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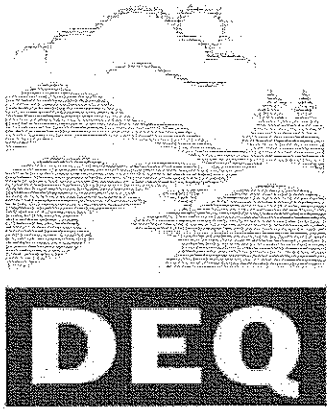
9/25/1970

OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS



State of Oregon
Department of Environmental Quality

AGENDA

Environmental Quality Commission Meeting

10:00 a.m., September 25, 1970

Second Floor Auditorium, Public Service Building, 920 S. W. 6th Ave., Portland

A. Minutes of August 21, 1970 meeting Delivered

B. Project plans for August 1970 5/6/70

C. Hanna Nickel, Riddle, AQC proposal

D. Tax Credit Applications

1.	Pennwalt Corp., Portland	T-141	$23,621.76 (80%)
2.	Weyerhaeuser Corp., Klamath Falls	T-148	$49,801
3.	McGraw-Edison (Corvallis)	T-158	$65,981

E. Boise Cascade Corp. pulp mill, Salem - staff report

F. River Haven Mobile Estates, Josephine County, sewage disposal

G. City of Condon sewage disposal

H. Rancho sewage disposal, Klamath Falls (formerly OTI)

I. Harris Feedlot, Milton-Freewater

J. Jefferson County request for permit issuing agency

K. Grants Pass Waste Discharge Permit

L. Lobster Creek Fish Kill - status report

M. 1971-1973 Biennial Budget Request

L & H Lbr Co Stanfield

MINUTES OF THE SIXTEENTH MEETING

of the

Oregon Environmental Quality Commission

September 25, 1970

The sixteenth regular meeting of the Oregon Environmental Quality Commission was called to order by the Chairman at 10:10 a.m., Friday, September 25, 1970, in the Second Floor Auditorium, Public Service Building, 920 S.W. 6th Avenue, Portland, Oregon. Members present were B.A. McPhillips, Chairman, Edward C. Harms, Jr., George A. McMath, Arnold M. Cogan 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; Joseph A. Jensen, Municipal Sewerage Chief Engineer; Harold L. Sawyer, Supervising Engineer; James R. Sheetz, Leo L. Baton and C. Kent Ashbaker, District Engineers; Clint A. Ayer, F.A. Skirvin and Paul H. Rath, Associate Engineers, and Harold H. Burkitt, Assistant Engineer.

MINUTES OF AUGUST 21, 1970 MEETING

Action on the minutes of the August 21, 1970 meeting was deferred until the next meeting.

PROJECT PLANS

It was MOVED by Mr. Waterman, seconded by Mr. Cogan and carried that the actions taken by the staff during the month of August, 1970 on the following 38 municipal sewerage, 2 industrial waste, 3 solid waste and 3 air quality control projects be approved:

Water Pollution Control

Date	Location	Project	Action
Municipal Projects (38)			
8-3	Gresham	N.E. 8th & S.E. 242nd Dr.	Prov. app.
8-3	E. Salem S & D #1	Northwood Park #2	Prov. app.
8-3	Eugene	1st to 4th Storm & San. Sew. Project	Prov. app.
8-4	Paisley	Change Order #1-4	Approval

Date	Location	Project	Action
8-4	Washington County	Scoggins Dam Treatment Sys.	Comments
8-10	Dundee	Change Order B-1 through B-8	Approval
8-10	Stayton	Sewage Treatment Study	Comments
8-11	West Linn	Sewerage Report	Approval
8-11	Merrill	Addendum #1	Approval
8-11	Malin	Change Order #3, 4 & 5	Approval
8-11	Oakland	Addenda #1 & 2	Approval
8-11	Ontario	Addendum #1	Approval
8-11	Roseburg	San. Sewer Extension	Prov. app.
8-12	Sweet Home	San. Sew. Ext. 240'	Prov. app.
8-12	Hillsboro	Change Order #1 through 4	Approval
8-17	Dundee	Change Order B-9	Approval
8-17	Marion County	Century Meadows Sub.	Not approved
8-18	Gresham	Tee-Off Estates	Prov. app.
8-19	Coquille	Knowlton Hts.	Prov. app.
8-19	Oregon City	Michael's Hill Sub.	Prov. app.
8-19	E. Salem S&D #1	Mar-Cie Gardens Annex #3	Prov. app.
8-19	Toledo	East Side San. Sewer	Prov. app.
8-20	Pendleton	LID #307	Prov. app.
8-20	Somerset West	Rock Creek #6	Prov. app.
8-20	No. Umpqua S.D.	Garden Hills #1	Prov. app.
8-20	Aumsville	Collection & Treatment sys.	Prov. app.
8-20	Multnomah Co.	Inverness Unit #2	Prov. app.
8-21	Medford	Change Order #2, 3 & 5	Approval
8-21	Gold Beach	Fairgrounds system	Prov. app.
8-21	Siletz	Sewage System Study	App. w/comments
8-25	Somerset West	Rock Creek Terrace	Prov. app.
8-28	Eugene	Crest Heights	Prov. app.
8-28	Springfield	Sewer Extension	Prov. app.
8-28	Salem	19th Ave. Sewer Extension	Prov. app.
8-28	Portland	Maplewood #5 revisions	Prov. app.
8-28	Gresham	Phase II Sevenoaks	Prov. app.
8-31	Eugene	Change Order #1	Prov. app.
8-31	Oak Lodge S.D.	P.S. #3 Revisions	Prov. app.
Industrial Projects (2)			
8-18	Coos Bay	Weyerhaeuser hydraulic barker clarifier	Prov. app.
8-25	Ontario	Coast Packing Co. irrigation disp. fac.	Prov. app.
Solid Waste Project (3)			
8-4	Crook County	Les Schwab Tire disp. site	Prov. app.
8-11	Multnomah County	Porter-Yett Landfill	Prov. app.
8-18	Washington County	Bunch Tire disposal site	Prov. app.
Air Quality Control			
8-7	Springfield	Weyerhaeuser Co. Smelt tank dissolver	Not app. Pending add. inf.

Air Quality Control - continued

Date	Location	Project	Action
8-17, 19	Dillard	Round Prairie Lbr. Co. Wigwam waste burner	(17) Cond. app. (19) App. const.
8-19, 27	Roseburg	U.S. Plywood Wigwam waste burner modification	(19) Cond. app. (27) App. for const.

HANNA NICKEL AQC PROPOSAL

The Hanna Nickel Smelting Company, located some 4 miles west of Riddle in Douglas County, had submitted a detailed proposal for reducing particulate emissions from its plant into the atmosphere. If and when the proposed projects are completed in early 1974, particulate emissions should be reduced from the present 4,000 lbs. or more per hour to about 500 lbs. per hour. This plant produces ferronickel from nearby ore and represents the only domestic production of its kind in the United States.

Mr. Skirvin presented the staff report covering the review of the company's proposal. He said the staff considers the proposal acceptable because it will provide the highest and best practicable degree of control and should achieve compliance with existing applicable regulations.

Mr. E. Jack Maney, Manager, was present to represent the company. He said they had worked on testing and developing the proposal for more than a year, that it represents a considerable expenditure of funds and therefore he hopes that it will be approved by the Commission. In response to questions from the members he said he does not anticipate anything that might delay the time schedule, that he considers the equipment delivery schedules adequate, and that since this is the only plant of its kind they have had to develop their own answers to the air pollution problems.

It was MOVED by Mr. Cogan, seconded by Mr. McMath and carried that as recommended by the staff the proposal submitted by the Hanna Nickel Smelting Company for reducing the atmospheric emissions at its Riddle plant be approved with the stipulations that (1) no lesser degrees of control than those proposed will be accomplished and (2) as individual projects are completed, emission testing will be performed to demonstrate compliance with Department of Environmental Quality regulations and further that a third

stipulation be made that the proposed time schedule be adhered to with the exception that any waivers be only with express approval of the Department.

TAX CREDIT APPLICATIONS

(1) Mr. Sawyer reviewed the staff's evaluation of the tax credit application No. T-141 submitted by Pennwalt Corporation, Portland. Mr. Waterman did not participate in the discussion or vote on this matter.

It was MOVED by Mr. Harms, seconded by Mr. McMath and carried that as recommended by the staff a tax credit certificate in the amount of $23,621.76 with 60% or more and less than 80% of the cost allocated to pollution control be issued to the Pennwalt Corporation, Portland, pursuant to application No. T-141.

Mr. Burkitt reviewed the staff's evaluation of tax credit applications Nos. T-148 and T-158 submitted by Weyerhaeuser Company and McGraw-Edison, respectively.

(2) It was MOVED by Mr. Waterman, seconded by Mr. Cogan and carried that as recommended by the staff a tax credit certificate in the amount of $49,801 be issued under the 1967 Act to Weyerhaeuser Company of Klamath Falls pursuant to application No. T-148.

Mr. Burkitt reported that with the additional improvements which the company will be making at this plant it should be possible for them to comply fully with the Department's regulations.

(3) It was MOVED by Mr. Waterman, seconded by Mr. McMath and carried that as recommended by the staff a tax credit certificate in the amount of $65,981 with 80% or more allocated to pollution control be issued to McGraw-Edison Company of Corvallis pursuant to application No. T-158.

BOISE CASCADE CORPORATION PULP MILL, Salem

Mr. Ayer presented a staff report regarding (1) the general problem of sulfur dioxide emissions from the five sulfite pulp mills located at Oregon City, Newberg, Salem, Lebanon and Empire; (2) the status of proposed regulations that are being developed by the staff for sulfite pulp mill emissions, and (3) the present program for controlling emissions from sulfite pulp mills.

He reported that specific regulations have been drafted and will be submitted for Commission action in the near future. He said the control of SO_2 emissions has been delayed because of the fact that no standard method of measurement has been available and therefore very little information has been developed regarding the actual amounts of pollutants being discharged into the air.

This report was presented in response to the request made by the Commission members following the discussion of the Boise Cascade Salem mill at the August 21 meeting. No action in this matter was required at this meeting.

RIVER HAVEN MOBILE HOME ESTATES

Mr. Jensen presented the staff report regarding the sewage disposal problem at the River Haven Mobile Estates, a 32-unit mobile home park located in the Redwood County Service District of Josephine County downstream from the city of Grants Pass. Sewage effluent from the subsurface disposal system serving this establishment finds its way into the Rogue River. The owner of the park has therefore been instructed to provide more adequate facilities in order to abate stream pollution. The owner's engineer had proposed a package-type secondary treatment plant and 3-day holding basin with capacity to treat 15,000 gallons of sewage per day.

In order to help finance the cost of the proposed facilities the owner had requested permission to expand the size of the trailer park from 32 to 82 units.

Mr. Jensen recommended that since this park is located in a county service district and the county is trying to promote the installation of a community-wide sewerage system in the district, the owner of the trailer park should not be permitted to increase the number of trailer units served to the full potential of the proposed sewage treatment facilities because such increase might delay installation of the community-wide sewerage system. He suggested that a moderate expansion of 20 to 25% might be allowed to help cover capital expenditures. Restriction of the size of the park had previously been requested by the Josephine County Health Department.

Mr. William Olson, Supervising Sanitarian for Josephine County, was present to represent the county. He said that because of economic conditions in the area it now appeared extremely unlikely that the county would be able to get any community-wide sewerage system for the district financed and constructed in the foreseeable future. He referred to the problems experienced in the nearby Fruitdale-Harbeck County Service District. He said the county has therefore reversed its position and now feels that the owner of the River Haven Mobile Home Estates should be allowed to increase the number of units served compatible with the capacity of the sewage treatment plant that has been proposed.

Mr. Olson also pointed out, however, that during a recent survey by the county of the Redwood Service District, 45% of 381 homes were found to have inadequate septic tank systems. He pointed out further that most of the area is served by individual water supplies.

Mr. Robert S. Blanton, Consulting Engineer, was present to represent the owner of the River Haven Mobile Home Estates. He described the local topographic, drainage and soil conditions which preclude the subsurface disposal of sewage in a safe and sanitary manner. He reported that an attempt had been made to design a sewerage system that could serve not only his client but also the public school and another trailer park in the area that likewise are in need of improved sewage disposal facilities. He said such an attempt was unsuccessful because the county refused to let them use the only site available for a lagoon system of disposal.

Mr. Blanton contended that because of the type of the occupancy of the River Haven park the per unit flow of sewage is considerably less than the 250 gallons per space per day specified in the State Board of Health regulations for mobile home parks. Under these regulations a 15,000 gallon plant would serve only 60 units but he contended in this case it could handle 80 units. He argued that because of the high cost of installing the proposed sewerage works the owner could not afford to make the improvement unless permitted to expand the park to the full capacity of the sewage plant.

After considerable discussion about the need for public sewers and the difficulties involved in financing and promoting the installation of such facilities in areas such as the Redwood Service District, it was MOVED by Mr. Waterman, seconded by Mr. McMath and carried that the Department approve

the installation of the proposed sewage treatment works and allow the expansion of the River Haven Mobile Home Estates to a safe level of treatment, but not to exeed 60 units. Mr. Cogan voted against the motion because he felt that all possible alternatives had not been investigated or explored.

