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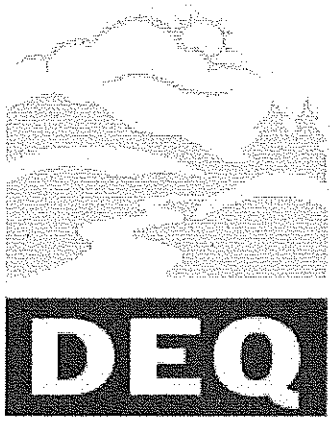
OREGON STATE SANITARY AUTHORITY MEETING MATERIALS



State of Oregon
Department of Environmental Quality

AGENDA

STATE SANITARY AUTHORITY MEETING

10:00 a.m., January 19, 1968

Room 36, State Office Building, Portland

A. Public Hearing in the Matter of Air Pollution in North Portland

B. Project plans for December 1967

C. State grants for municipal sewage treatment works projects

D. Tax Credit Applications

1) Publishers Paper Co., Newberg

2) Columbia Steel Casting Co., Portland

E. Waste Discharge Permits

MINUTES OF THE 123rd MEETING

of the

Oregon State Sanitary Authority

January 19, 1968

The 123rd meeting of the Oregon State Sanitary Authority was called to order by the Chairman at 10:08 a.m., January 19, 1968, in Room 36, State Office Building, Portland, Oregon. Members present were John D. Mosser, Chairman; Herman P. Meierjurgen and Storrs Waterman. Members absent were B.A. McPhillips, because of illness, and Edward C. Harms, Jr., because of a prior commitment.

Participating staff members present were: Kenneth H. Spies, Secretary; Arnold Silver, Legal Counsel; Ely J. Weathersbee, Deputy State Sanitary Engineer; Harold M. Patterson, Harold E. Milliken and Joseph A. Jensen, Assistant Chief Sanitary Engineers; Fred M. Bolton, Portland District Engineer; Edgar R. Lynd, Supervisor Municipal Waste Treatment Program; Harold L. Sawyer, Supervisor Waste Discharge Permit Program; R. Bruce Snyder, Meteorologist; and Leo G. Farr, Associate Engineer.

Public Hearing - North Portland Air Pollution

A Show Cause Order having been duly served by registered mail on Brander Meat Company, Kenton Packing Company, Pacific Meat Company, Portland Rendering Company, Associated Meat Company, Western States Rendering Company and Wilbur Ellis Company, the Chairman opened the hearing in the matter of air pollution allegedly caused in North Portland by malodorous emissions from said companies.

The Chairman stated that the hearing would pertain only to atmospheric emissions and that any associated problems of water pollution would be handled by separate action under the waste discharge permit program.

Mr. George Mead, Attorney, was present to represent Kenton Packing, Pacific Meat and Associated Meat Companies. In a brief opening statement Mr. Mead denied that the operations of these companies were emitting odors other than those normally associated with slaughtering and rendering.

The other company representatives who were present but who incidentally did not wish to testify were Carney R. Pace (Western States Rendering), Howard Nelson (Pacific Meat), Walter Steele (Brander Meat), Nimrod Wood (Portland Rendering) and Eugene Koko (Wilbur Ellis).

More than 100 residents of the North Portland area were also present and all who wished were given the opportunity to make statements.

The hearing proceedings were recorded by a court reporter. With one exception, all testimony was presented under oath.

Mr. Silver introduced as Exhibit 1 a certified copy of the State Sanitary Authority's administrative rules.

Mr. Harold M.Patterson was the first witness for the Sanitary Authority. After being sworn in by the court reporter, Mr. Patterson presented and Mr. Silver introduced as Exhibit 2 a large map of the North Portland area showing the location of the plants in question and as Exhibit 3 a flow diagram showing the processes involved in a typical batch rendering plant. In response to questions by Mr. Silver, Mr. Patterson explained the flow diagram, pointed out the major sources of odors, described the type or nature of the odors, and discussed possible methods of treatment and control.

He stated that good housekeeping and collection and burning of all non-condensibles resulting from the cooking processes are essential for odor control. He said that thus far only one of the plants, Portland Rendering, had attempted to burn the non-condensibles.

Mr. Patterson then summarized the activities of the Sanitary Authority staff in this matter since 1963 when a petition signed by 25 residents of the area had been received. He pointed out that because of the widespread odor problem caused by the rendering plants, the staff in October 1964 prepared and distributed to all the companies involved an informational bulletin which outlined and recommended methods of odor control.

