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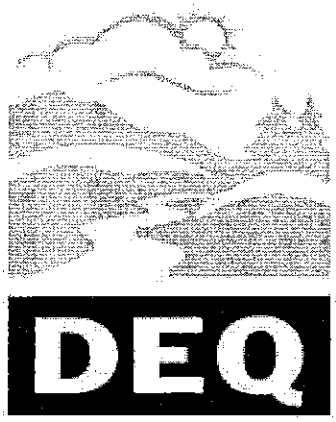
5/7/1971

OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS



State of Oregon
Department of Environmental Quality

AGENDA

Environmental Quality Commission Meeting

May 7, 1971

Second Floor Auditorium, Public Service Building

920 S.W. 6th Ave., Portland, Oregon

9:30 a.m.

A. Comments from the public

10:00 a.m.

B. Minutes of previous meetings Stevens

(1) Twenty-second regular meeting April 2, 1971

(2) Special meeting April 6, 1971

C. Project plans for April 1971

D. Washington County Solid Waste Disposal denied

E. L & H Lumber Co. - Hearings Officer Report Adopted Stevens Favored

F. Waste Discharge Permits

(1) City of Sheridan

(2) Walter R. Parrott - Bull Frog Park Trailer Park (denied NP)

(3) Menasha Corporation, North Bend

(4) Coos Head Timber Co., Empire

G. Sewage disposal for city of Riddle

H. Sewage disposal for Coos Bay-Seaside-Bunker Hill

I. Sewage disposal for city of Condon OK

J. Proposed amendments to water quality standards adopted as amended

K. Coos County Wigwam Burner Status Report

Set Hearing for Rogge Lbr Sales, Inc

L. Tax Credit Applications

WQC (1)	Portland Canning Co., Sherwood	T-201	$14,227.00	
WQC (2)	Jantzen, Inc., Portland	T-205	65,277.00	
WQC (3)	Georgia Pacific, Inc., Springfield	T-209	11,756.42	
WQC (4)	Blue Lake Packers - Agripac - - Revoke and reissue under applications	certificates 52 and 101 T-219 and T-220		
(5)	American Can Company, Halsey			
		T-150	$2,140,486.00	WPC
		T-154	218,825.00	WQC
		T-149	205,941.00	AQC
		T-151	67,435.00	AQC
		T-152	548,911.00	AQC
		T-153	367,677.00	AQC
(6)	International Paper Co., Gardiner			
		T-184	$ 3,518.00	AQC
		T-185	13,586.66	AQC
(7)	Oregon Portland Cement, Lake Oswego			
		T-203	$ 10,769.66	AQC
		T-204	23,362.32	AQC
(8)	Teledyne Wah Chang, Albany			
		T-164	2,811.00	AQC
MWVAP		T-165 Hold	43,601.00	MWVAP
		T-166	31,868.00	AQC
(9)	Reynolds Metals, Troutdale	T-197	77,095.21	AQC
(10)	Willamette Industries	T-177	16,913.97	AQC
		T-178	50,647.06	AQC
(11)	R.C. Long Shake Co.	T-186	18,009.74	AQC

M. Dunthorpe-Riverdale sewage disposal - status report

author N. Proposed regulations for sulphite pulp mills

O. Columbia South Shore sewage disposal OKd

P. Field burning schedule hearing authorization authorized WQC

Q. Hanna Nickel compliance schedule modification accepted

MINUTES OF THE TWENTY-THIRD MEETING

of the

Oregon Environmental Quality Commission

May 7, 1971

The twenty-third regular meeting of the Oregon Environmental Quality Commission was called to order by the Chairman at 9:30 a.m., Friday, May 7, 1971, in the Second Floor Auditorium of the Public Service Building, 920 S.W. 6th Avenue, Portland, Oregon. Members present were B.A. McPhillips, Chairman, Arnold M. Cogan, Edward C. Harms, Jr., George A. McMath and Storrs S. Waterman.

Participating staff members were Kenneth H. Spies, Director, E.J. Weathersbee, Deputy Director; Arnold B. Silver and John Osburn, Legal Counsel; Harold M. Patterson, Air Quality Control Division Director; Harold L. Sawyer, Joseph A. Jensen and Fred M. Bolton, Chief Engineers; E.A. Schmidt, Roger C. Sherwood and Edgar R. Lynd, Supervising Engineers; L.L. Baton, District Engineer; J.L. Van Domelen, T.M. Phillips, H.H. Burkitt, F.A. Skirvin and C.A. Ayer, Associate Engineers; and R. Bruce Snyder, Meteorologist.

COMMENTS FROM THE PUBLIC

The Chairman asked if anyone was present who wished to make any comments regarding subjects not listed on the agenda but relating to environmental quality. No one offered to speak. The meeting was then recessed until 10:00 a.m.

REAPPOINTMENT OF COMMISSION MEMBERS

At 10:00 a.m. Governor Tom McCall appeared before the Commission and announced the reappointment of Mr. B.A. McPhillips and Mr. Edward C. Harms, Jr., as members of the EQC for another four years beginning July 1, 1971. He commended them both very highly for their many years of outstanding public service to the state of Oregon as members of the State Sanitary Authority and its successor, the EQC.

MINUTES OF PREVIOUS MEETINGS

It was MOVED by Mr. Waterman, seconded by Mr. Cogan and carried that the minutes of the twenty-second regular meeting held on April 2, 1971 and the special meeting held on April 6, 1971, both in the Public Service Building Auditorium, Portland, Oregon be approved as prepared by the director.

PROJECT PLANS FOR APRIL 1971

It was MOVED by Mr. Harms, seconded by Mr. McMath and carried that the actions taken by the staff during the month of April 1971 regarding the following 33 municipal sewerage, 5 industrial waste and 23 air quality control projects be approved:

Water Pollution Control

Date	Location	Project	Action
Municipal Projects (33)			
4/7/71	USA	Mira Park Subdivision sewers	Prov. app.
4/7/71	USA	Brookview Subdivision sewers	Prov. app.
4/7/71	Lake Oswego	LID #127 & LID #129	Prov. app.
4/7/71	Oak Lodge S.D. #1	Hillgrove Subdivision sewers	Prov. app.
4/7/71	Inn at Otter Crest	Treatment facilities	Comments
4/7/71	Monmouth	Sacres Acres #3	Prov. app.
4/7/71	Eugene	Projects 665 and 743	Prov. app.
4/7/71	Portland	N. Swift Blvd. (#2980)	Prov. app.
4/7/71	Black Butte Ranch	System extension	Prov. app.
4/9/71	Trojan	Sewage treatment plant	Prov. app.
4/13/71	Benton County	Knoll Terrace Park	Comments
4/13/71	Portland	Coast Guard Station at Swan Island	Prov. app.
4/14/71	Salem	Bellevue Street	Prov. app.
4/14/71	Salem	Battle Creek Trunk, Phase II	Prov. app.
4/14/71	Salem	Dakota Road, S.E.	Prov. app.
4/14/71	Salem	Sunnyside Road - Boone Road	Prov. app.
4/14/71	Eugene	Change Order #2 (STP)	Approved
4/14/71	North Bend	Preliminary sewage treatment plant plans	Comments
4/15/71	Troutdale	Edgefield Interceptor	Prov. app.
4/15/71	Portland	Johnson Creek interceptor	Prov. app.
4/19/71	Oregon City	Rivercrest Park #4	Prov. app.
4/19/71	Salem	13th Avenue S.E.	Prov. app.
4/19/71	Milwaukie	Bowman Terrace Subdivision	Prov. app.
4/19/71	Gresham	Liberty Avenue extension	Prov. app.
4/19/71	Oregon City	Hazelwood Park #4	Prov. app.
4/19/71	Eugene	Project #728 (reconstruction)	Prov. app.
4/19/71	Bandon	Edison Avenue	Prov. app.
4/20/71	Lane County	Shotgun Recreation Site proposal	Comments
4/20/71	Oak Acres Tr. Pk.	Infiltration elimination	Prov. app.
4/20/71	Coquille	Sewerage system study	Comments
4/21/71	Sherwood	Sewerage report	Concurrence
4/30/71	Medford	Change Orders #22 through 31	Approved
4/30/71	Clackamas County	River Bend Mobile Home Park revisions	Prov. app.

Water Pollution Control (continued)

Industrial Projects (5)

Date	Location	Project	Action
4/7/71	Dorena	Bohemia Lumber Company Log deck drainage recirculation system	Approved
4/9/71	Elgin	Boise Cascade Corporation Total plant waste water reuse system	Prel. app.
4/19/71	Albany	Albany Frozen Foods, Inc. Partial waste water land disposal system	Approved
4/20/71	St. Helens	Kaiser Gypsum aeration basin modifications	Approved
4/26/71	Portland	Pacific Meat Company land disposal (sludge)	Approved

Solid Waste Projects (0)

No solid waste project plans were processed during the month of April.

Air Quality Control

Date	Location	Project	Action
4/1/71	Josephine County	Bate Plywood Co. Request for 60 day time extension to modify boiler resulting in WWB phase-out	Granted
4/1/71	Douglas County	Robert Dollar Co. Request six (6) week delay for submission of plans	Granted
4/4/71	Marion County	Boise Cascade Corporation Chemical Recovery system	Cond. app.
4/6/71	Douglas County	Hub Lumber Co. Plans for WWB modification	Req. add. information
4/6/71	Curry County	Agnew Timber Products WWB phase-out schedule	Approved
4/6/71	Coos County	Bohemia Lumber Co. WWB phase-out schedule	Approved
4/7/71	Curry County	Brookings Plywood Co. WWB phase-out and modification to boiler	Cond. app.
4/8/71	Josephine County	J.H. Baxter WWB modification plans	Prel. app.
4/8/71	Lincoln County	Cascadia Lumber Co. WWB phase-out schedule	Approved
4/8/71	Clatsop County	Westport Lumber Co. WWB phase-out schedule	Approved
4/8/71	Umatilla County	Quality Lumber Co. WWB phase-out schedule	Approved

Air Quality Control (continued)

Date	Location	Project	Action
4/8/71	Josephine County	Carolina Pacific Requested authorization to operate WWB until Dec. 31, 1971 due to fire which destroyed plant	Approved
4/9/71	Josephine County	Brand Worth Division of Litton Industries. Plans for construction of new wood finishing plant	Conditional
4/13/71	Curry County	South Coast Lumber Co. Request for 30 day extension on plan submission	Granted
4/13/71	Lincoln County	Toledo Shingle Co. WWB phase-out schedule	Approved
4/19/71	Douglas County	Little River Box Co. WWB modification plans	Requested Additional Information
4/20/71	Douglas County	Superior Lumber Co. WWB modification plans	Req. add. information
4/20/71	Douglas County	Hardwood, Inc. Request for indefinite delay for submission of plans to modify or phase-out of WWB	Denied
4/30/71	Lane County	Lakeview Lumber Co. WWB modification plans	Preliminary approval
4/30/71	Josephine County	SH & W Lumber Co. WWB modification plans	Requested Additional Information
4/30/71	Curry County	Brookings Plywood Co. Modification to cyclone	Approved
4/30/71	Deschutes County	Central Oregon Fir WWB phase-out schedule	Approved
4/30/71	Douglas County	Hanna Nickel Co. Construction of pilot plant to recover Columbian ore	Conditional

WASHINGTON COUNTY SOLID WASTE DISPOSAL

The Washington County solid waste landfill at Shadybrook near North Plains is the only public disposal site serving the county and must be closed June 1, 1971. To provide an interim solution, for a 3-year period or until a regional program of solid waste management can be inaugurated by the Metropolitan Service District the Washington County Board of Commissioners had recently granted a conditional use permit to use the abandoned Porter-Yett rock quarry site located adjacent to Scholls Ferry Road near the south end of S.W. 145th Street as a sanitary landfill.

A detailed proposal of operation had been submitted to the DEQ on May 3, 1971 by the county for review and approval by the state.

Mr. Schmidt presented the report of the staff covering its review of the county's proposal. He said the Porter Yett site appeared to be the most promising short-term site that might possibly be obtained within the time available for providing service coincident with the scheduled closure of the Shadybrook site but he pointed out four technical questions that need to be answered before it could be approved.

A copy of the staff report has been made a part of the department's permanent files in this matter.

Mr. Richard Milbrodt, Washington County Administrator, was present to represent the county. He said the Shadybrook site must be closed to further disposal of solid wastes by 5:00 p.m. on May 31, 1971; that the county had studied alternative methods of disposal as well as alternative sites; and that by a vote of 3 to 2 the County Commissioners had selected the Porter Yett quarry as the site for an interim solution.

In response to questions by the EQC members he stated that they proposed to install an impervious asphaltic membrane on the bottom of the quarry for collection in a sump of all the leachate so that it would not seep into the underground waters, that the collected leachate would be stored in a lined lagoon where it would be chemically treated prior to final disposal on the site, that no leachate would be discharged to the adjacent creek which is tributary to Fanno Creek, that adequate cover material was available from the site and adjacent aggregate operations, that the wastes would be covered daily, and that until the site could be properly developed they might have to haul temporarily to the Portland landfill site.

He claimed that the alternative methods (incineration, sorting, recycling, etc.) that they had investigated would be considerably more expensive, from $7 to $8 per ton compared to $2 per ton for landfill operations.

He did not have a specific answer as to why the Planning Commission had disapproved the Porter Yett site. He said the Planning Commission had offered no alternative solution.

Mr. Bill Bartholomew of the State Engineer's office and Mr. Herb Schlicker of the State Department of Geology and Mineral Industries were the next persons to make statements. Both had previously sent written comments to the county regarding the Porter site. They both felt the site could be used as a solid waste landfill provided adequate precautions were taken. Mr. Schlicker, however had more reservations about it than did Mr. Bartholomew and felt it advisable to make a more detailed geological study before accepting the proposal.

In addition to his own statement Mr. Bartholomew delivered to the director a letter from Mr. Chris L. Wheeler, State Engineer amplifying the recommendations made previously by that office.

Mrs. Marino Bringas, a resident adjacent to the quarry, Mr. Blaine Vincent, Chairman of a Citizens Committee to "Dump the Dump", Mr. John M. Gleeson, attorney for Mr. and Mrs. Bringas, and Mr. Edward M. Jannsen, well driller, appeared and made statements in opposition to the proposed use of the Porter Yett site for solid waste disposal. Their opposition was based mainly on their allegation that the ground water supplies would become polluted by such a use. Mr. Jannsen claimed that blasting at the rock quarry site in previous years had caused damage to certain wells in the area. He said that the study proposed by Mr. Schlicker would be advisable but in his opinion would not give a full answer.

There being no other persons present who wished to be heard in this matter the EQC members then discussed what action they should take.

Under a preliminary motion made by Mr. Harms and seconded by Mr. Waterman it was proposed to deny approval of the site pending the outcome of a geological study similar to the one recommended by the Department of Geology and Mineral Industries and providing further that the precautions to be taken by the county would be completely satisfactory to the DEQ staff. That motion was later withdrawn.

Mr. McPhillips then stated that based on his observations during an inspection of the site he is not at all convinced of its suitability. Mr. McMath said he is not in favor of a landfill and would not support it in any event. Mr. Cogan commented that it did not seem reasonable to require a $10,000 study if the site were to be rejected anyway so he suggested that

it be denied now. Mr. Waterman pointed out that an alternative had to be found. It was agreed that the Portland landfill is probably the only available alternative.

After further discussion it was MOVED by Mr. Cogan, seconded by Mr. McMath and unanimously carried that the county's request to use the Porter Yett quarry site as a sanitary landfill be denied and that it be recommended to Washington County that (1) negotiations be undertaken with the city of Portland to dispose of wastes from Washington County at the Portland disposal site or (2) any other possible alternative, if necessary, be employed.

L & H LUMBER CO.

Mr. Silver reported briefly on the hearing held by Mr. Waterman as hearings officer on March 12, 1971 at Sutherlin, Oregon, in the matter of air pollution caused by operations of the L & H Lumber Company's wigwam burner. A copy of the hearings officer's report including findings of fact, conclusions of law, opinion and proposed order had previously been furnished each EQC member as had also a counter finding and proposal by Mr. Warren Woodruff attorney for the company.

The order proposed by Mr. Waterman was as follows:

"The company shall immediately cease the use and operation of its wigwam waste burner, located at Sutherlin, Oregon, for the incineration of wood wastes unless it first modifies the wigwam waste burner in accordance with engineering plans approved by the DEQ to achieve compliance with department rules and requirements."

Mr. Warren A. Woodruff, attorney, was present to represent the company. He said $10,000 had been spent in an attempt to modify the burner but that it did not solve the problem so the company decided to phase out use of the burner. He stated that this required extensive revisions to the waste handling operations, that solid wastes are chipped and sold to others, that bark and sawdust are stored on company-owned land, that hemlock lumber constitutes more than 50% of the mill's production, that in January and February of this year they had to resume operations of the burner on 3 occasions because of emergencies and that since the March 12 hearing the burner had been used two more times for the same reasons. He claimed that a wigwam burner could not be modified satisfactorily to burn hemlock wastes without excessive atmospheric emissions.

In response to questions from the EQC members he said that the company does not intend to modify its burner but requests permission to use it only during emergencies, that there is no plan to use a burner jointly with other mills, and that he could not say definitely how often emergencies would arise requiring use of the unmodified burner.

Mr. Burkitt informed the Commission that the DEQ staff has knowledge of a modified wigwam burner that does operate satisfactorily with hemlock wastes as its primary fuel supply. He showed colored photographs of excessive smoke coming from the L & H Lumber Company burner on May 4, 1971. He said it had been reported that the burner had been used 18 different times since March 14, 1971.

After further discussion it was MOVED by Mr. Harms, seconded by Mr. Cogan and carried that the findings of fact, conclusions of law and proposed order set forth in the March 21, 1971 report of the hearings officer in the matter of the L & H Lumber Company, an Oregon Corporation, be approved and adopted.

Mr. Waterman commented on the advisability of a joint industry program for providing adequate waste incineration facilities. Mr. Harms pointed out that in Lane County during the last two years more than 50 wigwam burners have been phased out of operation.

Mr. Cogan commended Mr. Waterman and the legal staff for their capable handling of the public hearing in this matter.

COOS COUNTY WIGWAM BURNER STATUS REPORT

Mr. Phillips presented the staff report dated April 30, 1971 covering the present status of use of wigwam waste burners in Coos County. The report contains a list of 10 mills for which schedules have been developed for phasing their burners out of operation. Mr. Phillips submitted a separate status report dated April 29, 1971 for the Rogge Lumber Sales, Inc. which operates two wigwam burners in Coos County plus one in Curry County and does not propose to phase them out of operation or to modify them.

Mr. Andy Newhouse, Attorney from Coos Bay, was present to represent the Rogge Lumber Sales, Inc. He showed large colored aerial photographs of the two plants located near Bandon. The photographs were reportedly taken in 1966.

He stated that the sawmill processes mostly Douglas fir and no hemlock, that its production is about 150,000 board feet per day of rough lumber plus chips and sawdust, that the chips are sold in Coos Bay and the sawdust in Coquille, and that only the bark and small amounts of wood debris are burned in the wigwam burner. He claimed the burner complies with the state's regulations.

He stated or claimed that production of the planing mill is about 200,000 board feet per day, that the amount of waste is not great, that the conveyor to the burner operates only intermittently, that no particulates are emitted, that the company has received only one complaint, that the prevailing winds in the area are either north or south, that the Bandon area is quite windy and that he could furnish Ringelmann tests to show that operation of the burner is acceptable.

It was MOVED by Mr. Harms, seconded by Mr. Cogan and carried that the staff be authorized to call and hold a public hearing in the matter of the Rogge Lumber Sales, Inc. as per recommendations of the April 29, 1971 staff report.

The meeting was then recessed at 12:15 p.m. and reconvened at 1:30 p.m.

SEWAGE DISPOSAL FOR COOS BAY-EASTSIDE-BUNKER HILL

Mr. Lynd presented the staff report dated April 26, 1971 regarding the matter of a combined sewage disposal system for the three communities of Coos Bay, Eastside and Bunker Hill. The directors of the Bunker Hill Sanitary District had reported their reluctance to join with the city of Coos Bay because they thought it would be more expensive for their district. Mr. Lynd said the staff recommends that if the Bunker Hill Sanitary District refuses to join in a master system and elects to build its own secondary sewage treatment and that if by so doing it is declared ineligible by EPA for a federal construction grant then it likewise should be ruled ineligible for a state grant.

He said the staff recommends further that where economics of construction, operation and maintenance favor consolidation of a number of plants into a master system the individual communities should be required to participate because experience has shown that improved operation and treatment will usually occur.

Mr. Lynd reported that the Eastside City Council had voted May 4, 1971 to join the regional plan but Bunker Hill had not decided yet.

Mr. Edward W. Riley, Consulting Engineer for the Bunker Hill Sanitary District, testified that when the economic analysis of the regional plan had been made a $5,500 item had been omitted from the annual cost to the district. He said this amount has to be added to the district's cost and so the regional plan would cost the district approximately that much more than if it built its own facilities.

Mr. Richard H. Menzenberg, Chairman of the District, said if they build their own plant they will meet the same effluent and water quality standards that the regional plan would so in his opinion there is no reason why they should not be permitted to go it alone. He said he favors a true regional plan for the entire bay area but claimed that it would require too much time to develop and implement. He said the present plan does not go far enough.

Dr. Fred Cooper of Stevens,Thompson and Runyan, Consulting Engineers, explained the studies that have been and are being made for the Coos-Curry Council of Governments. He said the 1980 sewerage plan calling for consolidation of the Coos Bay-Eastside-Bunker Hill systems was the first phase. He said further that it does not include industrial wastes which are separate from the municipal systems. The second phase study is to be completed in another 6 to 8 months.

Mr. Harold A. Leedom, Coos Bay City Manager, testified that the cost estimates may be on the high side, that his city feels it has no choice but to build a plant large enough to serve the other communities, that he thinks the interests and rights of the others (Eastside and Bunker Hill) can be adequately protected by suitable contract wording although he admitted that interests of the city of Coos Bay must also be protected.

After some additional discussion it was MOVED by Mr. Harms, seconded by Mr. Waterman and carried that it be the policy of the EQC that the same basic criteria should hold for the receipt of either a federal or a state construction grant.

Mr. Harms then asked Mr. Silver if an applicant were judged ineligible for a construction grant because it refused to join a region system could the state refuse to issue a waste discharge permit for a separate system. Mr. Silver replied it would depend on whether or not the separate plant would meet applicable water quality standards.

Mr. Roy Erichsen, Consulting Engineer, who had prepared a Coos County regional sewerage plan under a study financed by the Farmers Home Administration (FHA) for the rural areas and communities having less than 5,500 population and who is currently preparing plans for the Coos Bay municipal sewage treatment plant improvement project also supported the combined Coos Bay-Eastside Bunker Hill plan.

Mr. Kelly Hoy, representative from the city of Eastside, explained that they had voted to join the regional plan because they understood that if they did not join they would not be issued a waste discharge permit and would not receive any state or federal grant or in other words they were being forced to participate.

Mr. Menzenberg then commented again and expressed strong displeasure and opposition to being forced to join a regional system.

SEWAGE DISPOSAL FOR CITY OF CONDON

Mr. Jensen presented the staff report dated April 22, 1971 covering the sewage disposal problem of the city of Condon. In reply to a question from the Chairman he said the receiving stream for the Condon sewage treatment plant is only a dry wash which consequently provides no dilution most of the time.

Mayor Jack Jackson was present and said the city has already budgeted for the first phase improvement which is expected to be completed by December 31, 1971. He assured that the second phase could be financed and would be constructed if found necessary.

It was therefore MOVED by Mr. Harms, seconded by Mr. McPhillips and carried that the staff recommendation be approved.

SEWAGE DISPOSAL FOR CITY OF RIDDLE

Mr. Van Domelen reviewed the April 22, 1971 staff report pertaining to the sewage treatment improvement needs of the city of Riddle in Douglas County. He said that the city of Riddle had elected to improve its own plant rather than participate in a regional system that would also serve the city of Myrtle Creek and the Tri-City Sanitary District and that the staff's recommendations

in this case were the same as those pertaining to the Coos Bay-Eastside-Bunker Hill matter.

Mr. George Stubbert, Vice President of State Administrative District No. 6 Council of Governments, was present and explained why the COG had approved the request of the city of Riddle to improve its own plant rather than build a long pressure sewer and multiple lift stations for connection to the proposed regional system.

Mr. Roy Erichsen, consultant to the city of Myrtle Creek and the Tri-City Sanitary District, reported the annual cost estimates were approximately the same for Riddle for their own plant ($22,340) or for joining the regional system ($22,265).

Mr. Robert Ackaret, Consulting Engineer for Riddle, contended that the city should be permitted to have its own plant rather than spend $180,000 for 3 pump stations, pressure lines and 2-1/2 to 3 miles of interceptor sewer which would be difficult to maintain.

Mr. Baton described the topography of the area which has certain disadvantages for a regional system.

It was MOVED by Mr. Harms, seconded by Mr. Cogan and carried that the policy previously adopted regarding the use of the same basic criteria for both federal and state construction grants be reaffirmed.

Mr. Harms said that therefore in the case of Riddle the federal grant criteria would be used and the waste discharge permit would require full compliance with the applicable water quality standards for the receiving stream.

CITY OF SHERIDAN WASTE DISCHARGE PERMIT

Mr. Bolton reviewed a memorandum report and discussed the pertinent provisions recommended by the staff for renewal of the waste discharge permit for the city of Sheridan which had failed to meet the schedule previously established for providing secondary sewage treatment.

Mayor Charles Jordan was present and argued that the city should be permitted to continue to make connections to its sewerage system even though it is behind schedule in installing secondary treatment and even though its present plant discharge is in violation of applicable water quality standards.

He said they hope to have a new trailer manufacturing industry locate in Sheridan which will provide employment for 250 people, which will produce no industrial wastes, which will employ mostly local people, and which add to the assessed value of the city thereby making it easier to finance needed improvements to the sewage plant. He reported that the city attorney has been instructed to schedule a bond election and the engineers have been authorized to prepare final plans. The monthly sewer user charges will have to be $6 per connection to help finance the system.

Mr. Robert D. Wells, also of the city of Sheridan, reported that the city still owes $130,000 of the original $310,000 bond issue sold in 1954, that the city has one of the highest property tax rates in the state ($35.91 per $1,000 assessed valuation), that the engineers started May 6 to survey the lagoon site, that the city has 131 acres of land and is negotiating for 33 acres more, that the city currently has a serious housing shortage, and that the city should be able to hold its bond election and have its engineering plans completed by August 1, 1971.

It was MOVED by Mr. Cogan, seconded by Mr. Waterman and carried that the waste discharge permit for the city of Sheridan be renewed with the conditions recommended by the staff except that in item 2 the deadlines be changed to August 1, 1971 for holding a bond election, August 1, 1971 for completion of final engineering and construction plans, September 1, 1971 for award of construction contract and May 31, 1972 for completion of construction.

WALTER R. PARROTT - BULL FROG PARK TRAILER PARK WDP

Mr. Bolton pointed out that although a waste discharge permit had been granted for the proposed development of the Bull Frog Park Trailer Park, Clackamas County, in June 1969, no construction has yet been started, no final engineering plans have been prepared and no specific schedule for completion of construction has been submitted by the applicant and owner, Mr. Walter R. Parrott. In a letter dated April 9, 1971 the DEQ staff advised Mr. Parrott that because of the above circumstances it was considered advisable to deny renewal of the permit.

It was MOVED by Mr. Waterman, seconded by Mr. Harms and Mr. Cogan and carried that the staff recommendations be approved and that the application for renewal be denied.

MENASHA CORPORATION AND COOS HEAD TIMBER COMPANY WDP

Mr. Sherwood reviewed briefly the proposed provisions for renewal of the waste discharge permits for the Menasha Corporation plant at North Bend and the Coos Head Timber Company mill at Empire.

It was MOVED by Mr. Harms, seconded by Mr. McPhillips and carried that the permits with revised time schedules and other provisions for the Menasha Corporation at North Bend and the Coos Head Timber Company at Empire be renewed as recommended by the staff.

AMENDMENTS TO WATER QUALITY STANDARDS

Mr. Sawyer presented a staff report dated April 23, 1971, which suggested minor revisions to the proposed amendments and which answered the questions raised by witnesses at the public hearing held on April 2, 1971 regarding the proposed amendments to the state's water quality standards. Consideration was also given to letters dated April 27, 1971 from Donald J. Benson, Executive Secretary of the Northwest Pulp and Paper Association and May 6, 1971 from Matthew Gould, Corporate Director for Environmental Control of the Georgia-Pacific Corporation, both objecting to the wording of the proposed amendments.

Mr. Gould was present and discussed further his objections to the wording of the proposed amendments.

After a brief discussion by the EQC members it was MOVED by Mr. Harms, seconded by Mr. Cogan and carried that the amendments to the water quality standards which were considered at the April 2, 1971 hearing be adopted but with the minor revisions proposed by the staff. A copy of the amendments as revised and adopted is attached to and made a part of these minutes.

DUNTHORPE-RIVERDALE SEWAGE DISPOSAL - STATUS REPORT

Mr. Bolton reviewed the actions taken by the DEQ staff in this matter since the last meeting.

Mr. Oliver Domreis of the Multnomah County Department of Public Works was present and reported on the status of sewer connections in the area as follows:

July 1970 - - - - - - - - -	274 connections
April 22, 1971 - - - - -	319 connections
	91 not connected including 7 houses annexed March 11, 1971
Since April 22, 1971 - -	25 permits issued

He estimated that the necessary sewer extension work required to serve the 7 houses annexed March 11, 1971 could not be completed much before July 15, 1971.

It was MOVED by Mr. Harms, seconded by Mr. Waterman and carried that for the 7 houses annexed March 11, 1971 the county be given an extension of time to July 15, 1971 to complete the project and the 7 home owners be given until August 15, 1971 to complete their connections.

PROPOSED REGULATIONS FOR SULPHITE PULP MILLS

After considering the May 3, 1971 staff memo presented by Mr. Ayer it was MOVED by Mr. Cogan, seconded by Mr. Waterman and carried that authorization be granted to hold a public hearing in July regarding the adoption of proposed regulations for sulphite pulp mills.

COLUMBIA SOUTH SHORE SEWAGE DISPOSAL

Mr. Silver and Mr. Bolton reported on the status of the mandatory annexation procedures for the Columbia South Shore area adjacent to the city of Portland. Based on the findings of the staff it was MOVED by Mr. Harms, seconded by Mr. McPhillips and carried that the EQC certify to the State Board of Health that the preliminary plans and time schedule for sewers as proposed by the city of Portland will be adequate to abate the health hazard existing in the area.

PROPOSED FIELD BURNING SCHEDULE REVISION

After reviewing the May 4, 1971 memorandum submitted by Mr. Snyder it was MOVED by Mr. Cogan, seconded by Mr. Waterman and carried that a public hearing be held at the June meeting of the EQC in Bend to consider the adoption of proposed revisions to the field burning schedule for the Willamette Valley.

HANNA NICKEL COMPLIANCE SCHEDULE MODIFICATION

Mr. Skirvin submitted a staff analysis and summary of the status report dated April 6, 1971 received from F.J. Coyle, Project Engineer, Hanna Nickel Smelting Company regarding the company's schedule for installation of required controls for atmospheric emissions at its Riddle plant. He recommended that the modifications to the compliance schedule described in Mr. Coyle's letters of April 6 and 19, 1971 be approved.

It was MOVED by Mr. Harms, seconded by Mr. Waterman and carried that the compliance schedule modifications requested by the company be approved as recommended by the staff.

TAX CREDIT APPLICATIONS

Mr. Sawyer and Mr. Skirvin presented the staff's evaluation and recommendations regarding the tax credit applications covered by the following motion:

It was MOVED by Mr. Cogan, seconded by Mr. Harms and carried that pollution control tax credit certificates be issued to the companies pursuant to the applications and in the amounts listed below:

	Applicant	Appl. No.	Amount
(1)	Portland Canning Co., Sherwood	T-201	$14,227.00
(2)	Jantzen, Inc., Portland	T-205	65,277.00
(3)	Georgia'Pacific, Inc., Springfield	T-209	11,756.42
(4)	Blue Lake Packers - Agripac - Revoke certificates 52 and 101 and reissue under applications	T-219 and T-220	
(5)	American Can Company, Halsey		
		T-150	$2,140,486.00
		T-154	218,825.00
		T-149	205,941.00
		T-151	67,435.00
		T-152	548,911.00
		T-153	367,677.00
(6)	International Paper Co., Gardiner		
		T-184	3,518.00
		T-185	13,586.66
(7)	Oregon Portland Cement, Lake Oswego		
		T-203	10,769.66
		T-204	23,362.32
(8)	Teledyne Wah Chang, Albany		
		T-164	2,811.00
		T-166	31,868.00
(9)	Reynolds Metals, Troutdale	T-197	77,095.21
(10)	Willamette Industries	T-177	16,913.97
		T-178	50,647.06
(11)	R.C. Long Shake Co.	T-186	18,009.74

Action on application T-165 submitted by Teledyne Wah Chang, Albany was deferred at the request of the Mid Willamette Air Pollution Authority until the June meeting. Mr. Thomas E. Nelson who was present to represent the company had no objections.