Mr. Baton commented briefly on the sewage disposal problems confronted by other property owners in the Redwood district.

It was MOVED by Mr. Harms, seconded by Mr. Waterman and carried that the Department staff be instructed to investigate all individual violators and report back to the Commission preliminary to commencing abatement proceedings where necessary.

CITY OF CONDON

Mr. Sheetz discussed the sewage disposal problem confronted by the city of Condon and reviewed the staff report dated September 10, 1970 regarding this matter.

Mr. Gilbert Meigs, Consulting Engineer, was present and said his firm had been notified that they are to be retained by the city to design the necessary improvements to the Condon sewage treatment plant although to-date they had received no signed contract. He stated that he thought it should be possible to meet the December 31, 1971 deadline for completion of construction.

It was MOVED by Mr. Harms, seconded by Mr. McMath and carried that the staff recommendation be approved and that the city of Condon be cited to appear before the Commission at its next meeting to show cause, if any exists, why an order should not be entered directing the city to design and install sewage treatment facilities meeting the approval of the Department of Environmental Quality and adequate to insure that: (1) the average effluent concentration of 5-day 20°C Biochemical Oxygen Demand (BOD) will not exceed 20 milligrams per liter (mg/l) or 12 lbs/day, (2) the average effluent concentration of suspended solids will not exceed 20 mg/liter or 12 lbs/day, and (3) the effluent will receive disinfection equivalent to that obtained by providing a chlorine residual of 1.0 mg/liter after 60 minutes of contact time, such facilities to be designed, financed and installed in accordance with the following schedule: complete engineering design by December 31, 1970;

arrange local financing by March 31, 1971; award contract and begin construction by May 31, 1971, and complete construction and place into operation by December 31, 1971.

RANCHO SEWAGE DISPOSAL

Mr. Ashbaker presented the staff report dated September 21, 1970 regarding the problem of inadequate sewage disposal for the buildings located in the area formerly used as a marine barracks during World War II and later as a campus by the Oregon Technical Institute but now under private ownership and called the Rancho Klamath Falls. He reported that by letter dated September 14, 1970, the owners had been instructed by the Department staff to submit plans by October 1, 1970 for adequately handling the sewage wastes during the winter season and to complete the installation of the required facilities by October 15, 1970. He requested permission to cite the owners to appear at a public hearing before the Commission if satisfactory progress is not made by October 14.

It was MOVED by Mr. Harms, seconded by Mr. Waterman and carried that the staff recommendation be adopted and that if satisfactory progress is not made by October 14, 1970 the owners be cited to appear and show cause, if any exists, why the operation should not be closed down until adequate provisons have been made for disposing of the sewage.

The meeting was recessed at 12:10 p.m. and reconvened at 1:35 p.m.

HARRIS FEEDLOT

Mr. Rath presented a staff report dated September 22, 1970 regarding this matter. He recommended that a show cause hearing be scheduled for the November meeting of the Commission if construction of the required waste handling facilities is not started in conformance with approved plans by October 16, 1970.

It was MOVED by Mr. McMath, seconded by Mr. Cogan and carried that the staff recommendation be approved that a show cause hearing be scheduled for the November Commission meeting if construction has not been started in conformance with approved plans by October 16, 1970.

JEFFERSON COUNTY REQUEST FOR PERMIT ISSUING AUTHORITY

A written request dated September 18, 1970 and signed by Carlos K. Kemper, M.D., Jefferson County Health Officer, that the Jefferson County Health

Department be authorized to issue permits for construction of waste disposal wells in that county was given consideration by the members.

Mr. Ashbaker explained the reason for the request, namely, that the Tri-County Health Department which formerly represented Deschutes, Crook and Jefferson Counties has since been dissolved. He reviewed the present status of the programs of the cities of Bend, Redmond and Madras for installing community-wide sewerage works.

Mr. Cogan inquired about the possibility of the COG (Council of Governments) for the area being the permit issuing agency. Mr. Harms expressed doubt about the reasonableness of the tri-county setup in the first place.

After further discussion it was MOVED by Mr. Harms, seconded by Mr. Cogan and carried that action on the request of Jefferson County be deferred until more information can be obtained, that in the meantime the Department retain the permit issuing authority, and that the staff be directed to gather all information possible regarding a possible regional or central agency for further consideration at a future meeting of the Commission.

GRANTS PASS WASTE DISCHARGE PERMIT

Mr. Silver reported that the court on September 21 had denied the Department's request for vacation of the temporary injunction issued in the matter of the Grants Pass waste discharge permit and had set October 26 as the date for a hearing.

The Director reported that on September 24 the voters of Grants Pass had overwhelmingly approved a $1,500,000 bond issue to help finance the construction of the needed sewage treatment works improvements.

Mr. Harms again raised the question about the possibility of withholding state or federal grants to communities that fail to comply with Department requirements.

LOBSTER CREEK FISH KILL

Mr. Silver reported that this case had been settled out of court and that the polluter had paid $1,065 in damages which sum had been transmitted to the State Game Commission.

L & H LUMBER CO.

Mr. Burkitt advised the Commission that on September 24, 1970 a request for an amendment to the Commission's order (EQC No. 20) entered on May 22, 1970, had been received from the L & H Lumber Co. of Sutherlin. He reported that the mill is still shut down but the company hopes to resume operations by October 5.

Mr. Jerome S. Bischoff, attorney, was present to represent the company. He said they have a contract with Publishers Paper Company at Oregon City and will attempt to ship the sawdust and chips together. He said the bark will be disposed of as fill on their own land.

It was MOVED by Mr. Waterman, seconded by Mr. Harms and carried that the staff recommendation be approved and that the Commission Order (EQC No. 20) be amended to allow L & H Lumber Company to operate without further modification the waste burner for (1) burning of bark waste for a period commencing on October 5, 1970 and continuing for two weeks and (2) burning of sawdust for a period commencing on October 5, 1970 and continuing for 30 days.

BIENNIAL BUDGET

Copies of the budget prepared by the Department staff and the Business Management Section of the State Board of Health for the 1971-1973 biennium were distributed to the members for review and approval. The proposed reorganization, increase in personnel and other major items in the budget had previously been discussed with the Commission. The following is a comparison with the present budget:

	Present Budget 1969-1971	Proposed Budget 1971-1973
Personal Services	$1,418,782	$2,581,670
Services & Supplies	294,920	675,864
Capital Outlay	87,403	289,708
Training	15,500	-0-
Total Operating Budget	1,816,605	3,547,242
Regional APA Grants	157,033	251,073
STP Construction Grants	1,500,000	-0-
Total Budget	3,473,638	3,798,315
State General Fund	3,130,278	3,500,000
Federal Fund	343,360	297,336

Personnel		
Total Positions	68	120
Full Time Equivalent (FTE)	65	114-1/4

It was pointed out that in developing the proposed budget full consideration was given to the recommendations contained in the report of the Management 70's Task Force regarding the Department of Environmental Quality. For example, the field services (district offices) are proposed to be greatly strengthened through increase in personnel and expansion in number of districts, a separate administrative services division is requested to provide more adequate administrative assistance, business management, personnel and information and educational service, and a separate section in the office of director is proposed to coordinate and promote all planning activities of the Department.

In the discussion of the proposed budget the Commission members concluded that the proposal for the planning section was woefully inadequate and that it should be considerably increased.

It was MOVED by Mr. Cogan, seconded by Mr. Harms and carried that the proposed budget as submitted by the Department be approved but that a supplemental request be prepared to include two planners, a research analyst and a secretary as additions to the proposed planning section.

STATE BOND PROGRAM

In order to implement the authority granted by the Constitutional Amendment approved by the voters last May and the action of the Legislature in 1969 for the sale of state bonds to assist local government in the construction of air, water and land pollution control works, it was MOVED by Mr. McMath, seconded by Mr. Harms and Mr. Waterman, and carried that the Emergency Board be requested to transfer approximately $53,000 to the Department of Environmental Quality from the uncommitted balance in the present sewage treatment works construction grant fund for use in employing a temporary financial consultant and additional permanent engineering and secretarial help and in defraying certain bond costs so that state bonds can be sold as early as possible next year.

ELECTION OF VICE-CHAIRMAN

It was MOVED by Mr. Waterman, seconded by Mr. McMath and carried that Mr. Harms be nominated as Vice-Chairman, that the nominations be closed and that a unanimous ballot be cast for Mr. Harms for this office. He was declared so elected by the Chairman.

There being no further business the meeting adjourned at 3:05 p.m.

October 30 was selected as the date for the next Commission meeting.

Respectfully submitted

Kenneth H. Spies

Kenneth H. Spies, Director

STATEMENT TO ENVIRONMENTAL QUALITY COMMISSION

Mayor Lester E. Anderson
Eugene
August 21, 1970

On behalf of the City of Eugene, I should like to welcome you to our city and tell you that we await with great interest the staff report on the results of field burning during the 1970 season. We congratulate you, as members of the Commission, for your efforts, along with those of the seed growers, to mitigate as far as possible the concentrations of smoke coming into our city. We consider that you have done everything in your power under the existing law to protect our citizens, and for this we thank you.

We are critical, not of the Environmental Quality Commission, but of the law under which you are forced to operate. Although this year we have not been subjected to the intense concentrations of smoke under which we suffered so severely last year, the volume of smoke generated by field burning is still serious and dangerous - it is a blight to our community, it remains a health hazard, it causes physical discomfort and mental depression, and it stands in defiance of a man's right which I enunciated to you last summer: The right to breathe clean, fresh air and to have an unobstructed view of the sun.

The smoke from field burning still contaminates the entire air shed of the Willamette Valley. The only way to reduce this contamination is to control it at its source -- just as pollutants from industry must be controlled from the smoke stack or automobiles from their exhaust pipes. In our opinion, you cannot depend upon the wind to disperse air pollution; it merely blows the smoke away from one place to another place. When we set upon our program of

shutting down wigwam burners, we did it without concern for wind direction. We did it because the burners were a source of air pollution, and the only way to reduce air pollution is to eliminate it at its source. That is why the City of Eugene banned backyard burning.

This summer, Eugene citizens have been the object of a skillfully conceived public relations program sponsored by the seed industry. In newspaper ads and television commercials, the program attempts to persuade the people of Eugene that the industry is earnestly trying to eliminate field burning and that our patience will be rewarded with clean summer air in the not too distant future. Frankly, our faith in these pronouncements was somewhat shaken when the industry challenged in court the Commission's legal right to bar cereal grain fields from the burning list. Acceptance of your program to bar cereal grains would have been a major move to convince us that the industry is interested in taking a first step toward pollution control at its source, even though it involves non-essential burning.

We submit that the present program for regulating field burning is not acceptable, other than to provide temporary relief, because it does not limit the total acreage which is permitted to be burned and because the Commission has no power to enforce its own regulations. In the 1971 Legislative session, the city of Eugene will sponsor legislation seeking to abolish the existing agricultural exemption from the general law governing air-pollution controls and abolishing all special legislation regulating field burning so that the responsibility will be where it belongs - in the Environmental Quality Commission - and so that agricultural burning will be subject to the same controls as those regulating any other industry.

August 21, 1970

STATEMENT BY LEAGUE OF WOMEN VOTERS TO:
DEPT. OF ENVIRONMENTAL QUALITY re: EVALUATION OF FIELD BURNING

The League of Women Voters of Central Lane County notes with encouragement the apparent effectiveness of the techniques initiated by the Department of Environmental Quality for the dispersion of field burning pollutants during the 1970 summer months.

However, we are also aware that the total amount of field burning has not decreased and while Eugene has had a reduction in smoke from this source, it is still far from satisfactory. Because of the dispersion techniques used to improve the air quality in Eugene other communities have had impaired air quality.

We anticipate that there will be no lessening of efforts to find a solution to the problem of weed and disease control. We also believe that a continuing effort should be made to find a utilization for straw that will relieve the necessity for field burning.

Mary Briscoe, Pres.
League of Women Voters of Central
Lane County

STATEMENT SUBMITTED BY RONALD A. FINDLAY, M.D.

Unquestionably there has been a reduction in the concentration of pollutants from field burning in the Eugene area this year and fewer of my patients have suffered adverse effects from this pollution.

However, I am concerned that there has been no reduction in the total quantity of pollutants emitted by field burning. There has been simply a shift of these pollutants to different areas affecting a different population group. I would hope that the Environmental Quality Commission will work for a reasonable actual reduction in the total volume of acreage permitted to be burned.

/s/ Ronald A. Findlay, M.D.

These industry ads that I spoke of earlier carry the theme "We're trying!" They tell of the new regulations, an aircraft monitoring system, the smokeless incinerator now being developed, and efforts to utilize straw residues.-- and ask all of us in the Eugene area to understand the problem. I can assure you we do understand the problem, but it will be difficult to understand attempts to delay or obstruct positive efforts toward a solution. That is why we hope that the seed industry will join us in backing legislation that will call for more effective regulation and enforcement and will spell out clearly the goals your commission has set, with timetables, to eliminate open field burning as a major source of pollution in our Valley. Then we will know that they not only are trying, but are willing to try even harder.