He said that in spite of the efforts of the staff of the Sanitary Authority, the companies had not provided effective controls of the odors and as a consequence 32 additional complaints were received by the Authority in 1965, eight more complaints were received in 1966, and 42 complaints and two petitions bearing 1014 signatures were received in 1967. The most recent investigations of the individual rendering plants were made by the Authority's staff in November-December 1967.

Mr. Patterson then presented the files of the Authority pertaining to these companies and the files were introduced by Mr. Silver as Exhibits 4, 5, 6, 7, 8, 9, 10 and 11.

Mr. Mead asked if the staff had held conferences with the individual plants, and Mr. Patterson replied that conferences had been held with Portland Rendering.

The second Sanitary Authority witness called by Mr. Silver was R. Bruce Snyder, staff meteorologist. He testified that wind systems had been operated in the St. Johns area in December 1966 and January 1967 and that analyses of weather data from the Portland International Airport, which are considered to be representative of the area in question, had been made. Wind roses, based on these data, were presented by Mr. Snyder and introduced by Mr. Silver as Exhibit 12 for the month of January and Exhibit 13 for the month of July.

Exhibit 12 showed that during January for the period 1951-1960 light winds of three miles per hour or less were experienced 19% of the time, and the wind directions were predominately E, SE and S.

Exhibit 13 showed that in July for the same period winds of three miles per hour or less were experienced 22% of the time with the wind direction being from the NW 42% of the time.

The third staff member to testify for the Authority was Leo G. Farr who from September 1965 to September 1967 was with the Air Quality Control program and who since that time has been with the Public Water Supply program. Mr. Farr in response to questions by Mr. Silver discussed his findings and observations resulting from the several surveys made by him of the North Portland rendering plants and odors emitted by them. He testified that adequate facilities had not yet been installed to destroy non-condensibles.

The hearing was then recessed by the Chairman from 11:08 to 11:26 a.m. during which time 93 persons who were present signed a register and indicated whether they wished to testify or merely by their signature to register a complaint about the air pollution in North Portland.

Because they could not be present at the hearing after the noon recess, the following seven residents of the area were permitted by the Chairman to testify next:

Mr. Russell E. Pope, 3838 N. Kiska
Mr. R.M. Ray, 2408 N. Baldwin
Mr. Eugene James, 8306 N. Chautauqua
Mrs. Gertrude Niehuser, 8806 N. Wilbur
Mrs. Erna Garbe, 6949 N. Knowles
Mrs. Mary Jordan, 7844 N. Washburn
Mrs. Mercedes F. Deiz, 9144 N. Chautauqua

According to their testimony the odors are most noticeable during the summer months when the prevailing winds are from the northwest and have gotten worse in the past 2 to 4 years. The odors prevent the enjoyment of outdoor areas and facilities in the summer, they occasionally permeate the interior of homes, especially during the night, making it difficult to sleep; they cause upset stomachs. The odor nuisances caused by the rendering plants have also depreciated property values. These witnesses described the odors as frequently being unbearable, similar to that of decaying and rotting wastes, worse than a skunk. Mrs. Garbe said the odors reminded her of the bombed areas with their decaying bodies during World War II in Europe.

Mr. Ron Husemann, who from September through December 1967 was employed by the Sanitary Authority and who during that period had made detailed studies of the rendering plants, was the next witness called by Mr. Silver. He explained the facilities used by each plant and described the conditions observed by him during his surveys. In a memorandum dated December 12, 1967, he had listed recommended improvements or additions for each plant for the purpose of abating and controlling the odors.

State Representative Wally Priestly of 2207 N.E. Ainsworth then testified that there is no question about the odors coming from the rendering plants. He said the complaints have increased in recent years, the odors reach more than a mile from the plants and demoralize the community, and the people have a right to live in their homes without being subjected to these repeated odors.

The hearing was recessed at 12:00 noon and reconvened at 1:28 p.m.

Before having to leave for another appointment, Mr. George Mead, Attorney, then spoke briefly for the companies that he represented. He claimed that the largest and most significant source of the odors was the operations that handle dead animals. He said his clients are not adverse to cooperating with the Sanitary Authority to completely eliminate the problem. He said they are willing to go along and do everything possible to comply with the recommendations of the Authority's staff.