There being no further business the meeting was adjourned by the Chairman at 5:10 p.m.

Respectfully submitted,

Kenneth H. Spies

Kenneth H. Spies
Director

Amendments and Additions to

"Standards of Quality for Public Waters of Oregon and Disposal Therein of Sewage and Industrial Wastes"

Establishing

MINIMUM REQUIREMENTS FOR TREATMENT OF WASTES AND IMPLEMENTATION THEREOF

Oregon Administrative Rules, Chapter 340
Division 4, Subdivision 1

REFERENCE NOTES:

41-020 MAINTENANCE OF STANDARDS OF QUALITY

(As Amended)

(1) The degree of waste treatment required to restore and maintain the above standards of quality shall be determined in each instance by the Department of Environmental Quality and shall be based upon the following:

(a) The uses which are or may likely be made of the receiving stream.
(b) The size and nature of flow of the receiving stream.
(c) The quantity and quality of the sewage or wastes to be treated, and
(d) The presence or absence of other sources of pollution on the same watershed.

(Unchanged)

(2) All sewage shall receive a minimum of secondary treatment or equivalent (equal to at least 85% removal of 5-day biochemical oxygen demand and suspended solids) and shall be effectively disinfected before being discharged into any public waters of the state.

(New Paragraph)

(3) All industrial waste shall receive, after maximum practicable inplant control, a minimum of secondary treatment or equivalent control (reduction of suspended solids and organic material where present in significant quantities, effective disinfection where bacterial organisms of public health are present, and control of toxic or other deleterious substances) before being discharged into any public waters of the state.

(New Section-to be inserted between 41-020 and 41-025)

41-022 IMPLEMENTATION OF TREATMENT REQUIREMENTS

Waste treatment and control requirements prescribed under 41-010, 41-015 and 41-020 shall be provided in accordance with the following implementation program:

(1) For new or expanded waste loads, fully approved treatment and control facilities will be required prior to discharge of any wastes from the new or expanded facility.

(2) For existing waste loads, necessary treatment and control facilities shall be provided in accordance with a specific program and timetable incorporated into the waste discharge permit for the individual discharger. In developing treatment requirements and implementation schedules for existing installations, consideration shall be given to the impact upon the overall environmental quality including air, water, land use and aesthetics.

PROJECT PLANS

During the month of April 1971 the following project plans and specifications and/or reports were reviewed by the staff. The disposition of each project is shown, pending ratification by the Environmental Quality Commission.

Date	Location	Project	Action
Municipal Projects (33)			
4-7-71	USA	Mira Park Subdivision sewers	Prov. approval
4-7-71	USA	Brookview Subdivision sewers	Prov. approval
4-7-71	Lake Oswego	LID #127 & LID #129	Prov. approval
4-7-71	Oak Lodge S.D. #1	Hillgrove Subdivision sewers	Prov. approval
4-7-71	Inn at Otter Crest	Treatment facilities	Comments
4-7-71	Monmouth	Sacres Acres #3	Prov. approval
4-7-71	Eugene	Projects 665 and 743	Prov. approval
4-7-71	Portland	N. Swift Blvd. (#2980)	Prov. approval
4-7-71	Black Butte Ranch	System extension	Prov. approval
4-9-71	Trojan	Sewage treatment plant	Prov. approval
4-13-71	Benton County	Knoll Terrace Park	Comments
4-13-71	Portland	Coast Guard Station at Swan Island	Prov. approval
4-14-71	Salem	Bellevue Street	Prov. approval
4-14-71	Salem	Battle Creek Trunk, Phase II	Prov. approval
4-14-71	Salem	Dakota Road, S.E.	Prov. approval
4-14-71	Salem	Sunnyside Road - Boone Road	Prov. approval
4-14-71	Eugene	Change Order #2 (STP)	Approved
4-14-71	North Bend	Preliminary sewage treatment plant plans	Comments
4-15-71	Troutdale	Edgefield Interceptor	Prov. approval
4-15-71	Portland	Johnson Creek interceptor	Prov. approval

Date	Location	Project	Action
4-19-71	Oregon City	Rivercrest Park #4	Prov. approval
4-19-71	Salem	13th Avenue S.E.	Prov. approval
4-19-71	Milwaukie	Bowman Terrace Subdivision	Prov. approval
4-19-71	Gresham	Liberty Avenue extension	Prov. approval
4-19-71	Oregon City	Hazelwood Park #4	Prov. approval
4-19-71	Eugene	Project #728 (reconstruction)	Prov. approval
4-19-71	Bandon	Edison Avenue	Prov. approval
4-20-71	Lane County	Shotgun Recreation Site proposal	Comments
4-20-71	Oak Acres Tr. Pk.	Infiltration elimination	Prov. approval
4-20-71	Coquille	Sewerage system study	Comments
4-21-71	Sherwood	Sewerage report	Concurrence
4-30-71	Medford	Change Orders #22 through 31	Approved
4-30-71	Clackamas County	River Bend Mobile Home Park revisions	Prov. approval

Industrial Projects (5)

4-7-71	Dorena	Bohemia Lumber Company Log deck drainage recirculation system	Approved
4-9-71	Elgin	Boise Cascade Corporation Total plant waste water reuse system	Prel. approval
4-19-71	Albany	Albany Frozen Foods, Inc. Partial waste water land disposal system	Approved
4-20-71	St. Helens	Kaiser Gypsum aeration basin modifications	Approved
4-26-71	Portland	Pacific Meat Company land disposal (sludge)	Approved

Solid Waste Projects (0)

No solid waste project plans were processed during the month of April.

PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL DIVISION FOR APRIL, 1971

The following project plans or reports were received and processed by the Air Quality Control Division for the month of April, 1971:

DATE	LOCATION	PROJECT	ACTION
1	Josephine County	Bate Plywood Co. Request for 60 day time extension to modify boiler resulting in WWB phase-out	Granted
	Douglas County	Robert Dollar Co. Request six (6) week delay for submission of plans	Granted
4	Marion County	Boise Cascade Corporation Chemical Recovery System	Conditional Approval
6	Douglas County	Hub Lumber Co. Plans for WWB modification	Requested Additional Information
	Curry County	Agnew Timber Products WWB phase-out schedule	Approved
	Coos County	Bohemia Lumber Co. WWB phase-out schedule	Approved
7	Curry County	Brookings Plywood Co. WWB phase-out and modification to boiler	Conditional Approval
8	Josephine County	J. H. Baxter WWB modification plans	Preliminary Approval
	Lincoln County	Cascadia Lumber Co. WWB phase-out schedule	Approved
	Clatsop County	Westport Lumber Co. WWB phase-out schedule	Approved
	Umatilla County	Quality Lumber Co. WWB phase-out schedule	Approved
	Josephine County	Carolina Pacific Requested authorization to operate WWB until Dec. 31, 1971 due to fire which destroyed plant.	Approved

PROJECT PLANS, REPORTS, PROPOSALS FOR AIR QUALITY CONTROL DIVISION FOR APRIL, 1971 CONTINUED.

DATE	LOCATION	PROJECT	ACTION
9	Josephine County	Brand Worth Division of Litton Industries. Plans for construction of new wood finishing plant.	Conditional
13	Curry County	South Coast Lumber Co. Request for 30 day extension on plan submission	Granted
	Lincoln County	Toledo Shingle Co. WWB phase-out schedule	Approved
19	Douglas County	Little River Box Co. WWB modification plans	Requested Additional Information
20	Douglas County	Superior Lumber Co. WWB modification plans	Requested Additional Information
20	Douglas County	Hardwood, Inc. Request for indefinite delay for submission of plans to modify or phase-out of WWB	Denied
30	Lane County	Lakeview Lumber Co. WWB modification plans	Preliminary Approval
	Josephine County	SH & W Lumber Co. WWB modification plans	Requested Additional Information
	Curry County	Brookings Plywood Co. Modification to cyclone	Approved
	Deschutes County	Central Oregon Fir WWB phase-out schedule	Approved
	Douglas County	Hanna Nickel Co. Construction of pilot plant to recover Columbian ore	Conditional

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : H. M. PATTERSON, AIR QUALITY CONTROL DIVISION

DATE : April 28, 1971

SUBJECT: L & H LUMBER CO., Sutherlin

A copy of the Hearings Officer's report of the Public Hearing held on March 12, 1971 regarding the air pollution problem caused by L & H Lumber Co. was mailed to Members of the Commission on March 31, 1971. Attached is a duplicate copy of that mailing for your reference.

Attached also is a Proposed Findings of Fact prepared by Mr. Woodruff, Attorney for L & H Lumber Co., who will present the Proposed Findings of Fact to the Commission on May 7 as an argument to the type of order that should be adopted.

cc: A. B. Silver
K. H. Spies
E. J. Weathersbee
H. H. Burkitt
T. M. Phillips

Storrs Report
Adopted May 3, 1971

TO: HTP Hms

BEFORE THE DEPARTMENT OF ENVIRONMENTAL QUALITY
OF THE STATE OF OREGON

TO: Members of the Environmental Quality Commission

FROM: Storrs Waterman, Hearings Officer

SUBJECT: L & H Lumber Co., an Oregon Corporation

Pursuant to notice, a hearing was held in Sutherlin, Oregon, on the 12th day of March, 1971, before the undersigned as hearings officer requiring L & H Lumber Co., an Oregon corporation, to appear and show cause why the Environmental Quality Commission should not enter an order within the following purview:

1. Cease and desist the utilization and operation of its wigwam waste burner.
2. Cease and desist the utilization and operation of its wigwam waste burner until such time that it has been modified in accordance with engineering plans and specifications approved by the Department of Environmental Quality, and operated in compliance with OAR, Chapter 340, sections 21-015 and 21-020.
3. Such other order as based upon evidence presented.

The hearing commenced at 10:00 a.m. and adjourned at 12:15 p.m. in the Sutherlin Community Hall, 401 South Willamette Street, Sutherlin, Oregon. The original date of hearing, February 26, 1971, had been postponed to the above-stated date at the request of Mr. Warren Woodruff, attorney for L & H Lumber Co. Mr. Woodruff appeared on behalf of L & H Lumber Co. and Arnold B. Silver, Assistant Attorney General, appeared on behalf of the Department of Environmental Quality. For simplicity, L & H Lumber Co. will hereafter be called the Company, and the Department of Environmental Quality, the Department.

Testimony was heard and exhibits were received from both the Company and the Department. In addition, interested citizens present at the hearing were given an opportunity to be heard, none of which so testified.

Based upon the testimony, exhibits and records and files introduced and received in this matter, I have made the following:

FINDINGS OF FACT

1. The Environmental Quality Commission pursuant to ORS 449.760(7) has designated geographical areas of the state as "special control areas". The Company owns and operates a wigwam waste burner located in the Umpqua Basin special control area as defined by section 21-010(2) of Chapter 340, OAR.

2. The Environmental Quality Commission has promulgated rules codified in sections 21-005 to 21-025, Chapter 340, OAR, for the purpose of regulating and controlling particulate emissions. Section 21-015(2) prohibits a person from causing an emission of an air contaminant into the atmosphere from an existing source within a special control area for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as No. 1 on the Ringelmann chart.

Testimony, records and files regarding this matter show that the Company had emitted air contaminants into the outdoor atmosphere prior to May 22, 1970 darker than Ringelmann No. 1 and specifically on May 13, 1970 and May 14, 1970, for periods longer than three minutes in one hour. The Company has admitted as shown in the record that its emissions are in excess of Ringelmann No. 1 when the wigwam waste burner is being operated.

3. The Department since at least 1969 has attempted to encourage voluntary cooperation by the Company in controlling its air pollution and air contamination and to develop plans for complying with ORS Chapter 449 and rules adopted thereunder.

4. The Environmental Quality Commission on or about May 22,

1970, promulgated Order No. 20. The terms of the order required the Company by July 15, 1970 to either terminate the use of its wigwam waste burner or modify it in order to meet air quality standards. In addition, the Company was granted the option to utilize the burner until September 1, 1970 without modification provided it notified the Department of its intention to cease the utilization of its wigwam waste burner by July 15, 1970.

5. On or about September 25, 1970, the Company applied to the Environmental Quality Commission for a variance from Environmental Quality Commission Order No. 20 to permit it to operate its wigwam waste burner without modification for two weeks beginning October 5, 1970 and ending October 19, 1970 for incineration of sawdust, and for 30 days beginning October 5, 1970 and ending November 5, 1970 for incineration of bark. This variance was granted by the Commission by Order No. 36.

6. The Company operated its wigwam waste burner at least during October 7, 1970, October 13, 1970, January 19, 1971, January 20, 1971, January 25, 1971 and February 17, 1971. Since the October dates were within the variance provisions of Environmental Quality Commission Order No. 36, they are not relevant.

7. The operation of the wigwam waste burner by the Company during the other dates specified in Finding 6, January and February, 1971, caused emissions in excess of Ringelmann No. 1.

8. The Company employed a consulting engineer to design plans for modification of its wigwam waste burner in order to achieve compliance with department rules and requirements. Engineering plans were submitted to the Department and approved. However, complete modification of the burner pursuant to the engineering plans were not implemented by the Company.

9. Order No. 20 of the Department required the Company to make a determination whether it desired to modify its wigwam waste burner or phase out its use. The Company decided to phase out the

use of the wigwam waste burner as expressed in the actions of the Company after receipt of Order No. 20 and the application for variance granted by Order No. 36. In addition, at no time prior to the hearing did the Company imply that it did not intend to phase out its wigwam waste burner.

10. The Company has interjected a new element in the considerations regarding the operation of its wigwam waste burner. It wishes to use the burner during what it terms "emergencies".

11. The rules of the Department do not contemplate either intermittent use of the burner nor its emergency use. The orders of the Environmental Quality Commission also did not contemplate either use, and up to the date of Mr. Woodruff's letter to the Department, the Company did not express any intention of using its burner, either intermittently nor for emergencies.

12. The Company's trucks used for transporting wood wastes and residues are of 1950 vintage, old and susceptible of breakdown. The Company has expressed no intention of replacing these trucks.

13. The Company has testified that it is going to install a chipper.

14. The Company has testified that it expects to install chip storage no later than March 31, 1971, with storage capacity of approximately six (6) hours production of chips.

15. The Company has testified that a large percentage of logs used in the mill are hemlock. These residues do not ordinarily burn cleanly in a wigwam waste burner.

16. The Company has a "letter of intent" from a buyer expressing that it will purchase its sawdust, approximately by midsummer of 1971. The Company has testified it has had difficulty in disposing of its sawdust by other means.

17. There are other wigwam waste burners in the region not complying with Department rules and requirements.

From the Findings of Fact, I have made the following

CONCLUSIONS OF LAW

1. The Company has violated Environmental Quality Commission Order No. 20.

2. The Company has violated Environmental Quality Commission Order No. 36.

3. The Company has violated section 21-015(2), Chapter 340, OAR.

From these Findings of Fact and Conclusions of Law, I have rendered the following

OPINION

The Company has attempted to withdraw its program of ceasing the operation of its wigwam waste burner. It offers as reasons for wishing to not comply with Environmental Quality Commission orders: (1) Breakdown of trucks hauling wood wastes to its land fill; (2) Possible breakdown of its new chipper; (3) railroad switching schedule may be irregular, causing possible shortage of rail car chip space; (4) shutdown of mill in the event its burner cannot be operated; and (5) yard cleanup.

It is entirely possible that all or a part of the foregoing events may occur. It is assumed also that the Company was aware of these factors when the Environmental Quality Commission entered its orders and the Company agreed to comply with their terms. What is made difficult is that the Company offered no testimony based upon its work experience of how often these emergencies may arise. Conceivably, they could be once a year, twice a year, five times a year, or every week.

If the record of the Company is any indication, the "emergencies" occur quite frequently, very possibly two or three times a month.

The Company does not wish to terminate its burner, nor does it wish to modify it to meet Department emission requirements. To allow the Company to operate its burner without modification during so-called "emergencies" would allow every mill operator in the state

the right of also operating his wigwam waste burner during his own type of "emergencies", with the result no wigwam waste burner would be modified or phased out and Oregon's air quality would remain static.

As noted, it now appears that the "emergencies" described by the Company may occur quite frequently. Since they will be fairly frequent, it would seem just that the burner should be modified in order for the Company to continue to operate it. If the emergencies are rare, such as one or two times a year, the Company can develop plans to dispose of wood wastes during these occasions without operating its burner.

It is recommended that further attempts be made by the Department to help mill owners in the Umpqua Basin solve problems caused by the operation of wigwam waste burners. A meeting with these owners to encourage development of plans for installation of one or more centrally located approved wigwam waste burners or incinerators is one method of continued cooperation. These incinerators or burners could be utilized by the mill owners to burn wood wastes and would eliminate the need to have numerous smaller wigwam waste burners in operation which do not meet air quality standards.

Based upon the foregoing Findings of Fact, Conclusions of Law and Opinion, I have entered the following

ORDER

The Company shall immediately cease the use and operation of its wigwam waste burner, located at Sutherlin, Oregon, for the incineration of wood wastes unless it first modifies the wigwam waste burner in accordance with engineering plans approved by the Department to achieve compliance with department rules and requirements.

Dated this 24th day of March, 1971.

Storrs Waterman, Hearings Officer

Copy mailed to
Mr. Warren Woodruff
Attorney at Law
P. O. Box 937
Roseburg, Oregon 97470

This 24 day of March, 1971.

L & H Lbr Co
Waiver Variance Proposal

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

In the Matter of L & H LUMBER CO., an Oregon Corporation	)	PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW AND SUGGESTED FORM OF ORDER

Based upon the testimony, exhibits, records and files introduced and received in evidence at the hearing held in Sutherlin, Oregon, on the 12th day of March, 1971, before Storrs Waterman, Hearings Officer, L & H Lumber Co. proposes the following:

FINDINGS OF FACT

1. The Environmental Quality Commission pursuant to ORS 449.760(7) has designated geographical areas of the state as "special control areas". The Company owns and operates a wigwam waste burner located in the Umpqua Basin special control area as defined by section 21-010(2) ofChapter 340, OAR.

2. The Environmental Quality Commission has promulgated rules codified in Sections 21-005 to 21-025, Chapter 340, OAR, for the purpose of regulating and controlling particulate emissions. Section 21-015(2) prohibits a person from causing an emission of an air contaminant into the atmosphere from an existing source within a special control area for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as No. 1 on the Ringelmann chart.

Testimony, records and files regarding this matter show that the Company had emitted air contaminants into the outdoor atmosphere prior to May 22, 1970, darker than Ringelmann No. 1 and specifically on May 13, 1970, and May 14, 1970, for periods longer than three minutes in one hour. The Company has admitted as shown in the record that its emissions are in excess of Ringelmann No. 1 when the wigwam waste burner is being operated.

3. The Department since at least 1969 has attempted to encourage voluntary cooperation by the Company in controlling its air pollution and air contamination and to develop plans for complying with ORS Chapter 449 and rules adopted thereunder.

4. The Environmental Quality Commission on or about May 22, 1970, promulgated Order No. 20. The terms of the order required the Company by July 15, 1970, to either terminate the use of its wigwam waste burner or modify it in order to meet air quality standards. In addition, the Company was granted the option to utilize the burner until September 1, 1970, without modification provided it notified the Department of its intention to cease the utilization of its wigwam waste burner by July 15, 1970.

5. On or about September 25, 1970, the Company applied to the Environmental Quality Commission for a variance from Environmental Quality Commission Order No. 20 to permit it to operate its wigwam waste burner without modification for two weeks beginning October 5, 1970, and ending October 19, 1970, for incineration of sawdust, and for 30 days beginning October 5, 1970, and ending November 5, 1970, for incineration of bark. This variance was granted by the Commission by Order No. 36.

6. The Company operated its wigwam waste burner at least during October 7, 1970, October 13, 1970, January 19, 1971, January 20, 1971, January 25, 1971, and February 17, 1971. Since the October dates were within the variance provisions of Environmental Quality Commission Order No. 36, they are not relevant.

7. The operation of the wigwam waste burner by the Company during the otherdates specified in Finding 6, January and February, 1971, caused emissions in excess of Ringelmann No. 1.

8. The Company employed a consulting engineer to design plans for modification of its wigwam waste burner in order to achieve compliance with Department rules and requirements. Engineering plans were submitted to the Department and approved. The Company expended in excess of $10,000 in modification of its wigwam waste burner, but

complete modification of the burner pursuant to the engineering plans was not implemented by the Company. The modifications so made by the Company did not reduce the emissions below Ringelmann No. 1.

9. Order No. 20 of the Department required the Company to make a determination whether it desired to modify its wigwam waste burner of phase out its use. The Company decided to phase out the use of the wigwam waste burner as expressed in the actions of the Company after receipt of Order No. 20 and the application for variance granted by Order No. 36.

10. Following issuance of the notice of hearing on February 10, 1971, the Company suggested that it was necessary that its wigwam waste burner be maintained on a standby basis for use during emergencies.

11. Departmental rules do not expressly cover intermittent or emergency use of a wigwam waste burner. Orders of the Environmental Quality Commission in this matter did not contemplate either emergency or intermittent use; Company did not express any intention of using the burner intermittently or on an emergency basis until after the issuance of the notice of hearing.

12. Company's trucks used for transporting wood wastes and residues are of 1953 vintage, but have been overhauled and repaired and are now a reliable means of transportation.

13. A chipper has been installed by the Company, and the Company intends to complete installation of chip storage bins no later than March 31, 1971, with storage capacity of approximately six hours production of chips; use of chip storage bins will allow the company to dispose of chips by storage in the bins or transportation by truck at times when railway cars are not available.

14. The majority of the logs processed in Company's mill are hemlock; hemlock residues do not ordinarily burn cleanly in a wigwam waste burner; members of the Department staff testified that they know of no wigwam waste burner in ordinary production use that is able to dispose of hemlock residues without causing emissions in excess of Ringelmann No. 1.

15. The Company has a "Letter of Intent" from a buyer expressing that the buyer will purchase its sawdust, approximately by midsummer 1971. Disposition of sawdust by other means is difficult.

16. There are other wigwam waste burners in the Douglas County area not complying with Department rules and requirements; only one other wigwam waste burner in the Umpqua Basin now complies, and there are many that do not; no other wigwam waste burner operator in the Umpqua Basin has been subjected to proceedings such as those that are now before the Department of Environmental Quality involving L & H Lumber Co.

17. The Company has provided for land fill disposition of its bark and sawdust, for chipping and marketing of its solid wood waste; the Company has expended approximately $44,000.00 in development of materials handling systems to dispose of its sawdust, bark and solid wood waste without the necessity of using its wigwam waste burner; all of the Company's methods of disposing of wood residues depend upon the proper functioning of mechanical devices, including trucks used for transportation of bark and sawdust; the Company is dependent upon the availability of cars from the Southern Pacific for shipment of its chips, although after March 31, 1971, chips may be shipped by truck at times when railway cars are not available.

18. From time to time the mechanical devices used to handle the wood residues will break down; on occasion trucks used to transport bark and sawdust will break down; on occasion the Southern Pacific Company is unable to furnish chip cars to the Company for the purpose of shipping chips. In the event of such mechanical breakdowns, breakdowns of truck transportation and failure to furnish chip cars, it is impossible for the Company to dispose of its wood residues by any method other than by use of its wigwam burner.

During such breakdown and absence of chip cars between early December, 1970, and March 12, 1971, the Company accumulated

wood residues in its burner and from time to time, specifically on January 19, 1971, January 25, 1971, and February 17, 1971, said wood residues were burned; during such burning, said wigwam burner caused emissions in excess of Ringelmann No. 1.

19. From time to time it is necessary for the Company to clean up its mill yard, at which time wood residues are accumulated; such wood residues cannot be disposed of by chipping, and because they consist partially of solid wood waste, they cannot be disposed of through the land fill operation; the only practical method of disposing of the wood wastes accumulated during yard cleanup is by use of the wigwam waste burner.

20. During mechanical breakdown of the wood residues materials handling systems, truck breakdowns, and absence of chip cars, it is necessary that the Company elect whether to shut down operations and send home its employees at substantial economic loss to the employees, or whether the wood waste should be accumulated in the wigwam waste burner to be burned from time to time.

From the foregoing Findings of Fact, L & H Lumber Co. submits the following:

CONCLUSIONS OF LAW

1. The Company has violated Environmental Quality Commission Order No. 20.

2. The Company has violated Environmental Quality Commission Order No. 36.

3. The Company has violated Section 21-015(2), Chapter 340 OAR.

From the foregoing Findings of Fact and Conclusions of Law, L & H Lumber Co. suggests that there be entered herein the following:

ORDER

The Company shall immediately cease the use and operation of its wigwam waste burner, located at Sutherlin, Oregon, for the

incineration of wood wastes unless it first modifies the wigwam waste burner in accordance with engineering plans approved by the Department to achieve compliance with Departmental rules and regulations, except that the Company may use and operate said wigwam waste burner during bona fide emergencies as the same is hereinafter defined, and subject to all of the terms hereof:

(a) For the purpose of this Order, a bona fide emergency shall be deemed to be occasioned only by mechanical breakdown of wood residue materials handling systems utilized by Company, including trucks used for transportation of such residues, and the inability to obtain railway cars from Southern Pacific Company for the purpose of shipping wood chips.

(b) Such emergency shall not be deemed to continue longer than that period of time commencing with such mechanical breakdown or absence of chip cars and continuing until mechanical repairs have been made, chip cars become available, or the end of the working shift during which such emergency commences, whichever first occurs.

(c) Company shall immediately notify the staff of the Department of Environmental Quality of the onset of any such emergency, shall state its estimate of the time such emergency will continue, and will make every reasonable effort to terminate such emergency as quickly as may be reasonably possible.

In the event the staff of the Department of Environmental Quality shall, after investigation, determine that the Company is violating the terms of this Order, or that the Company is abusing the permission granted by this Order to use and operate its wigwam waste burner during bona fide emergencies, the Department of Environmental Quality may forthwith issue an order requiring the Company to appear and show cause why it should not be ordered to immediately cease all use and operation of said wigwam waste burner until such

time as the same may be modified in accordance with engineering plans approved by the Department to achieve compliance with Department rules and requirements.

I hereby certify that I served the foregoing Proposed Findings of Fact, Conclusions of Law and Suggested Form of Order on Arnold B. Silver, Assistant Attorney General, on the _____ day of April, 1971, by mailing to him a true and correct copy thereof, certified by me as such. I further certify that said copy was placed in a sealed envelope addressed to Arnold B. Silver at State Office Building, 1400 S. W. Fifth, Portland, Oregon 97201, which is his regular address, or his address as last given by him on a document which he has filed in the above entitled cause and served on me; said sealed envelope was then deposited in the United States post office at Roseburg, Oregon, on the day last above mentioned, with the postage thereon fully paid.

_____

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : April 30, 1971 for May 7, 1971 Meeting

SUBJECT: STATUS REPORT - WIGWAM WASTE BURNERS, COOS COUNTY

As requested by the Environmental Quality Commission at the March 5, 1971 Meeting, the staff has prepared the status report concerning the deadline for submission of wigwam waste burner programs for those operations in Coos County.

All operators of active wigwam waste burners have been contacted and phase-out schedules developed with all but one. The following tabulation shows the burners to be phased out.

1. Arago Cedar Products
2. Acme Wood Products
3. Elkside Lumber
4. Georgia Pacific, Coquille
5. Georgia Pacific, Norway
6. Georgia Pacific, Powers
7. Menasha Corporation
8. Roseburg Lumber
9. Leep Lumber - verbal notice only
10. Perry Bros. Veneer- verbal notice only.

There is one plant that has an inactive burner that has not responded. This plant, Alder Manufacturing, has been sent registered notice that the wigwam waste burner must be modified prior to reactivation of the mill.

The two remaining active burners in Coos County are operated by Rogge Lumber Sales. This company has responded to the effect that the burners are necessary and has chosen not to modify. A report concerning Rogge is attached.

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : April 29, 1971 for Meeting of May 7, 1971

SUBJECT: STATUS REPORT - ROGGE LUMBER SALES, INC.

BACKGROUND:

Rogge Lumber Sales, Inc. operate three mills in southwestern Oregon, two (2) in Coos County and one (1) in Curry County. One plant is two (2) miles north of Bandon, one is two (2) miles south of Bandon and the third is five (5) miles north of Port Orford in Curry County. The primary emission source at each location is a wigwam burner.

Complaints have been received from local residents. On-site inspections of the Bandon plants show the north plant is directly across the river from a State park, and private homes are within one hundred (100) yards of the south plant burner.

The company was contacted by the Department on February 3, 1971 to establish a program of phase-out or modification of their wigwam waste burners. A schedule was suggested and an answer requested by April 1, 1971. No answer was received.

On April 13, 1971, a second letter requesting a program of compliance was sent. The company responded on April 20, 1971 (copy attached). No action was indicated by the company.

At a meeting with Mr. Ken Rogge, the company President, in his office on April 27, 1971, the company reaffirmed that no action was planned.

On April 28, 1971, a registered letter was sent to the company advising them of the Environmental Quality Commission meeting of May 7, 1971 and that a status report would be given regarding their company. It was further suggested that Mr. Rogge or his representative be present at the Commission meeting.

RECOMMENDATION:

Since the company has not indicated a willingness to establish a reasonable and timely schedule of compliance, it is requested that authorization be granted to hold a public hearing for the purpose of requiring the company to show cause why the wigwam waste burners at (1) the plant 2 miles north of Bandon, (2) the plant two (2) miles south of Bandon and (3) the plant five miles north of Port Orford in Curry County, should not be modified to comply with current emission standards or phased-out, during the next ninety (90) days.

Ken Rogge
PRESIDENT

Rogge lumber sales, inc.

POST OFFICE BOX C
BANDON OREGON 97411

TELEPHONES • 347-7542 • 347-4451 • AREA CODE 503

April 20, 1971

Department of Environmental Quality
State Office Building
1400 S.W. 5th Ave
Portland, Or. 97201

Att: Mr. T.M. Phillips

Gentlemen:

In your letter of April 13 you mentioned having received a complaint from a Bandon resident on our burners.

We do not have any burners in Bandon. One of our burners is located 2½ miles south of Bandon and the other 2 miles north of Bandon. The burner south of Bandon burns only bark as we have no other way to dispose of it. The burner north of Bandon is operated one day per week to burn waste that we have no other means of disposal. Directly across the highway from this plant is Bullard State Park which provides 70 open campsite fires and the state supplies all the wood.

I cannot afford the expense of new combustion burners when no one can quarantee that they will always do the job and knows how long they will be permitted to operate, and it seems unreasonable that one complaint can justify the loss of one hundred jobs.

Very truly yours,

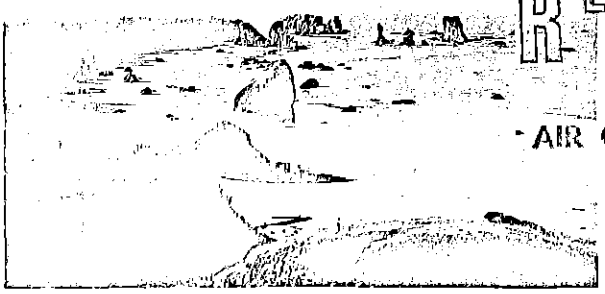
Ken Rogge

Ken Rogge
Rogge Lumber Sales, Inc.

cc: Sen. Sam Dement
Rep. Rod McKenzie

State of Oregon BANDON IS THE CRANBERRY CAPITAL OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECEIVED
MAY 6 1971
AIR QUALITY CONTROL



BEAUTIFUL BEACH AT BANDON-BY-THE-SEA

BANDON CHAMBER OF COMMERCE

REPRESENTING A COMMUNITY OF
Recreational, Industrial and Agricultural Interests

BANDON, OREGON
May 3, 1971

Department of Environmental Quality
State Office Building
1400 S. W. 5th Avenue
Portland, Oregon 97201

Gentlemen:

Mr. Ken Rogge, a member of the Bandon Chamber of Commerce and president of the Rogge Lumber Sales, Inc. of Bandon has expressed his concern over the matter of replacing or modifying his wigwam burners at his sawmill operations in Bandon.

In an operation the size of Mr. Rogges the modification of the limited use of his burners would cost thousands of dollars which is just not possible in an operation of this size. The burner 2½ miles out of Bandon burns only the bark from the logs. Mr. Rogge has spent considerable to dispose of all the wood chips and slabs through a chip machine. We asked members of the chamber if they had noticed the smoke from the burners and none has seen it as the amount of smoke is very small. On the burner near Bullard's bridge 2 miles North of Bandon the burner is in operation only one day a week to take care of bark that cannot be used for the chipper.