Table 3

PROJECT PLANS

During the month of August, 1970, 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 (38)			
8-3-70	Gresham	N.E. 8th and S.E. 242nd Dr.	Prov. Approval
8-3-70	E. Salem S & D #1	Northwood Park #2	Prov. Approval
8-3-70	Eugene	1st to 4th Storm & San. Sew. Project	Prov. Approval
8-4-70	Paisley	Change Order #1-4	Approval
8-4-70	Washington County	Scoggins Dam Treatment Sys.	Comments
8-10-70	Dundee	Change Order B-1 through B-8	Approval
8-10-70	Stayton	Sewage Treatment Study	Comments
8-11-70	West Linn	Sewerage Report	Approval
8-11-70	Merrill	Addendum #1	Approval
8-11-70	Malin	Change Order #3, 4 & 5	Approval
8-11-70	Oakland	Addenda #1 & 2	Approval
8-11-70	Ontario	Addendum #1	Approval
8-11-70	Roseburg	San. Sewer Extension	Prov. Approval
8-12-70	Sweet Home	San. Sew. Ext. 240'	Prov. Approval
8-12-70	Hillsboro	Change Order #1 through 4	Approval
8-17-70	Dundee	Change Order B-9	Approval
8-17-70	Marion County	Century Meadows Sub.	Not Approved
8-18-70	Gresham	Tee-Off Estates	Prov. Approval
8-19-70	Coquille	Knowlton Hts.	Prov. Approval
8-19-70	Oregon City	Michael's Hill Sub.	Prov. Approval
8-19-70	E. Salem S&D #1	Mar-Cie Gardens Annex #3	Prov. Approval
8-19-70	Toledo	East Side San. Sewer	Prov. Approval

Table 3 (Contd.)

Date	Location	Project	Action
8-20-70	Pendleton	LID #307	Prov. Approval
8-20-70	Somerset West	Rock Creek #6	Prov. Approval
8-20-70	No. Umpqua S.D.	Garden Hills #1	Prov. Approval
8-20-70	Aumsville	Collection & Treatment sys.	Prov. Approval
8-20-70	Multnomah Co.	Inverness Unit #2	Prov. Approval
8-21-70	Medford	Change Order #2,3 & 5	Approval
8-21-70	Gold Beach	Fairgrounds system	Prov. Approval
8-21-70	Siletz	Sewage Sys. Study	App. w/comments
8-25-70	Somerset West	Rock Creek Terrace	Prov. Approval
8-28-70	Eugene	Crest Heights	Prov. Approval
8-28-70	Springfield	Sewer Extension	Prov. Approval
8-28-70	Salem	19th Ave. Sewer Extension	Prov. Approval
8-28-70	Portland	Maplewood #5 revisions	Prov. Approval
8-28-70	Gresham	Phase II Sevenoaks	Prov. Approval
8-31-70	Eugene	Change Order #1	Prov. Approval
8-31-70	Oak Lodge S.D.	P.S. #3 Revisions	Prov. Approval
Industrial Projects (2)			
8-18-70	Coos Bay	Weyerhauser hydraulic barker clarifier	Prov. Approval
8-25-70	Ontario	Coast Packing Company irrigation disp. fac.	Prov. Approval
Solid Waste Project (3)			
8-4-70	Crook County	Les Schwab Tire disp site	Prov. Approval
8-11-70	Multnomah County	Porter-Yett Landfill	Prov. Approval
8-18-70	Washington County	Bunch Tire disposal site	Prov. Approval

PROJECT PLANS, REPORTS, PROPOSALS:

The following project plans or reports were received and processed by the Air Quality Control Division for the month of August 1970:

Date	Location	Project	Action
7	Springfield	Weyerhaeuser Company Smelt tank dissolver	Not approved Pending additional information
17, 19	Dillard	Round Prairie Lbr. Co. Wigwam waste burner	(17) Conditional approval (19) Approved construction
19, 27	Roseburg	U. S. Plywood Wigwam waste burner modification	(19) Conditional approval (27) Approved for construction

DEPARTMENT OF ENVIRONMENTAL QUALITY

STAFF REVIEW OF A CONTROL PROPOSAL

From

HANNA NICKEL SMELTING COMPANY, RIDDLE, OREGON

SUMMARY

Hanna Nickel Smelting Company, located some 4 miles West of Riddle in Douglas County has submitted an extensive proposal for reducing its air contaminating particulate emissions. When the proposed projects are completed in early 1974, particulate emissions will be reduced from approximately 4000 lb/hr to about 500 lb/hr.

The Department of Environmental Quality staff, having reviewed the proposal, considers it to be acceptable on the basis that it does provide highest and best practicable degrees of control and should achieve compliance with existing applicable regulations. The staff considers the proposed time schedule to be adequate based on the nature of emissions, area affected and scope of project. A synopsis of the proposal is attached.

STAFF RECOMMENDATION

The staff recommends approval of the Hanna Nickel Smelting Company air pollution control proposal with the stipulations that:

1) No lesser degrees of control than those which have been proposed will be accomplished, and

2) As individual projects are completed, emission testing will be performed to demonstrate compliance with Department of Environmental Quality regulations.

3. [illegible]

Draft 9/22/70 (AGS)
9-15-70

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	201	62	5.7%
	No. 2	Buell cyclones and Microdyne Scrubber*	December 1971	201	62	5.7%
	No. 3	Buell cyclones and flyash arrestor scrubber	November 1971	102	81	8.5%
2.	Crusher House	3 Baghouses (1 new)	January 1971	111	18	0.8%
3.	Daybins (4 units)	2 Baghouses (1 new)	October 1971	7.7	6.1	0.6%
4.	Calciners (2 units)	2 stage cyclones and electro-static precipita-tor **	November 1971	257	104	7.0%
5.	Roasters (2 units)	2 stage cyclones and electro-static precip-itators **	November 1971	492	40	1.8%
6.	Skiphoists (4 units)	6 Baghouses (4 existing baghouses to be relocated	January 1974	≥1000 (estimated)	24	0.9%
7.	Oremelters (4 units)	2 Baghouses (both new)	November 1973	1723	85	8.0%
8.	Ferrosilion Furnace	1 Baghouse (New)	July 1972	412	35	10%
9.	Refining Furnaces (2 units)	2 Baghouses (both to be relocated)	January 1974	?	2	1.8%

* Existing units will be improved

** Cyclones to be added to existing ESP's

*** Allowable opacity equals 20%

INTRODUCTION

The Hanna Nickel Nickel Smelting Company produces ferronickel, an alloy of about 50% nickel and 50% iron, at its facility some 4 miles West of Riddle, Oregon in Douglas County. This operation which began in 1954 utilizes nearby ore and represents the only domestic production in the United States. An excellent general process description furnished by the company may be found in Appendix A of this discussion. Since the staff has not repeated this information, the reader is encouraged to consult the Appendix.

It is important to note that this Company's present contribution to air pollution is due to its particulate emissions. The staff is neither aware of nor suspects this company to be emitting air contaminating gaseous matter in significant quantities. For these reasons the proposal is concerned with controlling particulates.

The Department of Environmental Quality staff members and company officials met in June 1969 to develop a program for reducing atmospheric emissions from this operation. Since that time the company has expended considerable efforts and monies for consultant engineering, emission testing and the control recommendations which are the basis for this proposal. Several meetings between the staff and company representatives have been held and many letters have been exchanged. In general, the company has been very cooperative and expeditious on this project.

The proposal was submitted to the Department of Environmental Quality in the form of a consulting engineer's report and recommendations. Letters from Hanna Nickel and their consulting engineer as well as the discussion portion of the engineer's report are attached in Appendix B. The consultant discusses the basis for each proposed control and present problems.

STAFF REVIEW

The following staff discussion reviews the proposal and compares the expected emissions to applicable regulations. The proposal includes control concepts, equipment and anticipated emissions for all of the major pieces of process equipment. In addition, a time schedule for completing the various projects was submitted. A tabular summary of the control proposal which supplements this discussion is attached as Appendix C. A large amount of the information in Appendix C is not repeated in this text.

Nature of Emissions and Area Affected

This company's contribution to air pollution is due to its particulate emissions. The extent of the contribution will be described later. The staff considers the emitted material to be essentially inert chemically and not greatly different from local soil. The air pollution problem is acknowledged as being essentially soiling by fallout and visibility reduction by suspended material.

Both the town and smelter are situated at the bottom of a generally East-West oriented canyon (Cow Creek drainage). Some rural residences exist between the town and smelter with the closest home about 1 mile from the operation. The most extensive effect is visibility reduction due to suspended particulates (generally less than 10 microns in diameter). This effect is quite pronounced during periods of poor ventilation and can be described as an extensive haze. When significant ventilation does occur, the major portion of the area does not experience adverse effects from these emissions. During strong West winds which do occasionally occur, Riddle residents most likely receive soiling size or settleable particulates (generally greater than 10 microns in diameter). The remaining majority of the time these settleable particles fall on company property.

The staff is unaware and does not suspect the presence of any gaseous air contaminants in significant amounts.

Applicable Regulations

Hanna Nickel Smelting Company, located in the southern portion of the Department of Environmental Quality's Umpqua Special Control Area, is required to meet a Ringelmann No. 1 or 20% opacity visible air contaminant limitation. Although other air quality regulations are applicable, the visible emission limitation is considered to be the most stringent of the existing rules. Therefore, it will be referred to during this review. Other existing air quality rules which the company must meet, but which are considered less stringent or impractical to apply here, include ambient air standards for particulates (fallout and suspended).

Process Equipment and Proposed Controls

1. Dryers - Three units (hog fuel fired rotary kilns) are present and identified as Nos. 1, 2 and 3.

The dryers 1 and 2 are identical in size and control. Each has a Buell cyclone in series with a Microdyne scrubber. The present difficulty with this equipment is that the scrubbers are by-passed about 20% of the time due to a temperature limitation and some constant leakage occurs at the by-pass mechanism. The proposal includes eliminating the by-pass by replacing the two axial fans with one having greater temperature capability and reducing leakage. This could result in requiring an increase in temperature capability of the scrubbers themselves. The resulting emissions are expected to be about 95+% by weight in the 2-12 micron range. This would seem to indicate that some additional treatment if necessary might be possible by wet methods, i.e., scrubbers or wet ES precipitators. These two dryers individually would be emitting about 61.7 lb/hr each (123.4 lb/hr total) as compared to the present 201 lb/hr each. The resulting opacity is estimated to be 5.74% considerably below the allowable 20%.

Dryer No. 3 is about 20% larger than 1 and 2. The control system includes a Buell cyclone and a Fly Ash Arrestor scrubber. The present problem is low scrubber efficiency. Temperature limitation is not a

problem. Proposed internal modifications to upgrade the scrubber efficiency would lower the present emission rate of 102 lb/hr to 81 lb/hr. The resulting emissions would be expected to be mainly in the 2-12 micron range on a weight basis. Again, the stream conditions and particle sizes might be interpreted as indicating the possibility of more efficient control by scrubbing or ES precipitation. The expected opacity is given as 8.48%, again below the allowable 20%.

The solid phase of the scrubber effluent is now and will continue to be returned to the process. The liquid phase also is and will be recycled.

In general, the proposal for the dryers appears satisfactory. The early projected completion date, December 1971, will afford an opportunity to determine the necessity of additional control.

2. Crusher House - Production equipment in the Crusher House includes screens, crushers and conveyors. Existing control equipment consists of two baghouses.

The present problem is described to be a general lack of baghouse capacity. The company proposes to install an additional 150% baghouse capacity. This is expected to reduce emissions from 111 lb/hr to 17.9 lb/hr resulting in opacities of 0.32% and 0.80%. A majority of the resulting emissions would be expected to range from 2-12 microns on a weight basis.

The proposed control represents the highest and best practicable and appears to be satisfactory. This project is under way and scheduled for completion in January 1971.

3. Daybins - The daybins serve as a surge facility for dried ore in +28 mesh to -5/16 inch size range prior to precessing in the calciners.

Currently, the problem is assessed to be inadequate baghouse capacity. An additional 50% baghouse capacity was proposed. This is expected to reduce daybin emissions from 7.7 lb/hr to 6.1 lb/hr and 0.64% opacity. Resulting emissions from the daybins would be expected to be in the 2 to 24 micron particle size range on a weight basis.

The degree of control proposed for the daybins is considered to be the present state of technology and appears to be satisfactory. The scheduled completion date of October 1971 is reasonable.

4. Calciners - The two calciners (natural gas fired rotary kilns) are identical units, each having a cyclone type control unit leading to a common electrostatic precipitator (ESP).

The current difficulty is the low performance of the existing multiclones which results in overloading the ESP. The proposal involves replacing the multiclones with 2-stage cyclones and using the existing ESP. This concept is cited as achieving sufficient efficiency to reduce

the present emission of 128.5 lb/hr to 52 lb/hr per calciner (357 lb/hr to 104 lb/hr). The expected opacity equals 7.01%. As much as 95% of the resulting emissions might be expected to be in the less than 1 to 12 micron particle size range on a weight basis.

The high degree of control, (ESP), should result in adequately reduced emissions if the input loading is substantially reduced. Start-up of the new control equipment is scheduled for November 1971.

5. Roasters - The two natural gas fired roasters now have individual multiclones and ES precipitators.

The present performance of the multiclones is unsatisfactory and causes overloading of the related ESP. The company proposes to install replacement 2-stage cyclones and utilize the existing ESP's. The expected improvement should result in a 20 lb/hr emission from each roaster (40 lb/hr total) as compared to the current 492 lb/hr total. This will be equivalent to 1.8% opacity. The major portion of the resulting emission might be expected to range in the 2-12 micron particle size on a weight basis.