The Chairman asked if the companies had any plans for odor control of which the Authority or its staff might not be aware. Mr. Mead stated that Kenton Packing Company had employed engineers who have made a proposal.

The Chairman then explained the reason for and the purpose of holding the hearing at this particular time. He said it was most important that corrective actions be started immediately so that the problem could be solved before the warm weather this coming summer.

Additional testimony and complaints were then presented under oath by the following witnesses:

Mrs. Jeri De Sylvia, 3921 N. Attu
Mrs. Kitty Bilyeu, 7408 N. Washburne
Mrs. Henry Ellis, 7725 N. Emerald
Mrs. Russell Schnell, 7303 N. Chautauqua
Mr. Howard Walker, 8704 N. Chase

The statements made by these five witnesses were similar to those made previously by the other residents of the area. Mr. Walker said Portland is known as the city of roses, but in his section of the city the residents cannot smell the roses because of the obnoxious odors from the North Portland rendering plants.

Mr. Bill Luch of 9212 N. Reno then requested permission, which was granted, to make a statement without being sworn. He referred to a report by Dr. Thomas Meador, Portland City Health Officer. He asked that the odors be eliminated before May 1968 or else shut down the plants responsible for the odors.

There being no one else present who wished to testify, the hearing was recessed by the Chairman at 2:10 p.m.

After reconvening the hearing at 2:17 p.m., the Chairman made the following statement:

"We have definitely established a serious nuisance odor condition by the testimony heard without attempting to pinpoint which plant is the primary source, that it is related to the operations of all of these plants in some degree, on some days, perhaps more to a particular plant than others, but that all of them are involved in it and that action needs to be promptly taken to end this nuisance before the onset of the next summer. I recognize at the same time that these companies have not had the chance to review or to hear before this meeting the staff recommendations as to what should be done. For that reason, I would propose that a draft order be submitted to these companies for their reactions at our next meeting,

but that the order in essence provide that by our next meeting, which will be on February 29, they have engineering plans and housekeeping improvement programs to comply with the recommendation of the staff and looking towards installation of equipment for facility improvements prior to June 1, 1968. Now the reason that this is not a final order and is subject to any comments they may have is that they may have better ideas on how to control or slightly different ideas they may wish to propose. It has always been the policy of this Authority that we are not design experts in all of the problems of every plant. It is up to us to say that a solution is required and what needs to be done but not to propose the details of the solution. The staff recommendations will be made available immediately after this hearing to the companies in the form of a draft order and will be reviewed on February 29 at which time they (the companies) are to have plans either to comply with the draft order or with what they think is adequate substitute action, equal to or better than the order, and looking also as far as equipment purchases that they may wish to begin placing tentative orders for or things of this kind for installation and operation by June 1, 1968. I so MOVE."

The above motion was seconded by Mr. Waterman and carried. The staff was directed to work with the companies. The hearing was then adjourned until February 29, 1968.

Project Plans

It was MOVED by Mr. Waterman, seconded by Mr. Meierjurgen, and carried, that the actions taken on the following 12 projects for Water Pollution Control and 8 projects for Air Quality Control for the month of December, 1967, be approved:

Water Pollution Control

Date	Location	Project	Action
12/6/67	Eugene	Cl_2 Facilities for Airport Lagoon	App.
12/6/67	Canby	Wait Dr. & Neff Rd.	Prov. app.
12/13/67	Dallas	Sewage treatment plant	Prov. app.
12/15/67	Klamath County	Sanitary sewer system Weyerhaeuser Complex	Prov. app.
12/26/67	Metzger Sanitary District	Sewer extension	Prov. app.
12/26/67	West Slope Sanitary Dist.	Sewer extension	Prov. app.
12/26/67	Green Sanitary District	Sewer lateral	Prov. app.
12/27/67	Springfield	Sanitary sewer	Prov. app.

Water Pollution Control - continued

Date	Location	Project	Action
12/27/67	Scio	Chlorination facilities	Prov. app.
12/27/67	East Salem #1	Sanitary sewer	Prov. app.
12/28/67	La Grande	Sewer main	Prov. app.
12/28/67	Springfield	Sanitary sewers	Prov. app.