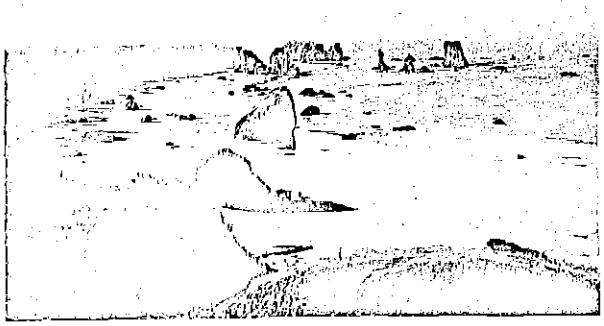
Mr. Rogge started his operation here a few years ago from a small mill and has plowed his money back into improvements and expansion until we have an industry hiring a goodly number of workers.

We are most concerned about Mr. Rogge's operation here as we have so little industry. We have heard indirectly that to put a wigwam burner into proper operation would cost up to $70,000. That would be out of the question for Mr. Rogge.

The Bandon Chamber of Commerce is most interested in keeping Bandon a clean, smokeless community and it is just that. The small amount of smoke from Mr. Rogge's burneros is taken away by the coast wind and is unnoticed.

We hope that your office can offer alternatives so such operations as Mr. Rogge's company so that it will not be the financial straw that breaks the camel's back. If Mr. Rogge's mills burned all of the waste fuel it would be more serious but he burns only a limited amount of bark.

BANDON IS THE CRANBERRY CAPITAL OF OREGON



BEAUTIFUL BEACH AT BANDON-BY-THE-SEA

BANDON
CHAMBER OF COMMERCE

REPRESENTING A COMMUNITY OF

Recreational, Industrial and Agricultural Interests

BANDON, OREGON

Mr. Rogge states that he had only one complaint from a Bandon resident. This lack of criticism bears out the magnitude of the problem as far as Chamber of Commerce members can see the problem.

The Bandon Chamber of Commerce members hope that you will give special study to Mr. Rogge's problem and find a solution that would not destroy the industry so vital to Bandon and Southwest Oregon.

We will appreciate greatly your consideration of this matter and inform the Chamber of Commerce of possibilities.

Sincerely yours,

Roland L Parks

Roland L. Parks
Secretary Bandon Chamber
Box 938
Bandon, Oregon 97411

State of Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

To: Environmental Quality Commission Members

Date: April 27, 1971, for May 7, 1971, Meeting

From: Water Quality Control Staff

Subject: American Can Company Tax Applications

American Can Company first submitted a single preliminary tax application on October 23, 1969. Following discussions with the staff, seven separate applications were submitted on June 18, 1970. Revisions of the applications were filed November 2, 1970, and March 15, 1971.

Attached is an accountant's certification of costs of pollution control facilities dated March 2, 1970, showing a total of $4,572,492. This certification was developed along the lines of the original single application submitted. Problems were encountered in the allocation of miscellaneous costs to the seven revised applications. In addition, eligibility under the 1967 Act of some portions of the facilities were questioned.

The applicants advised us that detailed costs of some items such as piping, electrical, insulation, etc., could only be allocated to specific applications by engineering estimate --- since these items were part of the overall construction cost of the new mill. The staff advised the company that certification would be recommended based on an engineer's specific estimate for these items. As a result, the company submitted the attached revised cost summary dated March 3, 1971, together with revised applications.

Some items originally claimed were eliminated with the indication that separate applications would be filed under the 1969 Act at a later date.

Separate memos are presented on the individual applications. Each will refer to this discussion of costs,

ahe
Attachment

KENNETH H. KOHNEN
CHARLES F. LARSON, JR.
C. BRUCE KILEN
JAN ONSRUD
WILLIAM E. WEST
LONNIE N. DUNN
H. DAVID SMITH
TED E ANDERSON

JOAN KIENE
WAYNE E. ANTRIM
ROBERT G. SCOTT

KOHNEN, LARSON & CO.

CERTIFIED PUBLIC ACCOUNTANTS

MEMBERS AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS

261 EAST 12TH AVENUE
EUGENE, OREGON 97401

TELEPHONE 503-342-6141

March 2, 1970

Mr. T.W. Orr

American Can Company

Halsey, Oregon

Dear Mr. Orr:

We have examined the report of "Costs of Pollution Control Facilities" prepared by Sandwell International Incorporated (an independent engineering firm) for the Halsey, Oregon Pulp and Paper Mill of American Can Company. A copy of that report is submitted herewith.

The terms of our audit agreement were that we would determing to our satisfaction that the cost of specific equipment assigned as pollution control facilities and the other costs used as a basis for proration to pollution control facilities were the true costs to American Can Company.

In our opinion the costs used by Sandwell International, Incorporated in preparing this report are the true costs in accordance with good accounting theory.

Yours very truly,

Kohnen Larson & Co

CERTIFIED PUBLIC ACCOUNTANTS

PROJECT W1890
HALSEY PULP AND PAPER MILL

AMERICAN CAN COMPANY
NEW YORK NEW YORK

COSTS OF POLLUTION CONTROL FACILITIES

DATE 27 JANUARY 1970

ITEM		Amount
1.	Air Pollution Control Facilities	
a.	Chlorination tower scrubber	$ 2,840
b.	Non-condensible piping	28,032
c.	Evaporator non-condensible system	45,236
d.	Washer hood duct and fan	48,362
e.	Scrubber on lime slaker vent	12,938
f.	Scrubber on lime kiln flue gases	34,698
g.	Scrubber on dissolving vent stack	22,806
h.	Cyclone fines collector on digesters	1,000
	TOTAL -	$ 195,912
2.	Water Pollution Control Facilities	
a.	Clarifier	282,819
b.	Sludge handling	117,135
c.	pH control system)	12,097
d.	Nutrient addition)	
e.	Aeration basins	555,896
f.	Effluent line, diffuser line and deaeration tank	502,101
g.	Test wells	894
h.	Piping	80,484
i.	Peoria Testing Station	2,894
	TOTAL -	$1,554,320
3.	Kiln	
a.	Cost of 250' filn over 160' kiln	22,370
b.	Separators, flame arrestors, controls, etc. to burn gases	6,137
c.	TRS (Barton) monitor	8,531
	TOTAL -	$ 37,038
4.	Recovery	
a.	Multiple effect evaps for high solids - Extra cost	314,130
b.	Barton TRS monitor	8,531
c.	Flame arrestors and safeguards and extra fan features to burn gases	569
d.	Provision for non-condensible gas burning	In 4g
e.	Provisions for future flue gas scrubber	In 4h
f.	Electrostatic precipitator - Cost over cyclone and venturi	In 4g
g.	Cost of recovery boiler and precipitator and extra cost of 400 TPD vs 300 TPD unit	570,000
h.	Ductwork and breeching	72,883
	TOTAL -	$ 966,113

Item		Amount
5.	Stack	
	a. Collection ducts to stack	$ 20,000
	b. 300' stack - Extra cost over standard	In 4g
	TOTAL -	$ 20,000
6.	Pulp Mill Effluent System	
	a. Collection tank and pumps	62,766
	b. Sump and flume in Pulp Mill	25,944
	c. Filtrate foan breaker	7,409
	d. Revised bleaching system	9,243
	e. Black liquor sump and transfer system	42,887
	f. Traveling	14,378
	TOTAL -	$ 162,627
7.	Paper Mill Water System	
	a. Disc filters (2)	154,953
	b. Surge tanks (2)	9,846
	c. Agitators (2)	4,655
	d. Pumps	5,188
	e. Excess water storage tank	33,709
	f. Extra equipment to re-use water	13,354
	TOTAL -	$ 221,705
8.	Sampling, testing and control systems for pollution control	$ 195,315
9.	Liquor Storage	
	a. Weak black liquor storage	32,317
	b. Strong black liquor storage	20,510
	c. Dump tank (white liquor)	59,085
	TOTAL -	$ 111,912
10.	Miscellaneous	
	a. Departmental piping	424,300
	b. Electrical distribution	115,700
	c. Insulation	48,100
	d. Engineering	450,000
	e. Mechanical contractors fee	36,050
	f. Construction overhead	33,500
	TOTAL -	$1,107,650
TOTAL COSTS OF POLLUTION CONTROL FACILITIES -		$4,572,492

PROJECT W1890
HALSEY PULP AND PAPER MILL

AMERICAN CAN COMPANY
NEW YORK NEW YORK

PROJECT MEMORANDUM
COSTS OF POLLUTION CONTROL FACILITIES

DATE 27 JANUARY 1970
REVISED 19 FEBRUARY 1971
REVISED 3 MARCH 1971

ITEM*		Amount	
T-149 - Air Pollution Control Facilities			
a.	Chlorination tower scrubber	$ 2,840	
b.	Non-condensable piping	28,032	
c.	Evaporator non-condensable system	45,236	
d.	Washer hood duct and fan	48,362	
e.	Cyclone fines collector on digesters	1,000	
f.	Process controls	30,571	
g.	Process piping	19,100	
h.	Electrical distribution	5,200	
i.	Insulation	2,200	
j.	Engineering	20,300	
k.	Mechanical contractor's fee	1,600	
l.	Owner's overhead	1,500	
	TOTAL -		$ 205,941
T-150 - Water Pollution Control Facilities			
a.	Clarifier	282,819	
b.	Sludge handling	117,135	
c.	pH control system)		
d.	Nutrient addition)	12,097	
e.	Aeration basins	555,896	
f.	Effluent line, diffuser line and deaeration tank	502,101	
g.	Test wells	894	
h.	Piping	80,484	
i.	Peoria Testing Station	2,894	
j.	Traveling screen	14,378	
k.	Process controls	53,288	
l.	Process piping	198,600	
m.	Electrical distribution	54,200	
n.	Insulation	22,500	
o.	Engineering	210,600	
p.	Mechanical contractor's fee	16,900	
q.	Owner's overhead	15,700	
	TOTAL -		$ 2,140,486

ITEM*		Amount	
T-151 - Lime Kiln and Related Systems			
a.	Cost of 250' kiln over 160' kiln	$ 22,370	
b.	Separators, flame arrestors, controls, etc. to burn gases	6,137	
c.	TRS (Barton) monitor	8,531	
d.	Process controls	14,097	
e.	Process piping	6,300	
f.	Electrical distribution	1,700	
g.	Insulation	700	
h.	Engineering	6,600	
i.	Mechanical contractor's fee	500	
j.	Owner's overhead	500	
	TOTAL -		$ 67,435
T-152 - Recovery System			
a.	Multiple effect evaps for high solids Extra cost	314,130	
b.	Barton TRS monitor	8,531	
c.	Flame arrestors and safeguards and extra fan features to burn gases	569	
d.	Ductwork and breaching	72,883	
e.	Process controls	19,898	
f.	Process piping	50,900	
g.	Electrical distribution	13,900	
h.	Insulation	5,800	
i.	Engineering	54,000	
j.	Mechanical contractor's fee	4,300	
k.	Owner's overhead	4,000	
	TOTAL -		$ 548,911
T-153 - 300 ft. Stack			
a.	Collection ducts to stack	20,000	
b.	300' stack	259,264	
c.	Process controls	6,513	
d.	Process piping	35,000	
e.	Insulation	4,000	
f.	Engineering	37,100	
g.	Mechanical contractor's fee	3,000	
h.	Owner's overhead	2,800	
	TOTAL -		$ 367,677

ITEM*		Amount	
T-154 - Pulp Mill Effluent System			
a.	Collection tank and pumps	$ 62,766	
b.	Sump and flume in pulp mill	25,944	
c.	Filtrate foam breaker	7,409	
d.	Revised bleaching system	9,243	
e.	Black liquor sump and transfer system	42,887	
f.	Process controls	17,676	
g.	Process piping	20,300	
h.	Electrical distribution	5,500	
i.	Insulation	2,300	
j.	Engineering	21,500	
k.	Mechanical contractor's fee	1,700	
l.	Owner's overhead	1,600	
	TOTAL -		$ 218,825
T-155 - Paper Mill Water System			
a.	Surge tanks (2)	9,846	
b.	Pumps	5,188	
c.	Excess water storage tank	33,709	
d.	Extra equipment to re-use water	13,354	
e.	Process controls	23,617	
f.	Process piping	10,500	
g.	Electrical distribution	2,900	
h.	Insulation	1,200	
i.	Engineering	11,100	
j.	Mechanical contractor's fee	900	
k.	Owner's overhead	800	
	TOTAL -		$ 113,114
TOTAL COSTS OF POLLUTION CONTROL FACILITIES			$ 3,662,389

* Item numbers refer to Mr. H. L. Sawyer's letter of 4 February 1971.

TO : Environmental Quality Commission Members

B. A. McPhillips, Chairman George A. McMath, Member
Edward C. Harms, Jr., Member Arnold M. Cogan, Member
Storrs, S. Waterman, Member

FROM : Air Quality Control Division

DATE : April 27, 1971, for May 7, 1971, Meeting

AIV

SUBJECT : Application for Certification of Pollution Control Facility No. T-149.

1. Applicant:

American Can Company
Halsey Mill
Halsey, Oregon

The applicant owns and operates a bleached kraft integrated pulp and paper mill two miles west of Halsey, Oregon.

2. Description:

The facilities claimed in this application are:

a. Bleach plant chlorination tower scrubber

b. Non-condensible gases piping

c. Evaporator non-condensible system

d. Washer hood ductwork and fan

e. Cyclone fines collectors on digestors.

Construction of the claimed facilities was started in September, 1967. Operation commenced in September, 1969. Certification is claimed under the 1967 Act.

3. Cost:

The total claimed cost is $205,941.00 (See attached cost discussion).

4. Staff Review:

a. Bleach plant chlorination tower scrubber - This scrubber absorbs chlorine off-gases in a sodium hydroxide scrubbing medium. The chlorine, being absorbed, is no longer available for bleaching, and the scrubber effluent is passed into the caustic extraction tower, the purpose of which is to remove chlorine and its reaction products from pulp which has just been treated with chlorine in chlorination tanks. Therefore, the staff concludes that there is no economic return and the facility was installed for air pollution control.

b., c. and d. Non-condensible gases from digester relief, multiple-effect evaporators and gases from washer vents - The gases collected in these systems, potentially among the foulest from the kraft mills, are collected and incinerated, non-condensibles in the lime kiln, washer vent gases in the recovery furnace. The amounts of gases are too small to be economically worth collecting for their heat value. Collection and incineration, or equivalent treatment, for non-condensible gases is required by the kraft mill emission regulation (OAR 340-170-1 (c).

e. Cyclone fines collector for digestors - This collector is needed intermittently, being in a stream used only for relieving higher than normal pressures in the digester pre-steaming vessels.

None of these systems afford an economic return. Therefore, the staff concludes that they were installed solely for air pollution control.

5. Staff Recommendations:

The staff recommends that a "Pollution Controll Facility Certificate" bearing the cost figure of $205.941.00 be issued under the 1967 Act for the facility claimed in Tax Application T-149.

TO : Environmental Quality Commission Members

B. A. McPhillips, Chairman George A. McMath, Member
Edward C. Harms, Jr., Member Arnold M. Cogan, Member
Storrs S. Waterman, Member

FROM : Air Quality Control Division

DATE : April 28, 1971, for May 7, 1971, Meeting

SUBJECT : Application for Certification of Pollution Control Facility No. T-151

1. Applicant:

American Can Company
Halsey Mill
Halsey, Oregon

The applicant owns and operates a bleached kraft integrated pulp and paper mill two miles west of Halsey, Oregon.

2. Description:

The facilities claimed in this application are:

a. Extra lime kiln length (difference between 160 foot and 250 foot kiln)

b. Separators, Flame Arrestors, Controls, etc. (to burn gases)

c. TRS Monitor

Construction started September, 1967. Operation commenced September, 1961. Certification is claimed under the 1967 Act.

3. Cost:

$67,435.00 (see attached cost discussion).

4. Staff Review:

The claimed facilities were installed for the purpose of incinerating odorous non-condensible gases in the lime kiln. The applicant claims that the normal length kiln for this mill would have been 160 feet. They installed the 250 foot kiln because they could not be assured that the shorter kiln would function properly to burn the gases. They claim the difference in cost for pollution control. The staff concludes that the claimed facilities were installed for Air Pollution Control.

5. Recommendation:

The staff recommends that a "Pollution Control Facility Certificate" bearing the cost figure of $67,435.00 be issued under the 1967 Act for the facility claimed in Tax Application T-151.

TO : Environmental Quality Commission Members

B. A. McPhillips, Chairman George A. McMath, Member
Edward C. Harms, Jr., Member Arnold M. Cogan, Member
Storrs S. Waterman, Member

FROM : Air Quality Control Division

DATE : April 27, 1971, for May 7, 1971, Meeting

SUBJECT : Application for Certification of Pollution Control Facility No. T-152

1. Applicant:

American Can Company
Halsey Mill
Halsey, Oregon

The applicant owns and operates a bleached kraft integrated pulp and paper mill two miles west of Halsey, Oregon.

2. Description:

The facilities claimed in this application are:

a. Extra evaporator costs for high solids.

b. Barton TRS monitor

c. Flame arrestors, safeguards and extra fan features to burn washer vent gases in the recovery furnace.

d. Ductwork and breaching

e. Process controls, piping, electrical distribution items, insulation, engineering, mechanical contractors' fee and owners overhead.

Construction started in September, 1967, and the claimed facilities were placed into operation in September, 1969. Certification is claimed under the 1967 Act.

3. Cost:

The cost of these facilities is $548,911 (See attached cost discussion).

4. Staff Review:

a. Extra evaporator costs for high solids - Normally, direct contact evaporators are used in addition to a conventional multiple effect evaporation set. The applicant eliminated the direct contact evaporators and replaced them with two steam heated forced circulation evaporators. The difference from normal practice accounts for a major part of American Can's control of odorous emision. The cost claimed is the difference in cost between the "normal" direct contact evaporators and the system installed.

b. The Barton TRS monitor - is required by the monitoring provisions of the kraft mill emission regulation.

c. The flame arrestors, etc. - were installed to allow the safe introduction of gases from the brown stock washer vent into the recovery furnace. That vent is a minor source of odorous emissions of TRS gases.

d. Ductwork and breaching - this is in excess of the ductwork needed to conduct flue gases to the chimney. It was installed to allow the installation of a scrubber in the future, should one be needed in the future.

e. Process controls, etc. - these items are miscellaneous costs associated with the low-odor recovery furnace.

The staff concludes that these items and costs were installed and incurred solely for air pollution control.

5. Staff Recommendations:

The staff recommends that a "Pollution Control Facility Certificate" bearing the cost figure of $548,911 be issued under the 1967 Act for the facility claimed in Tax Application T-152.

TO : Environmental Quality Commission Members

B. A. McPhillips, Chairman
Edward C. Harms, Jr., Member
Storrs S. Waterman, Member
George A McMath, Member
Arnold M. Cogan, Member

FROM : Air Quality Control Division

DATE : April 27, 1971, for May 7, 1971, Meeting

SUBJECT : Application for Certification of Pollution Control Facility No. T-153

Air

1. Applicant:

American Can Company
Halsey Division
Halsey, Oregon

The applicant owns and operates a bleached kraft integrated pulp and paper mill near Halsey, Oregon.

2. Description:

The facility in this application is a 300' chimney with associated ductwork and miscellaneous costs. Construction was started in September, 1967, and the facilities were place into operation in September, 1969. Certification is claimed under the 1967 Act.

3. Cost:

The cost of this facility is $367,677. (See attached cost discussion.)

4. Staff Review:

This stack was erected in place of using a stub stack on the recovery building. The purpose of a tall stack is solely to disperse contaminants more than would be obtained from a short stack, thus reducing the ground level concentration. There is no product recovery, nor is the stack used to generate a draft for the furnace. Therefore, the staff concludes that the stack was installed solely for pollution control.

5. Staff Recommendations:

The staff recommends that a "Pollution Control Facility Certificate" bearing the cost figure of $367,677 be issued under the 1967 Act for the facility claimed in tax application no. T-153.

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : March 30, 1971, for the April 2, 1971 meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY NO. T-184

1. Applicant: International Paper Company
Gardiner Paper Mill - Northern Division
Post Office Box 854
Gardiner, Oregon 97441

The applicant owns and operates an integrated unbleached kraft pulp and paper mill near Gardiner, Oregon.

2. Description of Facilities:

The facility claimed in this application is a sampling platform on the stack of the mill's Combustion Engineering recovery furnace. Operation commenced in March 1970.

3. The total cost of the facility is $3518. A copy of the vendor's invoice documenting the cost figure of $3518 is attached.

4. Staff Review:

This facility was installed as part of the monitoring program required by the Kraft Mill Emission Standard (OAR 340-25, Sections 155 through 195. The monitoring requirement is Section 185). The platform is not a part of the production equipment.

5. Staff Recommendations:

The staff recommends that a "Pollution Facility Certificate" bearing the actual cost figure of $3518 with the percentage allocated to pollution control being "more than 80 percent" be issued for the facility claimed in Tax Application T-184.

INVOICE

EXHIBIT D

STEEL STRUCTURES, INC.

EUGENE TRUCK & MACHINE COMPANY

P. O. BOX 1398
TELEPHONE 345-3375

STRUCTURAL STEEL FABRICATION AND ERECTION

INDUSTRIAL EQUIPMENT DESIGN, FABRICATION & INSTALLATION — ELECTRIC AND ACETYLENE WELDING — PUNCH AND DIE WORK

EUGENE, OREGON 97401

DATE: 3-17-70

BILL TO: International Paper Company
P. O. Box 854
Gardiner, Oregon 97441

YOUR ORDER NO. 1190

OUR ORDER NO. 4927

TERMS: NET 10TH PROX.

QUANTITY	DESCRIPTION	PRICE	AMOUNT	TOTAL
Item 1. 1 job	Fabricate and install platform for CE stack, as per Dwg. 413-GA8 & 412-GA8. Structure to be delivered with prime paint. IPCO will paint final coat prior to erection.			
	Lot Price - - - - -			$3,518.00

KP 1

P.O. No. 3Y99 FOB Dest
Terms Net Due Date 4/17
Price OK Ext. Ckd
RECEIVED MAR 18 1970
Mtl. Receipt: E.D.P. System
Verified By: See Supt'g. Docu'ts.
Payment Approved

ENGINEERING & MAINTENANCE APPROVAL

PAID APR 13 1970

VERIFY 2

MAR 30 1970

A SERVICE CHARGE OF 1½% PER MONTH WILL BE MADE ON ALL ACCOUNTS PAST DUE 30 DAYS OR MORE.

• KEEP THESE INVOICES AS THIS IS THE ONLY ITEMIZED STATEMENT WE ISSUE •

INTEREST CHARGED AT 8% AFTER 30 DAYS

To : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Edward C. Harms, Jr., Member
Storrs S. Waterman, Member
George A. McMath, Member
Arnold M. Cogan, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : March 30, 1971 for the April 2, 1971 meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY NO. T-185

1. Applicant: International Paper Company
Gardiner Paper Mill - Northern Division
Post Office Box 854
Gardiner, Oregon 97441

The applicant owns and operates an integrated unbleached kraft pulp and paper mill near Gardiner, Oregon.

2. Description of Facilities:

The facilities claimed in this application are two Barton Titrators for monitoring recovery furnace and lime kiln stack emissions. Operation commenced in June, 1973.

3. The total cost of the facility is $13,586.66. A copy of the accountant's certification is attached.

4. Staff Review:

This equipment was purchased and installed in accordance with the monitoring requirement of the kraft mill emission regulations, OAR 340 Section 25-185. The equipment is not essential to routine operation of the mill.

5. Staff Recommendations

The staff recommends that a "Pollution Control Facility Certificate" bearing the actual cost figure of $13,585.66, with the percentage allocated to pollution control being "more than 80 percent" be issued for the facility claimed in Tax Application T-185.

EXHIBIT D

ARTHUR ANDERSEN & Co.

MORGAN BUILDING
PORTLAND, OREGON 97205

May 22, 1970

To International Paper Company:

We have examined the accompanying Statement of Actual Costs of Barton Tritrators at Gardiner, Oregon. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying Statement of Actual Costs of Barton Tritrators, showing total costs of $19,795.78, presents fairly costs incurred by International Paper Company in the purchase and installation of such tritrators at Gardiner, Oregon.

Very truly yours,

Arthur Andersen & Co.

INTERNATIONAL PAPER COMPANY

GARDINER, OREGON

STATEMENT OF ACTUAL COSTS

OF BARTON TRITRATORS

	One Tritrator-Combustion Engineering Recovery Furnace Stack	Two Tritrators-Babcock & Wilcox Recovery Furnace and Lime Kiln Stacks	Total
Instrumentation	$6,159.04	$12,467.12	$18,626.16
Labor	-	827.29	827.29
Miscellaneous material and fittings	50.08	292.25	342.33
	$6,209.12	$13,586.66	$19,795.78
	(1)	(2)	(3)

(1) Application for Polution Control Certificate #T-159 Certificate No. 127 approved and issued 10/30/70.

(2) Applicable to this application, now in service

(3) Total titrators installed and operating at 12/31/70

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : March 31, 1971 for April 2, 1971 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY NO. T-203.

1. Applicant: Oregon Portland Cement Company
111 S. E. Madison Street
Portland, Oregon 97214

The applicant owns and operates a cement plant in Lake Oswego.

2. Description of Facility:

The facility in this application is an elevator in the kiln dust scoop building for reintroducing collected dust into the kiln. Use of the facility commenced on May 15, 1969.

3. Cost of the Facility:

The total cost of the facility is $10,769.66. An accountants certification of the cost is attached.

4. Staff Review:

This facility is an addition to the dust return system for which a tax credit certificate was issued earlier (T-49, Certificate No. 33). Subsequently, a leak developed in the original system at the point of dust reintroduction. This facility is for handling the dust from that leak. Therefore, no extra dust is collected, and the staff concludes that the purpose of this facility is to aid the operation of an existing pollution control facility.

5. Staff Recommendation:

The staff recommends that a "Pollution Control Facility Certificate" bearing the actual cost figure of $10,769.66 with the percentage allocated to pollution control being "more than 80%" be issued for the facility claimed in Tax Application No. T-203.

EXHIBIT D

PEAT, MARWICK, MITCHELL & CO.
CERTIFIED PUBLIC ACCOUNTANTS
1010 STANDARD PLAZA
PORTLAND, OREGON 97204

Board of Directors
Oregon Portland Cement Co.:

In connection with your application to the Department of Environmental Quality for certification of pollution control facility for tax relief purposes, we have examined the costs (as detailed in Exhibit C of the application), of the facility summarized below. It is our understanding that the detail listing was prepared by your personnel, and in making our examination, we have relied upon such listing as being complete itemization of costs devoted to construction of the facility described. Our examination consisted of a detailed inspection of vendors' invoices and other documentation of the disbursements. We also traced the costs shown into the plant and equipment accounts of the Company.

The following is a summary of the amount of capital expenditures detailed in Exhibit C to the application:

	Equipment and Installation
Dust scoop building elevator	$ 10,769.66

In our opinion, the foregoing summary fairly presents the actual costs incurred by Oregon Portland Cement Co. in the construction of the facility listed above.

Very truly yours,

Peat, Marwick, Mitchell & Co.

February 12, 1971

EXHIBIT C

Listing of Land, Materials, Machinery and Equipment Incorporated into the facility

Item	Cost	Dwg. Ref.
Link Belt #iii, Bucket Elevator, 13 3/4" x 42", 50' - 5 1/3" Ctrs.	$ 5,825.15	HX 2987-1
Erection of elevator chutes and lower enclosure (Lord Bros. Contr.)	4,944.51	21-111
Total for the facility	$10,769.66	

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : March 30, 1971 for April 2, 1971 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY NO. T-204

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

The applicant owns and operates a cement plant in Lake Oswego.

2. Description of Facility:

The facility in this application is paving laid over a large, traveled area of the plant grounds. Use of the facility was commenced in October 1970.

3. Cost of Facility:

The total cost of the facility is $23,362.32. An accounts certification is attached.

4. Staff Review:

This paving is in addition to paving done and certified for tax credit in Application T-60. The purpose of the paving is to prevent the generation of air-borne dust by the passage of vehicular traffic on the plant grounds.

5. Staff Recommendations:

The staff recommends that a "Pollution Control Facility Certificate" bearing the actual cost figure of $23,362.32 with the percentage allocated to pollution control being "more than 80%" be issued for the facility claimed in Tax Application No. T-204.

EXHIBIT D

PEAT, MARWICK, MITCHELL & Co.
CERTIFIED PUBLIC ACCOUNTANTS
1010 STANDARD PLAZA
PORTLAND, OREGON 97204

Board of Directors
Oregon Portland Cement Co.:

In connection with your application to the Department of Environmental Quality for certification of pollution control facility for tax relief purposes, we have examined the costs (as detailed in Exhibit C of the application), of the facility summarized below. It is our understanding that the detail listing was prepared by your personnel, and in making our examination, we have relied upon such listing as being complete itemization of costs devoted to construction of the facility described. Our examination consisted of a detailed inspection of vendors' invoices and other documentation of the disbursements. We also traced the costs shown into the plant and equipment accounts of the Company.

The following is a summary of the amount of capital expenditures detailed in Exhibit C to the application:

	Construction and Paving
Additional paving	$ 23,362.32

In our opinion, the foregoing summary fairly presents the actual costs incurred by Oregon Portland Cement Co. in the construction of the facility listed above.

Very truly yours,

Peat, Marwick, Mitchell & Co.

February 12, 1971

Additional Paving

EXHIBIT C

Listing of Land, Materials, Machinery and Equipment incorporated into the facility

Month of Year	Quantities	Item		Costs
1969				
February	35.75 cu. yd.	Concrete		$ 527.78
April	2.5 " "	Concrete		37.00
June		Labor	26.64	
		Joint	102.17	
	94.75 " "	Concrete	1,236.47	1,365.28
July		Labor	1,134.58	
	71.00 " "	Concrete	1,056.83	2,191.41
August	13.00 " "	Concrete		192.40
September	17.75 " "	Concrete		262.67
October	315.00 " "	Concrete	905.32	
		Labor	7,353.72	8,259.04
November		Misc. Material		25.90
December	158.00 " "	Concrete		2,340.84
Total for 1969	707.75 cu. yd.			$15,200.72
1970				
April	11.50 cu. yd.	Concrete		$ 185.73
August		Labor	2,104.98	
		Misc. Mat.	371.21	
	238.50 " "	Concrete	3,873.82	6,350.01
September		Labor	299.39	
		Concrete	775.20	1,074.59
October		Labor	212.12	
	21.00 " "	Concrete	339.15	551.27
Total for 1970	319.00 cu. yd.			$ 8,161.60
Total for 1969 and 1970	1,026.75 cu. yd.			$23,362.32

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : April 27, 1971 for the May 7, 1971 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY FOR TAX RELIEF PURPOSES NO. T-164 AQC

This application was initially received on August 3, 1970. Additional information was submitted on December 29, 1970 and April 16, 1971. A summary of the contents and results of the staff review are given below.

1. Applicant: Teledyne Wah Chang Albany
1600 Old Pacific Highway
P. O. Box 460
Albany, Oregon 97321
Phone: 926-4211

The applicant produces zirconium, hafnium, tantalum and niobium metals in pure and alloy forms.

2. The facility claimed in this application is described to be a dust collector (cyclone) and storage hopper to remove airborne sawdust from the box shop exhaust. The facility was completed and operation commenced on April 15, 1969.

3. The total cost of the claimed facility is $2811.00. This figure is supported by an itemized expense list.

4. Staff Review:

The claimed dust collector and storage hopper are achieving the intended purpose of removing sawdust from the box shop exhaust as stated in the attached letter from the Mid-Willamette Valley Air Pollution Authority.

The staff findings indicate that the principal purpose for installing the claimed facility was to reduce atmospheric contamination and that 100% of its cost is allocable to pollution control.

5. Staff Recommendation:

The staff recommends that a "Pollution Control Facility Certificate" bearing the actual cost of $2,811.00 be issued for the facility claimed in Application No. T-164.

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : April 27, 1971 for the May 7, 1971 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY FOR TAX RELIEF PURPOSES NO. T-165.

This application was initially received on August 3, 1970. Additional information was submitted on December 29, 1970 and April 16, 1971. A summary of the contents and results of the staff review are given below.

1. Applicant: Teledyne Wah Chang Albany
1600 Old Pacific Highway
P. O. Box 460
Albany, Oregon 97321

The applicant produces zirconium, hafnium, tantalum and niobium metals in pure and alloy forms.

2. The facility claimed in this application is described to be a high pressure drop venturi scrubber for treating the emissions from the feed make-up operation. The facility was completed on June 22, 1969 and operation commenced on July 1, 1969.

3. The total cost of the claimed facility is $43,601.00. An accountant's certification of this figure is attached.

4. Staff Review:

The claimed facility prevents the emission to the atmosphere of chloride materials generated in the feed make-up operation.