The proposed control appears to be reasonable and should meet existing regulations. The completion date of November 1971 seems attainable.

6. Skiphoists - The four units present each have emission problems at top and bottom. A total of 2 baghouses now serve this area.

The present situation is unsatisfactory due to insufficient collection-air volume. Current total emissions are estimated to exceed 1000 lb/hr. The proposed control involves using the existing two baghouses on the bottoms and four of the present oremelter baghouses on the tops. This is expected to result in a 1.7 lb/hr and 4.3 lb/hr emission from the bottom and top respectively of each skiphoist (24 lb/hr total). Opacity of emissions from the baghouses is estimated to be 0.89%. The resulting emissions should range from 2-24 microns on a weight basis.

Reducing the total skiphoists emissions from an estimated 1000+ lb/hr to 24 lb/hr will result in a major visually detectable improvement. The degree of control proposed for the skiphoists appears satisfactory. Two stage construction is scheduled since coordination with the oremelter control program (discussed below) is required. Final completion is scheduled for January 1974. Success in meeting this date greatly depends on the oremelter program.

7. Oremelters - The oremelters are four identical arc furnaces. The present control consists of very tight hoods, multiclones and 8 inadequate baghouses.

Temperature and flow problems cause the current control equipment to perform unsatisfactorily. The company proposes to install two large baghouses each of which would treat the emissions from two oremelters. The approach is to initially install a half size, expandable unit on one oremelter to provide a test facility for optimizing final design, mainly size. The completed program would reduce the present emissions of 430.8 lb/hr to 21.5 lb/hr from each oremelter (totals, 1,723.2 lb/hr to 85.0 lb/hr).

The exhaust from the baghouses would occur along the entire length of the roof top. The opacity would vary from 0.83% to 7.97% depending on viewing position. A high percentage of the resulting emissions might be expected to be in the 2-48 micron size range on a weight basis.

The proposed oremelters control would amount to a second major visually detectable emission reduction. The proposed degree of control represents the current state of technology. The importance of proper sizing is recognized to be of sufficient importance to warrant the proposed "pilot" installation. The progress of the sizing study should be closely followed by the Department of Environmental Quality. Final completion of this portion of the project is scheduled for November 1973.

8. Ferrosilicon Furnace - This arc furnace is hooded and controlled by two scrubbers.

The present control system is not capable of the required efficiencies. The company proposes to install a large baghouse and use the existing hood. This is expected to reduce emissions from 412 lb/hr to 35 lb/hr. The opacity is expected to range from 1.10% to 10.48% depending on viewing position. The majority of the resulting emissions could exceed 2 micron particle size on a weight basis.

The proposed control would amount to a third major detectable improvement. The degree of proposed control again represents the present state of the art. The scheduled completion would be July 1972.

9. Refining Furnaces - The two furnaces present are not now controlled. Compared to the other arc furnaces, these two are quite small.

The very fine particulate being released, all below 2 micron, gives an opaque emission. The proposed control involves hooding each furnace and utilizing two more of the existing oremelter baghouses. This is expected to reduce the emission from each furnace to 2.2 lb/hr (4.4 lb/hr total). The resulting emissions can be expected to be essentially all below 2 microns in particle size on a weight basis and result in an opacity of 1.84%.

The degree of control proposed is considered to be highest and best practicable. These furnaces would be uncontrolled during those periods when the tops were open, mainly charging. However, this does not appear to be significant enough to merit additional attention or control at this time. This project is scheduled for completion in January 1974.

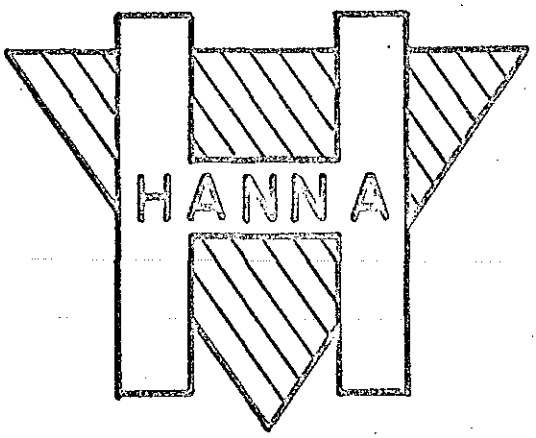
Proposed Installation Time Schedule

In general the time schedule seems reasonable yet optimistic. Completing a project of this scope in about 3½ years is possible. The time schedule would be subjected to additional updating as detailed engineering plans become available.

The proposed time schedule could be tentatively approved and made subject to revision upon request. The proposed schedule is attached as Appendix D.

APPENDIX A

THE HANNA NICKEL OPERATION

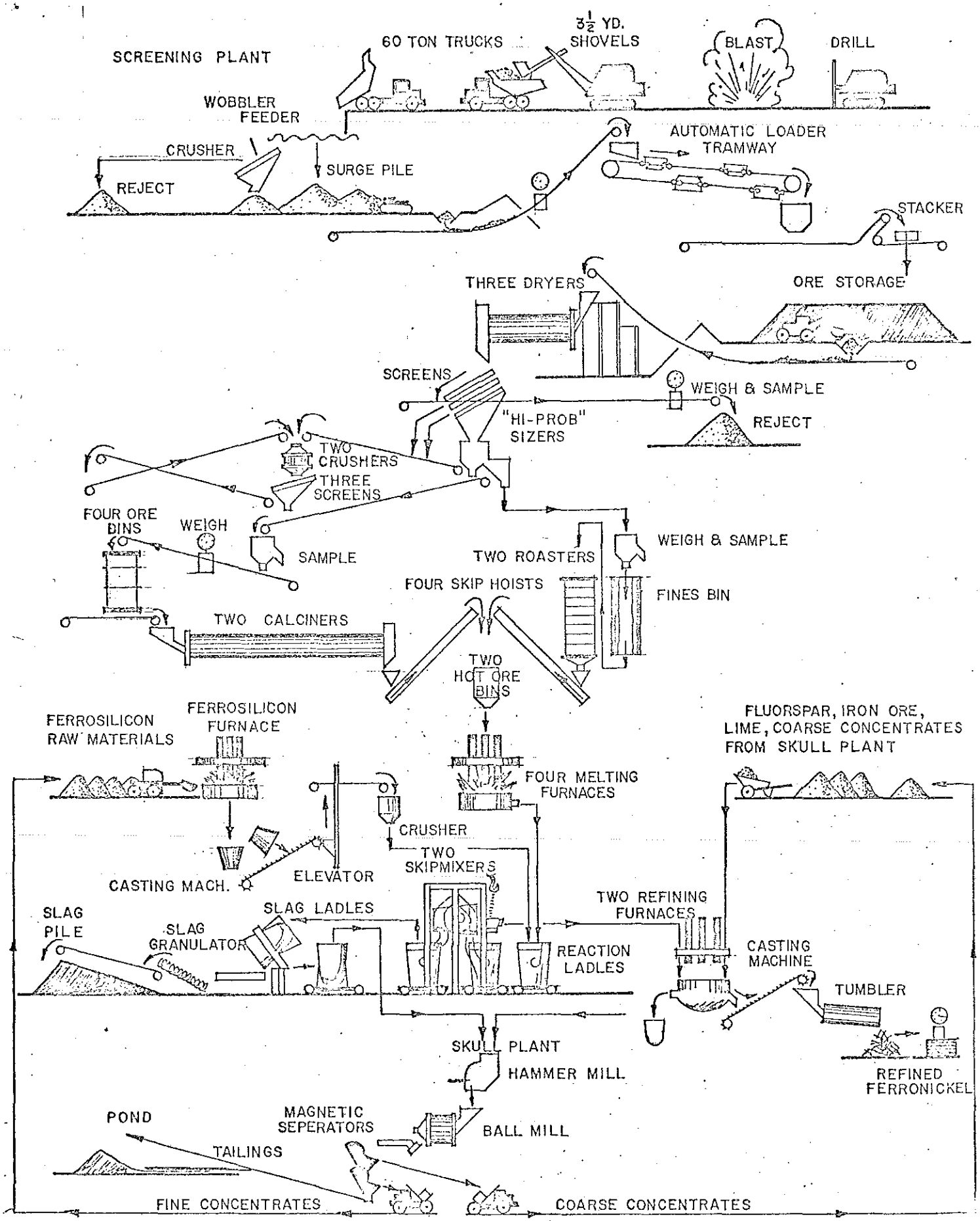


THE HANNA MINING COMPANY

HANNA NICKEL SMELTING COMPANY

RIDDLE, OREGON

JUNE 1, 1970



F L O W D I A G R A M

THE HANNA MINING COMPANY

HANNA NICKEL SMELTING COMPANY

THE HANNA NICKEL OPERATION

Nickel Mountain is located in southwestern Douglas County, Oregon, four miles west of the town of Riddle. The deposit was discovered in 1864 by local settlers, but it was not until 1881 that the ore was recognized to be nickel silicate rather than copper carbonate as originally assumed. Subsequent to 1881 much prospecting and preliminary development work was done, but no ore was processed for other than metallurgical tests until the present mining operation began.

The Hanna Mining Company and Hanna Nickel Smelting Company began production of ferronickel, the first to be produced in the United States from domestic ores, in July of 1954. The companies have operated on an around-the-clock schedule since that time and have provided steady, year around work for over 450 employees.

MINE

Geology

The deposit is approximately 3,000 by 6,000 feet, averaging 60 feet in depth. Mineralization occurs in a sheared and altered peridotite, and in many cases, consists of finely divided veinlets in a chalcedony boxwork. Several nickel minerals are found with garnierite, a complex magnesium silicate of nickel, being most easily recognized. Chromium, cobalt and aluminum occur in very minor amounts. Iron oxides, magnesia and silica make up the major constituents of the ore. Average nickel grade of the deposit is approximately 1.2%.

Grade Control

Nickel content of ore delivered to the smelter stockpile must be maintained as uniform as possible to produce optimum metallurgical results. This is somewhat difficult due to the wide, inconsistent variations in nickel content throughout the deposit. Twenty foot bench heights, narrow shovel cuts, bank samples, drill-hole samples, geologic interpretations and visual classification, combined with widely spaced daily cuts, make up the grade control pattern.

Development

Open cut mining methods are utilized. The topography is ideal for the development of level mining benches at twenty foot vertical intervals. This interval was chosen for grade control purposes. Benches are a minimum fifty foot width and extend to the limits of the deposit. Main haulage roads, sixty feet wide, traverse the area at a ten percent maximum grade and intersect the mining benches at intervals controlled by the maximum haul on level benches.

Mining and Hauling

Much of the ore can be dug without blasting. When this is necessary, however, a 6-1/2" down-hole drill is used. Ammonium nitrate - fuel oil is the blasting agent.

Loading is accomplished with 3-1/2 cubic yard diesel shovels. Large residual boulders, called pit reject, are separated from the ore by the shovel operator and ultimately deposited on waste dumps. The ore is loaded into 60-ton diesel trucks and hauled to the screening plant.

Screening and Crushing

The ore is deposited directly into the screening plant feed hopper. A separation is made on a wobbler feeder and scalping screens with the minus 5-1/2 inch product going directly to the tramway surge pile and the plus 5-1/2 inch to the crusher. Crushed material is visually classified and directed to the ore product or to the reject stockpile. After screening and crushing, the ore product is deposited in a 12,000 ton tramway surge pile.

Tramway

From the surge pile the ore is fed to the tramway loading terminal where it is loaded automatically into 50 cubic foot tram cars. It is conveyed downhill to the smelter storage stockpile at a maximum rate of 250 short tons per hour.

The tramway runs continuously carrying ore in the upright tram cars on the upper pair of suspended track cables and returning empty in an inverted position on the lower pair of track cables. Ore is loaded automatically and discharged by inverting the cars at the lower discharge terminal, where it is bedded in the smelter stockpile by an overhead belt conveyor and traveling wing tripper.

A speed of 500 feet per minute is maintained by two 300 horsepower induction generators driven by the loaded tram cars through a gripwheel and gear train in the loading terminal. The braking action of the generators produces approximately 500 horsepower which is used in the operation of the mine facilities.

The tramway is 8,300 feet long and drops a vertical distance of 2,000 feet in its length.

SMELTER

Ore from the stockpile is processed at the smelter to produce ferronickel containing approximately 50% Nickel. Steps in the process include reclaiming of ore, drying, fines screening, rejection of lean rock by screening, crushing, sampling, calcining, melting, reducing to ferronickel, refining, casting, and skull metallics recovery.

Ore Preparation

Ore is reclaimed from the stockpile by rubber-tired front end loaders and is conveyed to the dryers where the moisture content is lowered from an average of 21% to 3% - 5% in three concurrent fired rotary dryers. The dryers are heated by hogged fuel waste wood product from local sawmills. Natural gas auxiliary burners are installed for use in case sufficient hogged fuel is not available.

After drying, the ore is conveyed to the screening, crushing and sampling plant, where the coarse, low grade rock is rejected from the top deck of a double-deck screen. The ore remaining on the second deck of the screen, normally +5/16" - 3/4" is passed through cone crushers in closed circuits before it continues to storage. The -5/16" ore passes through Hi-Prob screens where fines are removed and sent to a storage bin. The coarse fraction from the screens is sent to separate storage bins. Both fine and coarse ore is sampled and weighed before going to storage.