Air Quality Control

Date	Location	Project	Action
12/7/67	St. Helens	Boise Cascade, E.S. Precipitator; Chemco SF venturi scrubber for lime kiln	Cond. app.
12/8/67	Lane County	Lane Regional APA Federal Clean Air Grant Application for $21,066	Approved
12/14/67	Washington County	Cooper Mt. Elementary School incinerator	Add. inf. requested
12/14/67	Lane County	Crow High School incin. (Note: 12/29 - Architects advised us incincerator had been deleted. Central collection will be utilized)	Add inf. requested
12/14/67	Washington Co.	Walter L. Henry Elem. School incinerator	Add. inf. requested
12/14/67	Clackamas County	Linwood Grade School incinerator	Add. inf. requested
12/28/67	Lane Regional Air Pollution Authority	Application for control authority and State grant of $9,677	Approved
12/28/67	Columbia Willamette Air Pollution Authority	Application for control authority and State grant of $30,180	Approved

State Grants for Municipal Sewage Treatment Works Projects

A memorandum report dated January 19, 1968, which he had prepared was read by Mr. Milliken and has been made a part of the Authority's permanent files in this matter.

It was MOVED by Mr. Mosser, seconded by Mr. Meierjurgen, and carried that the Secretary be authorized to sign and deliver an agreement with the city of Amity for a 25% state grant in the amount of $24,540.

It was MOVED by Mr. Mosser, seconded by Mr. Waterman, and carried that the Secretary be authorized to request the State Emergency Board to release $709,902 for 25% state grants to Halfway, Monroe, Portland (211),

Gladstone, Port of Tillamook Bay, Twin Rocks Sanitary District and Oakridge, dependent upon the 50% federal grants being available and to sign agreements for approval of these grants.

The Chairman then inquired about the status of the local financing for the Multnomah County Central Service District project which was the next one on the list prepared by Mr. Milliken. Mr. Jack Kalinoski, Assistant Engineer for Multnomah County, was present. He said that following a recent Attorney General's opinion that general funds of the county could not be used for this purpose, the Board of Commissioners had adopted a resolution to establish under the provisions of ORS 451.540 a revolving fund by levying a one-half mill tax per year for five years on all property outside of municipalities that would ultimately be served by the county's master sewerage system. He claimed that this would provide sufficient funds to finance the district's share of the cost of the proposed project No. 193. He said the money should be available sometime after July 1, 1968, or in the next fiscal year.

The Chairman also asked Mr. Kalinoski about the status of construction of the remainder of the sewers for the Dunthorpe-Riverdale County Service District which were supposed to have been completed a long time ago. Mr. Kalinoski replied that a contract for the remainder of this project is expected to be awarded in February.

Tax Credit Applications

A memorandum report dated January 19, 1968, and prepared by him regarding the application for certification of a pollution control facility for tax relief purposes, No. T-1, submitted by Publishers Paper Co., Newberg Division, was read by Mr. Harold Sawyer.

Mr. John Bledsoe, Attorney, and Mr. Pete Schnell were present to represent the applicant.

Because the accountant's report stated that the costs for this project were shown in the records of the Spaulding Pulp and Paper Company, rather than the Publishers Paper Company, there was some discussion as to whether or not the latter was eligible for the tax credit. Mr. Bledsoe stated that it was.

Mr. Sawyer said that he had taken the application to the Tax Commission in Salem and had discussed it with Mr. Thure A. Lindstrom and Ted Cady and they had no objections to the issuance of this certificate.

It was MOVED by Mr. Mosser, seconded by Mr. Meierjurgen, and carried that the certificate for tax relief purposes for the Publishers Paper Co. Newberg Division water pollution control facility costing $660,555 be approved in accordance with the findings of the staff.

A memorandum report dated January 19, 1968, and prepared by him regarding the application No. T-2 submitted by Columbia Steel Casting Co., Inc., for certification of air pollution control facilities for tax relief purposes was presented by Mr. Sawyer.

It was MOVED by Mr. Mosser, seconded by Mr. Meierjurgen, and carried that a pollution control facility certificate for tax relief purposes be issued to the Columbia Steel Casting Co., Inc., for its facility costing $61,715.48 in accordance with the findings of the staff.

Waste Discharge Permits

A memorandum report dated January 19, 1968, and prepared by him regarding the subject "Temporary Permits" was presented by Mr. Sawyer. (See Exhibit A attached hereto and by reference incorporated herein.)