A field check by the Mid-Willamette Valley Air Pollution Authority revealed a portion of the claimed facility to be out of place. This condition has been corrected as explained in the attached letter from Mr. T. E. Nelson, Teledyne Wah Chang Albany.

The staff findings indicate that the principal purpose for installing the claimed facility was to reduce atmospheric contamination and that 100% of its cost is allocable to pollution control.

5. Staff Recommendation:

The staff recommends that a "Pollution Control Facility Certificate", bearing the actual cost of $43,601.00 be issued for the facility claimed in Application No. T-165.

ARTHUR ANDERSEN & Co.

MORGAN BUILDING
PORTLAND, OREGON 97205

May 19, 1970

To Wah Chang Albany Corporation:

We have examined the accompanying Statement of Actual Costs of Chloride Fume Scrubber Venturi at Albany, Oregon. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying Statement of Actual Costs of Chloride Fume Scrubber Venturi, showing total costs of $43,601, presents fairly costs incurred by Wah Chang Albany Corporation in the purchase and installation of such venturi at Albany, Oregon.

Very truly yours,

Arthur Andersen & Co.

WAH CHANG ALBANY CORPORATION

ALBANY, OREGON

STATEMENT OF ACTUAL COSTS OF

CHLORIDE FUME SCRUBBER VENTURI

Purchased equipment, supplies and services	$37,598
Company labor and engineering	6,003
Total	$43,601

to HLS

TELEDYNE
WAH CHANG ALBANY
P.O. BOX 460
ALBANY, OREGON 97321
(503) 926-4211 TWX (510) 565-0973

April 15, 1971

Mr. Frederic A. Skirvin
Department of Environmental Quality
Post Office Box 231
Portland, Oregon 97207

Dear Mr. Skirvin:

This letter is in response to our conversations on Tax Credit Applications and a response to the Mid-Willamette Valley Air Pollution Authority letter to you dated March 2, 1971. The delay in responding was due in part to the time required to replace equipment so as to comply with Mr. Roach's requests.

Tax Credit Application T-166 Anhydrous Ammonia Collection & Scrubbing

The hafnium filtration area is now served by the ducting system contained in our original plans which were approved by MWVAPA in January, 1969, prior to construction. Since the scrubber and attendant fume collection system have been in operation they have not failed to meet design expectations. Therefore, we feel that approval of T-166 should be granted and any changes should be viewed as additions to an already efficiently functioning system.

Tax Credit Application T-165 Chloride Fume Scrubber - Venturi

Since the field check by M.D. Roach, all of the equipment claimed on this scrubber is at the scrubber site. However, only one fan is operated at a time with the other in standby status. Stack analyses have shown that the unit functions satisfactorily with only one fan. Therefore, we will continue to operate the scrubber in this manner so as to facilitate maintenance of the system, and to further ensure that the scrubber has a standby fan in good working order ready for use in case of a breakdown of the other unit.

Tax Credit Applications T-164, T-165, and T-166 contain a listing of all equipment for the three systems under review. However, should you require clarification of any information in this regard, we can abstract it from the complete materials list we have provided with our application.

Updated emission data are now being prepared for transmittal to MWVAPA. As soon as these data are available from the Laboratory, I will provide you with the most recent data we have on the subject areas.

We desire to proceed with the certification of the three above-mentioned Tax Credit Applications at your earliest convenience. If you have any questions concerning this matter, please contact me.

Sincerely yours,
TELEDYNE WAH CHANG ALBANY

Thomas E. Nelson

Thomas E. Nelson,
Manager, Pollution Control

TEN:dkm

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : April 27, 1971 for the May 7, 1971 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY FOR TAX RELIEF PURPOSES NO. T-166.

This application was initially received on August 3, 1970. Additional information was submitted on December 29, 1970 and April 16, 1971. A summary of the contents and results of the staff review are given below.

1. Applicant: Teledyne Way Chang Albany
1600 Old Pacific Highway
P. O. Box 460
Albany, Oregon 97321

The applicant produces zirconium, hafnium, tantalum and niobium metals in pure and alloy forms.

2. The facility claimed in this application is described to be a collection and treatment system consisting of hoods, tank enclosures, fans, ducts a sulfuric acid washed packed tower and a stack (100 feet above ground level) for reducing ammonia emissions to the atmosphere from the rotary filters and other areas in the hafnium-zirconium separation operations. The facility was completed on July 22, 1969 and operation commenced on July 29, 1969.

3. The total cost of the claimed facility is $31,868.00. An accountant's certification of this figure is attached.

4. Staff Review:

The claimed facility serves to lessen the amount of ammonia emitted to the atmosphere from the hafnium-zirconium separations operations.

The staff findings indicate that the principal purpose for installing the claimed facility was to reduce atmospheric emissions.

5. Staff Recommendation:

The staff recommends that a "Pollution Control Certificate" bearing the actual cost of $31,868.00 be issued for the facility claimed in Application No. T-166.

ARTHUR ANDERSEN & CO.

MOROAN BUILDING
PORTLAND, OREGON 97205

May 19, 1970

To Wah Chang Albany Corporation:

We have examined the accompanying Statement of Actual Costs of Anhydrous Ammonia Collection and Scrubbing Systems at Albany, Oregon. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying Statement of Actual Costs of Anhydrous Ammonia Collection and Scrubbing Systems, showing total costs of $31,868, presents fairly costs incurred by Wah Chang Albany Corporation in the purchase and installation of such systems at Albany, Oregon.

Very truly yours,

Arthur Andersen & Co.

WAH CHANG ALBANY CORPORATION

ALBANY, OREGON

STATEMENT OF ACTUAL COSTS OF

ANHYDROUS AMMONIA COLLECTION AND SCRUBBING SYSTEMS

Purchased equipment, supplies and services	$30,476
Company labor and engineering	1,392
Total	$31,868

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : April 27, 1971 for the May 7, 1971 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY FOR TAX RELIEF PURPOSES NO. T-197

This application was initially received on February 16, 1971. A summary of the contents and the staff review are given below.

1. Applicant: Reynolds Metals Company
Sundial Road
Troutdale, Oregon 97060
Phone: 665-9171

The applicant produces primary aluminum in pure and alloy forms.

2. The facility claimed in this application is described as a holding furnace stack scrubber system consisting of automatic stack dampers, water spray presaturators, underground ducts, concrete plenum, floating bed scrubber, high speed fan and discharge stack. The facility was completed and operation commenced in March, 1969.

3. The total cost of the claimed facility is $77,095.21. An accountant's certification of this figure is attached.

4. Staff Review:

The claimed facility greatly reduces the opaque particulate $AlCl_3$ plume associated with chlorine fluxing molten aluminum. The staff findings indicate that the principal purpose for installing the facility was to reduce atmospheric emissions.

5. Staff Recommendations:

The staff recommends that a "Pollution Control Certificate" bearing the actual cost of $77,095.21 be issued for the facility claimed in Application No. T-197.

ERNST & ERNST
140 BROADWAY
NEW YORK, N.Y. 10005

Reynolds Metals Company
Richmond, Virginia

We have examined certain of the accounting records of Reynolds Metals Company as of December 31, 1969, pertaining to the costs of holding furnace stack scrubber systems (Anti-Pollution Control project) constructed at the Troutdale, Oregon plant. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the amount of $77,095.21 at December 31, 1969 presents fairly the aggregate costs of the holding furnace stack scrubber systems (Anti-Pollution Control project) at the Troutdale, Oregon plant of Reynolds Metals Company.

Ernst & Ernst

New York, N. Y.
September 4, 1970

EXHIBIT C

LIST OF INVESTMENT COSTS FOR HOLDING FURNACE STACK SCRUBBER SYSTEMS

1.	Cost of Aerotec floating bed, scrubber and equipment	$38,882
2.	Mechanical installation of scrubbing equipment	15,947
3.	Piping installation of scrubbing equipment	21,275
4.	Electrical installation of scrubbing equipment	990
	Total	$77,095

TO : Environmental Quality Commission Members
B. A. McPhillips, Chairman — George A. McMath, Member
Edward C. Harms, Member — Arnold M. Cogan, Member
Storrs S. Waterman, Member

FROM : Air Quality Control Division

DATE : March 30, 1971, for the May 7, 1971, meeting

SUBJECT : Willamette Industries, Incorporated
Tax Credit Application No. T-177
Filed November 10, 1970

1. Applicant

Willamette Industries, Incorporated
Dallas Division
1002 Executive Building
Portland, Oregon 97204

The applicant owns and operates a sawmill and plywood plant in Dallas, Oregon, Polk County.

2. Description of Claimed Facilities

The claimed facility consists of a slasher saw which reduces long lengths of mill edgings to an acceptable length for feeding into a hog and the conveyor system to transport these scraps. These wood residues are then hogged and used as fuel for steam and power generation.

The applicant claims that the facility was installed between February and October, 1969, and put into operation in October, 1969, with a useful life of 10 years.

Certification is claimed under the 1967 Act.

3. Staff Review

The claimed facility, while appearing to be rather primitive on the surface, probably is the best answer to waste utilization for their plant. The company claims that this operation requires the services of one (1) man approximately four (4) hours per day to produce hogged fuel at a cost of $4.00 per unit. The company claims that hogged-fuel has a current market value of $2.00 per unit, and, therefore, the cost of producing this fuel is at the expense of an additional $2.00 per unit.

Since these residues were formerly disposed of by open burning which was in violation of Section 5-1.1 of the Rules of the MWVAPA and also the newly adopted Board Products Regulations, this probably represents the best solution for controlled disposal.

4. Recommendations

The staff recommends that a Pollution Control Facility Certificate bearing an actual cost of $16,913.97 be issued under the 1967 Act to Willamette Industries, Inc. for the facilities claimed in Application T-177.

PEAT, MARWICK, MITCHELL & CO.
CERTIFIED PUBLIC ACCOUNTANTS
1010 STANDARD PLAZA
PORTLAND, OREGON 97204

November 4, 1970

Exhibit D

Mr. A. R. Morgans, Financial Vice President
Willamette Industries, Inc.
1002 Executive Building
Portland, Oregon 97204

Dear Mr. Morgans:

In connection with your application to the Oregon State Sanitary Authority for certification of pollution control facilities for tax relief purposes, we have examined the costs for the installation of a slasher saw and conveyor system at the Dallas Division to process waste edgings and trimmings into hog fuel (as detailed in Exhibit C of the application). In making our examination, we have relied upon such detail as being complete itemization of labor and materials devoted to the construction of the facility described. Our examination consisted of a detailed inspection of vendors' invoices and other documentation of disbursement. We have also traced the costs shown into the plant and equipment accounts of the Company.

In our opinion, Exhibit C of the application, detailing the costs for installation of the Dallas slasher saw and conveyor system, amounting to $16,913.97, fairly presents the actual costs incurred by Willamette Industries, Inc. in the construction of the facility.

Very truly yours,

PEAT, MARWICK, MITCHELL & CO.

R. M. Alexander, Partner

RMA:SW

COST BREAKDOWN OF PROJECT 23-159
CONSTRUCT SLASHER SAW AND CONVEYOR SYSTEM
TO PROCESS WASTE TRIMMINGS

Ross Bros. Construction Co. - footings and foundation	840.00
Westinghouse Electric Corp. - Two motors	1,404.78
Portland Chain Mfg. Co. - 410 ft. Mill chain	1,084.24
Miscellaneous other purchased materials, electrical supplies, etc.	4,045.25
Plant Expenditures	
Warehouse issues and shop charges	4,350.85
Payroll and payroll taxes	5,188.85
	$16,913.97

EXHIBIT C

TO : Environmental Quality Commission Members

B. A. McPhillips, Chairman
Edward C. Harms, Member
Storrs S. Waterman, Member
George A. McMath, Member
Arnold M. Cogan, Member

FROM : Air Quality Control Division

DATE : March 30, 1971, for the May 7, 1971, meeting

SUBJECT : Willamette Industries, Incorporated
Tax Credit Application No. T-178
Filed November 10, 1971

1. Applicant

Willamette Industries, Incorporated
Dallas Division
1002 Executive Building
Portland, Oregon 97204

This applicant owns and operates a sawmill and plywood plant in Dallas, Oregon, Polk County.

2. Description of Claimed Facilities

The claimed facilities consist of the following controls and equipment with applicable engineering for installation to update the three (3) wood-fired dutch-oven boilers which were built in 1915 and 1920:

a. 14 each overfire air dampers
b. 3 each overfire air control drives
c. 3 each bold meters
d. 3 each uptake dampers
e. 3 each uptake damper control drives
f. 2 each 250 HP I.D. fan drive units
g. 2 each 250 HP I.D. fan motor controllers
h. 3 each Receiver-indicating recorder controllers
i. 3 each Hand-auto stations
j. 1 each Hi-alarm

An abbreviated cost breakdown of the claimed amount for this facility would be as follows:

Professional Engineering	$ 7,255.36
Instrumentation and Controls	7,424.00
Electric Motors, driver and starters plus spare 300 HP motor	21,886.oo
Fabrication and Installation of all equipment	14,081.00
	50,647.06

The applicant claims that the facility was installed between January, 1969, and July, 1969, and put into service in July, 1969, with a useful life of as long as the Dallas operation exists. Certification is claimed under the 1967 Act.

3. Staff Review

The claimed facility represents the highest and best practical engineering practices for reducing boiler stack emissions by improving the combustion process. This project was the result of efforts on the part of MWAPA to bring these boilers into compliance with the Rules of the Authority.

The company claims that a 300 HP spare I.D. electric fan motor was necessary due to overloading conditions discovered when the 250 HP I.D. fan motors were put into service. A spare motor is required because orders cannot allow for deliveries in less than eight (8) weeks. This entire facility would be shut down for that period unless a spare was on hand. The company also claims that this motor is not used anywhere else in the plant operations.

4. Recommendations

The staff recommends that a Pollution Control Facility Certificate bearing an actual cost of $50,647.06 be issued under the 1967 Act to Willamette Industries, Incorporated for the facilities claimed in Application No. T-178.

PEAT, MARWICK, MITCHELL & Co.
CERTIFIED PUBLIC ACCOUNTANTS
1010 STANDARD PLAZA
PORTLAND, OREGON 97204

November 4, 1970

Exhibit D

Mr. A. R. Morgans, Financial Vice President
Willamette Industries, Inc.
1002 Executive Building
Portland, Oregon 97204

Dear Mr. Morgans:

In connection with your application to the Oregon State Sanitary Authority for certification of pollution control facilities for tax relief purposes, we have examined the costs for the installation of equipment to control smoke emission from the Dallas Division powerhouse (as detailed in Exhibit C of the application). In making our examination, we have relied upon such detail as being complete itemization of labor and materials devoted to the construction of the facility described. Our examination consisted of a detailed inspection of vendors' invoices and other documentation of disbursement. We have also traced the costs shown into the plant and equipment accounts of the Company.

In our opinion, Exhibit C of the application, detailing the costs for installation of the Dallas powerhouse smoke emission control equipment, amounting to $50,647.06, fairly presents the actual costs incurred by Willamette Industries, Inc. in the construction of the facility.

Very truly yours,

PEAT, MARWICK, MITCHELL & CO.

R. M. Alexander, Partner

RMA:SW

COST OF BREAKDOWN OF PROJECT 23-147
INSTALLATION OF EQUIPMENT TO CONTROL SMOKE
EMMISSION FROM POWERHOUSE

Sandwell International, Inc.		
Engineering services		7,255.36
Bailey Meter Company		
Control drives and associated linkage	- C-1	1,928.50
Smoke density measuring and related control equipment	- C-2	5,495.50
Westinghouse Electric Corp.		
Two mechanical drive unit assemblies	- C-3	11,848.00
One set of starting equipment	- C-3	4,926.00
One mechanical drive unit assembly (spare)	- C-4	5,112.00 *
Stevens Equipment Company		
Fabricate the oven-fire damper	- C-5	562.00
Other		
Miscellaneous supplies, freight, etc.		8,206.71
Plant payroll and payroll taxes		2,156.38
Warehouse and shop charges		3,156.61
		$50,647.06

EXHIBIT C

* Spare motor is necessary as delivery of replacement motor would take approximately eight weeks. Entire operation of plant could not function if one motor is out of service. Motors are specially wound and cannot be used anywhere else in plant.

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : March 26, 1971 for May 7, 1971 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY FOR TAX RELIEF PURPOSES NO. T-186

This application was received on January 8, 1971. A summary of the contents and results of the staff review are given below.

1. Applicant: R. C. Long Shake Co.
1219 S. E. 202
Gresham, Oregon 97030
R. C. Long
Phone: 665-7979

The applicant produces shakes and shake ridge.

2. The claimed facility is described to consist of: a) rebuilt hog, b) cyclone, piping and assorted parts, c) Peerless storage bin, d) drip-proof motor and e) miscellaneous electrical and foundation installations to allow the use of a dutch oven boiler to be discontinued. The installation was completed October 10, 1970 and operation commenced October 10, 1970. Certification is claimed under the ~~1969~~ Act.

3. The total cost of the claimed facility is $18,009.74. An Accountant's certification of this figure is attached.

4. Staff Review: Prior to the installation of the claimed facility, a dutch oven type burner was utilized to dispose of the wood residues. This process, while disposing of the residues, created a visible smoke and released about 160 tons per year of air pollutants. The present emissions through the claimed facility are none.

The staff findings indicate that the principal purpose for installing the claimed facility was to reduce atmospheric contamination, and that 100% of the cost is allocable to pollution control.

5. STAFF RECOMMENDATION:

The staff recommends that a Pollution Control Facility Certificate be issued to R. C. Long Shake Company for the facilities claimed in Application No. T-186 bearing an actual cost figure of $18,009.74 with 80% or more allocated to pollution control.

WOLF AND COMPANY
CERTIFIED PUBLIC ACCOUNTANTS
333 N. E. THIRD
GRESHAM, OREGON 97030

OFFICES IN PRINCIPAL CITIES

TELEPHONE (503) 665-6174

EXHIBIT D

State of Oregon
Department of Environmental Quality
P. O. Box 231
Portland, Oregon

Gentlemen:

We have examined the invoices pertaining to the installation and associated costs of a pollution control facility for R. C. Long Shake Co. We submit them in our enclosed Exhibit C that presents the actual completed cost of the pollution control facility.

Wolf and Company
Certified Public Accountants

R. C. LONG SHAKE CO.
POLLUTION CONTROL FACILITY AND
ASSOCIATED INSTALLATION EXPENDITURES

EXHIBIT C

	Amount
Hog:	
Used Mongomery hog	$ 4,000.00
Newman dripproof motor	668.53
Electrical work from bunker to hog	240.00
Drive connector from motor to hog	317.08
Cement work and reinforcement pipe	1,257.14
Excavation	142.35
Terminal meter	119.32
Electrical parts	1,095.19
Total hog	$ 7,839.61
Conveyor system from hog to cyclone:	
Pipe, frame, flanges, and cyclone	$ 2,640.00
Erection of pipe and cyclone	1,103.00
Total conveyor and cyclone	$ 3,743.00
Bin:	
Wood residue storage bin	$ 5,244.00
Erection of storage bin	1,147.13
Total bin	6,391.13
Permit	36.00
Total facility	$18,009.74

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION STAFF

DATE : May 3, 1971 for Meeting of May 7, 1971

SUBJECT: PROPOSED REGULATIONS FOR SULFITE PULP MILLS

The purpose of this memo is to describe and explain a proposed emission regulation for sulfite mills (in connection with a staff request for authorization to hold a public hearing for adoption of that regulation). The staff requests that the hearing be authorized to be held at the time of the regular July Environmental Quality Commission meeting.

The attached proposed regulation has been drawn to resolve the ambient problems related to sulfur dioxide (SO_2) emissions and to control particulate emissions from sulfite pulp mills by requiring controls or control procedures on the two major sources of SO_2--- blow pits and recovery furnaces. The regulation was developed through a series of technical conferences held by the Oregon-Washington Air Quality Committee and a technical committee representative of the sulfite pulp industry in the Northwest, and on information and data from technical literature.

The regulation, being "tailor-made" for the sulfite industry, has some items peculiar to that industry. A brief explanation of those and of the background of other parts of the regulation is presented below. (Note: "A Report on the Sulfite Pulping Industry" is available for a more detailed explanation of the technical considerations basic to the regulation.)

In the description presented here, the letters and numbers correspond to pertinent sections in the regulation.

Section A. The first section of the regulation deals with definitions, most of which are self-explanatory, however, attention is directed to the following specific definitions:

1, 4, 9: The three major point sources of SO_2 (acid plant, blow system and recovery system) are defined. A plant not recovering cooking chemicals will have an acid plant and blow pit, while a plant recovering chemicals integrates its "acid plant" into a recovery system, so that all plants have two of these sources of sulfur oxide emissions, but none have all three.

7. Other Sources: Includes minor sources which are listed. Essentially, they are pulp washing, liquor handling and storage, condensate handling and storage, and any other vent which may be determined to be a significant source. It is anticipated that if they have a significant effect on the ambient air, regulations will be drawn on them, but for the present there is insufficient information to establish a limit on them, and they are in the study section.

8. Particulate Matter: The definition for particulate matter is written to include only solid products of incomplete combustion and solid fumes like those deliberately generated in magnesium-based recovery furnaces. There may be liquid aerosols, from sulfur trioxide (SO_3) dissolved in water droplets, but they are a separate problem, to be studied separately.

12. Total Reduced Sulfur: It is known that sodium-based recovery systems can emit odorous reduced sulfides, so a provision for measuring them has been included in this regulation.

Section B. Statement of Purpose. This section sets out the overall goals and policies of the Commission relative to sulfite pulp mills in this regulation. It indicates the directions of studies considered necessary for solving the ambient air quality problem, and emphasizes that the effectiveness of the regulation will be judged, and future changes based on attaining desirable air quality.

Section C. Minimum Emission Standards. This section establishes limits on the minimum controls that will be allowed, i.e., the maximum amounts or concentrations that will be tolerated, subject to maintaining acceptable air quality.

1. The first sub-section emphasizes that satisfactory performance is to be judged in terms of ambient air quality, whether or not emission limits are met. Further, it states that in recognized problem areas, tighter limits may be set.

2. This subsection contains the numerical limits on emissions of SO_2. The limits are in terms of mass rates (pounds of SO_2 per ton of pulp), concentration (ppm, SO_2 in gaseous effluents), and minimum collection or treatment requirements. Two sets of limits are proposed, related to the mills' productions. The division is at 110 air dried tons of unbleached pulp produced per day. The reason for this division is that in Oregon all mills over 110 tons/day recover their cook chemicals, and therefore have one extra source (the recovery furnace) which is a large source of SO_2 in terms of pounds of SO_2 per ton, although the concentration is less than that of most fossil-fueled power plants.

Blow pit emissions have less pounds per ton, but during the blow period (5-7 minutes, up to once an hour) the emissions may be much higher on a pounds per minute basis. These will require quite extensive controls or process modifications.

For mills under 110 tons per day, the controls are in terms of control efficiencies with this section pertaining to Crown Zellerbach-Lebanon and Coos Head - Coos Bay.

It should be noted that one of the largest sulfite mills is Menasha Paper Company's Neutral Sulfite Semi-Chemical mill at North Bend. At present, its emissions are minimal, but when the recovery system is installed, it will be affected by the large mill limits, as well as subject to review to determine whether more restrictive limits should be set under the provisions of Section 1.

The numerical limits are as follows:

Total emissions from each sulfite mill shall not exceed 22 lb SO_2 per air-dried, unbleached ton produced. The number represents 20 lb SO_2/Ton from recovery furnaces and 2 lb SO_2/Ton from other sources. The Department of Environmental Quality staff believes, based on diffusion equations relating emission rates to ambient air concentrations, that 20 lb/ton is the maximum rate that may be tolerated to avoid ambient air quality problems.

Blow pit vents shall not emit more than 0.2 pounds of SO_2 per minute per ton of pulp discharged in each blow. The rate is to be averaged over 15 minutes, the time based on the demands of the sampling method. This represented a time rate of emission well below the rate calculated to prevent ambient odors and tastes. It may require either doing away with the digester blow procedure or require extensive collection and treatment.

Emissions from the recovery furnace, acid plant, and other sources are limited to 800 ppm SO_2 on an hourly average. This will require an average over a longer period of time lower than 800 ppm, probably in the neighborhood of 500 ppm. The one-hour average appears to be the shortest time that an upset can be detected and corrected.

3. Mills under 110 tons per day are to install controls of 50% efficiency within one year, and 80% efficiency by December 31, 1975. Controlling the emissions with 80% efficiency should result in roughly the same emissions in terms of lb SO_2/day as from a large mill. The mills are also required to continually monitor the ambient air to ensure that State and Federal air quality standards are not exceeded, as well as a special provision that ambient concentrations shall not exceed 0.8 ppm of sulfur dioxide averaged over five minutes. The 0.8 ppm is at the odor detection threshold. This requirement was included to place the burden of proof on industry that the small mills will indeed cause no significant ambient air problem.

4. The particulate limit, set at 4 pounds per ton of pulp, is the same as on kraft mill recovery furnaces.

The table which follows indicates the controls necessary for compliance.

Section D. Compliance Schedule. The compliance schedule is written to ensure that the Department receives enough information to make a sound judgment on the adequacy of the compliance programs and to demonstrate that time schedules are justified. It is the staff's opinion that the long time taken in developing the regulations has allowed the mills ample time to consider the regulation requirements so that much of the preliminary investigations should be essentially done.

Section E. Monitoring and Reporting. Compliance with these provisions will provide the Department with adequate information to establish compliance and to compare the performance of the various mills. The regulations look to a future time when reliable continual monitoring equipment is available and approved, with the provision that an interim "grab sample" technique, approved by the Department may be used.

Section F. Special Studies. This section will lead to the development of gaseous monitoring and particulate sampling techniques more reliable and informative than those presently used. It is anticipated that the companies will cooperate with each other or with equipment representatives to develop the methods.

The studies of other sources and their control will inventory and develop controls for these sources as warranted by their magnitude.

The studies on sulfur trioxide (SO_3) were alluded to in the discussion of the definition on particulates. SO_3 in water droplet forms an acid mist, which normally would be included in particulate, but there are no data regarding the amount or effect of SO_3 emissions. The purpose of this study is to define the problem. If necessary, appropriate action will be taken based on the studies.

Section G. Exceptions. This exception restricts the regulation to chemical pulping and recovery. SO_2 emissions from power boilers using oil will be dealt with as a class separately for all industries.

Section H. Public Hearing. As in a similar provision in the kraft regulation, this section requires an examination of progress and results and to amend this regulation as indicated by perseverance of ambient problems after the mills have complied with the regulation or as indicated by results of the special studies.

Section I. Notice of Construction. Reiterates the provisions of the Notice of Construction program (OAR 20-020.030) and defines construction, installation and establishment.

Necessary Reductions or Degrees of Treatment Required by the Regulation

SO_2:

	Blow Pit Vent		Recovery Furnace			
	lb/Ton		lb/Ton		ppm	
	Present	% Reduction	Present	% Reduction	Present	% Reduction
Publishers Paper Oregon City	2½	38	30-35	33-43	800	38
Publishers Paper Newberg	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
	(Reductions probably will not exceed those at Oregon City)					
Boise Cascade Salem	80	97	Projected to be within the required limits			
Crown Zellerbach Lebanon	Under the small mill provision the plant would have to install controls at 50% efficiency in one year, and 80% efficiency by December 31, 1975.		No Recovery		No Recovery	
Coos Head Timber Coos Bay	Same situation as C-Z - Lebanon		No Recovery		No Recovery	
Menasha Paper North Bend	Emissions not measured, but minimal (Neutral Sulfite, Semi-Chemical)		No Recovery		No Recovery	

Particulate:

No data are available for particulate emissions from Publishers' recovery furnaces. Boise Cascade - Salem should have minimal particulate emissions

DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY CONTROL DIVISION

Proposed Regulations for SULFITE PULP MILLS

A. DEFINITIONS:

1. Acid Plant - The facility in which the cooking liquor is either manufactured or fortified when not associated with a recovery furnace.
2. Average Daily Emission - Total weight of sulfur oxides emitted in each month divided by the number of days of production that month.
3. Average Daily Production - Air dry tons of unbleached pulp produced in a month, divided by the number of days of production in that month.
4. Blow System - Includes the storage chest, tank or pit to which the digester pulp is discharged following the cook.
5. Continual Monitoring - Sampling and analysis in a continuous or timed sequence, using techniques which will adequately reflect actual emission levels, ambient air levels, or concentrations on a continuous basis.
6. Department - The Department of Environmental Quality.
7. Other Sources - Means sources of sulfur oxide emissions including but not limited to washers, washer filtrate tanks, digester dilution tanks, knotters, multiple effect evaporators, storage tanks, any operation connected with the handling of condensate liquids or storage of condensate liquids, and any vent or stack which may be a significant contributor of sulfur oxide gases other than those mentioned in emission standard limitations (Section C).
8. Particulate Matter - A small discrete mass of solid matter, including the solids dissolved or suspended in liquid droplets but not including uncombined water.
9. Recovery System - The process by which all or part of the cooking chemicals may be recovered, and cooking liquor regenerated from spent cooking liquor, including evaporation, combustion, dissolving, fortification, and storage facilities associated with the recovery cycle.

10. Sulfite Mill or Mill - A pulp mill producing cellulose pulp using a cooking liquor consisting of sulfurous acid and/or a bisulfite salt.
11. Sulfur Oxides - Sulfur dioxide, sulfur trioxide and other sulfur oxides.
12. Total Reduced Sulfur (TRS) - Hydrogen sulfide, mercaptans, dimethyl sulfide, dimethyl disulfide and other organic sulfides present.

B. STATEMENT OF PURPOSE:

It is the policy of the Commission:

1. To require, in accordance with a specific program and timetable for each operating mill, the best practicable and reasonable treatment and control of emissions from sulfite mills through the utilization of technically feasible equipment, devices and procedures;
2. To require the evaluation of improved and effective measuring techniques for sulfur oxides, total reduced sulfur, particulates and other emissions from sulfite mills;
3. To require effective measuring and reporting of emissions and reporting of other data pertinent to emissions. The Department will use these data in conjunction with ambient air data and observation of conditions in the surrounding area to develop and revise emission standards and air quality standards, and to determine compliance therewith;
4. To encourage and assist the sulfite pulping industry to conduct a research and technological development program designed to progressively reduce sulfite mill emissions, in accordance with a definite program with specific objectives;
5. To establish standards deemed to be technically feasible, reasonably attainable, and necessary for the attaining of satisfactory air quality with the intent of revising the standards as new information and better technology are developed.

C. MINIMUM EMISSION STANDARDS:

1. Notwithstanding the specific emission limits set forth in this section, The Department of Environmental Quality may, after notice and hearing, establish more restrictive emission limits and compliance schedules for mills located in recognized problem areas, for new mills, for mills expanding existing facilities, for mills installing substantial modifications of existing facilities which result in increased emissions; or for mills in areas where it is shown ambient air standards are exceeded.

2. The total average daily emissions from a sulfite pulp mill shall not exceed 22 pounds of sulfur dioxide per ton of air dried unbleached pulp produced and in addition:
   (a) the blow system emissions shall not exceed 0.2 pounds of sulfur dioxide per minute per ton of unbleached pulp (charged to digester) on a 15 minute average.
   (b) Emissions from the recovery system, acid plant and other sources, shall not exceed 800 ppm of sulfur dioxide as an hourly average.
3. Mills of less than 110 ton of air dried unbleached pulp per day may be exempted from the limitations of subsection 2 above provided:
   a) That the schedule of compliance required by Section D demonstrates that a minimum of 50% collection efficiency will be maintained and that compliance will be achieved within 1 year.
   b) That the schedule of compliance required by Section D demonstrates that a minimum of 80% collection efficiency will be maintained and compliance will be achieved no later than December 31, 1975.
   c) That an approved program continually monitors ambient air to demonstrate compliance with State and Federal ambient air standards, and that a five (5) minute concentration of 0.8 ppm of sulfur dioxide is not exceeded.
4. The total emission of particulate matter from the recovery furnace stacks shall not exceed four (4) pounds per air dried ton of unbleached pulp produced.

D. COMPLIANCE SCHEDULE:

Each mill shall proceed promptly with a program to bring all sources into compliance with this regulation, but in no instance shall the compliance be achieved later than July 1, 1974 (except as provided in C, 3(b)). A proposed schedule of compliance with this regulation shall be submitted within one hundred and twenty (120) days following the adoption of this regulation, or as otherwise determined by the Environmental Quality Commission. After receipt of the proposed schedule the Department shall adopt an approved compliance schedule. The proposed schedule shall include:

1. A description of the program to determine the sulfur dioxide emissions from all sources.

2. The dates when specific steps of the program will be completed, including but not limited to:
   a. Engineering study
   b. Purchase of equipment
   c. Erection of equipment
   d. Equipment placed in normal operation (full compliance with regulation)
3. A description of each step in the program, including but not limited to:
   a. Engineering studies including alternative control procedures to be considered and a comprehensive time schedule for their evaluation.
   b. Performance characteristics and estimated efficiences of control devices.
   c. Justification for the time schedule requested.
   d. Reduction in emissions resulting from each completed step.

