKenzie and 54th Sts.		
	TO	TH	V	TO	TH	V	TO	TH	V	TO	TH	V	TO	TH	V	TO	TH	V
1-3-66		9.	50	1-3 TO 2-1	1.6	100	DISC.				28,	30		21.	75		9,3	22
2-2-66																		
2-2-66		13.	40		6,2	28	———				42.	28		25.	56		18.	29
3-1-66																		
3-1-66		BLOWN			2.0	45	———				41.	17		11.	20		19.	24
4-1-66		DOWN																

Springfield

PARTICLE FALLOUT SUMMARY

TC = milligrams/centimeter² mo.
TM = Tons/mile²/month
V = % Volatile

Location of Fallout Stations

SAMPLING PERIODS	Spr-#26 Coffman Res. 3940 E St.			Spr-#27 Simonson Res. 3482 E St.			Spr-#28 Karey Res. 1150 N 37th St			Spr-#29 Cross Res. 1192 N 39th								
	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V
From: 10-24-65 To: 11-1-65		64.	65		49.	65		75.	65		92.	60						
From: 11-1-65 To: 12-1-65		44.	30		22.	60		47.	55		60.	55						
From: 12-1-65 To: 1-3-66		24.	65		28.	75		34.	65		37.	65						
From: 1-3-66 To: 2-2-66		21.	65	NO SAMPLE RECEIVED				38.	60		41.	65						
From: 2-2-66 To: 3-1-66		35.	70		21.	60		72.	80		51.	65						
From: To:																		
From: To:																		
From: To:																		
From: To:																		
From: To:																		
From: To:																		
From: To:																		

SUMMARY

Unless Noted in Tons/mi.²/mo.

Period																		

PARTICLE FALL SUMMARY

Location of Fallout Stations

TG = milligrams/centimeter^2 mo.
TM = Tons/mile^2/month
V = % Volatile

SAMPLING PERIODS	SPR-20 East Sprfld. Fire Stn #2			SPR-21 Mohawk Elem. School			SPR-22 Ott Res. 406 N 52nd			SPR-23 Mobil Stn. Main & S. 22nd			SPR-24 Mobil Stn. 10th & A St			SPR-25 McKenzie & 54th		
	TG	TM	V	TG	TM	V	TG	TM	V	TG	TM	V	TG	TM	V	TG	TM	V
From: 1-4-65 To: 2-1-65		12.	40					8.	90		23.	40		13.	80			
From: 2-1-65 To: 3-1-65		11.	25					14.	75		48.	25		22.	55			
From: 3-1-65 To: 4-1-65		26.	22					11.	27		53.	13		14.	45			
From: 4-1-65 To: 5-3-65		12.	40					10.	45		37.	20		11.	60			
From: 5-3-65 To: 6-1-65		14.	25					11.	35		34.	15		11.	40			
From: 6-1-65 To: 7-1-65		14.	40					24.	40		33.	25		11.	35			
From: 7-1-65 To: 8-2-65		17.	50	7-22 TO 5-2	10.	55		DISC. SEE			34.	25		12.	30			
From: 8-2-65 To: 9-1-65		15.	45		6.1	45		SPR-25			33.	25		12.	35		18.	45
From: 9-1-65 To: 10-1-65	LOST				8.	55	—				40.	25		20.	40		24.	35
From: 10-1-65 To: 11-2-65		16.	45		7.6	65	—			10-1 TO 11-1	47.	40	10-1 TO 11-1	29.	65		24.	45
From: 11-2-65 To: 12-1-65		12.	50	NO SAMPLE			—				33.	40		25.	60		14.	30
From: 12-1-65 To: 1-3-66		9.3	30		3.6	40	—				25.	17		23.	70		14.	15

SUMMARY

Gather Values in Tons/mile^2/month

Period																		

Semi-annual

PARTICLE FAL[illegible] SUMMARY

Location of Fallout Stations

TC = milligrams/centimeter² mo.
TM = Tons/mile²/month
V = % Volatile

SAMPLING PERIODS	SPR-6 E. Vitus 816 Main St.			SPR-13 Moose Lodge Bldg.			SPR-14 616 E. 35th, N. 32nd			SPR-15 Yolanda Elem. School			SPR-17 Thurston Senior High School			SPR-19 Rainbow water Dist. Bldg.		
	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V
From: 12-2-64 To: 1-4-65		12.	15	12-1 TO 1-9	24.	30				—	—							
From: 12-15-64 To: 1-4-65		DISC			DISC.						7.	35						
From: 1-4-65 To: 2-1-65	—	—			—	—		20.	60		8.	40		11.	50		17.	60
From: 2-1-65 To: 3-1-65		—			—			13.	40		7.	35		14.	27		16.	30
From: 3-1-65 To: 4-1-65								20.	40	{	6.1						15.	25
From: 4-1-65 To: 5-3-65								12.	70			31		12.	50		11.	65
From: 5-3-65 To: 6-1-65								14.	55		5.1	60		11.	40		10.	45
From: 6-1-65 To: 7-1-65										DRY 6-1-65 TO 7-12-65	4.	50	6-1 TO 7-8	15.	30		17.	25
From: 7-1-65 To: 8-2-65								6.4	40	7-12 TO 8-2	3.6	75	7-8 TO 8-2	17.	55		15.	40
From: 8-2-65 To: 9-1-65								28	65		7.	50		15.	40		18.	35
From: 9-1-65 To: 10-1-65								20.	50		9.	35		18.	30		21.	30
From: 10-1-65 To: 11-2-65								29.	65		11.	55		15.	55		31.	45

SUMMARY

Units below in Tons/mi.²/month

Period																		

Location SPRINGFIELD

PARTICLE FALLOUT SUMMARY

Location of Fallout Stations

TC = milligrams/centimeter² mo.
TM = Tons/mile²/month
V = % Volatile

SAMPLING PERIODS	SPR-19 Rainbow Water Dist. Bldg.			SPR-20 East Sprfld. Fire Stn #2			SPR-21 Mohawk Elem. School			SPR-#22 Ott Res. 406 N 52nd								
	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V	TC	TM	V
From: 9-16-64 To: 9-25-64		23.	45	9-17-64 TO 9-25-64	20.	25												
From: 9-25-64 To: 10-6-64		42.	50	9-25 TO 11-5	20.	55				9-23 TO 10-3	19.	22						
From: 10-6-64 To: 11-10-64	10-9 TO 11-2	21.	80							10-3 TO 11-4	12.	65						
From: 11-10-64 To: 11-24-64		24.	50	11-6 TO 11-24	5.3	45				11-4 TO 11-24	12.	80						
From: 11-24-64 To: 12-15-64		15.	45	12-2 TO 12-15	15.	35					7.	20						
From: 12-15-64 To: 1-4-65		10.	20		9.	30					14.	70						
From: To:	ON NEW SHEET																	
From: To:																		
From: To:																		
From: To:																		
From: To:																		
From: To:																		