He stated that since the last meeting on December 28, 1967, 61 additional permit applications had been received, that 59 of these applications have been sorted according to categories (See Exhibit A), that one of the applications was received from N.W. Aluminum Company and action on it is to be deferred until detailed plans are submitted and approved, and that one other application filed by Mr. Ivan Bice should be considered separately.

It was MOVED by Mr. Mosser, seconded by Mr. Waterman and carried that temporary permits be issued the 59 applicants listed by Mr. Sawyer and according to the recommendations of the staff contained in Mr. Sawyer's memorandum (Exhibit A attached).

Permit Application #483 Filed by Mr. Ivan Bice

A memorandum report dated January 19, 1968 and prepared by Mr. Sawyer has been made a part of the permanent files in this matter. In a letter dated January 17, 1968, Mr. J.R. Nunn, President, Bio-Pure, Inc.,

requested that the waste discharge permit application be withdrawn; however, because the application was signed by Mr. Bice, it was questioned whether the request for withdrawal by Mr. Nunn could be accepted.

It was MOVED by Mr. Mosser, seconded by Mr. Waterman, and carried that application #483 be laid on the table until it is determined that Mr. Nunn has the authority to speak for Mr. Bice.

City of Silverton Waste Discharge Permit

With regard to the proposed and urgently needed expansion of the sewage treatment plant for the city of Silverton, Mr. Fred M. Bolton, District Engineer, read a staff report dated January 19, 1968, a copy of which has been made a part of the Authority's permanent files in this matter. He stated that the city has a temporary waste discharge permit which will expire March 31, 1968.

The Chairman asked if there was anyone present from the Stayton Canning Company and the city of Silverton to which Mr. Bolton replied there were representatives from both the industry and the city.

Mr. Kenneth Brown, Attorney for the city of Silverton, was present and said he had been asked by the City Council to make a presentation which he had typed and was going to read, but since the staff report presented by Mr. Bolton covered many of the same points, he would briefly summarize it. He said the present sewage treatment plant was expanded and completed in 1961, and although projected for 20 years, it already can no longer take care of the increased industrial waste load. The city became aware of this fact in 1965-1966 and in April of 1967 the city of Silverton engaged CH_2M to proceed with plans for further expansion. The city of Silverton submitted to the Authority a proposed project schedule which showed the completion of the new improvement to be August 1, 1968. This was based on the representations by the Kolstad Cannery that their pack over the next 10 years would not exceed a 20% increase over the 1967 pack. He said the City Council met with the cannery in December to establish waste loads and discovered that the owners were in the process of selling the cannery to the Stayton Cooperative. The Council then immediately scheduled a meeting with members of the latter company, but unfortunately they could not tell the city what their demands or what

their requirements would be. They claimed they would have to have one year's pack to determine what the capabilities of the Silverton Cannery might be.

The Chairman then asked if the city had a contract with the cannery or an ordinance that would limit the quantity and quality of wastes that could be handled by the city plant. Mr. Brown replied that they had no such contract with the cannery, but that they do have an ordinance. The discussion that followed disclosed that the waste discharges from the Kolstad Cannery have been in excess of the limits prescribed by the ordinance, and that the city has not attempted to enforce the ordinance.

Mr. Brown said the new requirement which went into effect last summer required the city to remove 98% of the BOD as against 85% that the plant was originally designed for. He stated that after this problem came up they asked for a meeting with the cannery owners again and representatives from the Sanitary Authority were invited to attend. They discussed the situation but were unable to get any type of estimate or figure from the cannery. He said the city has spent many thousands of dollars for engineering studies over the years. They are willing to build this addition but it is not economical for the city at this stage to go ahead to build what had been contemplated when the chances are 99 to 100 that they will have to expand it again next year.

The Chairman then asked if any of the staff had talked to CH_2M regarding the Silverton situation and what the $200,000 estimated by them as the cost of facilities would cover.

It was stated that Fred Bolton and Ed Lynd had both attended meetings of the city, cannery and CH_2M. Mr. Lynd said the plan that the engineers propose for the expansion involves the construction of additional treatment facilities at the sewage treatment plant. They propose to install an extended aeration device and then acquire more land and put in a holding pond. The holding pond would be more for the purpose of regulating the flow discharges to the stream rather than a treatment device so probably most of the money will be spent on expansion of facilities at the present plant. He was asked if the holding area would be a city facility. Mr. Lynd replied yes, it would be in conjunction with the present city-owned plant. They will require some 26 acres.