The approval of a compliance schedule by the Department shall be based upon a showing that the mill is proceeding with all due speed to meet all requirements of this regulation.

E. MONITORING AND REPORTING:

1. Each mill shall submit, within sixty (60) days of the date of adoption, a detailed sampling and testing program and time schedule for approval by the Department.
2. The monitoring equipment shall be capable of determining compliance with the emission limits established by these regulations, and shall be capable of continual sampling and recording of concentrations of sulfur dioxide contaminants from the recovery system.
3. Each mill shall sample the recovery system, blow system, and acid plant for sulfur dioxide emissions on a regularly scheduled basis.
4. Each mill shall sample the recovery furnace stacks for particulate on a regularly scheduled basis.
5. Unless otherwise authorized, data shall be reported by each mill at the end of each calendar month as follows:
   a. Average daily emissions of sulfur dioxides expressed as pounds of

sulfur dioxide per ton of pulp produced from the blow system, recovery system, and acid plant.

b. The daily average and peak concentrations of sulfur dioxides expressed in pounds per hour and expressed in ppm of sulfur dioxide and the number of hours each day that the concentration exceeds 500 ppm.

c. The average daily production of unbleached pulp and the maximum daily production.

6. Each mill shall furnish upon request of the Department, such other pertinent data as the Department may require to evaluate the mill's emission control program. Unless otherwise prescribed, each mill shall report immediately to the Department abnormal mill operations which adversely affect the emission of air contaminants.

7. All measurements shall be made in accordance with techniques approved by the Department. Interim procedures may be approved for use prior to completion of the studies required by Section F.

F. SPECIAL STUDIES:

Special studies of the nature described below and having prior approval of the Department shall be conducted at each mill or through cooperation among mills. The proposed program and timetable shall be submitted to the Department within 90 days of adoption of this regulation.

1. Develop and recommend satisfactory measuring technique for particulates from recovery furnace stacks.
2. Evaluate and report the emission and control methods of sulfur dioxide from other sources within the mill.
3. Evaluate and report the emission of sulfur trioxide from recovery furnace and acid plants.
4. Evaluate as required by local conditions emissions of TRS.
5. Develop and recommend satisfactory continual monitoring techniques for SO_2 emissions from recovery systems and blow pit vents.

G. EXCEPTIONS:

These regulations do not apply to open burning or power boiler operations conducted at sulfite pulp mills unless such boilers are an integral part of the sulfite process or recovery system.

H. PUBLIC HEARING:

A public hearing may be held by the Department not later than December 31, 1973, in order to review current technology and adequacy of these regulations.

I. NOTICE OF CONSTRUCTION AND SUBMISSION OF PLANS AND SPECIFICATIONS:

1. Prior to the construction, installation, or establishment of a sulfite mill, a notice of construction shall be submitted to the Department as required by OAR 340, Sections 20-020 and 20-030.
2. Addition to, or enlargement, or placement of a sulfite mill or any major alternation therein shall be construed as construction, installation, or establishment.

DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY CONTROL DIVISION

SULFITE PULPING - EMISSIONS AND CONTROL

A Background Report for Sulfite Pulp Mill Regulations

1. THE PROCESS:[1](a)

The sulfite pulping process uses a sulfurous acid-bisulfite salt solution to attack the lignin in wood chips, either freeing the cellulosic fibers entirely or making it easier to mechanically reduce the chips to fiber. In Oregon, the process is used almost exclusively for pulping hemlock, with small amounts of hardwood being an exception.

The pulping of hardwood is an exception to general industry practice in a number of ways which will be described separately. The following description relates to the more general pulping of softwoods in conventional equipment.

Sulfite pulping is done in batch digesters, which are large cooking vessels of up to 6,000 cubic feet and 20 tons chip capacity. After the chips and cooking liquor are charged (loaded), the vessels are sealed and steam-heated to 90-100 pounds per square inch (psi). After the chips have been cooked to a point which is dependent on the type of pulp desired, the pressure in the digester is relieved to about 40 psi, a valve at the bottom of the digester is opened and the pulp is blown under the remaining pressure into a blow pit. Spent sulfite liquor containing half the weight of the chips, drains from the pulp and steam vapors and gases may also escape at this time. The pulp is diluted and passes on to knotting (screening to remove knots) and washing processes.

Hardwood is being pulped at one Oregon mill in a neutral sulfite semi-chemical (NSSC) process, using a low-strength cook liquor and a continuous digester. The chips are cooked just enough to soften them, with the balance of the pulping being done by mechanical means. Emissions from the digestion and cook-liquor preparation are very minimal. Western Kraft at Albany is building an NSSC system which probably will pulp softwood.

In the past, the spent sulfite liquor has been held for some treatment for water quality purposes and, subsequently, released to a receiving stream. More stringent effluent and water quality standards have compelled sulfite mills to initiate cooking-chemical recovery, which is done by evaporating the spent liquor, incinerating the solids which remain, then collecting the cooking chemicals in a series of mechanical particulate collectors and in scrubbers. These chemicals are dissolved in water and the concentration adjusted to desired levels, thus regenerating the cooking liquor.

Atmospheric emissions are from three major sources: blow pit vent stack, acid-making plant and recovery furnace stacks. There may be additional discharges from the knotters and washers, although these may be minor. If cooking chemical recovery is practiced, there will be no acid making emission separate from the recovery furnace emissions.

(a) Footnotes are included in a Bibliography, Appendix III.

2. BLOW PIT EMISSIONS AND CONTROLS:

To use the term "sulfite process" for all six mills in Oregon may be misleading by implying more uniformity than actually exists. The end use of pulps produced ranges from fine paper, almost a rayon pulp to corrugating medium, a semi-chemical pulp still containing much lignin used for the corrugated inner section of cardboard. Each pulp use demands a specific cooking liquor composition and cook cycle (combination of time, temperature and pressure).

2.1 Digestion:

The purpose of digestion is to dissolve the lignin (wood sugar) matrix that supports the cellulosic fibers. In the sulfite processes, the lignin is dissolved by sulfite ions ($SO_3^=$). Cooking liquor is a solution of sulfurous acid (H_2SO_3) and a bisulfite salt ($MHSO_3$ - where M is sodium, ammonium, magnesium or calcium). The bisulfite, by its limited solubility keeps the cook liquor at a reasonable constant concentration of sulfite (buffers the liquor). As sulfite is consumed by reacting with lignin, more sulfite is made available by the dissociation of bisulfite. The procedure may be represented as:

$$MHSO_3 \text{ yields } M^+ + HSO_3^- \text{ yields } H^+ + SO_3^=$$

The reason for trying to keep the concentration constant is that the mills must have uniform pulp quality. By adjusting the concentrations, pulp quality can be varied from a product that must be mechanically reduced to a pulp after being merely softened by digestion (semi-chemical, or chemi-mechanical pulps) to the "dissolving grades", which are pure cellulose, suitable for making rayon. The total SO_2 determines how much of the wood will be digested (determines the yield). The balance between free and combined sets the pH and thus the pulp quality (strength, by the nature of chemical degradation of cellulosic fibers; brightness and bleachability by how much lignin is removed without also dissolving too much cellulosic material).

The following Tables indicate the range of cook liquors in commercial use. The terms used in Table II are:

% Combined = weight percent of SO_2 as bisulfite salt, $MHSO_3$

% Free = weight percent of SO_2 as sulfurous acid, H_2SO_3

% Total = total weight percent of SO_2 in cook liquor

pH = acidity of cook liquor (Note: low pH is a high acidity)

Table I

Sources and Emissions in Sulfite Mills

Source	Contaminant Emitted
Blow Pit	SO_2, Water Vapor and Drops
Knotters, Washers	SO_2
Recovery Furnace	SO_2, Particulate (solid and liquid), SO_3
Acid Plant	SO_2, SO_3, Liquid Particulates possible

Table $II_{(2)}$

Illustrative Sulfite Cook Liquor Composition

		SO_2, Percent of Solution			
Commercial Name	Pulp Use	Combined	Free	Total	pH
Acid Sulfite	Rayon, fine paper	1	3	4	1.8
Bisulfite	Newsprint	2	2	4	4.3
NSSC, or Bisulfite monosulfite	Corrugating medium	3	1	4	6.7

Chemical usages in pulp production are shown in Table III below, with numbers expressed in terms of pounds per ton of pulp produced:

Table III (3)

Typical Cook Liquor Chemical Usage
lbs of material per ton of pulp

Process	Water	Chips	Base	Sulfur Dioxide Free	Sulfur Dioxide Total	Cook Strength, % Total SO_2 in Water	Pulp
Ammonia-base Acid Bisulfite	19000	3600	110 (NH_3)	1200	1600	8.4	1 ton
Magnesium-base Bisulfite	13000	3700	245 (MgO)	340	675	5.2	1 ton
Neutral Sulfite Semi-Chemical	2400	2400	70-100 (Na_2CO_3)		220-280 ($NaHSO_3$)		1 ton

The amount of SO_2 that would be released to the atmosphere, if there were no controls, when a digester is blown is approximately the free SO_2 present in the cook liquor at the end of a cook. This quantity, in turn, is influenced by, but not strictly proportional to, the free SO_2 in the cook liquor charged into the digester with the chips. The lack of proportionality is largely related to the pressure relief, during the cook and just prior to blowing the digester. Three Oregon mills illustrate the range of actual emissions with the use of water sprays and minimum blow pressures to achieve some amount of control: (4)

Type and Process and Pulp Use	Blow Pit Emission, lb SO_2/ton	Precent Free SO_2 in Cook liquor
Acid Bisulfite, making fine paper	80	8
Bisulfite, making newsprint	2½	2.5
NSSC, making corrugating medium	0	0

Note: Theoretically, an uncontrolled calcium-based newsprint mill will liberate 150 lb/T.

As will be pointed out in more detail in the discussion of the blow cycle which follows, the important feature of blow pit emissions is that during the peak of the blow (the four to six minutes after opening the digester during which the digester is emptied of pulp and the maximum emissions of water vapor and sulfur dioxide are experienced), the mass emission rate of sulfur dioxide (lbs. SO_2/min.) may equal or exceed the continuous emission rate from the recovery furnace, and the concentration will also be higher. On the other hand, emissions from the NSSC process are almost neglible.

2.2 Blow Cycle:

The blow cycle itself merits a certain amount of detailed attention. There is some relief (gas escapement) from digesters at the time they reach their maximum temperature. This high-pressure, or top relief, prevents the development of unsafe pressure within the digester (generally within the range of 80-90 psi), and prevents pulp degradation by limiting the severity of pulping conditions. These gases are relieved to "accumulators", sprayed chambers where steam is condensed and SO_2 redissolved for subsequent reuse as cook liquor.

When the cook is nearing completion, additional relief in preparation for the blow is done, lowering the digester to 40 psi over atmospheric pressure. This minimum pressure has been reported to be required to ensure a "clean blow", one in which all the pulp is blown from the digester. The pulp is usually blown "uphill", from the bottom of the digester up perhaps five-ten feet into the blow pit. The liquor is passing from a pressurized to an atmospheric regime and its initial temperature is above the boiling point, so that steam "flashes" to bring the temperature down. In like manner, the sulfur dioxide is more soluble at elevated pressure, and is flashed off to reach equilibrium solubility at blow pit conditions. Air displaced from the blow pits followed by visible vapor and, concurrently or a little later, invisible SO_2 may be emitted. The spent liquor drains and the pulp is removed to prepare the blow pit for the next blow.

The two largest batch sulfite mills in Oregon have six digesters each, enough so that one is blown each hour. The smallest mill blows once every four hours. The peak flows and concentrations that have been reported to the Department staff last for five-six minutes. This time dependence of the discharge makes the "lbs. SO_2/Ton" reported from digesters and recovery furnaces not strictly comparable, especially in evaluating their impact on the ambient air around sulfite mills. The following Table IV shows the relationship between recovery furnace and blow pit emissions:

Table IV

Sulfur Dioxide Emissions (4)

	Recovery Furnace			Blow Pit Vent		
	lb/T	lb/min	ppm (dry)	lb/T	lb/min	ppm (wet)
Magnefite	30	3.6	800	2.5	4.0	1500+
Acid Bisulfite,	17	2.3	230	80	167	15000

Note: Bisulfite Recovery furnace data reported by the vendor to EPA, who then relayed the data to the DEQ. The vendors guarantee is only in terms of "able to emit no more than 500 ppm for 15 minutes". The 17 lb/T - 230 ppm apparently is a design basis only, to enable meeting that guarantee.

Table IV is based upon the assumption that substantially all of the sulfur dioxide reported in the "lb/T" column is emitted during the five-six minute peak of the blow cycle. Due to the interent nature of the test method, the

measurement is a 15 minute average which may not reflect all the SO_2 released during the peak. There is a further consideration. The higher concentration in the blow pit vent gases will govern the ambient concentrations noted up to a certain distance. Beyond that distance, the mass rate of SO_2 emitted becomes more important. Thus, even with indicated equal mass emission rates, ambient monitors located within a few blocks of the magnefite mill showed peaks which could be related to blows, and complaints from residents in the vicinity of the mill confirm that at those locations the blow pit exhaust has a greater impact. Because of the long sampling period, and also because of the high time rate of release (lb/min) and concentrations, comparing emissions in terms of lb SO_2/ton from recovery furnaces and blow pits is not valid.

A summary of basic features of sulfite mills in Oregon is presented in Table V.

2.3 Control Approaches:

The control of blow pit emissions, as with other emissions, can be based on a number of approaches. Among these are:

1. Change of process i.e., convert to kraft, or cease pulping
2. Retention in spent liquor
3. Scrub SO_2 from exhaust gases after coming out of solution.

2.3.1 Changing Process:

Changing process has been accomplished by at least four sulfite mills in the Northwest: Boise Cascade at Vancouver, Washington, Crown Zellerbach at West Linn, Fibreboard and Crown Zellerbach at Port Angeles having ceased sulfite pulping some years ago.

2.3.2 Preventing Release:

It is possible, theoretically, to prevent the release of SO_2 by neutralizing the pulp in the digester. A trial a few years ago was successful in raising the pH from 5 to 5.5, at which point the pulp severely darkened. (4).

Some work has been done to attempt to contain the SO_2 within the mills' acid system, using the top and side reliefs described previously. These efforts have been directed toward relieving as much SO_2 as possible into accumulators (vessels with sprays), and reusing the resulting acid solution for cook liquor make-up. The efforts have been carried to the point of relieving digesters to 30 psi and repressurizing to 40 psi with steam. Trials intending to relieve further were reported to have been unsuccessful for the following reason: the gases were relieved, both for top and side relief, through a screen around the neck at the top of the digester. When the pressure dropped below about 30 psi, significant amounts of fiber were entrained in steam, plugging the screens. Further relief is impossible under those conditions.

Table V

Sulfite Pulp Mills In Oregon (4)

Mill	Base	Type of Cook	No. of Digesters	Capacity Tons/Day	No. of Blows Per Day	SO_2 Emissions Blow Pit lb/T	Blow Pit ppm	Recovery lb/T	Recovery ppm, dry
Publishers									
Oregon City	Magnesium	Bisulfite	6	170	22-24	2½ avg.	1500+ peak	30	800
Newberg	Magnesium	Bisulfite	4	180	16-17	Not Measured		Not Measured	
Boise Cascade									
Salem	Ammonia	Acid Bisulfite	6	200	22-24	80	15,000		500*
Crown Zellerbach									
Lebanon	Ammonia	Bisulfite and Neutral Bisulfite	3	100	9	6-20	Unknown	No Recovery	
Coos Head Timber									
Empire	Calcium	Bisulfite	2	80	5	Not Measured		No Recovery	
Menasha									
North Bend	Sodium	Neutral Sulfite Semi-Chemical	1	260	Continuous Digestion	Very Minimal		No Recovery	

*Installation to be completed July, 1972

If it were possible to relieve the digesters essentially to atmospheric pressure, then the blow pit emissions of sulfur dioxide would be reduced, proably, to negligible levels. In some existing mills, digesters are dumped, rather than blown, into tanks directly under the digesters. Emissions from the dump tanks have been reported to be under 0.01 lb SO_2/Ton of pulp at one mill. However, the system at that mill is vented to the recovery furnace scrubber. Each blow effects scrubber efficiency significantly.

One sulfite mill in Maine has achieved nearly total control of its blow pit emissions by altering its method of emptying digesters (5). Essentially, the mill, Great Northern Paper Company at Millinocket, Maine, withdraws one-third of the cooking liquor at the end of a cook, then replaces it with water from the pulp washers. The pulp and liquor are then cooled from 329°F to 203°F., and pumped to the blow pit. Being below the boiling point, water in the spent liquor does not flash off and SO_2 does not come out of solution. In brief communications with the technical director of the plant, it was stated that there was practically no odor of SO_2 in the blow pit vent.

This kind of modification appears to be applicable to mills in Oregon. Information available to the DEQ staff on costs is limited, but there have been indications that converting from blow to pump-out systems is comparable to costs of converting to dump systems or to the addition of manifold and scrubbing systems. A lack of space may prevent installation of this type of system, or make it very expensive. Also, there is an approximately 20% loss of pulping capacity because of longer blow cycles.

Finch, Pruyn and Company, Glenns Falls, New York, converted to continuous digestion resulting in a "closed system" which eliminates emissions by preventing exposure of spent liquor to the atmosphere (5).

2.3.3 Scrubbing:

Another approach is to scrub the SO_2 from the blow pit exhaust gases. To do so requires that blow pits be enclosed or manifolded and a scrubber designed and built. No small part of the problem is that the system has to be designed for the maximum gas and vapor flow which may be many times the average gas flow, and, likewise, for peak concentrations of SO_2. In one mill of 800 tons per day, such a system was installed in 1948 for economic recovery (4). There are other parameters to be considered. The scrubbing medium, for greatest efficiency, should be alkaline. The obvious choice is the base used at a given mill, for example, a magnesium hydroxide slurry at a magnesium-based mill.

To do otherwise would create another problem --- that of disposing of the scrubber effluent. Ammonia-based plants have an additional consideration. The use of ammonium hydroxide leads to the emission of ammonia or of an ammonium sulfite particulate.

A tabulated comparison of scrubbing, dumping and pumping is presented below:

TABLE VI

Comparison of Blow Pit Controls

System	Advantages	Disadvantages
Retention in Spent Liquor		
Dump System	Minimal emissions even at peak	Major rebuild required to install sunken blow pits. Some loss of capacity by lengthening cook cycle. Requires major changes within digesters and relief systems.
Pump System	Minimal emissions even at peak. Possibly less drastic digester modification than for dump system.	May require extensive rebuild of digesters. Some capacity penalty.
Scrubbing	Adding on, requires least alteration of existing digesters and blow systems.	May require reinforcement of blow pits to allow high pressures. Must be sized for peak flows and concentrations rather than average, or will not eliminate peak discharge.

Current emissions from Northwest pulp mill blow pits known to the DEQ staff are tabulated in Table VII.

Some additional information has been submitted to the Oregon-Washington Air Quality Committee, on controlling emissions from small mills. Crown Zellerbach, Lebanon, has indicated that a blow pit (vent) scrubbing system could be installed to scrub blow gases with about 50% efficiency, or to a rate of 5000 pounds of SO_2 per day (50 lb/Ton for that mill) (6). Scott Paper, Anacortes, indicated that for $100,000, a "water drenching, plus blow stack showering" system could be installed (7). No projected emission data submitted (on grounds that adequate data for an accurate estimate were not available), but Crown Zellerbach did state, "It is expected that such a system would adequately meet the ambient standards for SO_2 which are clearly a requirement irrespective of emission levels."

Table VII

Present Blow Pit Emissions From Sulfite Mills

Mill	Process	Peak Concentration ppm wet	Average Mass Emission lb SO_2/Ton	Controls
Publishers Paper Oregon City (4)	Bisulfite	1500	2½	Low Pressure Relief Stack Sprays
Boise Cascade Salem (4)	Acid Bisulfite	15000	80	Low Pressure Relief Stack Sprays
Weyerhaeuser Longview,Wn.(8)	Bisulfite		0.01	Dump Digester Vent dump tank to Recovery Furnace Absorber
Scott Paper Everett, Wn. (8)	Acid Sulfite	870(a) Peaks "much higher than average" values	1-5	Scrubbers on Manifolded blow pits
Georgia-Pacific Bellingham,Wn. (8)	Bisulfite	1400(b)	20(b)	Stack Scrubber
Great Northern Millinocket, Me.(5)	Bisulfite	Nil(c)	Nil(c)	Pumped out Digesters
Finch Pruyn Glenns Falls,N.Y. (5)	Bisulfite	None(d)	None(d)	Continuous Digester

(a) Reported average for 35 minutes blow cycle. Peak concentrations much higher than this.

(b) Caustic scrubber recently added that substantially reduced emissions. Scrubbing liquor sent to NSSC plant on site.

(c) Based on subjective observation, not on actual measurements.

(d) Use of continuous digester eliminates discharge to a blow pit.

Possibilities of connecting blow pit vents to recovery furnace scrubbers have not been considered promising because of the anticipated effects of peak flow rates and concentrations on the scrubbing efficiencies. A relatively large surge chamber would be required to contain the total volume of blow gases plus (inert) air present in the pits when the digester is blown. It is felt, by industry, that the mixture of blow gas and inert air would be so diluted with respect to SO_2 that the efficiency of the scrubbers would be impaired.

2.4 Summary of Digester Emissions:

Depending on the specific sulfite process, emissions from uncontrolled blow pit vents can be up to 150 lb SO_2/ADT. The addition of low pressure relief and sprays in the vent has reduced emissions to rates varying from 2½ to 80 lb SO_2/Ton, again dependent on the process. Installation of a gas collection and scrubber system could reduce the emissions from any process to 3 - 5 lb SO_2/ADT, but probably would not eliminate concentration peaks in the neighborhood of 1500-2000+ ppm SO_2. For a comparable cost, digesters can be converted to dump or pump-out systems which reduce the emissions to less than 0.1 lb/SO_2/ADT, at the same time eliminating the troublesome high-concentration peaks, providing space is available for a new system, and not including the cost of lost production or adding a digester to make up the loss.

3. RECOVERY CYCLES:

The purpose of a recovery cycle is to separate the (inorganic) cooking chemicals from dissolved wood sugars in the spent cooking liquor and to prepare fresh cooking liquor from the recovered chemicals. The basic cycle presently used includes these steps:

a. Evaporate spent liquor until the solids content is sufficient to support combustion.

b. Incinerate the evaporated liquor.

c. Separate, by mechanical collectors and/or scrubbers, the cooking chemicals from the flue gas.

d. Dissolve the collected chemicals (usually done at the same time as the separation of Step c).

e. Add make-up chemical, or "fortify" the reconstructed cook liquor to desired strengths.

3.1 The Cycle in Detail:

The spent liquor (after the pulp has been cooked, blown and washed) contains roughly half the dry weight of wood originally charged to the digesters, plus almost all of the cooking chemicals originally added with the chips. On a weight basis, the spent liquor is approximately 12% solids, 88% water. The spent liquor must be evaporated to a strength of 50-60% solids before it can be incinerated.

During incineration, the sulfur is burned to sulfur dioxide. If the mill uses a magnesium base, the magnesium is oxidized to magnesium oxide (MgO). Ammonia (NH_3) in ammonia-based mills, burns to nitrogen and water. Sulfur dioxide and MgO are recoverable, SO_2 in scrubbers and MgO in multiple cyclones. The SO_2 scrubbers use a medium composed of a solution of the base (magnesium hydroxide made by dissolving the collected MgO, or ammonium hydroxide from a fresh supply). The scrubber effluent is a weak cook liquor which need only be fortified in a tower which contacts the effluent with SO_2 from a sulfur burner to fully regenerate the strong cooking liquor. There are scaling problems with precipitated magnesium sulfite ("monosulfite"). If the scrubbing system is made more efficient by increasing the concentration of magnesium hydroxide, ($Mg(OH)_2$) the scaling problem becomes more severe. At Great Northern - Millinocket, the scrubbers are de-scaled once a week, by decreasing the $Mg(OH)_2$. During the descaling time, the emissions of SO_2 are greatly increased.

There is another recovery system for sulfite mills based on sodium. One such system is operating in Hoquiam, Washington. In this process, instead of generating a particulate which has to be removed from the flue gas, a molten smelt of sodium sulfide (Na_2S) is produced (in a reducing atmosphere), drained out the bottom of a furnace and dissolved. An interesting variation of this process, the "cross-recovery"system, is used for sodium-based NSSC mills located near kraft mills. The spent liquor from the NSSC digester is mixed with kraft black liquor and the two are recovered together.

The capital investments for sodium and ammonium recovery systems are close enough so that the choice of which to use is based on the relative prices of ammonia and sodium carbonate or sodium hydroxide. If any one of the three sulfite mills in Oregon not currently recovering should choose to do so in the future, the choice of systems would be based on conditions at that time.

3.2 Emissions and Controls:

Data available to the Department staff and for which the test methods are known, for emissions from recovery furnaces, are shown in Table VIII.

The original proposal for the recovery system at Publishers, Oregon City envisioned an SO_2 emission of above 400 ppm, which would have been 10.2 lb SO_2/Ton (9). Boise Cascade's proposed NH_3-based system for Salem was designed around a parameter of a maximum of 500 ppm in the exit flue gases (10).

The controls on recovery furnaces, for the present, are based on contacting SO_2 with an alkaline medium. The only current exception is the sodium-based recovery furnace, which recovers chemicals as a smelt. In other processes, the purpose of the furnace is to oxidize the chemicals and entrain them in the flue gas, and at the same time incinerate wood sugars and lignous sulfonates. The scrubbing media are solutions or suspensions, and contact with SO_2 is effected by increasing the surface

Table VIII

Recovery Furnace Emissions

Mill	Base	Type	Emissions SO_2 ppm	SO_2 lb/Ton	Particulate gr/SCF	Particulate lb/Ton	Control Method
Existing							
Weyerhaeuser (8) Longview, Wn.	MgO	Bisulfite	---	30-53	0.03-0.05[a]	1.5-2.4	Packed towers
Weyerhaeuser (8) Cosmopolis, Wn.	MgO	Bisulfite	---	19	0.1-0.2	4.7-11.3	Packed towers
ITT-Rayonier (8) Hoquiam, Wn.	Sodium	Acid Bisulfite	$300_{(avg)}$	17	0.05	5.3	None[b]
Finch Pruyn (5) Glenns Falls, N.Y.	NH_3	Bisulfite	50-200	10	(NH_4SO_3 fume noted - No data available)		Perforated plate towers
Great Northern (5) Millinocket, Me.	MgO	Bisulfite	500	10-20	No Data	No Data	Triple Venturi
Publishers (4) Oregon City	MgO	Bisulfite	800	27-35	No Data	No Data	Triple Venturi
Proposed Systems Design Data							
Crown Zellerbach Camas, Wn. (8)	MgO	Bisulfite	---	18	0.1	2.1	4-stage Venturi (first stage cooling)
Boise Cascade (4) Salem	NH_3	Acid Bisulfite	500[d]		Should be minimal		Perforated plate tower
Scott Paper (8) Everett, Wn.	NH_3	Acid Bisulfite		20-25	0.2-0.3[c]	12.2-18.2	Packed towers

[a] Probably low. Sample caught on filter, does not account for losses in probe. Further error from non-ideal sampling.

[b] Recovery of chemicals is in the form of a molten smelt instead of as SO_2 in the flue gas.

[c] Salt-water logs contribute to high particulate loadings.

(d) Company's specification to vendor.

area of the medium either by distributing it over an inert matrix (packed towers) or by inducing turbulence (venturis), with perforated plate towers being a combination of these two approaches.

The scrubbing system must be oriented toward aiding the regeneration of cook liquor. If a mill is based on ammonia, using a sodium-based scrubbing medium would not only be prohibitively expensive, but also create a problem of disposal of a contaminated effluent. This limits the applicability of otherwise worthwhile control designs on an industry-wide basis.

The staff believes that it is reasonable to conclude that Publishers, Oregon City, should be able to reduce the current reported sulfur dioxide emissions below 30-35 lb SO_2/Ton and 800 ppm. It may require substantial rebuilding of their existing triple-venturi system in lieu of merely increasing the pressure drop through the system, or it may require addition of a fourth stage. More possibilities may arise from experience at Publishers' new system at Newberg (11).

The design for Boise Cascade, Salem, an ammonia-based system, indicates an emission of 17 lb SO_2/Ton (12), but the validity of this projection is not known, and won't be until the system is operating.

For air pollution abatement, the emission rates of interest are: (a) the theoretical minimum attainable; (b) highest and best practicable treatment, the best controls possible within the limits of each mill's economic position and operation demands; (c) emission rates low enough to prevent ambient SO_2 levels over ambient standards; and (d) emission rates low enough to prevent odor and nuisance problems. Theoretically, if a mill installed a scrubber large enough and used enough water, the SO_2 emissions would be reduced to zero, but the scrubber effluent would be so dilute with respect to SO_2 that the entire cooking chemical usage would have to be made up anew. The point is not trivial, in that before the emissions reached zero, the amount of scrubber effluent probably would exceed the mill's water demand, and the effluent would be a potential water pollution problem. Practical degrees of treatment, abating air pollution without causing other problems and achieving minimum emissions with the amount of scrubbing medium available, must determine the optimum allocation of resources. To date, insufficient information has been presented to the Department of Environmental Quality to allow the staff to determine that optimum allocation. The staff has relied on such emission data as are available considered in relation to ambient data and the incidence of complaints to estimate the maximum emission rates tolerable. It will then be each mill's responsibility to decide the manner of achieving those levels.

Based both on technical capability and on ambient considerations which are discussed in somewhat more detail below, the staff concluded that an emission limit in the neighborhood of 20 lb SO_2 per air dry ton of

pulp should be the maximum allowable emission rate from recovery furnaces. Even though it is based more on ambient considerations that on present "state of the art" performance, it is still the staff's responsibility to attempt to determine whether this limit is within technical and economic feasibility. The emission data of Table VIII are the best data available for making this judgment. From those data, it is concluded that 20 lb SO_2/Ton is a reasonable limit that should not be exceeded, i.e., does allow for variations above the average.

3.3 Particulate Emissions and Controls:

Magnesium and sodium based mills which practice recovery have a potential for being sources of particulate emissions.

Magnesium-based mills may emit a fume of MgO, which partly dictates the type of scrubber to be used. Low strength acids allow the use of packed towers, but for higher strengths (newsprint, fine paper and dissolving grade pulps), particulate matter tends to collect in regions of low turbulence within the tower and eventually plug it. This consideration led to the development of venturi scrubbers which have sufficient turbulence to prevent clogging. Emissions have been reported in the range of 0.1-0.2 grains/ft^3, equivalent to 4.7-11.3 lb/Ton from a non-magnefite mill. One magnefite mill, to be built in Washington, anticipates emissions to be approximately 2.1 lb/Ton. (8)

A sodium-based mill in Washington has reported emissions in the neighborhood of 5.3 lb/Ton.

The ammonia in the scrubbing medium at an ammonia-based mill can react with SO_2 or SO_3 to form an ammonium sulfite or sulfate fume (the ammonia in incinerated spent liquor burned to N_2 and H_2O.) The choice of scrubbing medium pH will affect fume formation considerably, in that at high pHs (strongly alkaline), there is more NH_3 vapor to form a fume. At low pHs (acid), the fume formation is prevented, but scrubbing efficiency suffers. This is another compromise situation, in that use of a strong ammonia scrubbing medium can greatly minimize emissions of SO_2, but at the same time lead to increased formation of fume.

Salt from salt-water borne logs can contribute to particulate loading. Presently, this is more a problem in Washington mills than in Oregon.

The data on particulate emissions from new sulfite recovery furnaces is nil, and the extreme range for old furnaces not helpful for determining an appropriate limit reflecting good current technology. An

analogy with kraft furnaces, for which new controls are capable of limiting emissions to 2 lb/Ton, is not entirely accurate due to differences in design and function. An emission limit of 4 lb/Ton on sulfite recovery furnaces was written into the proposed sulfite mill emission regulation as being equivalent to the limit on kraft furnaces and requiring an approximately equivalent degree of treatment.

4. MINOR SOURCES:

The minor sources of emission include knotters, washers and acid plants. Knotters are screens for removing uncooked knots from pulp. The washers are much like rotary filters, and their purpose is to wash spent liquor from the pulp. Accurate data are not available, but the emissions are believed to be on the order of up to a few pounds of SO_2 per ton of pulp. If hooded closely enough to limit in-flow of room air, these could be ducted to existing absorbers. If not, a scrubber on the vents need not be too complex.