SUMMARY

(Units below in Tons/mi.²/month)

Location: SPRINGFIELD

PARTIC FALLOUT SUMMARY

Location of Fallout Stations

MC = milligrams/centimeter^2 mo.
TM = Tons/mile^2/month
V = % Volatile

SAMPLING PERIODS	SPR-6 E. Vitus Chevron Stn. 816 Main St.			SPR-10 Moffit School 5th & O Street			SPR-11 Fire Dept Bldg Next to City H			SPR-13 Moose Lodge Bldg.			SPR-14 616 E. [N.] 35th [32nd] Ave.			SPR-15 Yolanda Elem. School		
	MC	TM	V	MC	TM	V	MC	TM	V	MC	TM	V	MC	TM	V	MC	TM	V
From 11-1-63 To 12-3-63		27.	60		1.0	75		14.	60		35.	40		27.	75			
From 12-3-63 To 2-1-64		16.	40		5.2	55		12.	50		38.	40		17.	85			
From 2-1-64 To 3-2-64		21.	35		15.	25		17.	35		30.	35		14.	65			
From 3-2-64 To 4-6-64		19.	30		14.	25		14.	35		32.	35		15.	55		6.7	50
From 4-6-64 To 5-4-64		14.	30		30.	11		17.	60		73.	20		15.	55		9.4	45
From 5-4-64 To 6-1-64	DRY	14.	40	DRY	23.	14	DRY	14.	30	DRY	18.	35	DRY	22.	65	6-9-64	3.9	30
From 6-1-64 To 7-1-64	DRY	13.	40	DISC			DISC			DRY	13.	46	DRY	17.	65	6-9-64 7-1-64	19.	30
From 7-1-64 To 7-31-64		11.	30								11.	40		15.	60	7-1-64 TO 8-4-64	8.	40
From 7-31-64 To 9-1-64		18.	50								12.	45		28.	65	8-4 9-1	3.0	22
From 9-1-64 To 10-1-64		21.	40								26.	45		31.	65	9-1-64 10-6-64	15.	45
From 10-1-64 To 11-2-64		22.	50							10-1 TO 11-4	32.	55	10-1 TO 11-3	25	75	10-6 TO 11-5	9.	85
From 11-2-64 To 12-2-64		10.	75							11-4 TO 12-1	20.	70	11-3 TO 12-2	3.2	55	11-5 TO 12-15	9.	30

SUMMARY

Values below in Tons/mi.^{2}/month

PERIOD																		

[illegible]

[illegible]

[illegible]

Period	SPR-1 Mt. Vernon Grade School TC	SM	V	SPR-2 Maple Grade School TC	SM	V	TC	SM	V	SPR-16 EWEB Filtration Plant TC	SM	V	SPR-17 Thurston Sr. High School TC	SM	V	SPR-18 Douglas Gardens Elem. School TC	SM	V
3-2-64 4-6-64		9.2	50		11.	50					8.7	55		9.4	50		7.9	55
4-6-64 5-4-64		12.	21.		14.	45					13.	55		17.	35		14.	45
5-4-64 6-9-64		14.	30		10.	35					11.	55		18.	35		15.	30
6-9-64 7-1-64		DISC			DISC						DISC			16.	50		DISC	
7-1-64 8-4-64														12.	40			
8-4-64 9-9-64														6.	20			
9-9-64 10-6-64														21.	40			
10-6-64 11-2-64														16.	56			
11-6-64 12-10-64														11.	40			
12-15-64 1-4-65														10.	50			

SUMMARY

[illegible] Tons/mi.²/month

Springfield

Location PORTLAND

Station No. POR # 27

STATE OFFICE BLDG. ROOF

Sample Type: FALLOUT

CHEMICAL

All values in mc/mi^2/month

LAB NO.	DATE AND TIME SAMPLED	Cs^{137}	Sr^{90}	I^{131}	Y^{91}	$SO_4^{=}$			REMARKS AND REMARKS CODE
17662	10-6-64 11-5-64	0							
17733	11-5-64 12-3-64	0	0.6			2.7			
17799	12-3-64 1-6-65	0	0.2			1.3			
17843	1-6-65 2-8-65	0	0.2			2.7			
17877	2-8-65 3-2-65								
	3-2-65 4-13-65								
17980	4-13-65 5-6-65	0	0.3		0.2	3.5			
19031	5-6-65 6-8-65	0.3	.09		0.1	2.1			
19101	6-8-65 7-6-65	0	.2		0.05	2.3			
19166	7-6-65 8-4-65	0	0.1		0.1	2.1			
19223	8-4-65 9-3-65	1.7	0.2		.08	2.6			REPAIR OF BLDG IN SAMPLE AREA
19313	9-3-65 10-7-65	0.2	0.1		0.1	1.5			
19374	10-7-65 11-4-65	0	0.4		0.1	3.2			

Minimum Conc. _____ Maximum Conc. _____ Mean Conc. _____

Oregon State Board of Health - Air Pollution Control, Sect. ___ of ___

OSBH-AQC 1/28/65-500

Location PORTLAND POR # 62

Skyline Mem. Gardens, 4101 NW Skyline Bld. FALLOUT

Sample Type: CHEMICAL

All values in [illegible]

LAB NO.	DATE AND TIME SAMPLED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
17530	8-3-64 9-2-64	0	0.3	.01		1.2			
17608	9-2-64 10-6-64	0	0.1	.01		0.9			
17684	10-6-64 11-5-64	0	.03	.009		0.9			
17740	11-5-64 12-3-64	0	0.3	.008		0.2			
17802	12-3-64 1-6-65	0	0.2	.01		0.2			
17848	1-6-65 2-8-65	0	0.2	.01		1.3			
17883	2-8-65 3-2-65	0	0.1	.008	0.1	1.0			
17932	3-2-65 4-6-65	0	.08			0.6			
17985	4-6-65 5-6-65	0	0.1		0.1	.3			
19029	5-6-65 6-8-65	0	.08		.07	.8			
19110	6-8-65 7-8-65	0	.3		0.2	1.3			
19173	7-8-65 8-4-65	0	.06		.03	0.3			
19246	8-4-65 9-3-65	0	0.1		.03	1.1			
19318	9-3-65 10-7-65	0	0.5		0.1	1.1			
19391	10-7-65 11-4-65	0	0.2		0.1	1.2			

Minimum Conc. ____ Maximum Conc. ____ Mean Conc. ____

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OSBH-AQC 4/28/65-200

S-5A 5/49

Office Memorandum • OREGON STATE BOARD OF HEALTH

To : Harold M. Patterson **Date:** April 14, 1966

From : Philip Kyle

Subject: Weyerhaeuser Company Data

Analysis of Pre and Post Plant Expansion, Springfield

There is a significant difference between the fallout of Na^+, as collected, the pre-expansion samples having a mean significantly lower than the post-expansion mean. At the p. 05 level, i.e., one chance in 20 of a difference this great occurring by chance alone.