From the storage bins the coarse ore (-5/16" +28 mesh) is fed to two natural gas fired rotary calciners, while the fines are fed to two natural gas fired multiple hearth roasters. To the feed of both calciners and roasters, sawdust is added as a pre-reductant to convert approximately three-quarters of the trivalent iron contained in the ore to the divalent state.

After calcining to approximately 1300 degrees Fahrenheit, the ore discharged from both the calciners and roasters is transported by automatic skips to hot ore bins above four electric melting furnaces in the smelter building. Skips, transfer chutes and bins are insulated to conserve the heat in the calcined ore.

Melting and Reduction

The ore is charged to the melting furnaces by gravity and heated to a temperature of 2900 to 3000 degrees Fahrenheit. Molten ore is poured from the melting furnaces into ladles for the reduction process.

Reduction of nickel and iron is accomplished by the Ugine Process, which consists of adding a reducing agent containing metallic silicon to an oxide ore in the presence of molten, ferrous metals and using vigorous mixing action for good contact of reductant and ore. In Hanna's smelter, crushed 48% ferrosilicon is used as the reductant, the ferrosilicon being produced in a separate electric furnace in the smelter. After the vigorous mixing cycle, the ferronickel is allowed to settle to the bottom of the ladle, after which the slag is skimmed off and granulated with high pressure water jets.

Refining

As the reducing reactions continue, ferronickel accumulates in the ladle. At regular intervals, a portion of this product is removed, or "thieved," and transported to one of two identical small electric steel furnaces. Here the impurities, predominantly phosphorous, are removed by suitable refining slags, after which the ferronickel is cast into pigs weighing approximately 28 pounds.

Samples from each cast are taken for complete chemical analysis and an accurate record of all casts is available for consumers. The ferronickel pigs are packaged on 4,000 pound pallets, with the exact weight and analysis stamped on each pallet. It has proven to be a very desirable product for the major stainless steel manufacturers of the United States.

APPENDIX B

B

Hanna Nickel Smelting Company

Riddle, Oregon 97469

June 4, 1970

Mr. B. A. McPhillips, Chairman
Environmental Quality Commission
State Office Building
1400 S. W. Fifth Avenue
Portland, Oregon 97201

Mr. Kenneth H. Spies, Director
Department of Environmental Quality
State Office Building
1400 S. W. Fifth Avenue
Portland, Oregon 97201

Mr. Harold M. Patterson, Director
Air Quality Control Division
Department of Environmental Quality
State Office Building
1400 S. W. Fifth Avenue
Portland, Oregon 97201

Gentlemen:

Following a number of discussions with members of the Air Quality Control Division concerning our emission conditions, we employed, in October, 1969, Frederiksen Engineering Co., Inc., of Oakland, California as our engineering consultants. Our contract with Frederiksen required that they were to undertake all necessary tests and accumulation of data in order to provide positive recommendations for emission control based upon the standard of the highest and best practicable treatment and control currently available.

We adopt and hereby submit Frederiksen's recommendations as our emission control plan. Such plan represents our proposed means of accomplishing emission control in accordance with the previously stated standard.

We are submitting to Mr. Patterson, Director of the Air Quality Control Division, a copy of all of the supporting data accumulated by Frederiksen.

We will be available at any mutually convenient time or times to review and discuss our emission control plan to the end that such proposed plan will be accepted as providing the highest and best practicable treatment and control currently available.

We urge the Environmental Quality Commission to take favorable action upon our request to establish separate air quality and emission standards for the nickel smelting industry upon the basis suggested in our letter of June 1, 1970.

Submitted herewith for inclusion and to be made a part of the record (May 22, 1970 Environmental Quality Commission Hearing record of testimony held open for further submissions to June 5, 1970) are copies of Hanna Nickel Smelting Company letters of May 20, 1970 and June 1, 1970; Frederiksen Engineering Co., Inc., letter of June 1, 1970; and Hanna Nickel Smelting Company's proposed emission control plan.

Very truly yours,

HANNA NICKEL SMELTING COMPANY

E. J. Maney
Manager, Riddle Operations

pb
Enclosures

cc: Edward C. Harms, Jr. w/enc.
Herman P. Meierjurgen w/enc.
Storrs S. Waterman w/enc.
George A. McMath w/enc.
F. A. Skirvin
R. D. Carter

FREDERIKSEN
ENGINEERING CO., INC.
361-17TH STREET OAKLAND, CALIFORNIA 94612
TELEPHONE AREA 415 452-3970

FREDERIKSEN
CONSULTING ENGINEERS
DESIGN · TESTING · SUPERVISION

June 1, 1970

Mr. E.J. Maney
Hanna Nickel Smelting Co.
Riddle, Oregon

Dear Mr. Maney:

Enclosed herewith are the Frederiksen Engineering Company reports on the testing done to date at the Hanna Nickel Smelting Company's smelter at Riddle, Oregon and the recommendations for controlling the dust emission problem. These recommendations are based as instructed by Hanna on providing the highest and best practicable treatment and control currently available.

In developing these recommendations it became apparent that some of the existing equipment is achieving a high degree of efficiency, but because of the extremely high dust loadings entering, a resulting amount exceeding most regulations is presently being released to the atmosphere. Therefore, in such places as the dryers, calciners, and roasters it is recommended that the existing equipment be retained with modifications and new equipment added to improve control. In other process units such as the ore melters and Ferro-silicon furnace it is recommended that complete new systems be installed to provide the necessary control. It is also recommended that to achieve effective dust control, at the source, for such places as the crusher house and skiphoists that an increased volume of air is needed and therefore must be cleaned to prevent dust release to the atmosphere. In almost every case the resulting recommendation will result in systems with efficiencies of over 99% effective.

Even with these high efficiencies the systems as recommended will not meet proposed Oregon regulations on a plant site basis. The extremely high dust loadings, large amount of air handled (approximately one million cubic feet of air per minute) and large number of process units involved contribute to the difficulty of the problem. On a process unit basis the recommended systems will meet most regulations now in existance in other parts of the country. If the recommendations are carried out as shown, the resulting atmospheric release will be below

FREDERIKSEN

an opacity of Ringleman one in all cases. Because of the high efficiencies and low opacity the recommendation will result in a good dust control system for Hanna Nickel.

If any further clarification or questions arise, please feel free to contact me at any time.

Sincerely,

FREDERIKSEN ENGINEERING CO. INC.

Frank L. Pizzimenti

Frank L. Pizzimenti P.E.
Project Engineer

B

FREDERIKSEN
ENGINEERING CO., INC.
361-17TH STREET OAKLAND, CALIFORNIA 94612
TELEPHONE AREA 415 452-3970

FREDERIKSEN
CONSULTING ENGINEERS
DESIGN · TESTING · SUPERVISION

RECOMMENDED PLANT DUST CONTROL SYSTEM

for

HANNA NICKEL SMELTING COMPANY

RIDDLE, OREGON

Frederiksen Job J-348

June 1, 1970

FREDERIKSEN

ORE MELTERS

The present flow as measured at the ore melters is 45,000 to 50,000 ACFM per furnace through the bag houses or 90,000 to 95,000 ACFM through the multi-clones when the bag houses are bypassing. Temperatures range from 250°F to 500°F during furnace operation with the bag houses bypassing to the multi-clones at 290°F.

A furnace burndown period has not been measured but temperatures as high as 1100°F are reached within the hood resulting in duct temperatures in excess of 500°F.

Dust losses occur at the electrode penetration in the hood and from under the hood panels and through the cracks at the panel joints during the lower flow.

Dust loadings of the exhaust gases range from 2.0 to 8.5 grains per ACFM. Average dust loading in 4.6 grains per ACFM.

System Design

Several different system designs were investigated for controlling the ore melters. In each case the system was sized to provide best possible control of the furnace.

All systems considered used bag houses for fume removal. It is felt that electrostatic precipitation would not be feasible. Since conditioning using steam or water would be required with extra large units to achieve

high efficiency this method was disregarded. High energy wet scrubbing is not considered as being able to achieve the necessary high efficiency. Also, the collected slurry would have to be returned to the dryers and roasters for reprocessing before addition to the melting furnaces.

The type of bag house necessary for these systems is a low filter velocity type either pressure or vacuum normally called a structural bag house because the size of bags usually 12"Ø by 30'-0" long requiring a structural framework for support. Air to cloth ratio should be about 1.75 to 2.0 for this fume at these grain loadings. Higher air to cloth ratio units such as the present Hershey or several others were not considered due to the fineness of the dust and the poor operation of the present units. It appears that an air to cloth ratio should not exceed 4 or 5 to 1 on this fume and high air to cloth ratio units are usually not economical below 8 to 1.

The main differences in the systems considered are concerned with the means of collecting the fume, type and degree of cooling, type of bag used, effect on furnace operation and economics of installation.

High Exit Exhaust Temperature With Tight Fitting Hood

This system requires a fitted hood in order to prevent leakage due to the positive pressure that will be present and cooling to lower the gas temperature to acceptable bag temperature limits. Hood temperatures would be in excess of 1200°F with an exit gas temperature of 950°F to 500°F. Glass fiber bags would be used and the resulting system would be the smallest possible.

Disadvantages of this system would be that electrode protection against prebaking and electrode heaters would be necessary. The tight fitting hood would require a new design and since this is a tilting furnace with fixed electrodes, the necessary electrode sealing would be unfeasible.

System Using Existing Hoods

Utilizing the existing hoods may be done in several ways. In all cases a positive deal at the electrodes will need to be provided to prevent leakage. The existing test unit on Furnace One is very good, but will need heavier top plates, such as cast refractory, rather than the present transite. Exhaust flow will need to be approximately 6,500 ACFM at each electrode to counter the thermal rise velocity of the escaping fume gases calculated with the present gap at Furnace One with modified hoods. The present side taps at the hoods are adequate but need to be resized to provide adequate conveying velocities. The only changes needed to the existing hoods will be if modifications are made to the electrode assemblies to provide for automatic slipping.

Cooling for this system may be done inseveral ways either by additional air inspirated at the hood or surface to air exchangers.

The temperatures normally below 500°F, are too low to provide economical heat exchange using surface to air exchangers. Sizing the system requires the determination of type of bag to be used. Fiberglass bags are applicable to 500°F while the limit for dacron is 300°F.

Therefore, if we utilize fiberglass bags at 480°F, the exhaust gas flow will be 65,000 SCFM or 115,000 ACFM to provide control for each furnace for all conditions except burndown. 20,000 ACFM of this flow will be drawn from the electrode area. Average temperature of the system under normal operating conditions will be approximately 275°F with some peaks reaching the 480°F point. During burndown the temperature will be held at 500°F by drawing outside air to prevent bypass.

Cooling the fume to 290°F for dacron bags, would require an additional 92,000 ACFM air for the occasional peaks at 480°F. Therefore, the best solution to the problem is using high temperature bags at the lower flow of 115,000 ACFM per furnace. If after installation, the peak periods occur seldom, the lower temperature bags could be used.

It is suggested that two furnaces be combined to one bag house installation at a combined flow of approximately 200,000 ACFM to provide the ability to handle the maximum emission from one furnace with the normal emission from the second without bypassing. During monitoring done by Hanna over a two month period, the maximum temperature emission from two furnaces occurred at only one time in this period. The combining of two furnaces to one baghouse will enable a smoother operation with a greater ability to handle upset conditions.

The recommended approach to control of the ore melters is to install one bag house sized at 115,000 ACFM on one ore melter expandable to final size for two furnaces in order to provide a test period for optimizing sizing.

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SKIP HOISTS

The present skip hoist bag houses are doing a fair job though the present volume is not nearly enough for adequate control of the emission points. Approximately two times as much volume is needed, or about 80,000CFM to provide good control of both ends of the four skip hoists.

It is recommended that four of the existing ore melter bag houses be utilized for this purpose. These units are in good position at the present time and then their dust return system could also be used without modification. These four bag houses plus the existing two bag houses would give a total capacity of approximately the 80,000 ACFM for control of these skip hoists.

It is estimated that losses from these four skip hoists exceed 1000 pounds per hour at the present time due to poor control. Some of this is being recovered by fallout, pickup and return to the system.

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REFINING FURNACES

The refining furnaces are at present uncontrolled. Though the particulate release is a small amount in regards to the process weight and is to the interior of the building rather than the outside atmosphere it will probably need to be controlled in the future. The particulate being released is very fine, all below 2 micron. This fineness of particulate gives a fume that will be an opacity problem exceeding a Ringleman 1 or 2 regulation before it will exceed a process weight regulation. There is also some indication that releases within buildings are being treated the same as outside of buildings. This is shown by the recent Los Angeles Air Pollution Control Districts enforcement of this point in the metallurigical industry.

It is proposed that control of the emissions of these two furnaces be provided by using two of the existing ore melter bag houses. Two practical methods of hooding these furnaces were investigated. One is a canopy hood that would be mounted over the crane way to permit crane access to the furnace. Since in this plant the crane way for the larger cranes is located very high above the level of the furnaces, the hood has to be large and large amounts of air have to be treated in order to provide control of the furnaces. Design volume for a canopy hood mounted above the second crane way would be a minimum of 72,000 ACFM per furnace and would be very subject to side drafts.