For plants not recovering chemicals, the acid plant can be a significant source. In these plants, sulfur is burned to SO_2, the SO_2 quenched and adsorbed in towers. Calcium-based mills use Jenssen towers, two stages of absorption in limestone-filled towers with SO_2 and water flowing countercurrently. Other plants use inert packing or gridwork, and absorb SO_2 in an appropriate alkaline medium. Uncontrolled emissions can be 12 lb SO_2 per ton, controllable to 3 lb/Ton or less, with a scrubber. Plants with recovery systems burn sulfur for a make-up, but the SO_2 is introduced with the flue gas into the recovery absorbers and thus emissions show up as part of the furnace emissions.

5. MEASURING AND MONITORING:

5.1 Introduction:

Determining either the concentration or the mass emission rate of a contaminant depends on these operations:

a. Withdrawing a sample of flue gas which is representative of the total gas stream.

b. Collecting, with known efficiency, the contaminants in a form susceptible to accurate analysis.

c. Analyzing and reporting the amount of contaminant collected.

d. Relating the amount of material found by analysis to the total amount in the gas stream or total amount emitted in a given time period.

5.2 Source Testing for Sulfur Oxides:

5.2.1 Sulfur Dioxide

Sulfur dioxide is emitted from blow pits, recovery furnaces and acid tower stacks. Stack conditions will vary from stack to

stack, depending on the source and process conditions, but moisture contents may vary from 5 to 50 percent and sulfur dioxide concentrations from 100 to 300,000 ppm. Sampling methods first employed for SO_2 were batch-type wet chemical methods, but continuous SO_2 analysis is rapidly replacing batch sampling for reasons discussed below:

5.2.2.1 Batch-type sulfur dioxide methods:

Most batch-type source tests for sulfur dioxide depend upon adsorption/reaction of SO_2 in an impingers or bubblers. One such method has been approved by the Washington-Oregon Committee on an interim basis. The recommended train is shown in Figure 5.1 A portion of flue gas is drawn through a probe and into contact with the reagent to remove sulfur dioxide; the gas then passes through a pump and meter to measure the volume of sampled gas. After chemical analysis of the impinger solutions, contaminent concentration can be calculated and applied to the total stack volume flow rate to determine mass emission. Table 5-1 lists some common batch-type methods.

Table 5-1

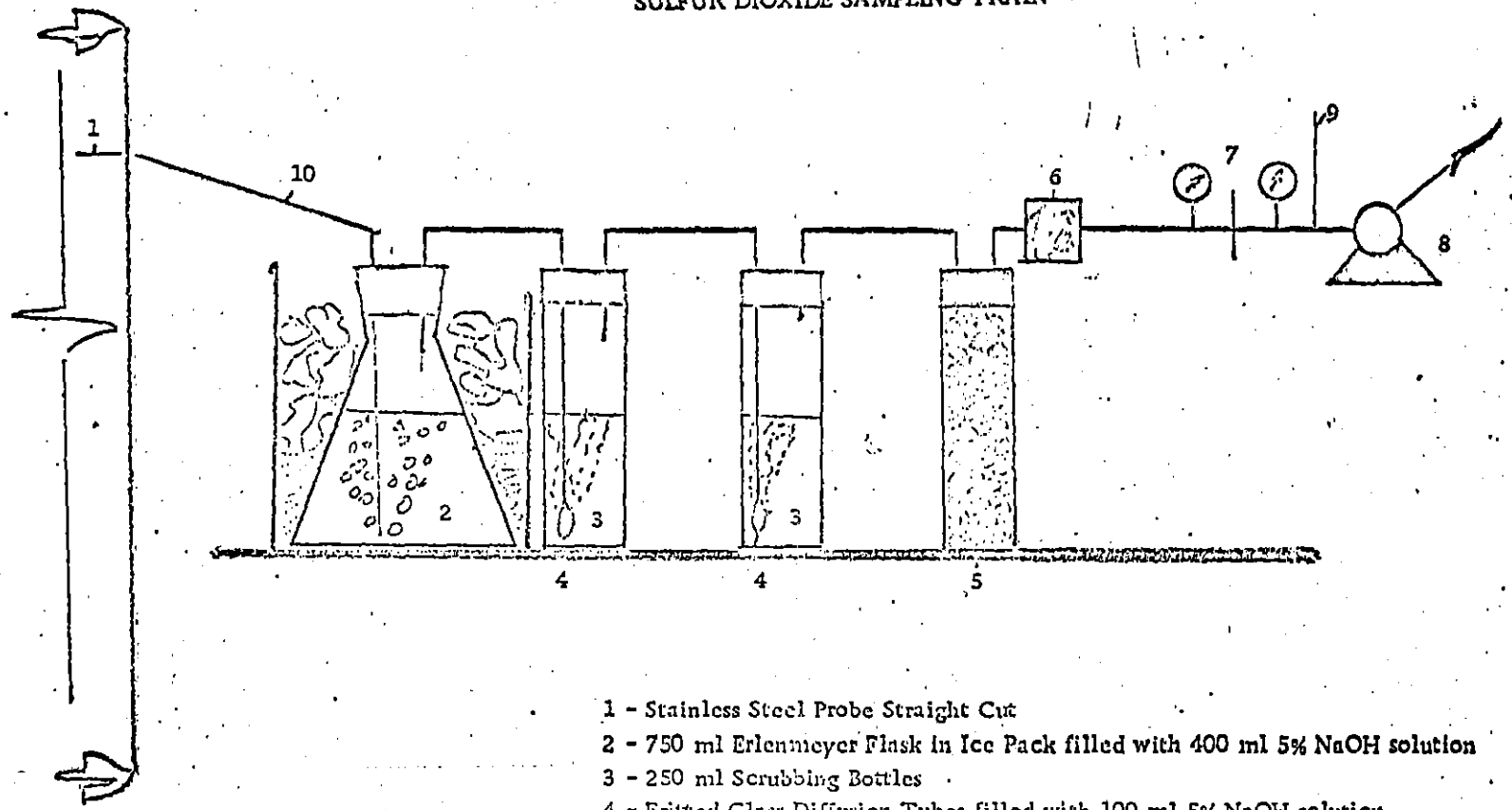
Batch-Type Source Sampling

Method	Absorbing Agent	Analysis
Reich Test	Kl Starch Solution	Color Change
Modified Reich Test	Kl - KlO_3 Starch Solution	Color Change
Modified Reich Test	Caustic	Kl - KlO_3
Peroxide Test	Hydrogen Peroxide	Acid Titration

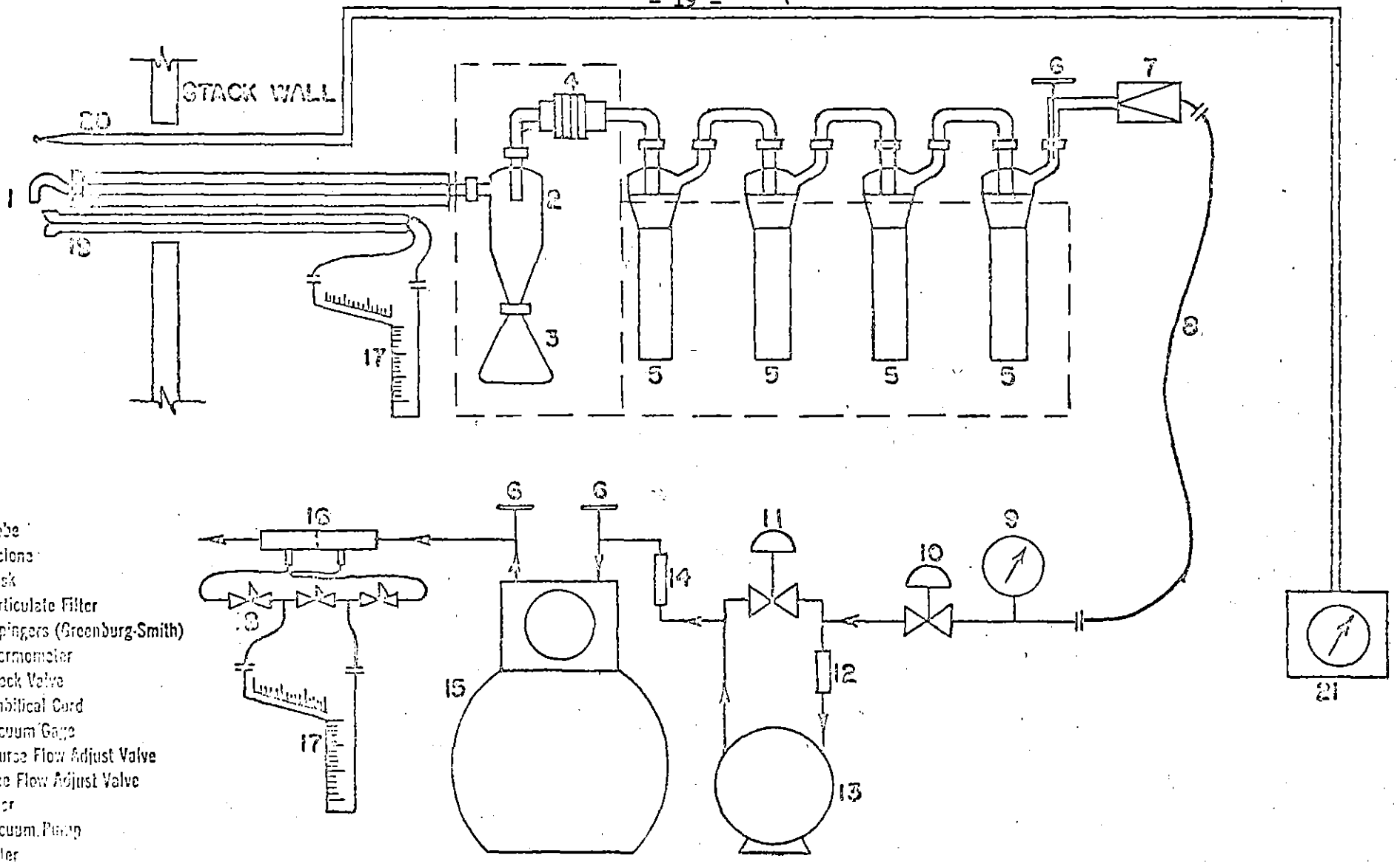
Because such batch methods are time consuming and give limited amounts of data, the trend in emission monitoring has been towards continuous monitoring of sulfur dioxide emissions. Development of such a monitor promises to not only yield information of emissions but also serves to inform process operators of upsets of malfunctions in equipment and aid in their prompt correction. Similar continuous sulfur monitors in the kraft pulping industry has had this effect. Several continuous methods that have been tried or now being developed are listed in Table 5-2.

Figure 5-1

SULFUR DIOXIDE SAMPLING TRAIN



1 - Stainless Steel Probe Straight Cut
2 - 750 ml Erlenmeyer Flask in Ice Pack filled with 400 ml 5% NaOH solution
3 - 250 ml Scrubbing Bottles
4 - Fritted Glass Diffusion Tubes filled with 100 ml 5% NaOH solution
5 - 250 ml Scrubbing Bottle Filled with dessicant
6 - Glass Wool Filter
7 - 2 Liter per minute Orifice with Guages or Dry Gas Meter
8 - Vacuum Pump
9 - Thermometer
10 - Polypropylene Tubing



1) Probe
2) Cyclone
3) Flask
4) Particulate Filter
5) Impingers (Greenburg-Smith)
6) Thermometer
7) Check Valve
8) Umbilical Cord
9) Vacuum Gage
10) Course Flow Adjust Valve
11) Fine Flow Adjust Valve
12) Oiler
13) Vacuum Pump
14) Filter
15) Dry Gas Meter
16) Orifice Tube
17) Incline Manometer
18) Solenoid Valves
19) Pitot
20) Thermocouple
21) Pyrometer

FIGURE 5-2

PROPERTY OF
RESEARCH APPLIANCE Co. ALLISON PARK, PA.

TOLERANCES DEC. ± FRACT. ±	TITLE SCHEMATIC FLOW SYSTEM		
	DWG. NO. 174B	MATL	SCALE
NO. REQ'D	DRAWN BY R.G.	APPR.	DATE 6-29-69
FINISH		JIG NO.	PART NO.

Table 5-2

Continuous Source Samplers for SO_2

Method	Remarks
Infra-red Detectors	Water and CO_2 may interfere
Ultra-violat	Expensive
Coulimetric Titrators	High maintenance
Conductivity	Other acid gases may interfere (such as SO_3= NO_2=)

Most of these methods depend upon withdrawing a sample of flue gas; several attempts have been made to scan the entire stack with an infra-red or ultra-violet detector, but have been unsuccessful because of interference with particulate matter in the stack.

5.2.2 Sulfur Trioxide (SO_3):

Sulfur trioxide will be present almost entirely as H_2SO_4 mist or may react with the base to form a particulate sulfate, in acid plant or recovery furnace stacks. Blow pit emissions are free of sulfur trioxide in any form.

Sampling methods for the acid mists have not been developed specifically for the sulfite industry, although acid mist determinations, such as the Shell method, the Monsanto method and the Chemical Construction Company method have been developed for sulfuric acid plant emissions. These methods employ filters of various types to collect the mists, which are then washed and titrated to determine the acid content. Sampling must be done isokinetically to avoid bias in sampling particles of various sizes.

One modification of these methods is shown in Figure 5-2. (RAC Unit) Collection occurs in the cyclone, glass fibre filter and impingers.

The system employs a heated filter and probe to avoid consendation of water vapor in the sample line. If it appears that sulfuric acid and the sulfate particulate are both present in the recovery system stack, then separation may be possible by heating the filter to at least 300°F to volatilize the sulfuric acid and pass through the filter as a gas and condense out in the impingers. Particulate present as the sulfate should collect on the filter where a weight difference would be used to determine particulate emissions.

5.2.3 Particulates:

Particulate sulfates, sulfites and chlorides are present in recovery furnaces and plant stacks.

Like the other pollutants sulfur dioxide and sulfur trioxides, standardized methods have not been developed. Some have employed water scrubbers in impingers and analyzed solutions for residues after evaporation. This method has a number of drawbacks including chemical reactions in the liquid media that may change the apparent concentration as well as the fact that acid mists, if present, would also appear as residue, i.e., no separation is possible.

6. AMBIENT EFFECTS:

Complaints of odors have been received from areas over ten miles from sulfite mills. Odors close in (under 1000 feet) have been noted by the Department staff to be over-powering, and complaints from the same area have confirmed existence of similar observations. Historically, there have been complaints of property damage including both materials (metal) and vegetation (ornamental) damage.

The complaints from in close proximity to Publishers Paper Company's mill at Oregon City have mentioned mostly short-term, repetitive conditions associated with digester blow cycles. Further away (as far as two miles and over), an evaluation of the complaints indicate that when meteorological conditions directed or confined the plume toward the complainant, the conditions were steady, and no peaks distinguished. Under these conditions it is not possible to distinguish which source, blow pit or recovery furnace, is the major source of SO_2 affecting those complainants.

Ambient monitoring with Beckman Acralyzer has been accomplished by the Columbia-Willamette Air Pollution Authority at two locations in Oregon City. Due to sampling difficulties, the data must be regarded as little more than qualitative, but indications are that over spans of an hour or more, proposed ambient air standards for SO_2 were not often exceeded. Peak concentrations well above the odor treshold did occur, lasting for under a quarter of an hour. Peak values were estimated at 0.5 to 1.0 ppm. These data confirm observations to the effect that the digester blow pit vent is the major

source of ambient effects at relatively short distances from the mills.

Boise Cascade at Salem does not yet have a recovery furnace in operation, so that all complaints received relate to blow pit emissions.

There have been complaints of "pulp mill odors" in the North Bend-Coos Bay area. The source has not been precisely identified, as to being either of two mills, the treatment lagoon associated with one of them, or the mud flats, which from natural processes can be a source of sulfides and SO_2.

Diffusion estimates applicable to mills in the Willamette Valley were made by the Department of Environmental Quality staff to arrive at an estimate on their impact on the ambient air. Three emission rates were considered, reflecting current convention practice. They were:

		lb SO_2/ADT	lb SO_2/min.
a.	Good Control	17	4.9
b.	Moderate Control	30	10.7
c.	Poor Control	45	16.8

for a 170 Ton/Day mill

These represent concentrations ranging from 700 ppm to 2700 ppm. For these calculations the mill site was considered a point source (as though all emissions were discharged through a single stack). Two stack heights were used: 100 feet, representative of current practices; and 330 feet, representative of taller stacks as used in many kraft mills. Meteorological conditions typical of summer afternoons, cloudy days/night, clear mornings and, for the low emission rate, calm, foggy conditions were chosen as covering the most common conditions in the Willamette Valley.

The method of analysis is similar to that outlined in a PHS publication titled "Workbook of Atmospheric Dispersion Estimates". It is generally understood and accepted that the method yields estimates of downwind, ground level, plume center-line concentrations and downwind distances to areas of maximum concentrations, averaged over a ten minute period. They do not yield a precise prediction of these concentrations, nor will they alone yield an estimate of instantaneous peaks.

On that basis, a mill emitting at the lowest rate through a 100' stack would still exceed odor and taste thresholds in all meteorological classes considered. If a tall stack is used, the maximum ground level concentration would be one-fifth to one-tenth the commonly accepted taste threshold of 0.4 ppm except in calm, foggy weather when even a tall stack approaches threshold.

Peak concentrations for shorter time periods may be estimated using the "two-tenths power" ratio, which indicates that the ratio of concentrations for the same point over different times is inversely proportional to the ratio of times raised to the 0.2 power, or:

$$\frac{C_1}{C_2} = \left(\frac{T_2}{T_1}\right)^{0.2}$$

By this ratio, the ten minute average yields shorter term results as follows:

For these times	Multiply 10 minutes' average by:
5 minutes	1.15
1 minute	1.58
¼ minute	2.0

Maximum 10 and 5 minute averages from these estimates are presented in Table X, and a more complete presentation of concentrations at various distances for 10, 5 and 1 minute averages in Table XI.

Table X

Ten and Five Minute Maxima Estimates, ppm SO_2 in Ambient Air
Maximum Ground Level Concentrations

	Ten Minute Average		Five Minute Average	
	100' Stack	330' Stack	100' Stack	330' Stack
Summer Afternoon:				
Low Emission (20 lb SO_2/Ton)	0.76	0.08	0.88	0.09
Medium Emission (30 lb SO_2/Ton)	1.82	0.19	2.10	0.22
High Emission (45 lb SO_2/Ton)	3.04	0.32	3.50	0.37
Cloudy Day/Night				
Low Rate	0.67	0.05	0.77	0.06
Medium Rate	1.61	0.11	1.85	0.13
High Rate	2.68	0.18	3.08	0.21
Clear Morning				
Low Rate	0.85	0.05	0.88	0.06
Medium Rate	2.03	0.06	2.33	0.07
High Rate	3.38	0.10	3.83	0.11
Calm, Foggy Weather				
Low Rate	5.31	0.34	6.10	0.39

These estimates indicate that at an emission rate of 20 lb SO_2/ADT, which is near the rate reported for recovery furnaces alone, a tall stack is required in order to eliminate taste and odor nuisance from SO_2 emissions. At greater emission rates, not even a tall stack could prevent a nuisance condition during calm, foggy weather.

These estimates would be acceptable for Salem, Lebanon and Newberg, but not for Oregon City because of its restrictive topography. Also, in at least one of the principal wind directions, the ground level at Oregon City is at the same elevation as the top of the stacks, i.e., stack height approaches zero.

7. SOURCES OF INFORMATION:

Most of the emission data reported in this document originated from tests made at mills in Oregon and Washington in the past year. In a field as unsettled as sulfite mill control, the technical literature provides no consistent and comparable test results to serve as a starting point for evaulating possible control systems. In these situations, there is a tendency to seize upon "nuggets", isolated bits of data. For example, over a year ago, it would have seemed valid to state that a magnefite recovery system would be capable of limiting emissions to 400 ppm and 8 pounds of SO_2 per ton. Those emissions were based on pilot plant studies and computer simulations based on some equilibrium data. The actual installation, as noted above, significantly exceeded these predictions. A paper published a year ago in a Canadian technical journal predicted emissions of 4 pounds SO_2/Ton from a recovery furnace plus 14 lbs SO_2/Ton from the digester area, but neither number substantiated by any test, and, indeed, the system described never has been built. Staff practice has been to regard such numbers, and also test results published without thorough description of the sampling method, as being of a lower reliability than data from existing installations derived from known test methods.

CONCLUSIONS:

1. Performance of recovery systems appears capable of limiting emissions to 20 lb SO_2/Ton regardless of particular pulping system used. At this rate, a concentration limit of 500 ppm wet basis appears reasonable.

2. Blow pit vent emissions can be reduced to trace amounts. If a regulation were to allow some emissions, then a peak, instantaneous concentration in the vent gases of no more than 500 ppm appears reasonable and necessary to control severe odors. Due to the periodic nature of the discharge, a limit in terms of lb SO_2/Ton is not comparable to the recovery furnace limit.

3. Coulometric titrators, like those used in kraft mills, appear to be useful for monitoring SO_2 emissions. This appears valid, even granting that major problems remain and that therefore the devices probably would not be in operation 100% of the time.

Table XI

Estimated Ground Level Concentrations of SO_2
Concentrations in ppm

Low Emission (20 lb SO_2/Ton)

	Summer Afternoon						Cloudy Day/Night						Clear Morning					
	10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.	
Distance Meters	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack
200	0.76M		0.88M		1.2													
400	0.47		0.54		0.74		0.55		0.63		0.87							
600	0.25		0.29		0.40		0.67M		0.77		1.06		0.11		0.13		0.18	
800	0.14	0.08M*	0.16	0.09*	0.22	0.12*	0.60		0.69		0.95		0.40		0.46		0.63	
1000	0.10		0.12		0.16		0.50		0.58		0.79		0.61		0.70		0.96	
1500							0.32		0.37		0.51		0.85M		0.98		1.34	
2000							0.22		0.25		0.35		0.84		0.98		1.33	
2500							0.17		0.19		0.27		0.74		0.85		1.18	
3000							0.12	0.05M*	0.14	0.06M*	0.22	0.08M*	0.65		0.75		1.03	
4000													0.50		0.58		0.79	
5000													0.40		0.46		0.62	
10000													0.19		0.22		0.30	
15000													0.12		0.14		0.19	
20000														0.05M*		0.06M*		*0.(

2000 Meters = 1.24 Miles

M = Maximum Value

Heavy vertical line indicates distance span over which taste/odor treshold is exceeded

*Only the maximum is indicated when all values are below 0.1 ppm.

Table XI

Estimated Ground Level Concentrations of SO_2
Concentrations in ppm

Medium Emission (30 lb SO_2/Ton)

Distance Meters	Summer Afternoon						Cloudy Day/Night						Clear Morning					
	10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.	
	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack
200	1.82M		2.10M		2.38M													
400	1.14		1.31		1.80		1.32		1.52		2.09							
600	0.59	0.18	0.68	0.21	0.93	0.28	1.61M		1.85		2.54		0.26		0.30		0.41	
800	0.34	0.19M	0.39	0.22	0.54	0.30	1.55		1.78		2.45		0.95		1.09		1.50	
1000	0.23	0.16	0.26	0.18	0.36	0.25	1.22		1.40		1.93		1.46		1.68		2.31	
1500	0.11		0.13		0.17		0.76		0.88		1.20		2.03M		2.33		3.20	
2000							0.53		0.61		0.84		1.98		2.28		3.22	
2500							0.40	0.10	0.46	0.12	0.63	0.16	1.78		2.04		2.82	
3000							0.29	0.11M	0.33	0.13	0.46	0.17	1.57		1.81		2.48	
4000							0.20	0.10	0.23	0.12	0.32	0.16	1.21		1.39		1.91	
5000							0.14		0.16		0.22		0.95		1.09		1.50	
10000													0.46		0.53		0.73	
15000													0.28	0.06M*	0.32	0.07*	0.44	0.09
20000													0.20		0.23		0.32	

2000 Meters = 1.24 Miles

M = Maximum Value

Heavy vertical line indicates distance span over which taste/odor threshold is exceeded

* Only maxima are indicated when all values are below 0.1 ppm.

Table XI

Estimated Ground Level Concentrations of SO_2

Concentrations in ppm

High Emission (45 lb SO_2/Ton)

Distance Meters	Summer Afternoon						Cloudy Day/Night						Clear Morning					
	10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.	
	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack
200	3.04M		3.50		4.80													
400	1.90	0.10	2.18	0.11	3.00	0.16	2.20		2.53		3.48							
600	0.98	0.30	1.13	0.35	1.55	0.47	2.68M		3.08		4.08		0.44		0.51		0.69	
800	0.56	0.32M	0.64	0.37	0.89	0.51	2.40		2.76		3.80		1.58		1.82		2.50	
1000	0.38	0.26	0.44	0.30	0.68	0.41	2.04		2.34		3.22		2.44		2.80		3.84	
1500	0.18	0.14	0.21	0.16	0.28	0.22	1.26	0.10	1.45	0.11	1.99	0.16	3.38M		3.88		5.35	
2000	0.10	0.10	0.11	0.11	0.16	0.16	0.88	0.14	1.01	0.16	1.39	0.22	3.30		3.80		6.00	
2500							0.66	0.16	0.76	0.18	1.04	0.25	2.96		3.40		4.68	
3000							0.48	0.18M	0.55	0.21	0.76	0.28	2.62		3.00		4.15	
4000							0.34	0.16	0.38	0.18	0.54	0.25	2.02		2.32		3.18	
5000							0.24	0.14	0.27	0.16	0.38	0.22	1.58		1.82		2.50	
10000													0.76		0.87		1.20	
15000													0.46	0.10M	0.53	0.11	0.73	0.16
20000													0.34		0.39		0.54	

2000 Meters = 1.24 Miles

M = Maximum Value

Heavy vertical line indicated distance over which taste/odor threshold is exceeded.

Table XI

Estimated Ground Level Concentrations of SO_2
Concentrations in ppm

Low Emission Rate (20 lb SO_2/Ton)

	Summer Afternoon						Cloudy Day/Night						Clear Morning					
	10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.		10 Min.Ave.		5 Min.Ave.		1 Min.Ave.	
Distance Meters	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack	Short Stack	Tall Stack
200	0.16		0.18		0.25													
400	4.36		5.00		6.90													
600	5.31M		6.10		8.40													
800	4.77		5.48		7.55													
1000	4.03		4.65		6.38													
1500	2.50	0.18	2.87	0.21	3.95	0.28												
2000	1.74	0.28	2.00	0.32	2.75	0.44												
2500	1.28	1.32	1.47	0.37	2.06	0.51												
3000	0.96	1.34M	1.10	0.39	1.52	0.54												
4000	0.66	0.30	0.76	0.35	1.04	0.47												
5000	0.48	0.27	0.55	0.31	0.76	0.42												
10000	0.17	0.14	0.20	0.16	0.27	0.22												
15000	0.10	0.08	0.12	0.09	0.16	0.13												
20000	0.06	0.06	0.07	0.07	0.09	0.09												

2000 Meters = 1.24 Miles

M = Maximum Value

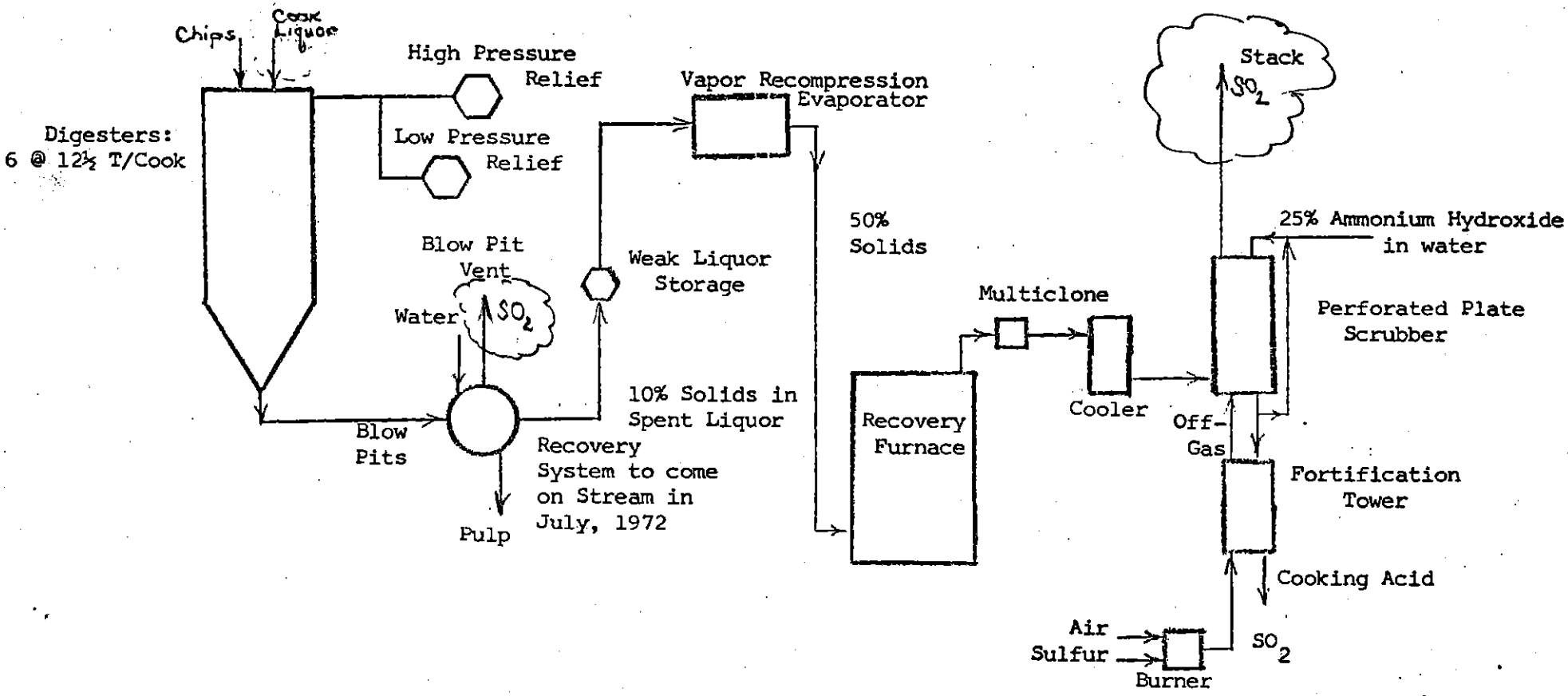
Heavy vertical line indicated distance over which taste/odor threshold is exceeded.

Appendix I

Flow Diagrams of Sulfite Mills in Oregon

These diagrams show the basic equipment used at each sulfite mill in Oregon, and indicate the major flows of liquors and pulp.