There is a significant difference between the fallout of SO_4, as collected. The pre-expansion samples having a mean significantly lower than the post-expansion samples mean. At the p. 01 level, i.e., one chance in one hundred that a difference this great could have occurred by chance alone.

This analysis includes chemical analysis for Sodium and Sulfates for Particle Fallout Stations 14, 15, 17, 19, 20, and 22.

TFO

'64	Pre	Pst	
14	(18.5) 16	(15.8) 14	(21.4) 22
15	(9.0) 8.5	(6.8) 6.1	(6.7) 7
17	(13.6) 14	(12.6) 12	(11.1) 15
19	(22.5) 22	(14.2) 15.5	(21.2) 18
20	(13.9) 15	(14.8) 13	(13.0) 13
21	—	—	(5.6) 6.2
22	(12.8) 12	(13.0) 11	(17.0) 18
23	—	(36.0) 35.5	(36.0) 34
24	—	(13.7) 12	(19.8) 21

C++

'64	Pre	Pst	
14	0	0	.3
15	0 .4	0	0
17	.5 .1	0	.09
19	.1 ~~.2~~ .1	0	.3
20	0	0	0
21	—	—	.09
22	0	0	.02
23	—	—	—
24	—	—	—
	2/5	0/5	5/7

Nat

	'64	Yuc	Pot	
14	1.0 1.0	.44 .4	1.0 1.0	no mix
15	.2 .2	.1 .1	.3 .3	
17	.6 .6	.5 .5	.6 .6	SL mix
19	1.4 1.2	.8 .7	2.1 1.9	mix
20	.4 .3	.5 .4	.3 .4	
21	—	—	.2 .2	
22	.4 .3	.6 .5	.4 .4	no mix
23	—	—	—	
24	—	—	—	

SO_4 =

	64	Yuc	Pot	
14	2.1 2.5	2.2 2.0	3.5 3.5	hyphae
15	.5 .5	.4 .1	.89 .9	mix
17	1.2 1.5	1.6 1.4	1.6 1.7	SL mix
19	2.2 2.0	1.6 1.4	2.1 1.9	mix
20	.7 .6	1.4 1.1	.78 1.3	SL mix
21	—	—	.46 .5	
22	.8 .8	1.5 1.5	1.16 1.16	mix
23	—	—	—	
24	—	—	—	

HYDROGEN SULFIDE: (MSA Manual Method)

I. Purpose: The purpose of using the Mine Safety Appliance manual (squeeze bulb) method of sampling was to determine if high concentrationd of hydrogen sulfide could be detected downwind at points of maximum odor concentrations.

II. Description and Procedure: In addition to continuously operated AISI hydrogen sulfide tape samplers; the presence of sulfides as hydrogen sulfide was tested by a Mine Safety Appliance hydrogen sulfide detector on days that odor surveys were completed. The detector is a manual squeeze aspirator bulb instrument which by ten squeezes draws air through a detector tube which discolors if hydrogen sulfide is present in the 0-50 ppm range. The instrument was not developed for use in ambient air since such concentrations are not normally present in ambient air. Non-detection by the use of the instrument would not be valid proof of the absence of sulfides.

The MSA hydrogen sulfide detector was used on days odor surveys were completed beginning March 4 through March 25. Sixteen samples were run on five different days at various times of the day directly under the plume at points of maximum observed odor concentration. No sulfides as hydrogen sulfide were detected by the use of the MSA hydrogen sulfide detector.

Sampled:	3/4/66	12:00 noon	12:20 p.m.	2:00 p.m.	
	3/8/66	2:00 p.m., 2:30 p.m., & 10:55 p.m.	11:00 p.m.	11:30 p.m.	
	3/18/66	9:30 a.m.	9:40 a.m.	9:50 a.m.	9:55 a.m.
	3/22/66	10:00 a.m.	10:15 a.m.		
	3/25/66	12:13 p.m.	7:30 p.m.		

III. Conclusions: Since the MSA instrument appears to have an accuracy of 20-50% above 10 ppm and it is shown to measure down to 1 ppm, the absence of sulfides shown by the test procedure indicates sulfides if present to be in concentrations of less than 1 ppm at the points and times sampled. It is concluded that high concentrations are not likely to be present downwind of the plume under similar meteorological conditions.

Weyerhaeuser Co., Springfield, 4-6-66

NON-QUANTITATIVE HYDROGEN SULFIDE TAPES:

I. Purpose: The purpose of this sampling was to provide an interim non-quantitative method of sulfide detection to show presence and distribution of sulfides.

II. Description and Procedure: In the absence of standard sampling methods to cover the area, lead acetate and glycerine (5% solution each) impregnated tapes as used in AISI hydrogen sulfide tape samplers were hung loosely. Normally, air is filtered through the tape and if hydrogen sulfide (sulfides) is present the spot discolors or darkens.

Loose tapes were hung at radial distances around the plant varying from ½ mile to 2.7 miles from the plant. Twenty-nine samplings were accomplished with exposure times of three hours to ten days. Ten tapes were lost and of the remaining 19 tapes, seven showed a darkening considered in our judgment to show the presence of sulfides. The darkened tapes were located in the following direction and milage from the plant: NNW-1.3, ESE-1.6, W-5, ESE-.7, NNE-.9, ESE-.7, E-1.5. Sampling was conducted March 1 through March 25, 1966.

III. Conclusions: The non-standard method of sampling with tapes gave sufficient information to indicate the presence of sulfides in a wide area and warrant installation of specific measuring equipment.

Weyerhaeuser Co., Springfield, 4-6-66

CONTINUOUS MONITORING FOR SULFUR DIOXIDE

I. Purpose: The purpose was to determine the level of sulfur dioxide in community area as a primary contaminant and as background information relative to the interference with other tests to be conducted.