After considerable discussion of the waste discharge permit conditions proposed by the staff in Mr. Bolton's memorandum, it was decided to defer action until the next Authority meeting.

The Chairman asked the staff to try to draw up something which will require the city to keep within what the staff feels are acceptable limits, to define the effluent standards for this summer, and to propose a satisfactory time schedule so that the final language of the permit can be adopted at the next meeting of the Authority on February 29.

Tillamook Cheese and Dairy Association

A memorandum report dated January 19, 1968, was presented by Mr. Jensen and has been made a part of the Authority's permanent files in this matter. In this report it was recommended by the staff that the waste discharge permit for Tillamook Cheese and Dairy Association be identical with the one issued at the December 28, 1967 meeting for the Tillamook County Creamery Association which will expire November 1, 1968. In addition it was recommended that Tillamook Cheese and Dairy Association continue to provide effective chlorination of the domestic flow emanating from its plant.

It was MOVED by Mr. Mosser, seconded by Mr. Meierjurgen, and carried, that a waste discharge permit through November 1, 1968, with the conditions as recommended by the staff be issued to Tillamook Cheese and Dairy Association.

Boise Cascade Kraft Pulp and Paper Mill at St. Helens

Mr. Weathersbee reported that the Boise Cascade Corporation pulp mill at St. Helens which presently has a capacity of 420 T/D of kraft pulp (280 T/D of this is bleached) is being expanded to 810 T/D of kraft pulp and 772 T/D of this will ultimately be bleached. He said their paper production will go up to around 500 T/D initially and eventually they will add more paper making capacity. The company has asked for BOD discharge limits of 41,000 lbs/D and suspended solids of about 23,000 lbs/D. The Authority staff, however, proposes that the waste discharge permit limit the BOD discharges to 26,000 lbs/D and solids discharges to 12,000 lbs/D, and that these limits would apply after June 30, 1968. He pointed out that the company is presently installing both production and control facilities and will not have these installed and started up properly until

that time. He said that in the interim period the No. 3 provision of the permit that all plant processes and equipment and all waste treatment control facilities be operated and maintained at all times at maximum efficiency and in a manner which will minimize waste discharges would govern.

He said further the next important provision other than the ones routinely incorporated in all of the permits is No. 6 which requires that a specific and detailed program be developed and submitted by July 1, 1969, for providing by not later than July 1, 1970, year round control of total mill wastes equivalent to secondary treatment.

It was MOVED by Mr. Mosser, seconded by Mr. Waterman and carried that a permit be issued to Boise-Cascade, St. Helens mill to June 30, 1970, subject to the conditions recommended by the staff (See Exhibit B attached hereto and by reference incorporated herein).

Kaiser Gypsum, St. Helens

A proposal was presented by Mr. Weathersbee regarding recommendations for a waste discharge permit for this mill (See Exhibit C attached hereto and by reference incorporated herein).

This mill discharges to Scappoose Bay which is a little inlet off the Multnomah Channel. At times of tide reversal and very low flow in the summertime, it becomes almost a dead body of water. There is a fairly severe DO depression in this bay and very bad (heavy) sludge deposits have accumulated over a period of years from this operation. This mill has done a real good job of in-plant reuse of water. They have primary treatment facilities in operation and they take a good share of the water back into the process. The proposed permit conditions call for a BOD limitation of 6,000 lbs. per day and suspended solids limitation of 1,000 lbs. per day. Item 6 requires that a detailed program and time schedule be submitted by July 1, 1968, for providing either a completely closed system or year round secondary treatment for total residual mill wastes by June 30, 1969.

It was MOVED by Mr. Mosser, seconded by Mr. Meierjurgen, and carried that the permit as recommended by the staff be issued to Kaiser Gypsum (See Exhibit C).

The Chairman requested the staff to check on the waste discharge permit application forms to see how many have been sent out and how many returned.

He said also that since the houseboat and moorage owners had until March 1 to comply with the Sanitary Authority requirements and the next meeting would be on February 29, the staff should be thinking about what the enforcement plans will have to be as only 3 or 4 moorages have replied to the agreement which was sent out.

The Chairman stated the Sanitary Authority would plan to meet the last Friday of every month and with the load anticipated that some months they might have to have two meetings.

Room 36 has been reserved for the last Friday in March, April, May and June and the last Thursday in February.

The Chairman asked if permit applications had been sent to federal installations. Mr. Sawyer said no and the Chairman requested this be done.