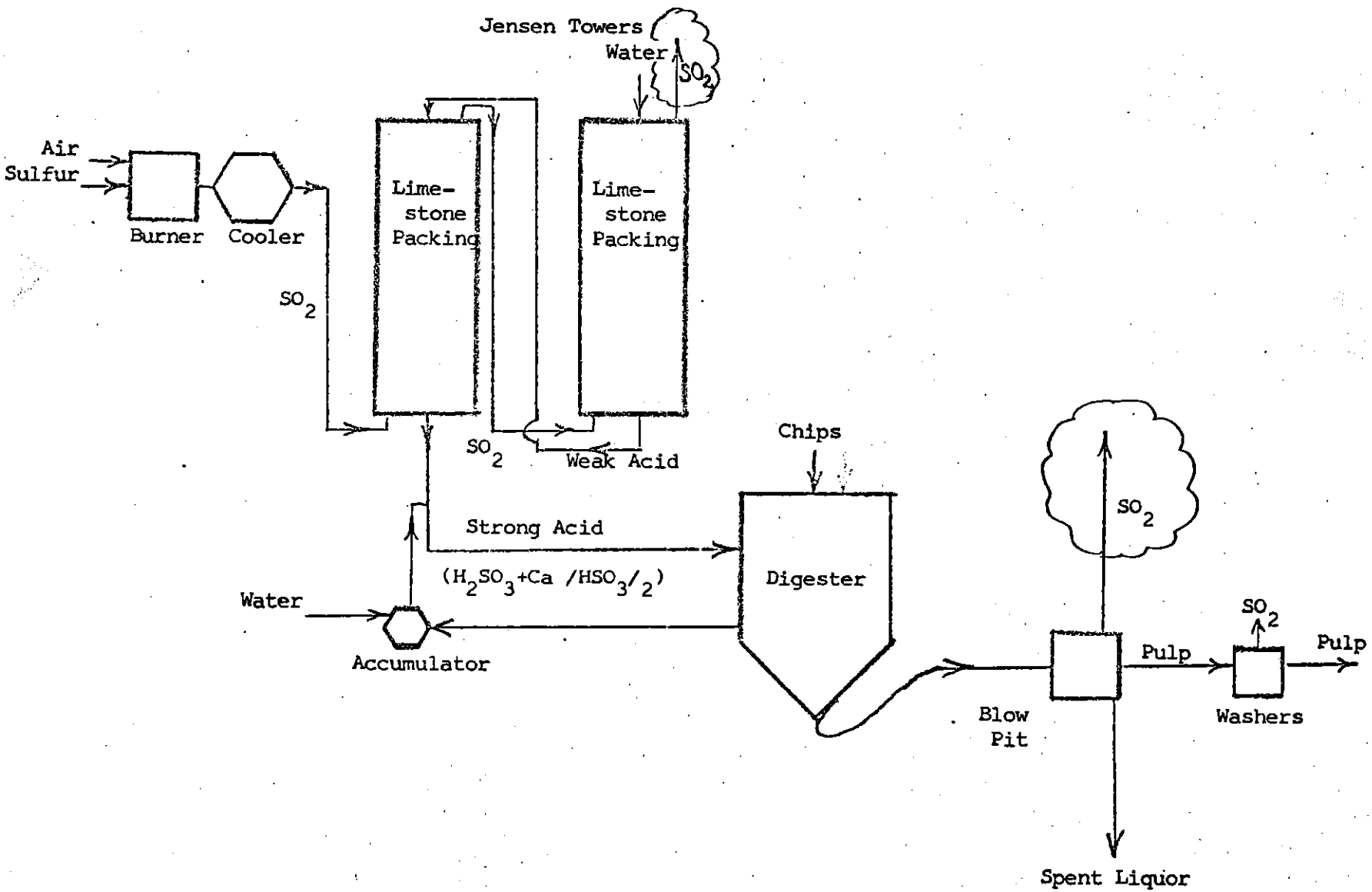
The flow diagrams are:



Boise Cascade Corporation
Salem

Ammonia-base Acid Bisulfite

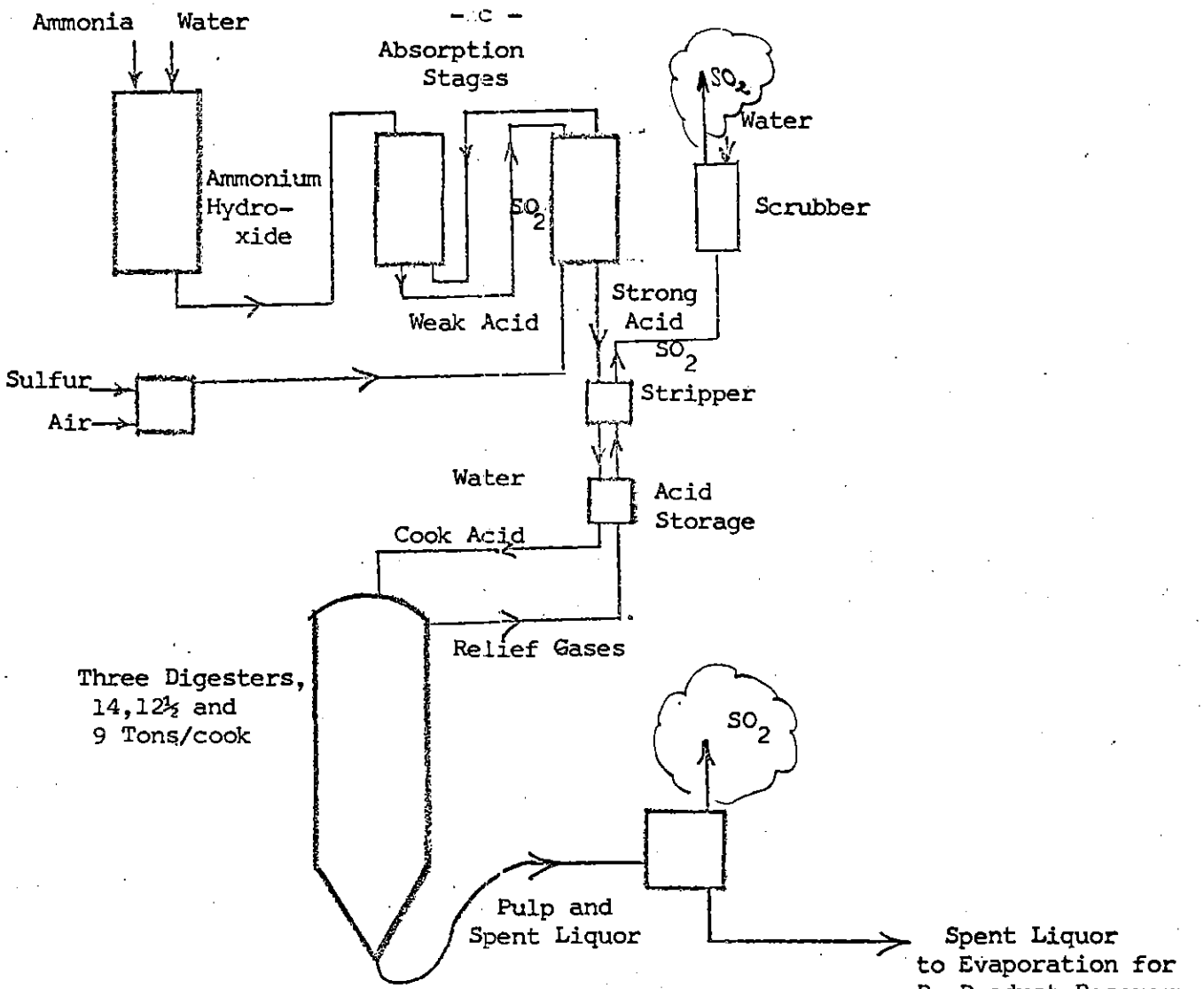
Represents emission to atmosphere



Coos Head Timber Company
Coos Bay

Calcium-base Sulfite Process

Denotes emission to atmosphere

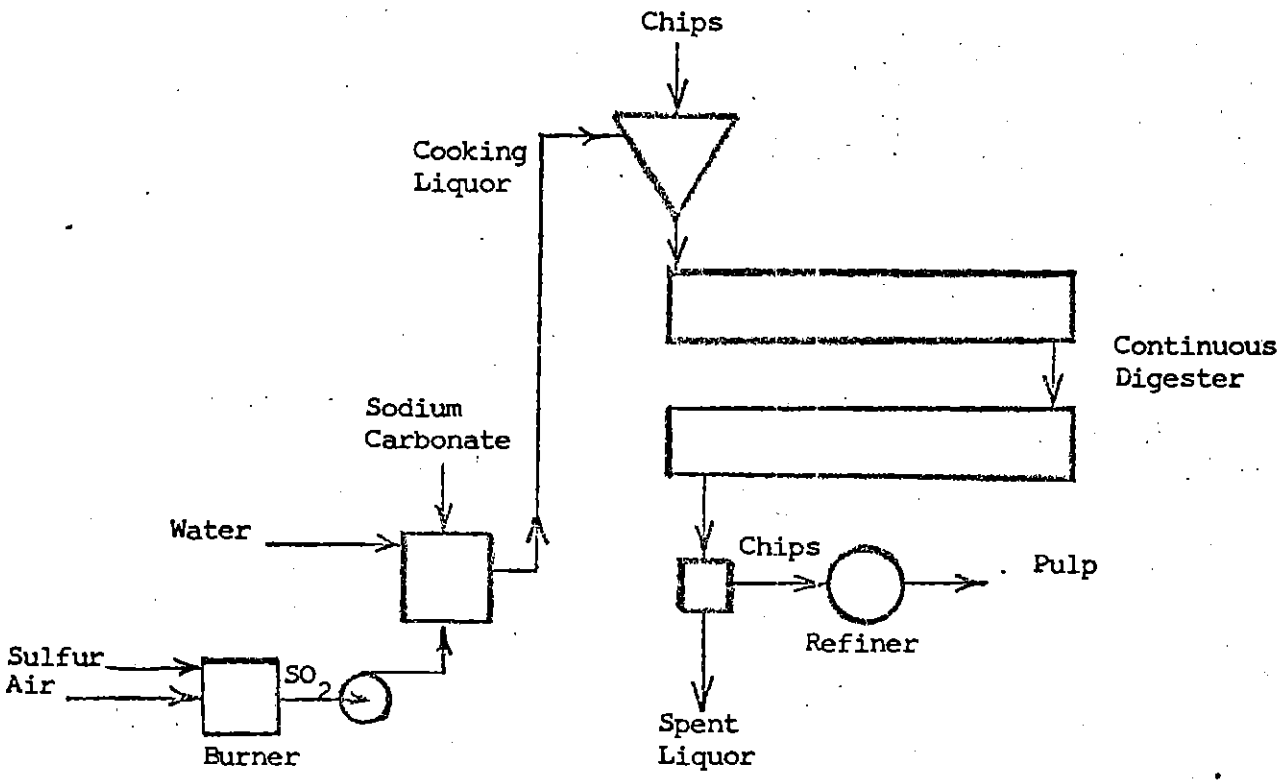


Crown Zellerbach

Lebanon

Ammonia-Base

Acid Bisulfite and Bisulfite-Monosulfite
(Near Neutral Sulfite)



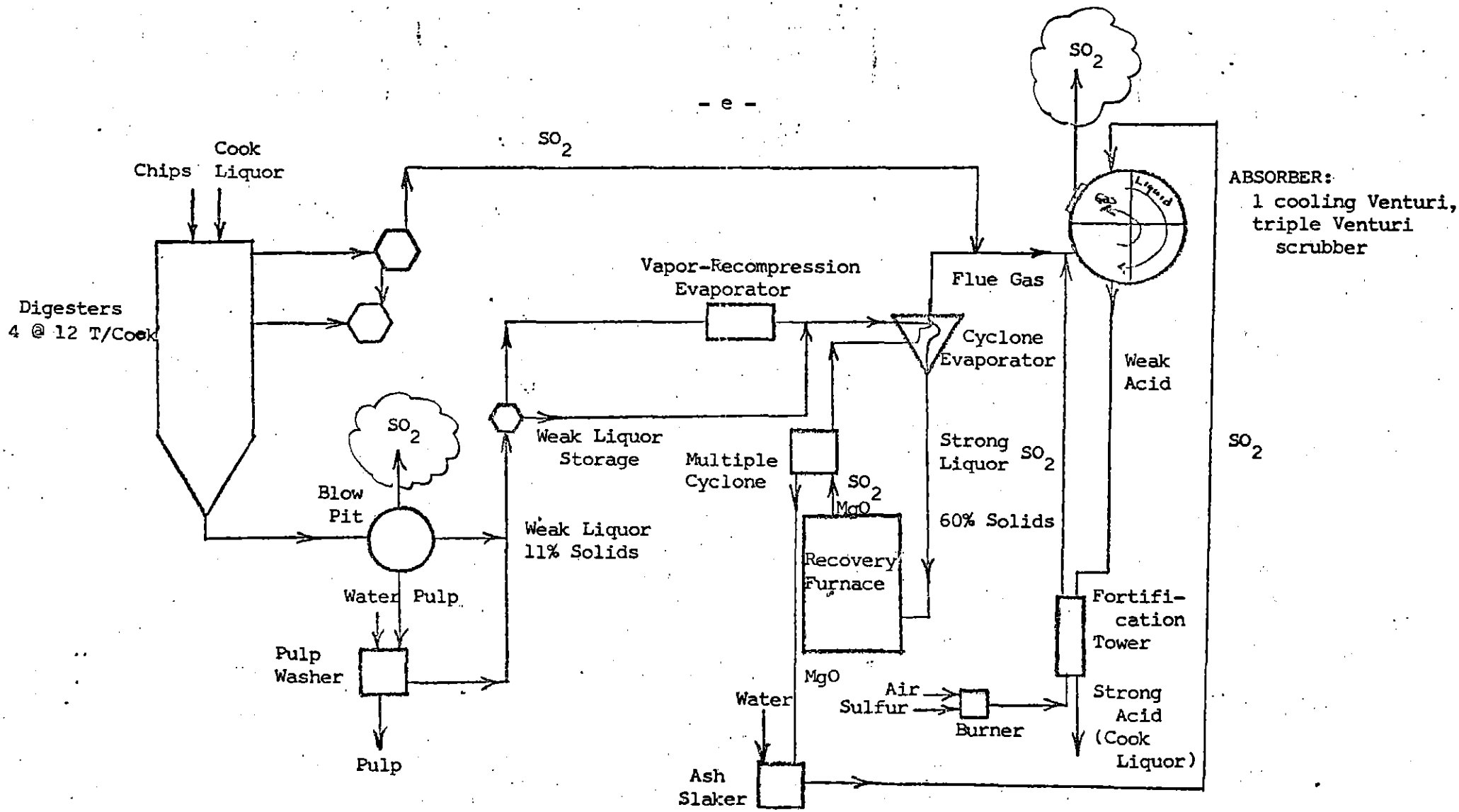
Cooking Liquor Preparation:

1. Water is "gasses up" with sulfur dioxide
2. Sodium Carbonate is added to pH 9

Menasha Paper
North Bend

Neutral Sulfite Semi-Chemical Pulping Process

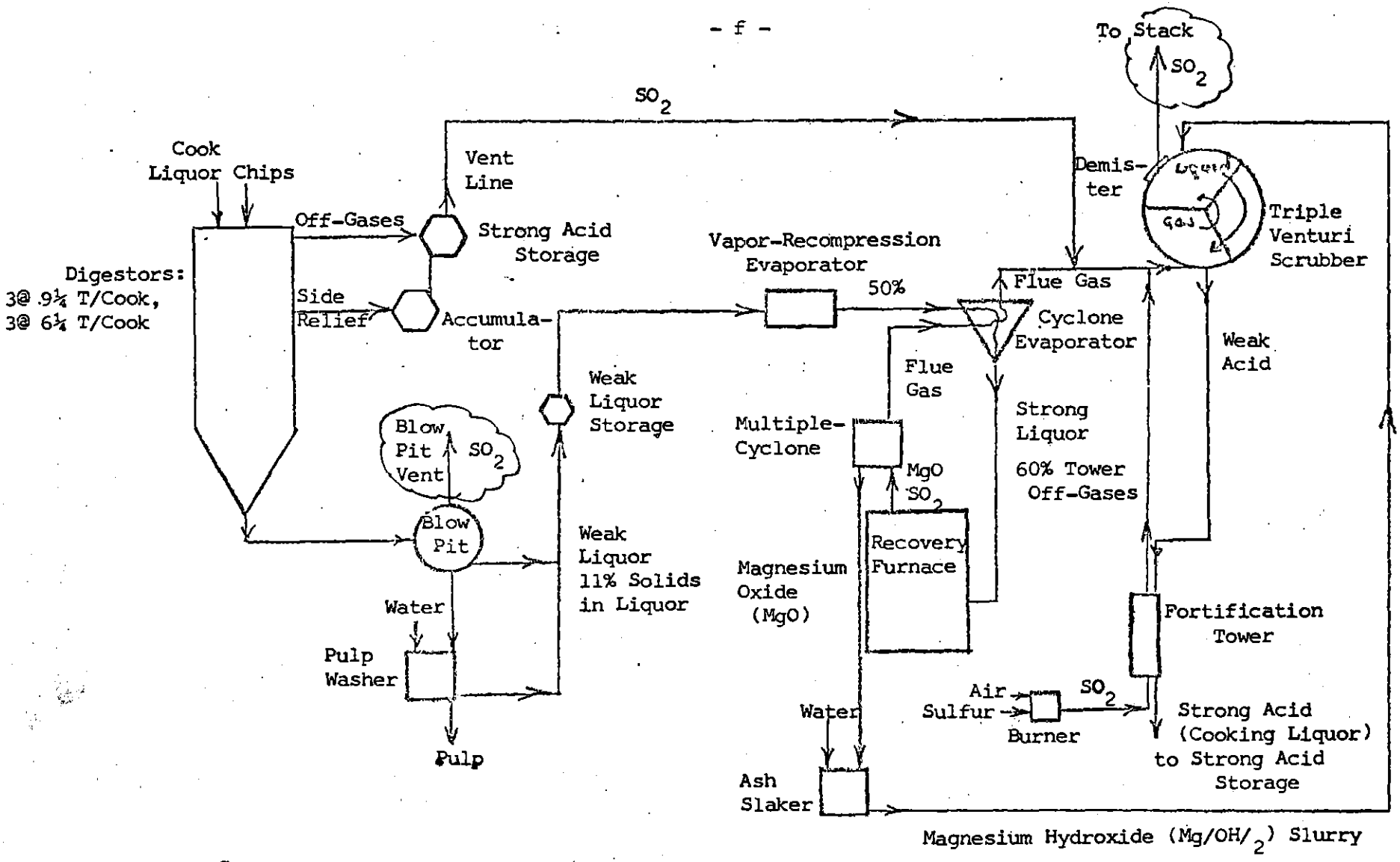
CAA 20 IX 71



Publishers Paper Company
Newberg

Magnefite Pulping and Recovery Process

Denotes emission to atmosphere



Publishers Paper Company
Oregon City

Magnefite Process

Denotes emission to atmosphere

APPENDIX II

An example of a blow pit flow and concentration:

The accompanying graph shows the results of a source test on a blow pit vent made by the Washington Department of Ecology at the Scott Paper Company mill at Anacortes, Washington. This plant has no controls on blow pit vent emissions. The staff reports that the results must be considered "preliminary" because of probable errors in the method. The errors were introduced in these wasy:

1. Flow measurements were of velocities at a single point, rather than a cross-sectional "traverse" necessary for a true average.

2. Flow velocities were at minimum rates to be measurable.

3. Condensation of collected steam in the collection flask may have created a vacuum, which would draw in more sample than would be calculated.

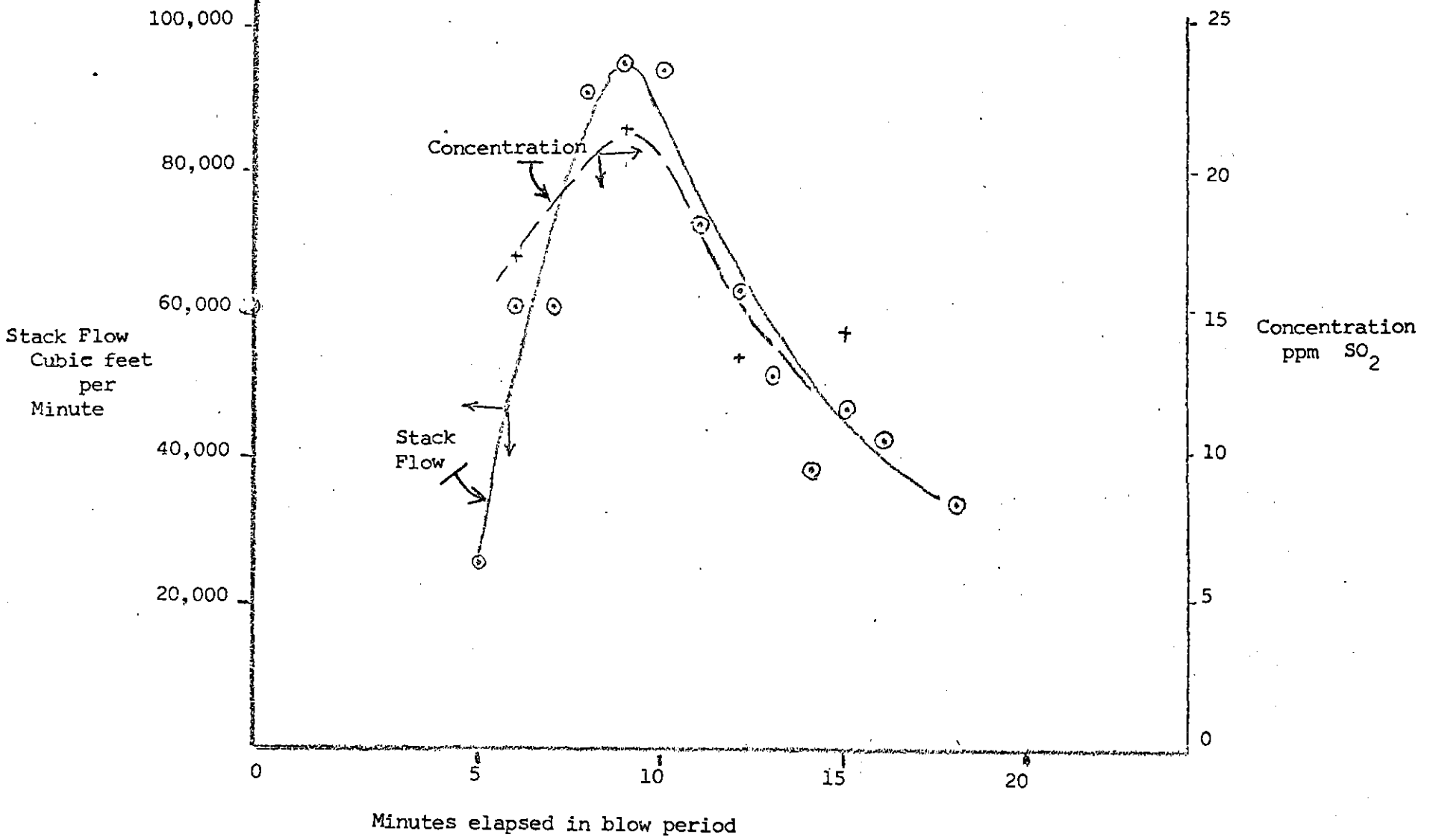
4. Sample results at the various times (at three minute intervals) are assumed to be average values. During rapidly changing flow rates and concentrations, this is an erroneous assumption, but the "state of the art" does not allow a continuous sample.

The test indicated an emission of 775 lb SO_2/Ton of pulp. This is seven times the value reported by the company. The results of the test are valuable, regardless of error, in illustrating the great range of volume flow rates and concentrations that would have to be treated if a scrubber were to be installed.

It has been reported, by the technical committee which worked with the Oregon-Washington Air Quality Committee on drafting regulations, that in many mills the peak flow of blow pit vent gases occurs on the order of a quarter to a half minute before the peak concentration of SO_2.

Stack Flow and Concentration
in
Blow Pit Vent over one Blow Cycle

Test made by Washington Department of Ecology
at
Scott Pater - Anacortes, Wash. Dec., 1961



APPENDIX III

Bibliography and Footnotes

1. Rydholm, Sven A.: Pulping Processes, Interscience Publishers, New York, 1965. pp 439-576 are a general discussion of sulfite pulping.

2. Rydholm, p. 469

3. Hendrickson, E.R., J. E. Roberson, N. B. Koogler: Control of Atmospheric Emissions in the Wood Pulping Industry, NAPCA-DHEW Contract No. CPA 22-69-18, Final Report. pp 3-59a, 3-61a, 3-69a, 3-71a.

4. Reported to Oregon Department of Environmental Quality.

5. Reported to EPA staff, information subsequently relayed to Oregon DEQ. Information confirmed in telephone conversation between DEQ staff and mill staff.

6. Letter, H. R. Amberg to Oregon-Washington Air Quality Committee, Nov. 6, 1970.

7. Letter, R. I. Thieme to Oregon-Washington Air Quality Committee, November 18, 1970.

8. Reported to Washington Department of Ecology.

9. Letter, Roger O. Smith, Mill Manager, to E. J. Weathersbee, Oregon State Sanitary Authority, October 16, 1968.

10. Bid specification supplied by Boise Cascade to Oregon DEQ, January 22, 1971.

11. Theoretical and pilot plant discussions of scrubbing in magnefite recovery systems are found in:

    a) Markant, H. P.; McIlroy, R. A.; Matty, R. E., Absorption Studies, MgO_2- SO_2 Systems, published by The Babcock and Wilcox Co., 1962.

    b) Clement, J. L., MgO Recovery System - Design and Performance, presented at TAPPI Engineering Conference, September 1965.

12. Information supplied by vendor to EPA, subsequently relayed to DEQ. This performance is not guaranteed.

13. Keef, R. C. Magnesium Bisulfite Recovery Startup. TAPPI, Vol. 54, No. 4, pp 564-568. Describes the system, and states that recovery furnace stack emissions are under 500 ppm. No description of sampling procedure.

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs S. Waterman, Member
Arnold M. Cogan, Member
E. C. Harms, Jr., Member
George A. McMath, Member

FROM : AIR QUALITY CONTROL DIVISION STAFF

DATE : May 4, 1971 for Meeting of May 7, 1971

SUBJECT: REQUEST FOR AUTHORIZATION TO SCHEDULE PUBLIC HEARING

Possible Legislative action on field burning notwithstanding, changes must be made in the present summer and winter burning regulations, primarily as a result of the OSU field incinerator program's lack of sufficient progress to justify holding to our presently-listed 1971 acreage quotas, and secondarily to rewrite those sections of the regulation affected by last summer's court decision. We will be recommending retaining our 1970 quota basis, increasing the quotas for Yamhill, Clackamas and Washington Counties and adjusting priority area designations. The revisions to the language amount to a general cleaning-up of the regulation. Should Senate Bill 38 pass the legislature, we will be proposing some additional provisions, primarily regarding field registration and data reporting.

We therefore request authorization to schedule a public hearing in early June to consider amendments to the existing field burning regulations, and we suggest that July 15 be set as a deadline for having the regulations adopted and filed with the Secretary of State.

It should be noted that the proposed regulations attached are a draft, and have not had the benefit of full review by our legal counsel.

DRAFT OF PROPOSED

REGULATIONS FOR AGRICULTURAL OPEN BURNING

Sections 26-005 through 26-140 of OAR Chapter 340, Division 2, Subdivision 6 are repealed, and the following is adopted in lieu thereof.

I. DEFINITIONS: As used in these regulations unless otherwise required by context:

1. Burning seasons:

   a) "Summer Burning Season" means the four month period from July 1 through October 31.

   b) "Winter Burning Season" means the eight month period from November 1 through June 30.

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

3. "Marginal Conditions" means conditions defined in ORS 449.840 (1) under which permits for agricultural open burning may be issued in accordance with these regulations.

4. "Northerly Winds" means winds coming from directions in the north half of the compass, at the surface and aloft.

5. "Priority Areas" means the following areas in the Willamette Valley:

   a) Areas in or within 3 miles of the city limits of incorporated cities having populations of 10,000 or greater.

   b) Areas within 1 mile of airports serving regularly scheduled airline flights.

   c) Areas in Lane County south of the line formed by U. S. Highway 126 and Oregon Highway 126.

   d) Areas in or within 3 miles of the city limits of the City of Lebanon.

   e) Areas on the west side of and within 1/4 mile of these highways; U. S. Interstate 5, 99, 99E and 99W. Areas on the south side of and within 1/4 mile of U. S. Highway 20 between Albany and Lebanon, Oregon Highway 34 between Lebanon and Corvallis, and Oregon Highway 228 from its junction south of Brownsville to its crossing at the community of Tulsa.

6. "Prohibition Conditions" means atmospheric conditions under which all agricultural open burning is prohibited (except where an auxiliary fuel is used such that combustion is nearly complete, or a mobile field incinerator approved by the Department is used).

7. "Southerly Winds" means winds coming from directions in the south half of the compass, at the surface and aloft.

8. Willamette Valley Areas:

   a) "Willamette Valley" means the areas of Benton, Clackamas, Lane, Linn, Marion, Polk, Washington and Yamhill Counties lying between the crest of the Coast Range and the crest of the Cascade Mountains.

   b) "South Valley" means the areas of jurisdiction of all fire permit issuing agents or agencies in the Willamette Valley portions of the Counties of Benton, Lane and Linn.

   c) "North Valley" means the areas of jurisdiction of all other fire permit issuing agents or agencies in the Willamette Valley.

II. GENERAL PROVISIONS:

1. The following provisions apply during both the summer and winter burning seasons in the Willamette Valley unless otherwise specifically noted.

2. Priority for Burning. On any marginal day, priorities for agricultural open burning shall follow those set forth in ORS 449.840 (2) which give perennial grass seed fields used for grass seed production first priority, annual grass seed fields used for grass seed production second priority, grain fields third priority and all other burning fourth priority.

3. Permits. (1) In all cases where a permit for burning with liquid or gaseous auxiliary fuel is requested the State Fire Marshal or his deputy, as a condition precedent to the issuance of such permit, shall inspect and approve all burning equipment prior to its utilization and shall prohibit its use in the event such inspection reveals that combustion of the auxiliary fuel will not be nearly complete.

   (2) All permits issued pursuant to ORS 478.960 and 476.380 shall be issued in writing, on a day-to-day basis, and during the burning operations, a copy shall be maintained at the burning site by the person granted said permit for inspection by appropriate authorities.

   (3) The staff of the Department of Environmental Quality may authorize, burning on an experimental basis, and may also, on a fire district by fire district basis, issue limitations more restrictive than those contained in these regulations when in their judgment it is necessary to attain air quality.

   (4) No permit-issuing agency or other person authorized to grant agricultural open burning permits shall give oral permission to conduct burning and all permits shall be issued in writing, on a day-to-day basis and shall be issued in accordance with the limits of extent, time, and type of burning set forth in these regulations.

(5) At all times proper and accurate records of permit transactions and copies of all permits granted shall be maintained by each permit-issuing agency or person authorized to grant permits, for inspection by the proper authority. No permit transaction shall be deemed completed until confirmation of actual date, time, and amount of burning conducted under said permit, and no person shall be granted additional permits until confirmation of outstanding permits is received. Such confirmation shall be on a day-to-day basis.

(6) Permit agencies or persons authorized to grant permits shall submit to the Department of Environmental Quality, on forms provided, weekly summaries of field burning permit data, during the period July 1 - October 15.

(7) All debris, cutting and prunings shall be dry, cleanly stacked and free of dirt and green material prior to being burned, to insure as nearly complete combustion as possible.

(8) No substance or material which normally emits dense smoke or obnoxious odors may be used for auxiliary fuel in the igniting of debris, cutting or prunings.

(9) Use of mobile field incinerators approved by the Department shall require a permit, and permit agencies or agents shall keep up-to-date records of all acreages burned by such incinerators. Acres burned on any day by mobile field incinerators approved by the Department shall not be applied to open field burning acreage quotas, and such incinerators may be operated under either marginal or prohibition conditions.

III. SUMMER BURNING SEASON REGULATIONS:

1) Classification of Atmospheric Conditions. All days will be classified as marginal or prohibition days under the following criteria:

a) Marginal Class N. conditions: Forecast northerly winds and maximum mixing depth greater than 3500 feet.

b) Marginal Class S conditions: Forecast southerly winds.

c) Prohibition conditions: Forecast northerly winds and maximum mixing depth 3500 feet or less.

2) Quotas. (a) Except as provided in this subsection, the total acreage of permits for open field burning shall not exceed the amount authorized by the Department for each marginal day. Daily authorizations of acreages shall be issued in terms of basic quotas or priority area quotas as listed in Table I and defined as follows:

(1) The basic quota represents the number of acres to be allowed throughout a permit jurisdiction, including fields located in priority areas, on a marginal day on which general burning is allowed in that jurisdiction.

(2) The priority area quota represents the number of acres allowed within the priority areas of a permit jurisdiction on a marginal day when only priority area burning is allowed in that jurisdiction.

(b) All Willamette Valley permit agencies or agents not specifically named in Table I shall have a basic quota and priority area quota of 50 acres.

(c) In no instance shall the total acreage of permits issued by any permit issuing agency or agent exceed that allowed by the Department for the marginal day, except as provided for 50 acre quotas as follows: When the established daily acreage quota is 50 acres or less, a permit may be issued to include all the acreage in one field providing that field does not exceed 100 acres and provided further that no other permit is issued for that day. For those districts with a 50 acre quota, permits for more than 50 acres shall not be issued on 2 consecutive days.

(d) The staff of the Department of Environmental Quality may designate additional areas as Priority Areas, and may adjust the basic acreage quotas or priority area quotas of any permit jurisdiction, where conditions in their judgment warrant such action.

TABLE I

FIELD BURNING ACREAGE QUOTAS

NORTH VALLEY AREAS

County	Basic Quota (Acres)	Priority Area Quota (Acres)
Clackamas		
Estacada	100	0
Monitor	100	0
All other permit issuing agencies	50	50
Marion:		
Aumsville	75	0
Marion #1 (Fourcorners, Brooks, Keizer)	75	50
Jefferson	175	50
St. Paul	100	50
Silverton	275	0
Stayton	150	0
Sublimity	250	0
Woodburn	100	50
All other permit issuing agencies	50	50

TABLE I (Continued)

County	Basic Quota (Acres)	Priority Area Quota (Acres)
Polk:		
Southeast Polk	225	50
Southwest Polk	200	50
Washington:		
All permit issuing agencies	50	50
Yamhill:		
McMinnville	75	50
All other permit issuing agencies	50	50
SOUTH VALLEY AREAS		
Benton:		
County jurisdiction	400	50
State Forestry jurisdiction	125	0
Corvallis	275	50
Monroe	275	50
Philomath	150	0
North Albany) Palestine) included in Albany quota		
All other permit issuing agencies	50	50
Lane:		
Alvadore	125	0
Coburg	100	50
Creswell	75	50
Irving	200	100
Junction City	250	50
Unprotected	110	50
All other permit issuing agencies	50	50
Linn:		
Albany	650	125
Brownsville	775	50
Halsey-Shedd	2150	150
Harrisburg	1475	100
Lebanon	950	50
Scio	150	0
Tangent	1050	50
All other permit issuing agencies	50	50

3) Burning Hours. Burning may begin at 9:30 a.m. PDT, and all fires must be out by one hour after sunset. Burning hours may be reduced by the fire chief or his deputy when necessary to protect from danger by fire.