II. Description and Procedure: In order to continuously monitor the atmosphere for the presence of sulfur dioxide, a Beckman Model K 1005 portable sulfur dioxide analyzer with range 0-20 ppm SO_2 with accuracy of plus or minus 5% in temperature range of 35°-110°F. was used. Sulfur dioxide is not expected to be a problem as a result of the operation of a kraft pulp mill. Boiler operation, space heating of all community sources, and burning wastes may be sources of sulfur dioxide.

The sulfur dioxide unit was installed at the East Springfield Fire Station on February 8 and operated at that location until February 28, 1966. No sulfur dioxide was recorded.

On February 28 the sulfur dioxide unit was moved from that location to the Eugene Water Treatment Plant where it has operated ever since. No sulfur dioxide values were recorded at that location.

III. Conclusions: On the basis of the tests conducted at the time and place of sampling, it is concluded that sulfur dioxide has not been shown to be a problem.

Weyerhaeuser Co., Springfield, 4-6-66

General Comments on Wind Patterns at Springfield, Oregon

Between March 7, 1966 and April 7, 1966

The wind pattern during this period showed two shifts per day. In the forenoon, generally around 6 - 8 a.m., although occasionally as late as 11 a.m., a northwesterly wind would spring up of about 8 - 12 mph. In late afternoon, around 4 p.m., but occasionally as late as 10 p.m., this wind would be replaced by a weaker easterly or northeasterly wind, usually between 0 and 5 mph. This wind lasts until morning, when the west wind started again. During this period, calms (winds under 3 mph) occurred 30.4% of the time.

Summing up, (1) Shift in direction in early forenoon and late afternoon or evening, (2) Strongest winds in early afternoon, (3) West wind in the daytime, east wind at night.

Weyerhaeuser Co., Springfield

March 31, 1966

WIND SPEED AND DIRECTION:

Wind speed and direction are measured by a Science Associates No. 440 wind system set up on the Eugene Water District's Hayden Bridge filtration plant. Wind direction is indicated in 22½ degree arcs (16 points on the compass). Wind speed is measured in digital (whole number) miles per hour. Information is recorded on a continuous chart.

The Hayden Bridge filtration plant is 1.4 miles NW of the Weyerhaeuser plant, and the rooftop, where the system is, is about 150-200 feet above the valley floor. The system was set up February 28, 1966.

/ms

WEYERHAEUSER COMPANY, SPRINGFIELD

Wind Direction and Maximum Sulfide Levels

	Station	Distance & Direction to Plant	Date	Time	H_2S ppb	Wind Direction	Wind Speed	Wind Previous Sample Direction	Wind Previous Sample Speed
1.	Eugene City Hall	6.8 miles E	4- 5-66	1145	1.11	WNW	6	No data	
2.	Cross Residence	0.8 mile E	3-18-66	1734	2.9	No data			
			3-29-66	0845	0.8	WNW	4	NNE	3
			4- 6-66	0815	1.2	WNW	3	NNW	1
3.	Fire Station	0.7 mile N	3-15-55	0357	0.4	No data			
			3-31-66	0626	0.4	NNE	3	WNW	3
4.	Jaqua Residence	3.0 miles SE	3-11-66	no data	0.7	No data			
			3-14-66						
			3-18-66	1306	6.6	WSW to WNW	20	WSW to WNW	15
5.	Filter Plant	1.4 miles SSE	3-28-66	0850	0.5	ENE	3	ENE	4
6.	Myers Residence	0.7 mile S	3-25-66	0922	0.9	No data			
			3-26-66	0840	0.7	N	1	ENE	3
			3-28-66	1740	0.7	WNW	6	WNW	14
			3-28-66	2340	0.7	ENE	5	ESE	4
			4- 1-66	0558	0.7	ESE	4	ESE	3
			4- 5-66	0718	1.5	No data			
			4- 5-66	1018	1.8	No data			
			4- 5-66	1118	1.3	WNW	6	No data	
			4- 6-66	0832	1.6	WNW	3	NNW	1
			4- 6-66	0932	1.9	WNW	5	WNW	3
			4- 6-66	1032	1.3	WNW	7	WNW	5
			4- 7-66	0123	1.8	WNW	5	WNW	8
			4- 7-66	0723	1.0	WNW	1	WNW	1
			4- 7-66	0923	1.0	WNW	4	WNW	1
			4- 7-66	1023	1.3	WNW	5	WNW	4
7.	DeFoor Residence	0.9 mile W	3-12-66	1230	1.8	No data			
			4- 3-66	1004	1.6	WNW	7	WNW	8
			4- 5-66	1004	1.4	No data			
8.	Texaco Station	1.2 miles NW	3-29-66	0648	0.9	NNE	4	NNE	3
			4- 6-66	1034	1.6	WNW	7	WNW	5
			4- 7-66	1200	1.4	WNW	8	WNW	6

There does not seem to be a definite correlation between direction of wind as measured at the Filter Plant and maximum sulfide levels.