The meeting adjourned at 4:40 p.m. The next meeting was set for February 29, 1968.

Respectfully submitted,

Kenneth H Spies

Kenneth H. Spies
Secretary

STAFF REPORT

TO : Members of Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

DATE : For January 19, 1968

FROM : Air Quality Control Staff

SUBJECT: GENERAL REPORT ON RENDERING PLANTS IN THE NORTH PORTLAND AREA.

The following is a summary of the batch type rendering process and a general summary of staff activities and conditions relating to rendering plants in the North Portland area since 1963. Portland Rendering Company is the only company employing the continuous rendering process.

RENDERING PROCESS: The rendering process includes the processing of unsalable meat, meat scraps, offal and related collected material. The raw material is prepared and discharged to steam jacket cylinderical cookers for 2 - 4 hours usually on a batch basis of 200-230°F. (All of the plants, except Portland Rendering Company use a batch process). About 40% of the charging load is moisture and is removed as water vapor with other gases during the cooking cycle. The end product may have a 5 - 10% moisture content.

During the initial 30 -45 minute cook period, it is reported that from 50 - 75% of the water vapor and from 2 - 10 times the quantities of malodorous gases may be emitted as during the remaining period of the cooking cycle. The objectionable gases constitute less than 5% of the total exhaust volume and are intimately mixed with steam.

At the completion of the batch cycle, the tallow and solids are discharged to a type of drain pan for separation. The opening of the cooker doors and the discharge of contents is a large source of odor.

The solids are pressed to remove remaining liquids and may be ground prior to storage and shipment. The liquids may be further processed by settling or centrifuging to remove solids and moisture from the tallow.

Good housekeeping practices are an extremely important part of the odor emission prevention program in the rendering process.

Appendix A-3 illustrates the type and quantities of emissions from rendering processes.

Because of the nature of the sources, operation, and release of malodorous material observed, odors may vary considerably, particularly with changing meteorological conditions.

Los Angeles Air Pollution Control District provides that rendering plants must comply with all applicable provisions of the prohibitory Regulation IV, which includes Rule 64. A copy of Rule 64 is in Appendix A-4 which requires that all gases, vapors, and gas-entrained effluents be incinerated at a temperature of not less than 1200°F, or by equally or more effective means.

STAFF SUMMARY REPORT:

Numerous complaints by residents of North Portland and a petition signed by 25 residents were received by the Sanitary Authority in 1963. Complaint investigations and odor surveys were made by the staff, which verified an odor problem existed. Following plant surveys, letters were sent to Portland Rendering Co. and Western States Rendering Company requesting them to control odor sources.

As a result of field work and the receipt of 6 additional complaints in 1964, letters requesting control of odors were sent in September of 1964 to Western States Rendering Co., Associated Meat Packers, Pacific Meat Co., and Wilbur Ellis Company.

In January of 1965, Brander Meat Co. was requested to notify the Sanitary Authority of the steps they would take to correct the problem. There were 32 additional complaints received in 1965.

Because of the widespread odor problem caused by rendering plants, the staff prepared an informational bulletin dated October 14, 1964, which is in the Appendix A-2 of this report, and has been distributed to rendering plant operators. In addition to pointing out sources of odors, technical guidelines for control of odorous gases relating to the use of barometric condensers and direct flame after burners were provided in this bulletin.

Eight complaints were received in 1966, and in 1967, forty-two complaints and two petitions bearing 1014 signatures.

A plant survey was conducted at each of the plants. A report prepared for each of the plants include a process description and flow diagram. A description of each plant and processes in tabular summary form is provided in Appendix A-1.

A map summary of location of complainants is shown in Appendix A-5, for the years 1964, 1965, 1966 and 1967.

A summary of odor observations made in the North Portland area is contained in Appendix A-6.

A separate report has been prepared on each industry. The following represents a summary of staff recommendations:

1) Each industry be required to initiate or continue a housekeeping improvement program that will include a daily hot water or steam wash-down with detergents of facilities, including storage facilities.

2) Each industry provide for collection of gas entrained effluents and incinerate at a temperature of not less than 1200°F for a period of not less than 0.3 seconds, or provide equally effective control.

In addition to these recommendations applicable to each industry the following plants should include:

Portland Rendering:

1) Adequate vapor removal from the press discharge be provided.

2) Additional blower capacity be provided on condensers.