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The second type of hood that was investigated is a pancake type that is fastened to the top of the furnace. The problem with this type of hood is that no control is provided while the furnace top is not in place. The volume required for good control with this type of hooding is 22,000ACFM at 250°F. An advantage of this type of hooding is that it is not subject to drafts around the furnace. Since the furnace is only open a small protion of the time with the furnace roof removed, and only during limestone addition is there a release of particulate to the atmosphere of bldg., it is suggested that the pancake type of hood will give a better overall type of control for these furnaces.

Since only one furnace is operated at a time normally, a system providing 30,000ACFM of control that would switch a portion of flow from furnace to furnace would be suitable for these furnaces.

Using two existing ore melter bag houses at an air to cloth ratio of 2.8 will give the required volume of air needed for this system It is necessary in handling a fine fume such as this to use low air to cloth ratios, therefore the decrease in the air to cloth ratio from the present level that these bag houses are working at.

Dust from these furnaces would not be in large amounts and therefore a simple dump box system is all that would be necessary for dust handling.

Hanna Nickel Smelting Co. Report

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Fe-Si FURNACE

The present flow is 120,000 ACFM at temperatures ranging from 250°F to 650°F through the present scrubber system. From past experience with ferro-silicon furnaces there appears to be only one method of handling the fume from these units and that is a high temperature bag house utilizing fiberglass bags at an air to cloth ratio of 2 to 1. Electrostatic precipitators tend to be very troublesome due to the high resistivity of this fume and the amount of fume conditioning that is required.

The present hooding for this furnace appears to be adequate for a proposed bag house to handle the fume at 165,000 ACFM at 500°F. If a water cooling system is used, a reduction in volume is possible to approximately 110,000 ACFM @ 500°F. This would require a hood lowered to approximately 5' from the floor to elevate hood temperatures to 750°F and prevent fume escaping from beneath the hood. A top seal such as used on Furnace One would be necessary to prevent leakage at the electrode penetrations.

The structural bag house used for this fume requires graphite impregnated fiberglass bags. Cleaning would be done by a combination of reverse air and shaking. For long life fiberglass may not normally be exposed to a severe shaking type cleaning system. Reverse air should be used as the primary cleaning mechanism with a light duty shaker that would be manually operated from time to time to reduce any filter cloth blinding. Nomex fabric is a possible substitute for fiberglass though costs are approximately twice fiberglass with a lower temperature limit. Nomex fabric gives longer life for shaking type bag houses.

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CRUSHER HOUSE AND DAYBINS

Crusher House

The existing system in the crusher house is fair. The main problem is inadequate flow and hooding to prevent dust leakage at the different dust generation points. Present flow of 28,000ACFM is close to the original design flow of 30,000 ACFM. The dust loading of 15.0 grains per actual cubic foot is very high, causing severe service for the bag house and high wear of the bags due to almost constant cleaning. Several points are uncontrolled at the present time which need to be controlled to prevent dust leakage.

Frederiksen Engineering is engaged in a project at the present time to correct these problems and provide improved dust control.

The proposed new system for the crusher house envisions a new bag house in parallel to the existing unit. The existing unit will be reduced to 17,000 CFM to improve performance and the new unit will be designed for 33,000 CFM for an additional 25,000 CFM flow and for a combined total of 50,000 CFM. This will provide the additional volume necessary to control the existing equipment, pick up the existing uncontrolled points, increase the flow for better control of existing points and reduce dust loading for easier dust collector service.

Daybins

The dust control system at the daybins is loaded to maximum capacity for the bag house in that the cleaning unit for this bag house is in constant

operation. The present duct system and pick up points have had several points removed and closed off due to low flow in the lines. The low volume is due to high pressure drop across the bag house caused by the bag house being undersize.

Additional bag house capacity is needed to provide adequate control volumes and bring the system up to original design volumes. An additional 6,000 ACFM is needed to provide the needed additional volume for adequate dust control. The existing dust loading should be lowered on the present bag house to reduce cleaning and severe service of the bags.

The bag house is doing a good job of cleaning the present load as the dust loading of the emission to atmosphere is less than 0.1 grains per actual cubic foot. The recommendation is to increase the bag house capacity by installing a unit with approximately an equal amount of area to the existing unit and split the existing duct system to these two bag houses.

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DRYERS

Dryers One and Two

These two units are identical. These units have two stages of mechanical collectors (cyclones), and then Microdyne liquid scrubbers in series. The system as it now stands is doing a very good job as the dust loading leaving the dryers are very high. Approximately 20% of the feed by weight is being lifted into the dust collection system. The importance of the efficiency of this system is shown by the fact that approximately 30% of the nickel being fed to the dryers is handled by the dust system.

The existing system provides control that is very close to meeting the process weight regulations in existance in other states at the present time. The biggest problem is that these units are set to bypass the liquid scrubbers at 290°F. This usually occurs when feed to the dryers is interrupted for any of several reasons. It has been observed during testing that this bypass occurs at sometimes up to 20% of the time. There is also an ever present leakage from these bypass stacks. This leakage is important since by estimating the velocity of the leakage at 200 feet per minute, the dust loss can be as high as 35 pounds per hour or approximately 50% of the emission from the scrubber. One of the improvements to these two systems that should be done is elimination of the bypass of the scrubber. The bypass of the scrubbers is to protect the Axial flow fans in the tail end of the scrubber. Axial flow fans are built that can withstand 600°F which is higher than the maximum temperature the system reaches. The Microdyne scrubbers may have to

be modified to enable them to withstand temperatures in excess of 300°F. also. Another change that could be done to improve performance of these systems is a different ducting arrangement at the dryer hood to reduce the dust loading from the dryer to the cyclones. The best dust removal system for the dryers is wet scrubbing due to the high quantity of water, nearly 30% in the gas from the dryers.

Dryer Three

The dust collection system on dryer 3 is basically the same as dryers 1 and 2 except the wet scrubber is a Fly Ash Arrestor unit and has no temperature limit. Therefore, the bypass problem is non-existent in this unit. The efficiency of this scrubber is not as high as the Microdyne scrubbers.

The existing scrubber is a type where changes can be made in the internals and in the pressure drop through the unit to increase the efficiency, though in this unit only a small increase in pressure drop is possible from present 6.4 inches to approximately 7.5 inches of water column. This change may be enough to lower the dust emission to the level of dryers 1 and 2.

It is recommended that the present systems on the dryers be retained with the several improvements suggested installed.

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CALCINERS AND ROASTERS

Calciners

The existing system on the calciners has a collection efficiency averaging 98%. It is felt that the major portion of this collection is being done in the electrostatic precipitator since the existing multiclones have had their spinners removed due to buildup of material resulting in lowering the efficiency of these units. Testing at the roasters between the multiclones, which have had their spinners removed also, and the precipitators indicates that these multiclones are performing at less than 50% efficiency. The grain loadings are very high from the calciners, approximately 30 grains per standard cubic foot. The resulting grain loadings of the dust emission from the stack is above allowable limits for most regulations now in existence.

It is proposed that the following changes be made in the systems to lower the emission of this point: The existing multiclones should be removed and replaced with two stages of cyclones. This will allow the units to be approximately as efficient as a multiclone, without the small spaces subject to build up problems now experienced with the present multiclones.

The present electrostatic precipitator is large enough to give efficiencies in the 90% range. The total efficiency for the system will be 99% plus as shown on proposed system drawing.

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Roasters

The existing dust control system on the roasters needs to be revamped to provide good control. The existing multiclones are performing poorly, probably due to the spinners being removed from these units due to buildup problems. The grain loadings from the roaster outlets are extremely high, 160 grains per actual cubic foot or 350 grains per standard cubic foot. These high grain loads represent up to 80% of the initial feed to the roasters. This means that there is a high quantity of dust circulating through the dust system leading to high amounts of dust release to the atmosphere. The existing system operates at high efficiency, but is overloaded.

It is recommended that the existing system be improved rather than replace it with new equipment. As in the calciners, it is suggested that the existing multiclone be replaced with a two stage cyclone to give increased efficiency before the precipitator. The existing precipitator is correctly sized and proportioned to give efficiencies in the high nineties at the present air flows. The present grain loadings leaving the roaster must be decreased also to give better system performance. It is suggested that the roaster gas discharge be enlarged and modified to give a disengaging space. It is also suggested that the dust be let down gently into the roaster at a point further removed from the gas discharge. These and other improvements to the roaster such as baffling should produce a marked reduction in grain loadings of gas leaving the roasters.

B

Hanna Nickel Smelting Company

Riddle, Oregon 97469

July 31, 1970

Mr. Harold M. Patterson, Director
Air Quality Division
Oregon Dept. of Environmental Quality
P. O. Box 231
Portland, Oregon 97207

Dear Harold:

Pursuant to your letter of June 29, 1970, requesting additional information and comments in regard to the control proposal submitted by Hanna Nickel Smelting Company on June 4, 1970, I am enclosing a letter from Frederiksen Engineering Company, Inc., by Frank L. Pizzimenti which contains the additional information requested. Attached to this letter also is a chart containing the estimated visible emissions (opacities) of each source.

We are also including with this letter a revised compliance schedule which was deemed necessary on the basis of a delay in the starting date in the program and has also taken into account recent information on delivery of equipment gathered during the month of July by Frederiksen. This revised schedule is dated July 24, 1970.

We hope that this information, in addition to the information already in your hands as a formal proposal, will make it possible for your Department to submit our proposal to the Environmental Quality Commission for approval at an early date. If, however, you feel that further information is necessary, please let me know right away and we will do everything possible to expedite it.

Thank you for your consideration.

Very truly yours,

E. J. Maney
Manager, Riddle Operations

pb
Enclosures
cc: K. H. Spies
Leo L. Baton
F. A. Skirvin
M. J. Doyle
R. D. Carter

FREDERIKSEN
ENGINEERING CO., INC.
EXECUTIVE CENTER BUILDING
1755 BROADWAY ~ OAKLAND, CA 94612
TELEPHONE AREA 415 452-3970 OR 465-0644

FREDERIKSEN
CONSULTING ENGINEERS
DESIGN · TESTING · SUPERVISION

July 23, 1970

Mr. R. D. Carter
Hanna Nickel Smelting Company
P. O. Box 85
Riddle, Oregon 97469

Dear Mr. Carter:

The following is in reply to the letter from the Oregon Department of Environmental Quality requesting further information about the proposed emission control plan for Hanna Nickel Smelting Company at Riddle.

Since the proposed control plan was done prior to any knowledge of the proposed regulations or what degree of control would be required, the highest and best practicable control was used as the criteria in all cases. In the three cases in question there is good reason to believe that the dust control will meet the new proposed regulation.

The emission values given in the control plan submitted for approval are conservative and actual average values should be lower. The actual emission quantities will have to be determined after installation of equipment. The difference in total system efficiency from what was given in the proposal to what is needed to pass the regulation is very slight (see attached summary, Table 1). This shows that only slight improvements in the system efficiency will result in a large reduction in the emission from the system. It is therefore felt that the control systems as submitted for approval have an excellent chance to meet the proposed regulation.

Several improvements because of their untried nature were not counted on as producing any change in control efficiency and, therefore, not submitted in the plan. Some of these improvements are planned for the dryers and calciners, two of the areas in question.

Some of these changes planned for the dryers are as follows. Additional baffling to be added to the scrubbers giving a greater pressure drop and resulting in an

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increase in efficiency. Better dryer operation through increased operator surveillance and controls should decrease the dust carryover from the dryers reducing the load on the system. Changes in the ductwork to provide better air handling patterns and distribution.

Changes in the calciners are also planned. Revamp of the electrostatic precipitator baffling to improve gas distribution and thereby improving the units efficiency. Conditioning of the gas stream may also improve performance as this was noticed in these units during the testing. It is expected that other improvements will be found for these systems as work progresses to increase the efficiency of the dust control in each case.

The other system in question is the Ferro-Silicon furnace which is a special case in which the best control system possible is being applied and may still not meet the regulation,. It is borderline in meeting the regulation, due to the nature of the process, in that large amounts of gas have to be cleaned in relation to a small process weight feed to the furnace.

Also enclosed as requested, is an analysis of typical opacities from the proposed equipment, though these are somewhat uncertain due to unknowns in possible equipment stack configurations. The basis for this analysis is a computer program developed by Frederiksen Engineering. Copies of the computer output are included and marked to show the most likely point of operation for each case.

If further clarification or information about the above points are needed, please contact us at any time.

Sincerely,

FREDERIKSEN ENGINEERING CO., INC.

Frank L. Pizzimenti

Frank L. Pizzimenti, P.E.
Project Engineer

FLP:lp
Encl.

TABLE 1

	Emission as Proposed		Regulation Limit		Change in Efficiency
	Dust Emission lb/hr	System Efficiency %	Dust Emission lb/hr	System Efficiency %	%
Dryer 1 & 2	61.7	99.80	50.2	99.85	0.05
Dryer 3	81.0	99.30	52.1	99.55	0.25
Calciner 1 & 2	108	99.20	91.0	99.32	0.12
Ferro-Silicon Furn.	35	95.0	14.7	97.9	2.9

B

Hanna Nickel Smelting Company

Riddle, Oregon 97469

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
SEP - 1 1970
AIR QUALITY CONTROL

August 31, 1970

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

Dear Fred:

Enclosed are 20 copies of the compliance schedule submitted by Hanna Nickel Company. These are identical to what was submitted to D.E.Q. in July, 1970, Revision "0", except for the addition of the Day Bins which we neglected to include. Please discard the present schedule and replace it with one of the enclosed.