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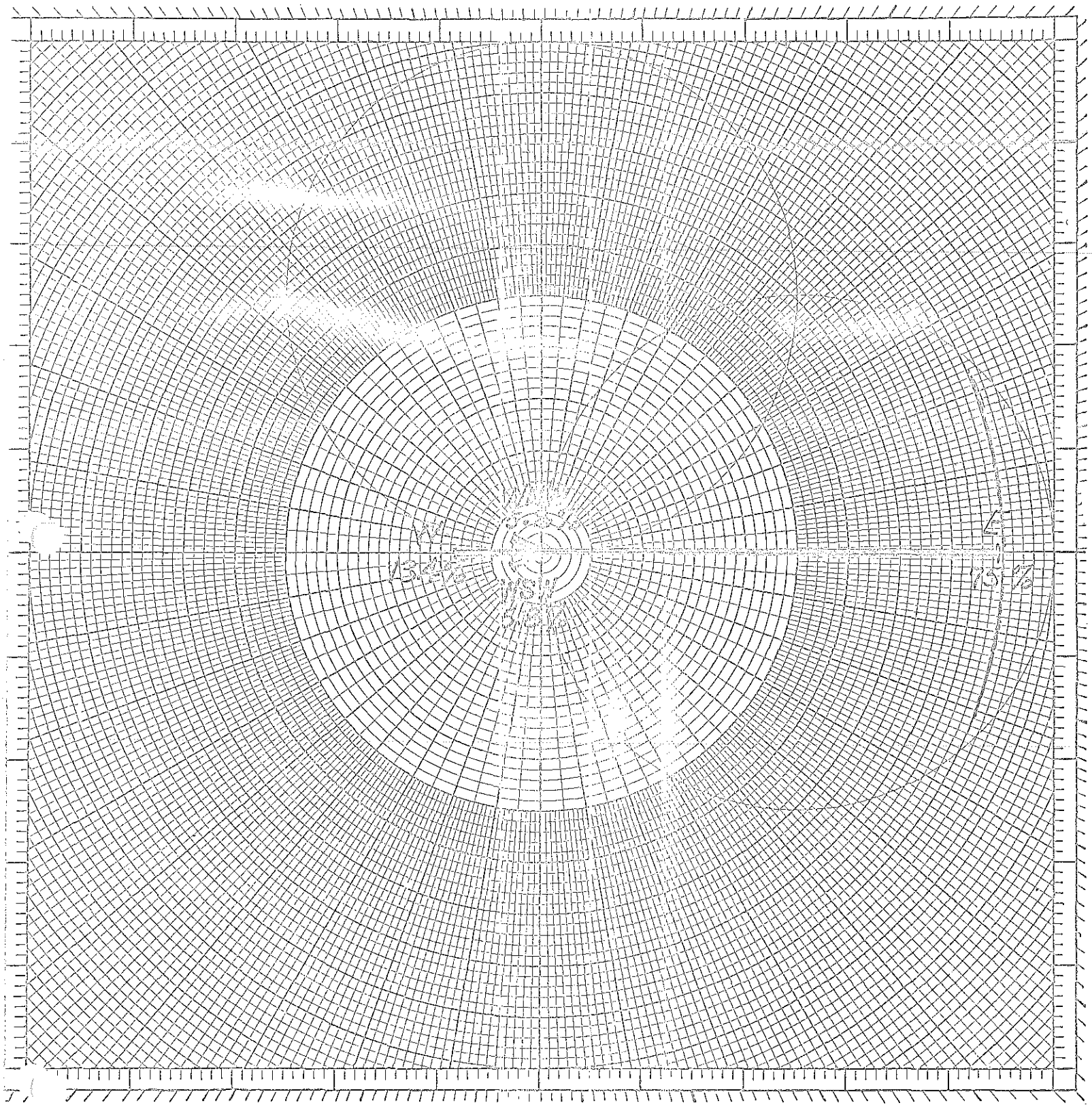
FORM M 3.



UNIVERSITY CO-OPERATIVE CO.
MADISON, WIS.

Polar Co-ordinate, Graduated in Degrees.

SPRINGFIELD - WEYERHAEUSER
WEEKLY SUMMARY
3-2-66 To 3-5-66

LGF 4-5-66

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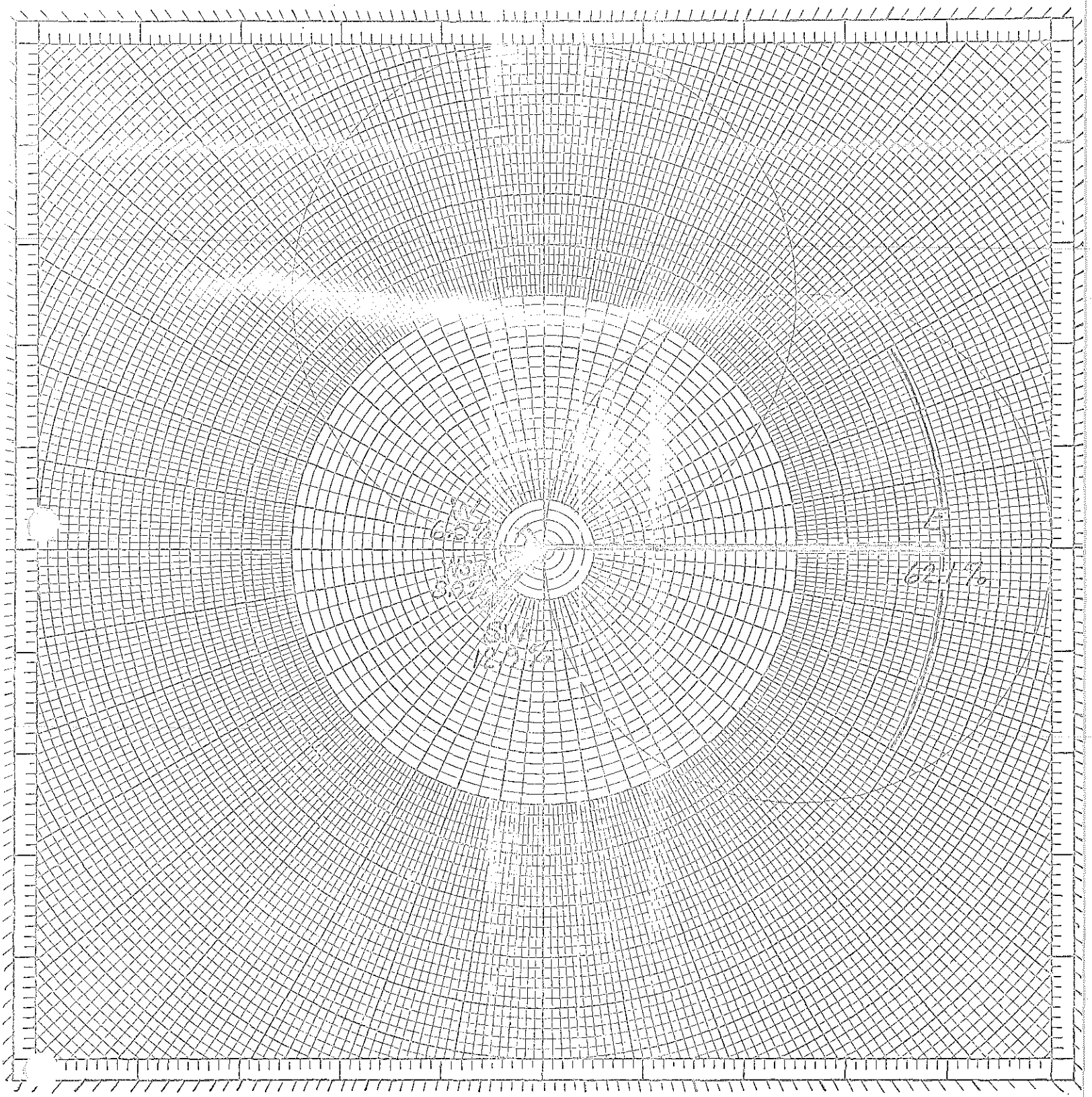
FORM M 3.



UNIVERSITY CO-OPERATIVE CO.
MADISON, WIS.

Polar Co-ordinate, Graduated in Degrees.