4) Extent and Type of Burning. a) Prohibition. Under prohibition conditions no permits for agricultural open burning shall be issued and no burning shall be conducted, except where an auxiliary liquid or gaseous fuel is used such that combustion is essentially complete, or a mobile field incinerator approved by the Department is used.

b) Marginal Class N Conditions. Unless specifically authorized by the Department, on days classified as Marginal Class N burning shall be limited to the following:

(1) North Valley: one basic quota may be issued in accordance with Table I.

(2) South Valley: one priority area quota for priority area burning may be issued in accordance with Table I.

c) Marginal Class S Conditions. Unless specifically authorized by the Department on days classified as Marginal Class S conditions, burning shall be limited to the following:

(1) North Valley: One basic quota may be issued in accordance with Table I in the following permit jurisdictions: Aumsville, Drakes Crossing, Marion County District 1, Silverton, Stayton, Sublimity, and the Marion County portion of the Clackamas-Marion Forest Protection District. One priority area quota may be issued in accordance with Table I for priority area burning in all other North Valley jurisdictions.

(2) South Valley: One basic quota may be issued in accordance with Table I.

d) Special Restriction on Priority Area Burning. No field may be burned on the upwind side of any city, airport, or highway within a priority area.

IV. WINTER BURNING SEASON REGULATIONS:

CLASSIFICATION OF ATMOSPHERIC CONDITIONS:

(1) Atmospheric conditions resulting in computed air pollution index values in the high range, values of 90 or greater, shall constitute prohibition conditions.

(2) Atmospheric conditions resulting in computed air pollution index values in the low and moderate ranges, values less than 90, shall constitute marginal conditions.

EXTENT AND TYPE OF BURNING:

(1) Burning Hours. Burning hours for all types of burning shall be from 9:00 a.m. until 4:00 p.m., but may be reduced when deemed necessary by the fire chief or his deputy. Burning hours for stumps may be increased if found necessary to do so by the permit issuing agency. All materials for burning shall be prepared and the operation conducted, subject to local fire protection regulations, to insure that it will be completed during the allotted time.

(2) Under prohibition conditions no permits for agricultural open burning may be issued and no burning may be conducted, except where an auxiliary liquid or gaseous fuel is used such that combustion is essentially complete, or a mobile field incinerator approved by the Department is used.

(3) Permits for agricultural open burning may be issued on each marginal day in each permit jurisdiction in the Willamette Valley following the priorities set forth in ORS 449.840 (2).

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

B. A. McPhillips, Chairman
Storrs Waterman, Member
George A. McMath, Member
E. C. Harms, Jr., Member
Arnold M. Cogan, Member

FROM : AIR QUALITY CONTROL DIVISION

DATE : May 3, 1971 for the May 7, 1971 Meeting

SUBJECT: HANNA NICKEL SMELTING COMPANY, RIDDLE, OREGON,
STATUS REPORT AND COMPLIANCE SCHEDULE MODIFICATION

The Environmental Quality Commission on September 25, 1970, approved an extensive particulate control program which had been proposed by Hanna Nickel Smelting Company. The company has submitted a status report and a request for modifying the compliance schedule. This information is provided in the attached letter from Mr. F. J. Coyle dated April 6, 1971. Another letter from Mr. Coyle dated April 19, 1971, and two graphs illustrate the effects of the approved schedule and the requested modified schedule. The staff has also attached a tabular synopsis of the control proposal indicating the modified completion dates.

The control projects for the Crusher House, Calciners and Roasters are essentially on time with respect to the original schedule. Operating difficulties have resulted in a request for a 8-month extension (Dec.1971 to August 1972) for completing the program for the Dryers. The modified schedule includes installing the baghouse for eventually controlling the Ferro-silicon Furnace but operating it on emissions from No. 1 Oremelter for about 18 months. This is necessary because controlling the Oremelters has many unanswered questions as indicated by Mr. Coyle. The effect of this program change is indicated by comparing the two attached graphs. In brief, the Oremelter will be controlled within the original time schedule but the Ferro-silicon Furnace will operate with the existing two scrubbers for an additional 18 months. Extensions of about a month are requested for relocating existing Oremelter baghouses to serve the Skiphoists and Refining Furnaces. A 4-month change in the Day Bin control project is also requested.

Staff Review:

The staff having evaluated the company's request, is of the opinion that the extensions should be approved. The information obtained by testing the Oremelter control on a large scale will lead to a more desirable final program. Since the total program will still be scheduled for completion in early 1974, the requested changes do not amount to a significant overall extension.

Staff Recommendation:

The staff recommends that the compliance schedule modifications as described in Mr. M. J. Coyle's letters of April 6 and 19, 1971 be approved.

Hanna Nickel Smelting Company
Riddle, Oregon 97469

April 6, 1971

Mr. Fred A. Skirvin
Air Quality Division
Oregon Department of Environmental Quality
P. O. Box 231
Portland, Oregon 97207

Dear Mr. Skirvin:

This report is submitted to advise the status of the dust control projects as presented and agreed to by the Oregon State Department of Environmental Quality and Environmental Quality Commission in August, 1970. A revised compliance schedule is also enclosed for approval. Scheduled completion changes are described in further detail below.

MELTING FURNACES

The start-up of the new dust collection system for the No. 1 melting furnace is scheduled for the month of February, 1972. The new dust collection system will start on the No. 1 melting furnace instead of No. 2 and will be in operation approximately one month earlier than the previous compliance schedule. This new collector receiving the dust-laden air from No. 1 melting furnace will eventually be collecting the effluent generated by the ferrosilicon furnace. The reasons for starting the collector as stated above and the switchover is elaborated on later in this progress report.

REFINING FURNACES, ROASTER, CALCINERS, SKIP HOISTS

The start-up dates of the dust collection systems for the most part have been moved into the future approximately one month to coincide with the major plant repair schedule. This arrangement will produce a minimum of conflicts between the final collector tie-ins and plant operations. The major plant repair schedule was still being developed and was therefore not available during the preparation of the original compliance schedule. Equipment selection for both the roaster and calciner dust control systems has been completed and purchase orders will be issued in April.

FERROSILICON FURNACE

The starting date for the design was uncertain, as shown on the original compliance schedule. This, in turn, had a bearing on the collector start-up date. The date for the collector start-up has recently been set for February, 1974, and is based on the time required to obtain information

by running the ferrosilicon collector on ore melter dust. Both the collector and fan have been placed on order to accommodate the eventual switchover to the ferrosilicon furnace.

CRUSHER

This dust collecting system is presently running and was started in February of this year. Mechanical problems have been experienced with the collector, but are being corrected by the manufacturer.

DRYERS

The start-up of the dust collecting system on the dryers has been moved to May and August of 1972 to allow for further design and testing. This additional time is required to ensure the proper collecting system is installed pending a possible change in the process to improve drying efficiencies.

DAY BINS

The major engineering design effort to date has been concentrated on the new dust collection system for the ore melters which are a major source of dust emission and, consequently, air quality control will be improved in this area as soon as possible. This concentrated effort on the ore melter dust control system has caused an unavoidable delay in the design effort for the day bins and, consequently, moved the new collector system scheduled start-up date to February, 1972.

SUMMARY

The present plan to install a dust collector sized for the ferrosilicon furnace by first running it on the effluent from No. 1 ore melter will answer questions that can only be fully obtained by actual operation.

A pressure-type bag collector was chosen for this initial installation because of its inherent lower maintenance, as well as easier maintenance than a vacuum-type bag collector. These qualities should result in better operating time for dust collection. The pressure-type collector has been installed in various ferrosilicon applications with satisfactory results. The operation of this type collector on the particular dust emitted from the ore melter is unique. This situation leaves a void in actual operating data for a future installation.

The running of the collector during this test period on ore melter dust will answer three questions that presently can only be answered by generalizations. The major question that will be answered is the amount of fan wear caused by ore melter dust. Pressure-type bag collectors must have the fan subjected to dust-laden air. If fan wear is excessive, a decision could be made to install a vacuum-type collector which would then place the fan on the clean side of the dust collector.

The type of bag selected can be checked. Two compartments out of ten on the new collector will be installed with a different weave and weight of filter bags to ascertain proper bag selection for the remaining ore melter dust collectors.

Total gas volume required to clean the furnace will be verified by the test period and will ensure the collectors for the ore melters will be properly sized.

It is felt that this revised schedule for the ore melters and ferrosilicon systems will give the surest and quickest means of installing the proper dust collection systems. This schedule should eliminate any delays for additions or alterations after the initial start-up.

Very truly yours,

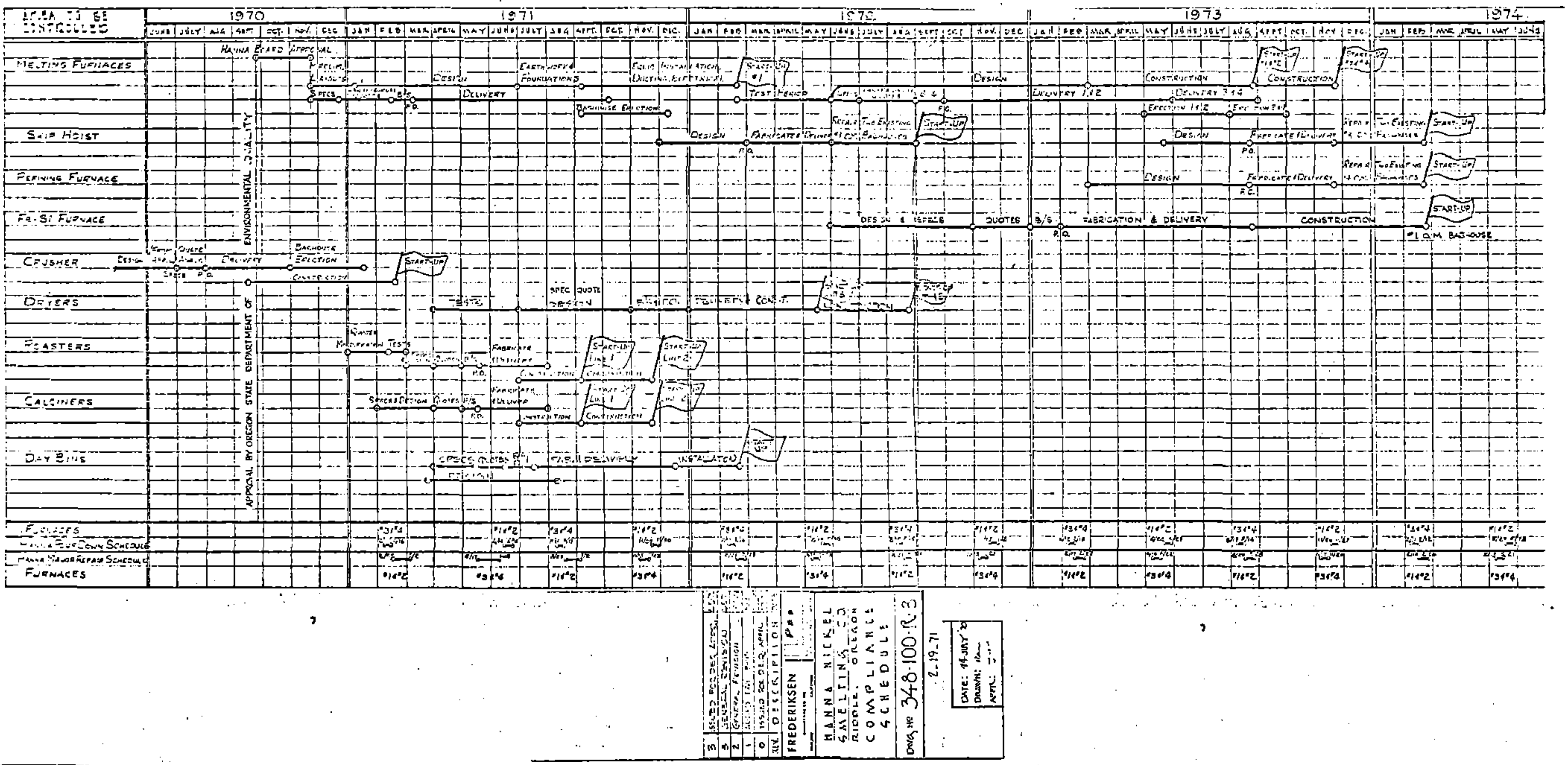
HANNA NICKEL SMELTING COMPANY

F. J. Coyle

F. J. Coyle
Project Engineer

pb

cc: E. J. Maney
R. D. Carter


1970
1971
1972
1973
1974
MELTING FURNACES
SKIP HOIST
REFINING FURNACE
FE-SI FURNACE
CRUSHER
DRYERS
ROASTERS
CALCINERS
DAY BINS
FURNACES
HANNA BOARD APPROVAL
APPROVAL BY OREGON STATE DEPARTMENT OF ENVIRONMENTAL QUALITY
DESIGN
DELIVERY
EARTHWORK & FOUNDATIONS
BAGHOUSE ERECTION
TEST PERIOD
CONSTRUCTION
FABRICATE & DELIVERY
DESIGN & SPECS
QUOTES
FABRICATION & DELIVERY
START-UP
#1 O.M. BAG-HOUSE
SPEC QUOTE
INSTALLATION
FREDERIKSEN
HANNA NICKEL
SMELTING CO
RIDDLE, OREGON
COMPLIANCE
SCHEDULE
DWG NO 348-100-R3
2-19-71
DATE: 14-JULY-70

Hanna Nickel Smelting Company

Riddle, Oregon 97469

April 19, 1971

Mr. Fred A. Skirvin
Air Quality Division
Oregon Department of Environmental
Quality
P. O. Box 231
Portland, Oregon 97207

Dear Mr. Skirvin:

Enclosed for your examination are two graphs showing the total dust emission at the smelter and its decrease as each collection unit is placed in operation. One graph is plotted based on the July, 1970 compliance schedule. The other graph is based on the May, 1970 compliance schedule.

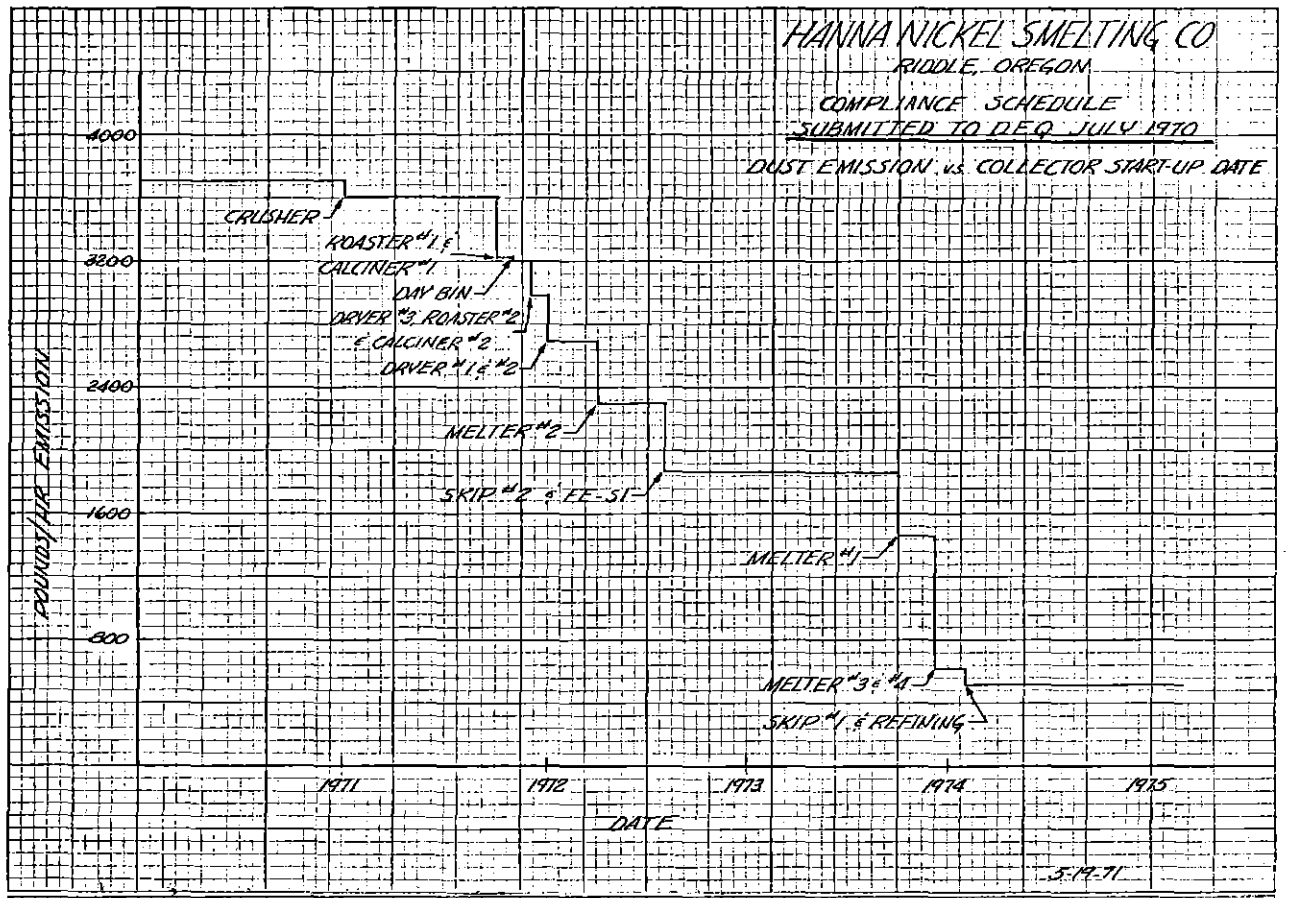
The main difference in the two graphs is due to the later start-up date for the FeSi furnace. As you know, the start-up date was affected by the uncertain start of the design that was shown on the initial compliance schedule approved by E.Q.C.

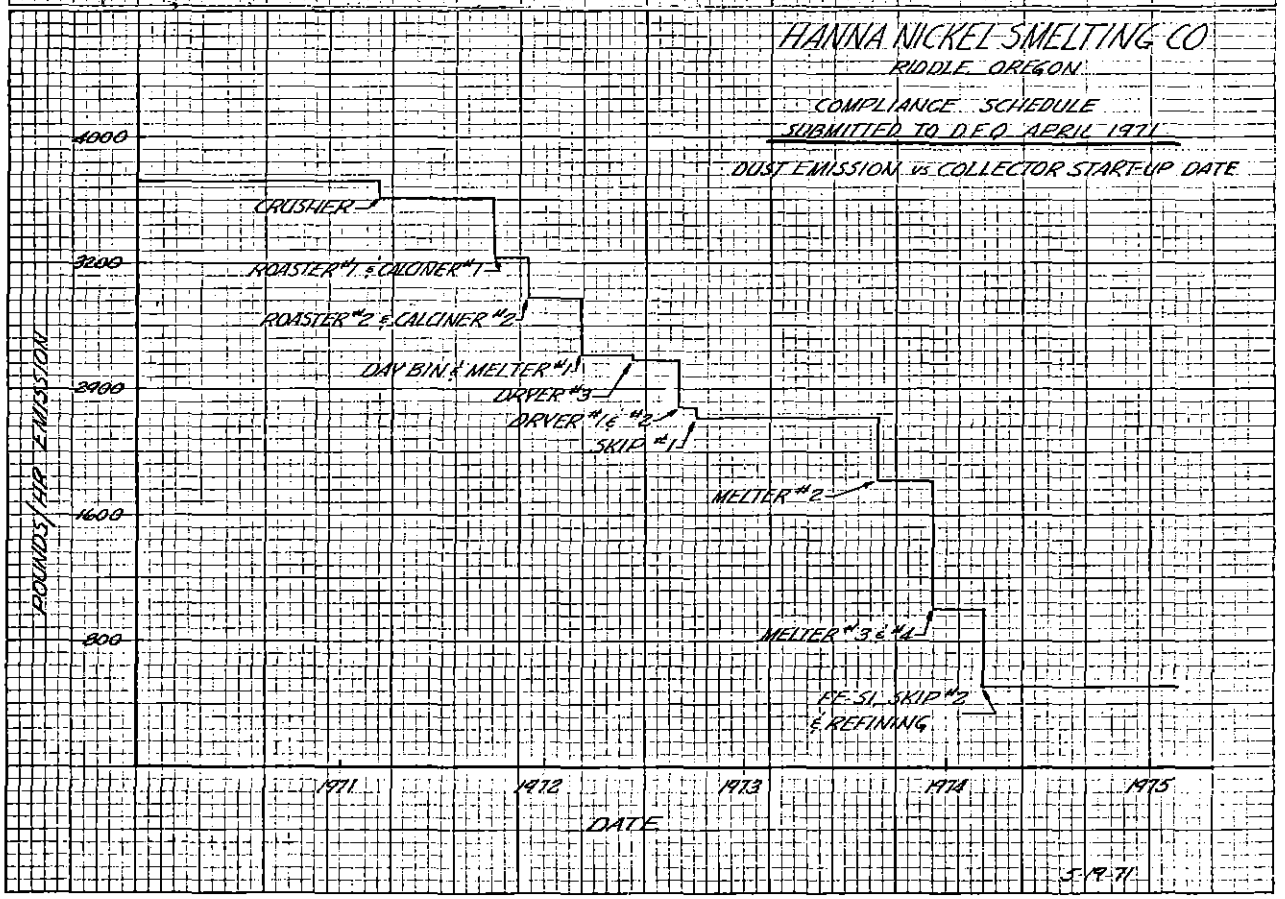
Very truly yours,

HANNA NICKEL SMELTING COMPANY

F. J. Coyle
Project Engineer

ar
Enclosures
cc: E. J. Maney
R. D. Carter
Frederiksen Engineering





SYNOPSIS OF HANNA NICKEL SMELTING COMPANY

AIR POLLUTION CONTROL PROPOSAL ****

	Process Equipment	Control Equipment	Completion Date	Present Emissions Lbs/Hr	Future Emissions Lbs/hr	Future Emissions % Opacity***
1.	Dryers No. 1	Buell cyclones and Microdyne Scrubber*	December 1971 (Aug. 1972)*****	201	62	5.7%
	No. 2	Buell cyclones and Microdyne Scrubber*	December 1971 (Aug. 1972) *****	201	62	5.7%
	No. 3	Buell cyclones and flyash arrestor scrubber	November 1971 (May 1972) *****	102	81	8.5%
2.	Crusher House	3 Baghouses (1 new)	January 1971 (Feb. 1971)*****	111	18	0.8%
3.	Daybins (4 units)	2 Baghouses (1 new)	October 1971 (Feb. 1972) *****	7.7	6.1	0.6%
4.	Calciners (2 units)	2 stage cyclones and electro-static precipitator **	November 1971 (Nov. 1971) *****	257	104	7.0%
5.	Roasters (2 units)	2 stage cyclones and electro-static precip-itators **	November 1971 (Nov. 1971) *****	492	40	1.8%
6.	Skiphoists (4 units)	6 Baghouses (4 existing baghouses to be relocated	January 1974 (Feb. 1974) *****	>1000 (estimated)	24	0.9%
7.	Oremelters (4 units)	2 Baghouses (both new)	November 1973 (Nov. 1973) *****	1723	85	8.0%
8.	Ferrosilion Furnace	1 Baghouse (New)	July 1972 (Feb. 1974) *****	412	35	10%
9.	Refining Furnaces (2 units)	2 Baghouses (both to be relocated)	January 1974 (Feb. 1974) *****	?	2	1.8%

* Existing units will be improved

** Cyclones to be added to existing ESP's

*** Allowable opacity equals 20%

**** Environmental Quality Commission approved September 25, 1970

***** Date from modified schedule

STAFF REVIEW OF HANNA NICKEL SMELTING COMPANY'S AIR POLLUTION CONTROL PROPOSAL For A NEW PILOT PLANT IN RIDDLE, OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY CONTROL DIVISION
by
Fredric A. Skirvin
Associate Engineer

April 1971

INTRODUCTION

Hanna Nickel Smelting Company, located about four miles West of Riddle, Oregon, is the only domestic ferronickel producer in the United States. This company is presently conducting the most extensive particulate control program of any industrial source in Oregon with completion scheduled for the first quarter of 1974.

Hanna Nickel Smelting Company has submitted an air pollution control proposal for a pilot plant scale project to be located at the Riddle site. This proposal was received on April 7, 1971. The purpose of the pilot plant will be to develop and evaluate a new process for making ferronickel from both local and foreign ores.

PILOT PLANT PROCESS DESCRIPTION

The company has designated the process as confidential so only a very qualitative and brief description will be given here.

The coarse ore will be dried and classified to a desired particle size. A reducing agent will then be mixed with the dried ore and the mixture will be compacted. The compacts will be heated and fed to an arc melting furnace. Ferronickel and slag will be separated by decantation pouring from the arc furnace. These molten materials will be transported to the existing production facility for further processing and/or disposal.

OPERATING SCHEDULE

The company is hoping for a June 15, 1971 start-up date. However, recent estimates range through July and into August 1971. In any event, they are very interested in starting as soon as construction is completed.

A total of four months of operation has been scheduled for 1971. An estimated schedule for following years has been provided as being equal to two to three months every other year. Considerable emphasis has been made that this plant is a testing facility and not a production unit.

AIR POLLUTION SOURCES AND CONTROLS

The company has estimated atmospheric emissions from seven areas or sources.

ORE DRYER EXHAUST

The ore dryer which will be operated continuously will be exhausted through a cyclone and an adjustable wet impactor type scrubber. The estimated particulate emissions amount to 0.240 gr./scf or 11.32 lb./hr. of ore. (An emission rate of

12.6 lb./hr. would be allowed by the Asphalt Plant regulation).

Since the dryer exhaust will have a wide range of contained H_2O and a high dust loading, the combination of the cyclone and wet scrubber is a reasonable one. The particle size should be 90+% in the 5 to 15 micron range. The air volume of this system in 7,000 ACFM.

The sludge from this scrubber will be returned to the dryer if possible.

2. ORE SIZE CLASSIFICATION

A baghouse will be used to remove ore dust from the size classification system. The resulting atmospheric emissions of ore are estimated as 0.365 gr/scf or 12.51 lb./hr. (An emission rate of 13.13 lb./hr. would be allowed by the Asphalt Plant regulation.)

The exhaust grain loading is high for a baghouse because it is based to some extent on the performance analogous equipment at the production facility. The air volume of this system will be 5,200 ACFM.

3. COAL PULVERIZER

A baghouse will be used to remove the dust from the coal pulverizer exhaust air stream. An estimated coal emission amounts to 0.047 gr/scf or 1.93 lb./hr. (The Asphalt Plant regulation would allow an emission rate of 2.26 lb./hr.)

The air volume of this system is 5,100 ACFM. The emission rate is relatively low for this volume.

4. ELEVATORS, CONVEYORS AND BINS

Several elevators, conveyors and bins will be used to handle process material. Some of these systems operate continuously and some intermittently. The main material being handled is ore.

A baghouse will be used to control particulate emissions from these materials handling systems. The resulting emissions are estimated to be 0.043 gr/scf or 1.77 lb/hr. The air volume of this system is 5,100 ACFM.

5. ORE-COMPACT HEATER

The ore compact heater will be gas fired, however, a reducing atmosphere will be maintained. A packed bed wet scrubber will be used to control particulate emissions and a natural gas flare will be used to convert excessive concentrations of CO and H_2 to CO_2 and H_2O respectively. The resulting particulate emissions are estimated to be 0.20 gr/scf or 1.57 lb./hr. of ore. (The Asphalt Plant regulation would allow 10.32 lb./hr.) The exhaust volume is

1. ORE DRYER EXHAUST

The operation is comparable to the current larger scale dryers at the production operation. A visible and variable moisture plume is likely so the resulting opacity is beyond estimation. The emitted particulates (estimated 11.32 lb./hr.) will not be significant compared to the present particulate emissions (estimated 2,600+ lb./hr.) The type of scrubber provided (after a cyclone) can be adjusted to optimize efficiency and should not have extensive plugging problems.

The present plan to recycle sludge will not cause a water pollution problem.

2. ORE SIZE CLASSIFICATION

This operation is comparable to the current crusher house and ore-melter processes. The company considers the estimated emission rate of 12.51 lb./hr. to be above what will be achieved. This seems likely since the outlet dust loading of 0.365 gr/scf appears high for a baghouse control device. If this loading is not bettered it is reasonable to expect this emission to borderline with respect to the Ringlemann #1 limitation.

This emission of ore dust will not be significant compared to current emissions.

3. COAL PULVERIZER

The emission rate of 1.93 lb./hr. and the degree of control, baghouse, represent the highest and best control technology. The opacity of this emission should be considerably less than Ringlemann #1.

4. ELEVATORS, CONVEYORS AND BINS

The inlet loading to this baghouse system will be variable but the sizing (4,800 ACFM) should afford some buffering, the major anticipated problem would be bag binding due to the variable inlet dust loading. Should this occur, proper scheduling of operations should provide ample inlet loading reduction.

The estimated emissions, 0.043 gr/scf or 1.77 lb./hr., can be considered negligible when compared to the existing conditions.

5. ORE COMPACT HEATER

The heater exhaust dust loading will be dependent on the integrity of the ore compacts. Excessive dust loading could subject the packed bed scrubber to plugging.

estimated to be about 1,400 CFM. The gas composition prior to the burner will be 2.3% CO, 15.7% CO_2, 2.4% H_2, 2.5 H_2O and 77.1% N_2.

6. ORE HEATER FEED SYSTEM

The ore heater will have a portion of its exhaust recycled in such a manner as to provide a positive seal at the ore inlet. It is estimated that 200 cfm of gas (after passing through the scrubber) will be released at a very low velocity. The estimated ore dust loading is 0.20 gr/scf or 0.18 lb./hr.

7. ELECTRIC FURNACE

The electric furnace is a closed type with the only cited gaseous emission being CO. This relatively small furnace (slightly smaller than the 2,500 KVA refinery furnaces in the current production facility) will be operated at a small positive gauge pressure. The CO generated will be combined with the scrubber ore heater exhaust and fed passed the flare. It is estimated that 34 ACFM of CO will be generated.

Since the electric furnace is fed compacted ore essentially nil quantities of dust are expected from its operation. The slag and metal decantation (once per day) are not expected to contribute significant amounts of contaminants.

APPLICABLE EMISSION REGULATIONS

This operation will be a new source in the Umpqua Special Control Area. Therefore, the applicable emission limitation will be Ringlemann as set forth in OAR Chapter 340, Section 21-015.

The Asphalt Plant regulation limitation (OAR Chapter 340, Sections 25-105 through 25-130, Table I) has been previously cited for comparison only.

STAFF EVALUATION AND DISCUSSION

In addition to evaluating the written material submitted by the company, the staff has inspected the site and had numerous conversations with company representatives.

Generally speaking, a rigorous review cannot be made since performance data on both the process equipment and control devices are not available. The following discussion does attempt to present an evaluation of the proposal to the extent possible.

The estimated emission rate of 1.57 lb./hr. (ore dust) again can be considered as negligible compared to existing emissions.

The flare should minimize the emission of CO and H_2. The unburned CO emission rate is estimated to be 260 lb./hr. The resulting amount of CO should not create any problem.

6. ORE HEATER FEED SYSTEM

This gas stream can be considered negligible on both volume (160 SCFM) and dust emission (0.18 lb./hr.).

7. ELECTRIC FURNACE

The lack of mechanically induced draft and the compacted feed eliminate any anticipation of dust emissions. The generated CO (159 lb./hr.) should be considerably less after passing the flare.

The electric furnace emissions should not be detectable above the current background of the existing production operation.

8. OTHER VISIBLE EMISSIONS

The most noticeable will be the flare during the nights. Its 96 feet elevations will make it quite obvious.

SUMMARY AND CONCLUSIONS

The Hanna Nickel Smelting Company has provided the information that is available at this time relating to atmospheric emissions from a pilot scale test facility to be constructed at the Riddle site. This information indicates that particulate emissions will be about 30 lb./hr., a small quantity compared to the 3,500+ lb./hr. being emitted by the present production facility.

The limited operation schedule (4 months in 1971 and 2 to 30 months every other year, estimated) greatly diminish the environmental impact of this pilot plant.

It is the conclusion of the staff that the proposed emission control systems will adequately reduce atmospheric emissions from the pilot plant.

STAFF RECOMMENDATION

The staff recommends that an approval notice be sent to the company subject to providing the Department with an operating schedule and operating the plant within the limitations set forth in OAR Chapter 340, Section 21-015.