Because approval of the proposal has been delayed, the starting date on this schedule will have to be shifted. I also want to point out the dates shown for "start up" are set to coincide with the major maintenance shutdowns which occur about every three months, four times each year. After the approval date is established we can then resubmit, if you wish, the schedule which should not vary more than three months from that which would be obtained by merely shifting the starting date from August 15, 1970.

Very truly yours,

HANNA NICKEL SMELTING COMPANY

R. D. Carter
Planning Superintendent

RDC:dlr

Enc.

cc: EJM w/enc.
MJD w/enc.

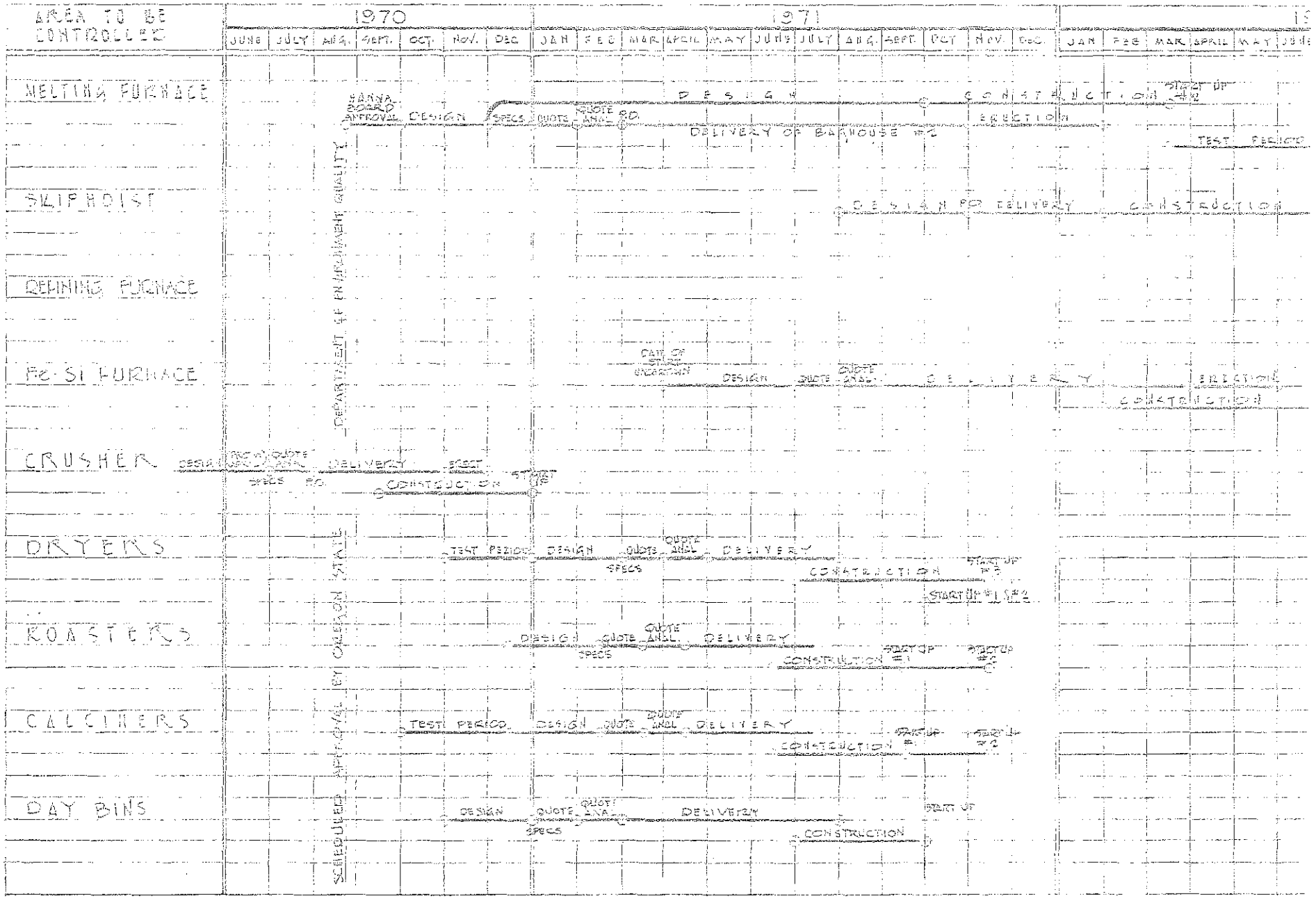
APPENDIX C

TABULAR SUMMARY OF HANNA NICKEL SMELTING CO. AIR POLLUTION CONTROL PROPOSAL

PROCESS EQUIPMENT	CONTROL EQUIPMENT	PROCESS FLOW (T/hr)	EXHAUST AIR FLOW (ACFM/SCFM)	EXHAUST TEMPERATURE (°F)	EXHAUST GRAIN LOADING (gr/ACF)/(gr/SCF)
Dryer #1	Buell cyclones and	90.1	48,000/27,000	175	0.15/0.27
Dryer #2	Microdyne scrubbers	90.1	48,000/27,000	175	0.15/0.27
Dryer #3	Buell cyclones and fly ash arrestor scrubber	108	70,000/35,000	150	0.14/0.27
Dryers 1, 2 and 3		288.2	166,000/89,000	-	0.15/0.27
Crusher house	Baghouse #1	70	17,000/15,500	100	0.04/0.043
	Baghouse #2	140	33,000/31,000	100	0.04/0.043
	Baghouse #3	135	4,275/3,850	95	0.02/0.02
Daybins	Baghouse #1	90	12,000/12,000	72	0.04/0.04
	Baghouse #2	45	6,000/6,000	72	0.04/0.04
Calciner #1	2 stage cyclone and ES precipitator	55	41,000/25,400	380	0.15/0.25
Calciner #2	2 stage cyclone and ES precipitator	55	41,000/25,400	380	0.15/0.25
Calciner #1 and #2	see above	110	82,000/50,800	380	0.15/0.25
Roaster #1	2 stage cyclone and ES precipitator	26.2	25,000/14,300	450	0.10/0.16
Roaster #2	2 stage cyclone and ES precipitator	26.2	25,000/14,300	450	0.10/0.16
Roasters1 & 2	see above	52.4	50,000/28,600	450	0.10/0.16
Skiphoist #1					
Bottom	½ baghouse	36.9	5,000/4,650	100	0.04/0.043
Top	1 baghouse		12,500/11,600	100	0.04/0.043
Skiphoist #1-a	Top and bottom same as #1	"	"	"	"
Skiphoist #2	" " " " " "	"	"	"	"
Skiphoist #2-a	" " " " " "	"	"	"	"
Skiphoists 1, 1-a, 2, 2-a					
Bottoms	2 baghouses	147.6	20,000/18,600	100	0.04/0.043
Tops	4 baghouses		50,000/46,400	100	0.04/0.043
Oremelter #1	½ baghouse	32	100,000/60,500	400	0.025/0.04
Oremelter #2	Same as Oremelter #1	"			
Oremelter #3	" " " "	"			
Oremelter #4	" " " "	"			
Oremelters 1,2,3 and 4	2 baghouses	128.0	400,000/242,000	400	0.025/0.04
Ferrosilicon Furnace	baghouse	8.8	165,000/89,500	500	0.025/0.046
Refining Furnace #1	baghouse	2.2	12,500/9,850	200	0.01/0.012
Refining Furnace #2	baghouse	2.2	12,500/9,850	200	0.01/0.012
Refining Furnace 1 & 2	2 baghouses	4.4	25,000/19,700	200	0.01/0.012

SYSTEM EFFICIENCY (%)	DUST EMISSION (lb/hr)	PROPOSED CONTROL	REMARKS
99.8	61.7	Eliminate leakage and bypass	Dryers 1 and 2 and associated control equipment are identical systems. Process equipment basis allows 50.2 lb/hr each for dryers 1 and 2. Wet scrubbers have 300°F temperature limit and may need modification.
99.8	61.7		
99.3	81.0	Modify scrubber	Process equipment basis allows 52.1 lb/hr. No temperature limit. Pressure drop can be increased from 6.4 to 7.5 in. H_2O. Additional performance unknown.
99.5	204.4		Process unit basis allows 62.2 lb/hr.
99.7	5.8	Install baghouse #2 to assist #1 and control additional points. Project now in progress.	Existing unit. Process equipment basis allows 50.2 lb/hr.
99.7	11.36		Proposed unit. Process equipment basis allows 43.6 lbs/hr.
99.9	0.7		Existing unit on a recycle or additional processing type stream. Process equipment basis allows 54.4 lbs/hr. Low air volume. Note: Treating crusher house on process unit basis would allow 59 lbs/hr. Since baghouse #3 is an internal stream it would not be considered on a PU basis.
98+	2.7	Install baghouse #2	Existing unit. Process equipment basis allows 46.3 lbs/hr.
99+	3.4		Proposed facility. Process equipment basis allows 48.4 lbs/hr.
			Treating the daybins on a process unit basis would allow 54.4 lb/hr
99.2	54	Install 2 stage cyclone	Existing multicones would be replaced by 2 stage cyclones on each calciner. The precipitator is common to both calciners. Process equipment basis allows 45.5 lb/hr for each calciner
99.2	54	Same as above	
99.2	108		Process unit basis allows 52.7 lbs/hr.
99.9	20	Install 2 stage cyclone and modify inside of roaster	Existing multicones would be replaced by 2 stage cyclones. ESP would be retained. Process equipment basis would allow 38.9 lbs/hr.
99.9	20	Same as above	As above.
99.9	40		Process unit basis would allow 45 lbs/hr.
98	1.7	Modify present 2 baghouses and add 4 existing Oremelter baghouses	The four skiphoists are identical but independent of each other. The baghouses for the bottoms are serving the skiphoists now. The proposed four baghouses for the tops are presently serving the melters. A process equipment basis would allow 41 lbs/hr for each skiphoist (total allowable 164 lbs/hr).
98	4.3		
98.4	6.8		Process unit basis allows 55.4 lbs/hr.
98.4	17.2		
99.5	21.5	Install 2 large baghouses to replace existing 8 baghouses	Oremelters are tip-type, 3-phase, exposed-arc, soderberg electrode furnaces. Four identical units are present. Process equipment basis would allow 40.5 lbs/hr for each melter (total allowable 162.0 lbs/hr). Both baghouses would be new. A unit about ½ of full size would be tested to optimize design.
99.5	86		Process unit basis allows 53.7 lbs/hr.
95	35	Install large baghouse to replace present 2 scrubbers	Submerged arc furnace. Control unit would be new. Process equipment basis allows 14.7 lbs/hr.
95	1	Use 2 existing Oremelter baghouses	Both furnaces are small covered tip-type 3-phase arc with prebake electrodes. Process equipment basis allows 6.22 lbs/hr (total allowable 12.44 lbs/hr).
95	1		
95	2		Process unit basis allows 9.2 lbs/hr.

APPENDIX D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DRYERS
ROASTERS
CALCINERS
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DELIVERY OF BAGHOUSE #2
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FREDERIKSEN
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DWG. NO 348-10

TO : MEMBERS OF THE ENVIRONMENTAL QUALITY COMMISSION

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

FROM : AIR QUALITY CONTROL DIVISION

DATE : September 11 for the September 25, 1970 Meeting

SUBJECT: APPLICATION FOR CERTIFICATION OF POLLUTION CONTROL FACILITY FOR TAX RELIEF PURPOSES, No. T-148

This application was received on June 22, 1970. A summary of the contents and results of the staff review are given below.

1. Applicant: Weyerhaeuser Company
P. O. Box 9
Klamath Falls, Oregon 97601

The applicant owns and operates a large wood products facility in Klamath Falls, Klamath County, Oregon, producing lumber, plywood, particleboard and hardboard.

2. Description of Claimed Facility:

One overfire air fan for each of four hog fuel-fired boilers. Each fan introduces overfire air to a boiler furnace in order to provide sufficient air for more complete combustion which reduces the density of the smoke emissions. The quantity of air introduced is controlled by a device sensing the opacity of gases at the furnace uptake. This signal is fed to a controller on the fan and is normally automatic, but can be hand controlled if necessary.

This project was started in November, 1968, and was completed and put into operation in September, 1969, and it is estimated that its life will be 20 years. Certification is claimed under the 1967 Act. The total claimed cost of the facility is $49,801. An accountant's certification of this figure is attached.

3. Staff Review:

By making this addition to the power house boilers the company has increased the efficiency of the combustion process and reduced the visible emissions. The boilers as modified do not meet present standards; however, the controls necessary to achieve compliance will be in addition to the claimed facility.

The letter received from the company on August 5, 1970, stated that the consultant who engineered the above described forced air system is now back on the job in an attempt to completely solve the emission problems. The Department has, in light of this study, requested that the company submit a program and schedule by November 2, 1970, for providing controls to bring this facility into compliance by May 15, 1971.