SPRINGFIELD - WEYERHAEUSER
WEEKLY SUMMARY
3-6-66 To 3-12-66
LGF 4-5-66

ARTMENT OF
ATHEMATICS

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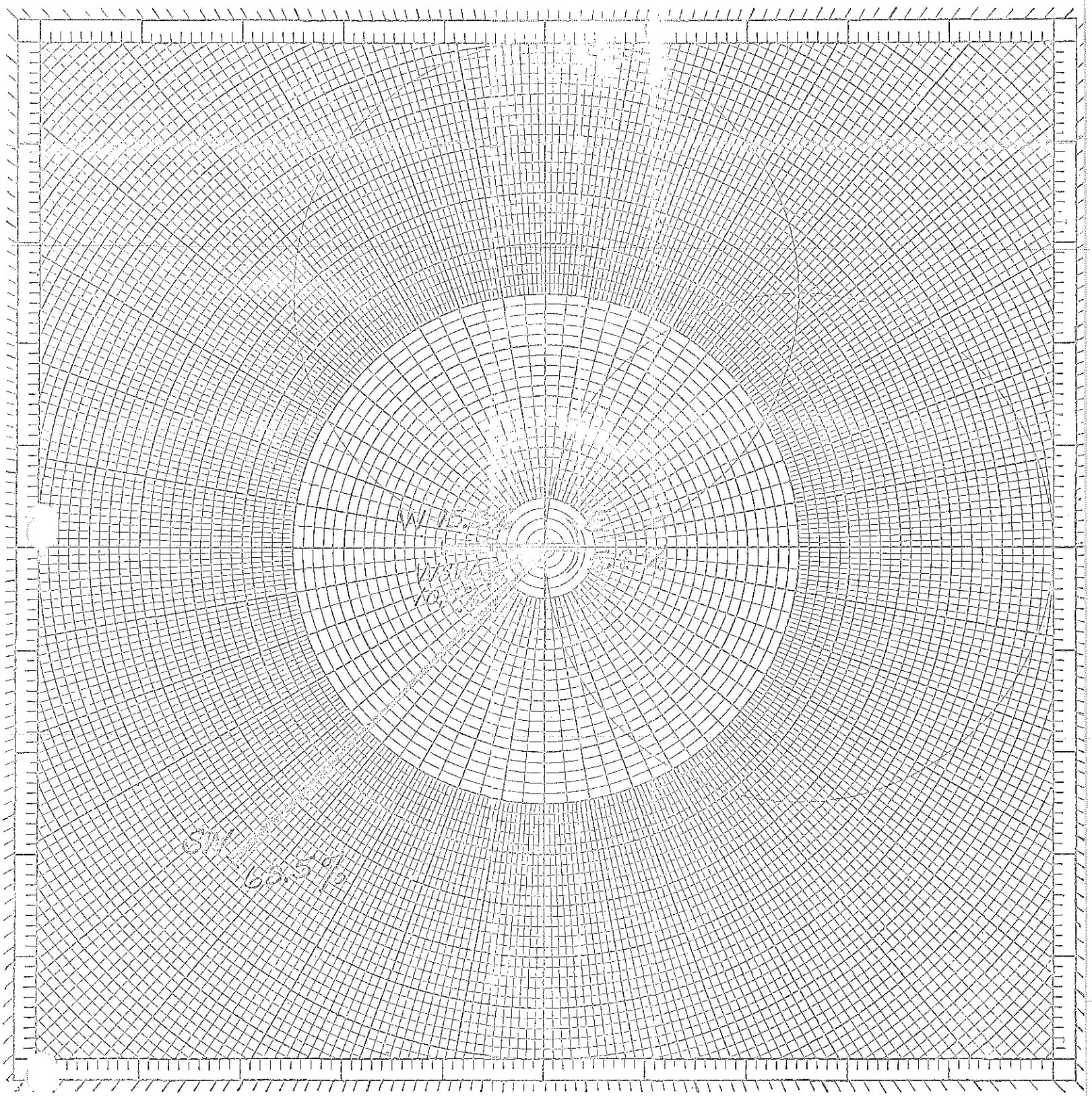

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MADISON, WIS.

Polar Co-ordinate, Graduated in Degrees.

SPRINGFIELD - WEYERHAEUSER
WEEKLY SUMMARY
3-13-66 TO 3-19-66

LGF 4-5-66

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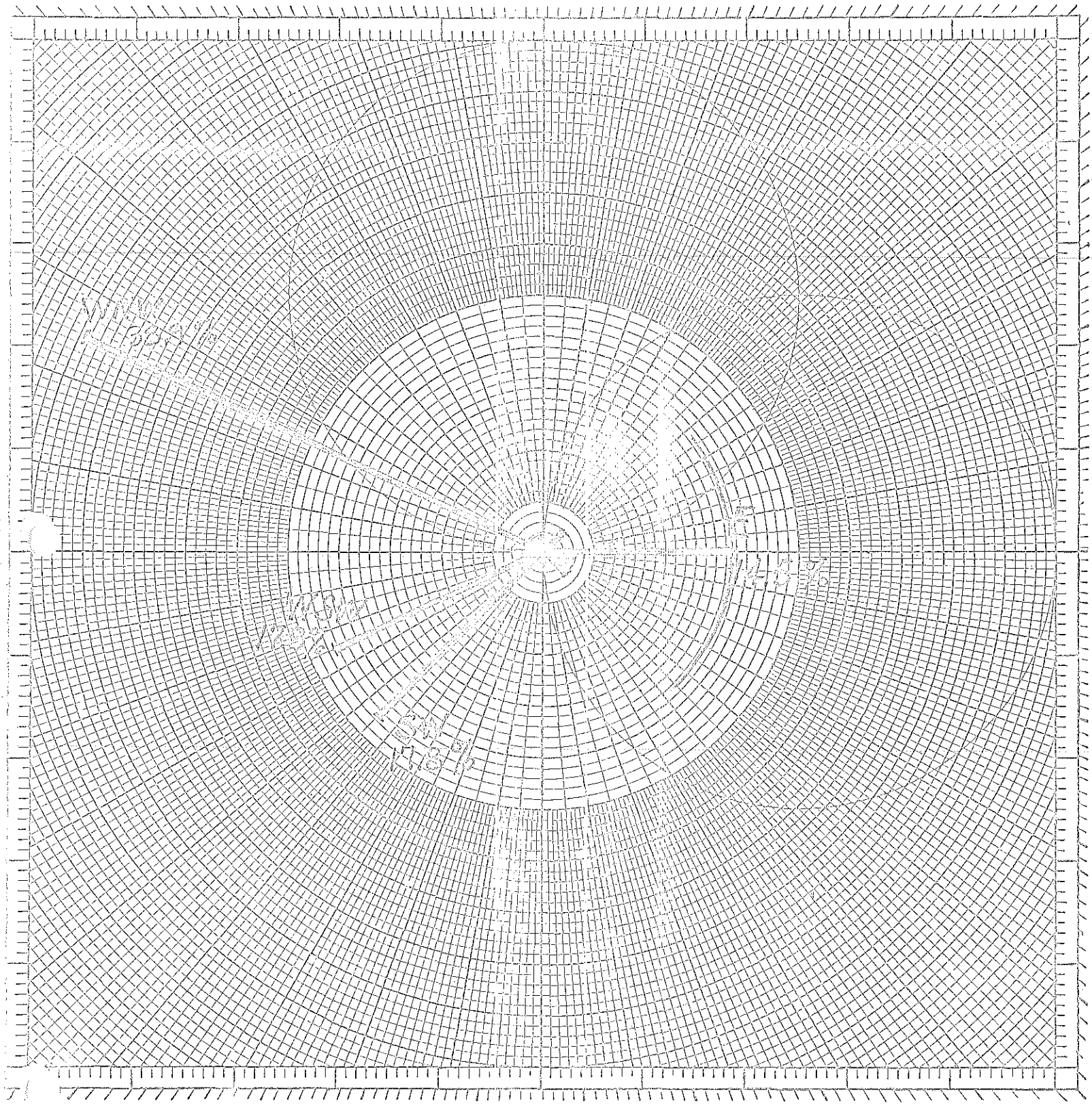

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SPRINGFIELD-WEYERHAUSER
WEEKLY SUMMARY
3-20-66 To 3-24-66

L.G.F. 4-5-66

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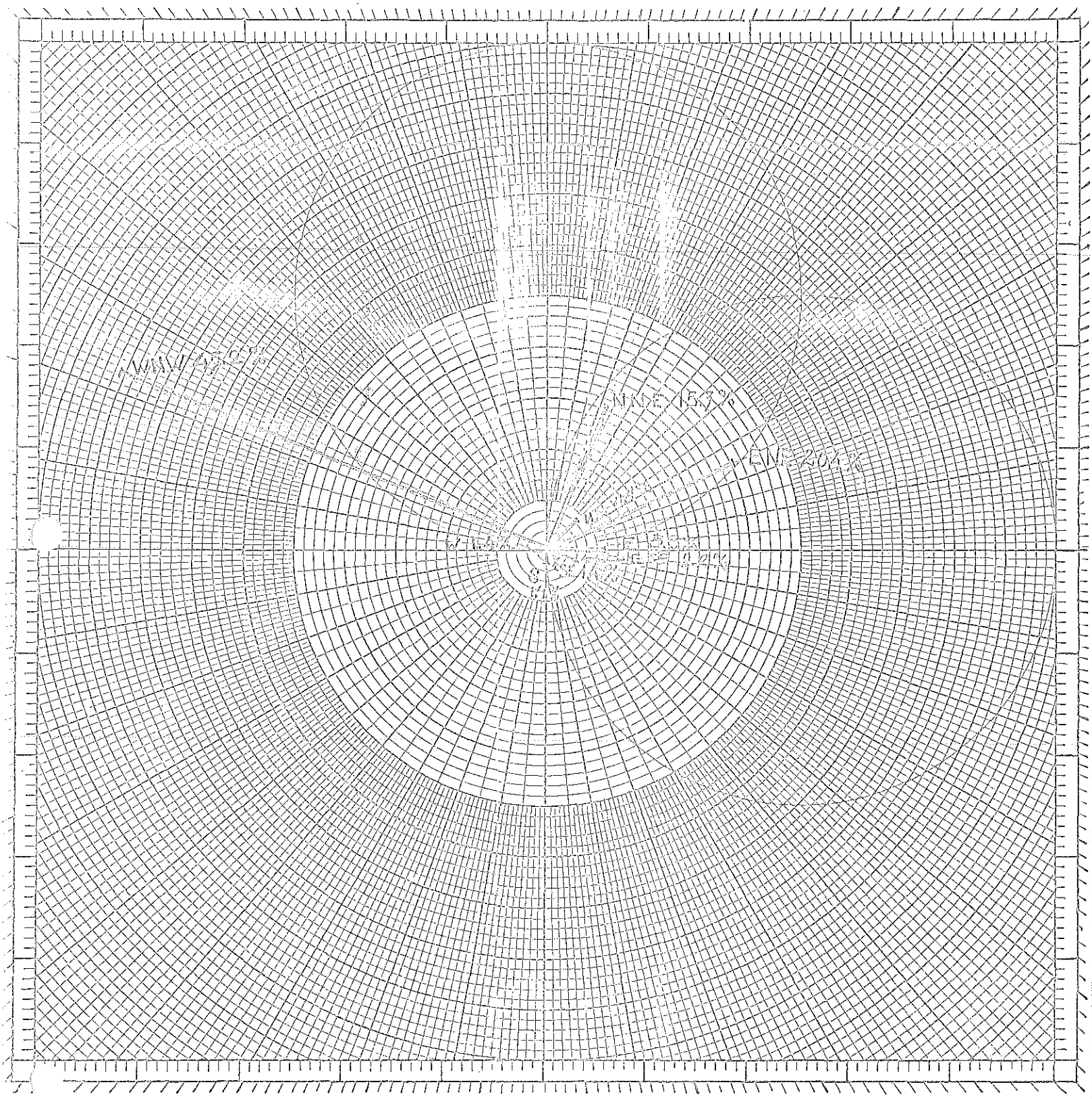