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

4. Recommendations:

The staff recommends that a "Pollution Control Facility Certificate" bearing an actual cost of $49,801 be issued under the 1967 Act to Weyerhaeuser Company for the facilities claimed in Application No. T-148.

Attachment

LAMBIE, MOLATORE & GERBERT
CERTIFIED PUBLIC ACCOUNTANTS
TULELAKE, CALIFORNIA ALTURAS, CALIFORNIA
KLAMATH FALLS, OREGON

(5-773-69)

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
POST OFFICE BOX 231
PORTLAND, OREGON 97207

Gentlemen:

We have examined the accounting records pertaining to the cost of installation of a Smoke Pollution Control Facility by Weyerhaeuser Company, Klamath Falls Operation, Klamath Falls, Oregon.

Our examination included such auditing tests as we considered necessary in determining that costs were properly chargeable to the facility. Costs were incurred during the period of September, 1968 through December, 1969. One of the Over-fire Air Fans on Boiler was constructed and tested and then the remaining three facilities were constructed.

In our opinion, Exhibit A, Statement of Cost for "Over-Fire Air on Four Boilers" Smoke Pollution Control Facility fairly presents the cost of purchase and installation of the facility constructed by the Weyerhaeuser Company.

Lambie, Molatore & Gerbert

June 8, 1970
Klamath Falls, Oregon

WEYERHAEUSER COMPANY

Klamath Falls Operation
Klamath Falls, Oregon

Exhibit A

STATEMENT OF COST FOR "OVER-FIRE AIR FAN ON FOUR BOILERS" - SMOKE POLLUTION CONTROL FACILITY — JANUARY 1, 1970

Equipment Costs:		
Equipment	$26,595.00	
Freight on equipment	180.00	
Other supplies and expense	104.00	
Labor	7.00	
Total Equipment Costs		$26,886.00
Installation Costs:		
Labor	11,248.00	
Payroll related benefits	2,657.00	
Other supplies and expense	4,750.00	
Total Installation Costs		18,655.00
Engineering Costs		4,260.00
Total Cost of Smoke Pollution Control Facility		$49,801.00

NOTE: Costs were allocated to the four boilers as follows:

No. 1	$12,164.00
No. 2	12,164.00
No. 3	12,164.00
No. 4	13,309.00
Total	$49,801.00

NOTE: The equipment for "Over-Fire Air Fans on Four Boilers" which is incorporated into the claimed facility is as follows:

1. Four Westinghouse air foil fans with motors.
2. Smoke density controls with recorders.
3. Air ducts and fittings for four boilers.

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 : September 14, 1970 for September 25, 1970 Meeting

SUBJECT: McGRAW-EDISON COMPANY (Fibre Products Division) CORVALLIS, TAX CREDIT APPLICATION NO. T-158 filed July 8, 1970.

1. Applicant: McGraw-Edison Company
Fibre Products Division
2100 Northwestern Avenue
West Bend, Wisconsin 53095

The applicant owns and operates a pitch impregnated fibrous tube manufacturing plant in Corvallis, Oregon (Benton County).

2. Description of Claimed Facility:

The claimed facility consists of a gas fired boiler manufactured by Cleaver-Brooks Company, Style Delta 52, rated at 30,000 pounds of steam per hour.

The applicant claims that the facility was installed on November 24, 1969 and completed and put into operation on December 15, 1969, with a useful life of 15 years.

Certification is claimed under the 1969 Act.

Facility Cost: $65,981.00

3. Staff Review:

The claimed facility is in compliance with current emission regulations and was approved by the Mid-Willamette Valley Air Pollution Authority. The claimed facility replaced four (4) old sawdust fired boilers with no appreciable increase in steam capacity. The old boilers probably would have provided adequate service for many more years, but at increasing maintenance costs. However, the old boilers that existed were adequate and less expensive to operate.

4. Recommendation:

The staff recommends that a Pollution Control Facility Certificate be issued to McGraw-Edison Company for the facilities claimed in Application T-158, such certificate to bear an actual cost figure of $65,981.00 with 80% or more allocated to pollution control.

EXHIBIT C

FIBRE PRODUCTS DIVISION
McGRAW-EDISON COMPANY

ACTUAL COST OF ANTI-POLLUTION FACILITY

ITEM		COST
1)	900 H.P. Boiler	$ 43,601
2)	DeAirator	13,000
3)	Feedwater Pumps (2)	5,500
4)	Chemical Feed Pump and Tank	780
5)	20,000 Gallon Oil Tank for Stand-by Fuel	2,100
6)	Electrical Control Sub-Panel	1,000
		$ 65,981

EXHIBIT D

This is to certify that the total cost of the boiler project at the McGraw-Edison Plant in Corvallis, Oregon as indicated below and in Exhibit C is a true and correct representation of the actual cost of the facility.

Signature James F. Quiette CPA
Lic # 6345

Boiler and related installation costs	$ 43,601
DeAirator	13,000
Feedwater pumps	5,500
Chemical Feed Pump and Tank	780
Standby Oil Tank	2,100
Electrical Control Sub-Panel	1,000
	$ 65,981

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 : September 24, 1970 for Meeting of September 25, 1970

SUBJECT: SULFITE PULP MILL EMISSION STANDARDS AND REGULATIONS, BOISE CASCADE, SALEM

Oregon has five sulfite pulp mills as follows:

	PRODUCTION	BASE
Publishers Paper		
Oregon City	200 T/Day	Magnefite Recovery
Newberg	225 T/Day	(Non-Recovery) Calcium base. Magnefite recovery by July 1971
Boise Cascade		
Salem	220 T/Day	(Non-Recovery) Ammonia base. Ammonia recovery by 1972
Coos Head Timber		
Empire	80 T/Day	(Non-Recovery) Calcium base.
Crown Zellerbach		
Lebanon	100 T/Day	Ammonia base. Evaporation and by-product recovery or incineration

The main contaminant is sulfur dioxide (SO_2), and its main source has been the blow pit exhaust vent. Lesser amounts are emitted by acid-making plants. The "blow pit" is essentially an open-topped tank into which cooked pulp is blown, under some pressure, from digesters at the end of the cook cycles.

In the past, the sulfite mill problem has had a lower priority than kraft mills, a priority justified by the larger number of complaints about kraft mills and the greater area of their effect. Kraft mill emission regulations were adopted in 1969, and the staff proceeded then to adopt regulations on sulfite, starting in August, 1969.

It became apparent that there was little information on emissions, few emission measurements and no standard method of measurement of emissions available. The wide variety plant sizes processes and control methods complicated an approach to a uniform industry-wide standard.

The mills have been requested to commence measurements, using or basing their methods on an interim procedure agreed on in December, 1969.

The problem has been complicated, in the past few years, by a requirement that the mills start recovery of cooking chemicals. This has added a source of SO_2 from recovery furnaces. The uncontrolled emissions of sulfur dioxide from sources have been reported as follows:

Source	Basic (Non-recovery)	Recovery
Digester blow pit	150 lbs/T	150 lbs/T
Acid make-up	12 lbs/T (Jenssen Towers)	Minor
Pulp washers	Not reported	Not reported
Recovery furnace	No furnace	450 lbs/T
	162+ lbs/T	600+ lbs/T

It should be noted that no recovery furnaces are being built without controls. Best technology at present appears capable of limiting their emissions to approximately 20 lbs. of SO_2 per ton of pulp. The sulfite mill at Everett, Washington did install blow pit controls in 1948 for economic recovery of SO_2, an investment justified by the large size of the mill (880 T/Day). Whether the controls are adequate is still open to question.

There have been complaints of odor nuisance from Oregon City, Salem, Newberg and Coos Bay, with the greatest number from the first two. Two and three years ago there were complaints of damage to ornamental shrubbery in the Oregon City area.

The program for controlling sulfite mills in Oregon is as follows:

1. All mills installing recovery furnaces are required to have highest and best practicable treatment and control of atmospheric emissions installed and operating by the time the recovery furnaces start operating.

2. Specific sulfite mill regulations have been drafted and will be submitted to the Environmental Quality Commission for consideration and adoption this winter, possible at the November, 1970 meeting. The provisions for compliance with the regulation presently include the following:

   a. Submit a control proposal within 180 days of the effective date, showing a schedule for engineering studies, purchase of equipment, erection of equipment, and placing equipment in operation. Approval will be based on review of design performance and supporting data and a showing that the mill is proceeding with all due speed to meet the requirements. Since the mills have commenced sampling already, the staff now feels that the schedule can be shortened, and it is the staff's intention to negotiate with the mills on an individual basis to bring about control in the shortest possible time.

   b. Submit a monitoring schedule within sixty days using agreed on procedures.

   c. Continue to develop procedures and equipment capable of monitoring emissions more accurately than is presently possible.

d. Meeting the emission limits does not excuse a mill from the necessity of meeting ambient criteria.

3. Ambient criteria for sulfur oxides have been drafted, and authorization for a public hearing will be requested at the same time as the sulfite mill emission regulation hearing.

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 : September 24, 1970 for September 25, 1970 Meeting

SUBJECT: L & H LUMBER CO., Sutherlin

As a result of the meeting on May 22, 1970, and at the direction of the Commission, an Order (EQC No. 20) was adopted essentially requiring (1) L & H Lumber Co. to terminate the use of the wigwam waste burner by July 15, 1970 or (2) submit plans and specifications for approval prior to modification of the wigwam waste burner and notify the Department prior to July 15, 1970 that it would phase-out the burner by September 1, 1970.

The mill has been closed but the Company did ~~initiate~~ partial modification of the waste burner. At the August 21, 1970 meeting of the Commission, the Company appeared and requested authorization to test and experiment with the partially modified waste burner which was denied by the Commission.

In a letter received September 24, 1970 (attached) the Company states that the waste burner will be phased out but requests authorization to:

a) burn bark waste for period of two weeks beginning October 5, 1970, and

b) burn sawdust for a period of 30 days beginning October 5, 1970.

STAFF COMMENTS:

The material to be burned - sawdust and bark - may cause problems especially during start up and shut down in the modified burning, however the phase-out of the burner (by November 5th) is in the best long range interest of the air quality control program.

RECOMMENDATION:

It is recommended that the order be amended to allow L & H Lumber Co., without further modification to operate the burner as follows:

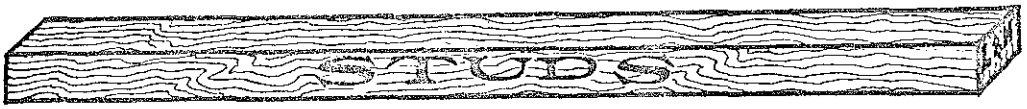
A. For the burning of bark waste for a period commencing operations on October 5th, 1970 for a period of two weeks,

B. For the burning of sawdust for a period commencing October 5th, 1970 for a period of 30 days.

L & H Lumber Co.

SUTHERLIN, OREGON 97479

P.O. Box 539
Phone 503 • 459-2241
Sta. to Sta. 503 • 459-4191



September 23, 1970

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
SEP 24 1970
AIR QUALITY CONTROL

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

Attention Mr. Harold Burkitt:

Gentlemen:

L & H Lumber Company - Sutherlin Oregon, petitions for the issuance of an order authorizing it to operate its present burner at Sutherlin, Oregon without further modivications for the priod specified below.

A. For the burning of bark waste for a period commencing operations on October 5th, 1970 for a period of two weeks.
B. For the burning of sawdust for a period commencing October 5th, 1970 for a period of 30 days.

Petitioner respectfully submits that it has concluded an arrangement with Publishers Paper Company to purchase all of its Hemlock sawdust.

It has not been determined whether or not the purchaser will take the sawdust waste with chips or will require it to be delivered separately. Until the purchaser makes this determination, we cannot start to modify the present transfer system to arrange for the loading of the residue since we do not know whether to construct facilities for the separation. On September 23rd, Publishers advised us that they would have an answer for us by the end of next week. On receipt of the answer, we can then start to cut the present transfer system and build new transfers and bins. We estimate that we will be able to complete the necessary construction for the diversion of sawdust within 30 days from October 5th, 1970.

The bark residue is to be temporarily disposed of by being used as land fill in an abandoned pond site adjacent to the planer. Mr. Baton of the Department has indicated that the site would be satisfactory for bark disposal until such time as the Ford Particle Board operation is placed on stream.

It will take an estimated period of 10 days from October 5th, 1970 to complete the cutting of the present waste transfer systems for handling bark and the construction of a temporary loading system.

The mill has been shut down since May 15th, 1970 and we are anxious to start, not only in our own interest, but in the interest of our employees who number 72 men.

The mill has made very substantial effort to comply with the Department of Environmental Quality Standards. In the last year it retained Mr. Paul E Hyde formerly of the research department at Oregon State College to make recommendations and plans for modification of its burner to comply with present standards. Thereafter Mr. Hyde prepared plans which reflect the best technical information available. The Company accomplished the work set forth in the progress report filed with the Commission in July of this year.

Despite these changes we propose to phase out the use of the burner completely within 30 days from October 5th and dispose of the sawdust by sales to Publishers Paper Company as indicated above, and the bark by land fill use until such time as the Ford Company is ready to accept the bark residue. This seems to us to be a reasonable solution to the problem and will afford us an opportunity to go to work this season.

Yours very truly,
L & H LUMBER COMPANY

Ken Forrest

Ken Forrest - Supt.

KF/ds