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SPRINGFIELD-WEYERHAUSER
WEEKLY SUMMARY
MAR. 25 – MAR. 31, 1966

CAA APR 8, 1966

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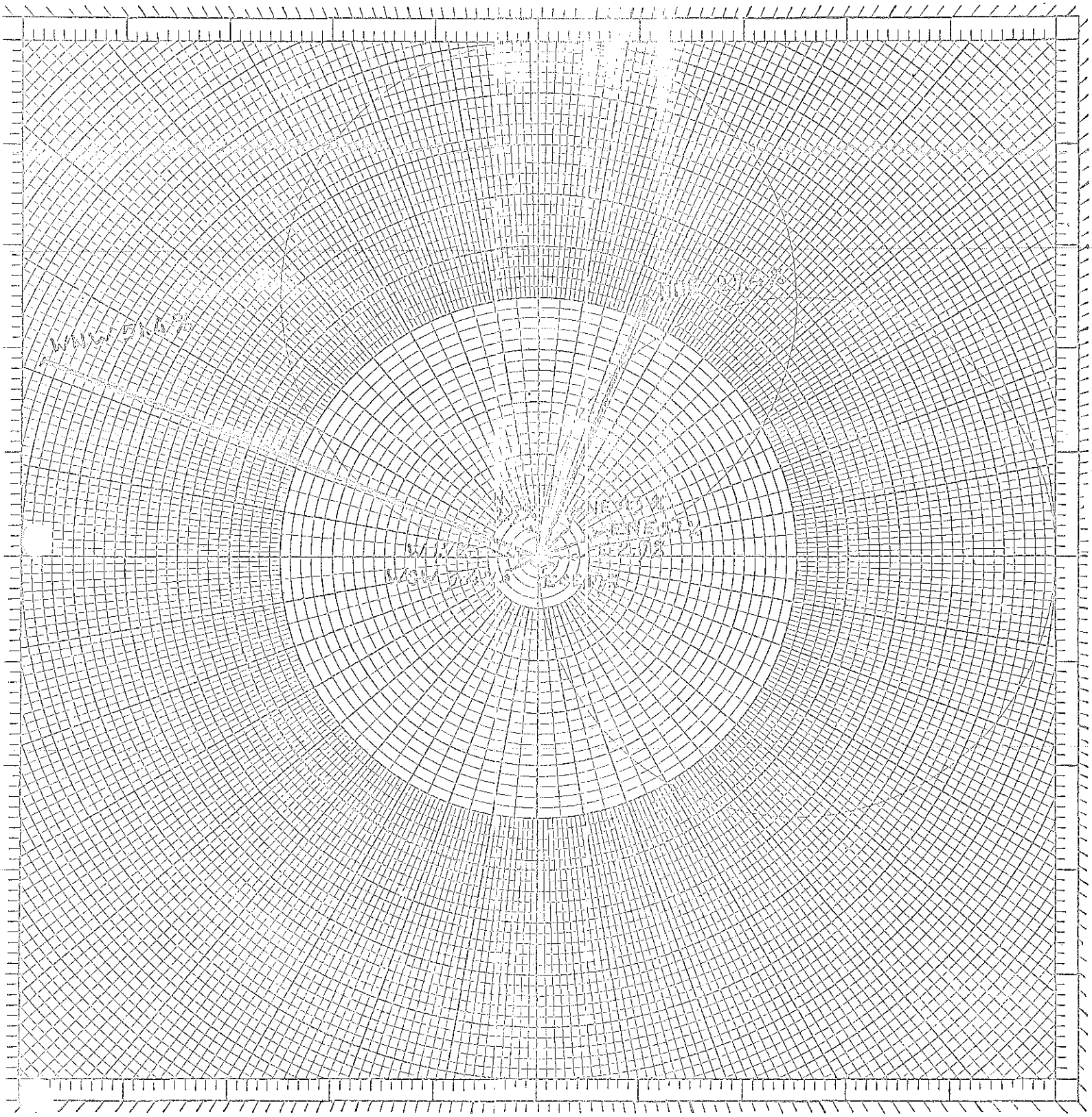

UNIVERSITY CO-OPERATIVE CO.
MADISON, WIS.

Polar Co-ordinate, Graduated in Degrees.

SPRINGFIELD-WEYERHAUSER
WEEKLY SUMMARY
APRIL 1-APRIL 8 1966

CAA APR 8 1966

S-5A 5/49

Office Memorandum

OREGON STATE BOARD OF HEALTH

To : Harold M. Patterson

Date: April 14, 1966

From : Philip Kyle

Subject: Weyerhaeuser Company Data

Analysis of Pre and Post Plant Operation, Springfield

There is a significant difference between the fallout of Na^+, as collected, the pre-expansion samples having a mean significantly lower than the post-expansion mean. At the p. 05 level, i.e., one chance in 20 of a difference this great occurring by chance alone.

There is a significant difference between the fallout of SO_4, as collected. The pre-expansion samples having a mean significantly lower than the post-expansion samples mean. At the p. 01 level, i.e., one chance in one hundred that a difference this great could have occurred by chance alone.

This analysis includes chemical analysis for Sodium and Sulfates for Particle Fallout Stations 14, 15, 17, 19, 20, and 22.

Memorandum -

TO : Sanitary Authority Members

FROM : Kenneth H. Spies

DATE : February 18, 1965

SUBJECT: Summary of Legislation

SB 87 Would remove "land clearing operations" as an exemption from air pollution control law. Introduced 1-21 at request of Sanitary Authority. First hearing by Senate Health and Welfare Committee 2-11. Opposed by city of Portland. Second hearing by same committee scheduled for 2-18.

SB 90 Would authorize Metro Study Commission to develop proposal for metropolitan air quality control program. Introduced 1-21 at request of Sanitary Authority. Hearing by Senate Local Government Committee 2-5. Passed Senate 2-9 by vote of 20 to 5. Hearing by House Local Government Committee scheduled for 2-18.

SB 178 Would require State Highway Department to pay cost of relocating sewers, water mains and other utilities located on highway right of way. Introduced 2-2. Referred to Local Government.

SB 185* Would prohibit discharge of inadequately treated sewage from houseboats and other structures. Introduced 2-2 at request of Sanitary Authority. First hearing by Senate Health and Welfare Committee 2-11. Opposed by city of Portland, city of Astoria, League of Oregon Cities, Weyerhaeuser Corp., owners of moorages, et al. Second hearing by same committee scheduled for 2-22. Amendments to be proposed by Sanitary Authority.*

SB 194 Columbia Interstate Compact. Would authorize Interstate Compact Commission to enforce water pollution control requirements. Introduced 2-4. Referred to Ways and Means.

SB 212* Provides for Certification of Sewage Works Operators. (Same as HB 1267 introduced in 1963.) Introduced 2-5. Referred to Ways and Means.

SB 230 Would require a permit for use of isopropyl ester of 2,4-D, permit to be issued by the State Forester, Director of Agriculture and research specialist from Oregon State University. Introduced 2-30. Referred to Agriculture.

SB 242* Provides for creation of air quality control regions. Introduced 2-11 at request of city of Portland. Referred to Local Government.

HB 1272* Would require use of devices on motor vehicles after December 1, 1967, for control of pollution and would require Sanitary Authority to establish standards and certify said devices. Introduced 1-28. Referred to Highways.

HB 1312 Would abolish Rogue River Coordination Board. (Same as SB 222 introduced in 1963). Introduced 1-29. Referred to State and Federal Affairs.

HB 2031 Would appropriate $750 for financing operations of Rogue River Coordination Board. Introduced 1-11. Passed House 2-8 by vote of 31 to 21. Passed Senate 2-16.

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* Copy attached