3) If the steps taken by the Company fail to control the odorous emissions, that consideration be given to providing control of total space ventilation within the plant.

Western States Rendering Co:

1) Install adequate vapor collection and control for the raw materials hogger, cooker dome and unloading doors, and tallow press area.

Kenton Packing Company:

1) Install adequate vapor collection and control for the cooker dome, discharge doors, and press area.

Brander Meat Co.:

1) Install adequate vapor collection and controls for the cooker dome, doors, dumping and drain bins and expeller discharge.

Pacific Meat Co.:

1) Install adequate vapor collection and control over dump doors, tallow drain bins, and expeller discharge.

Associated Meat Packers:

1) Install adequate vapor collection and control over cooker dome, discharge door and drain pan.

Wilbur Ellis Co:

1) It is recommended that further treatment of gaseous emissions be provided. (Note- the second recommendation would not apply in this instance.)

SUMMARY REPORT OF PLANT PROCESSES

RENDERING PLANT BULLETIN

EMISSIONS FROM RENDERING PLANTS

RULE 64 - Los Angeles County Air Pollution Control District

ODOR COMPLAINT AND SUMMARY MAP

ODOR SURVEY SUMMARY

SUMMARY OF RENDERING PLANT PROCESSES
FROM STAFF SURVEYS

December 12, 1967

TO: H. M. PATTERSON

FROM: R. B. HUSEMANN

SUBJECT: AP-6 Multnomah County - Meat Packing and Rendering Plants, North Portland

Below is a condensed description of each plant and recommendations of additional equipment needed. Attached is a more complete flow description and diagram for each plant.

	Portland Rend.Co.	Western States	Kenton Packing	Brander Meat Co.	Pacific Meat Co.	Assoc.Meat Packers
Process	Contin.	Batch	Batch	Batch	Batch	Batch
Number of Cookers	2	4	2	2	4 (1 under const.)	2
Capacity of Cooker (pounds per hour) (pounds per batch)	10,000	6-8000	6-8000	6-8000	8000	8000
Material Processed						
Fresh bones & offal	X	X	X	X	X	X
Dead carcasses	X					
Collected shop scrap	X	X			X	
Restaurant grease	X	X				
Blood				X	X (note 1)	
Cooker Controls						
Vented to atmos.			X			X
Barometric cond.		X		X	X	
Closed hot well		X				
Open hot well				X	X	
Shell & Tube Cond.	X					
Burner	X					
Sp. Ventilation	Inadeq.	None	None	None	None	None
Housekeeping						
Raw material stg.	Poor	Poor	Good	Good	Good	Good
Inside buildings	Poor	Poor	Good	Good	Fair	Fair
Grounds around bldg.	Poor	Fair	Fair	Fair	Poor	Fair

	Portland Rend. Co.	Western States	Kenton Packing	Brander Meat Co.	Pacific Meat Co.	Assoc. Meat Packers
Recommendations:						
Cooker vent control			Needed			Needed
Sp. vent & control						
Cooker loading dome		Needed	Needed	Needed	O.K. blow fed	Needed
Cooker dis. door	More Vacuum	Needed	Needed	Needed	Needed	Needed
Meal drain pan	More Vacuum	Needed	Needed	Needed	Needed	Needed
Press or expeller discharge	Needed	Needed	O.K.	O.K.	O.K.	O.K.
Raw material pit	Needed	Needed	O.K.	O.K.	O.K.	O.K.

Note 1. Wilbur-Ellis Co. operates a blood spray drier in Pacific Meat Co.'s building. A deodorizer is added to the blood. The spray drier exhaust is vented through a cyclone to the atmosphere. This drier should be controlled.

Oregon State Sanitary Authority
Oregon State Board of Health
Air Quality Control Section
1400 S.W. 5th Ave.
Portland, Oregon

Information Bulletin No. 1A
Date: October 14, 1964

RENDERING PLANTS
(1) Housekeeping
(2) Rendering
(3) Liquid Wastes

Process: Rendering is a process used to transform scrap animal matter into useful by-products. The process involves the application of heat to the raw material in order to remove water, break down the bone and tissue, and release fat or tallow.

Air Pollution Sources: The air pollution problem relates to the emission of odors. The odors originate from (1) putrid raw materials in open storage awaiting rendering and from spillage, (2) from the rendering operations itself, and (3) from waste disposal methods.

Air Pollution Control:

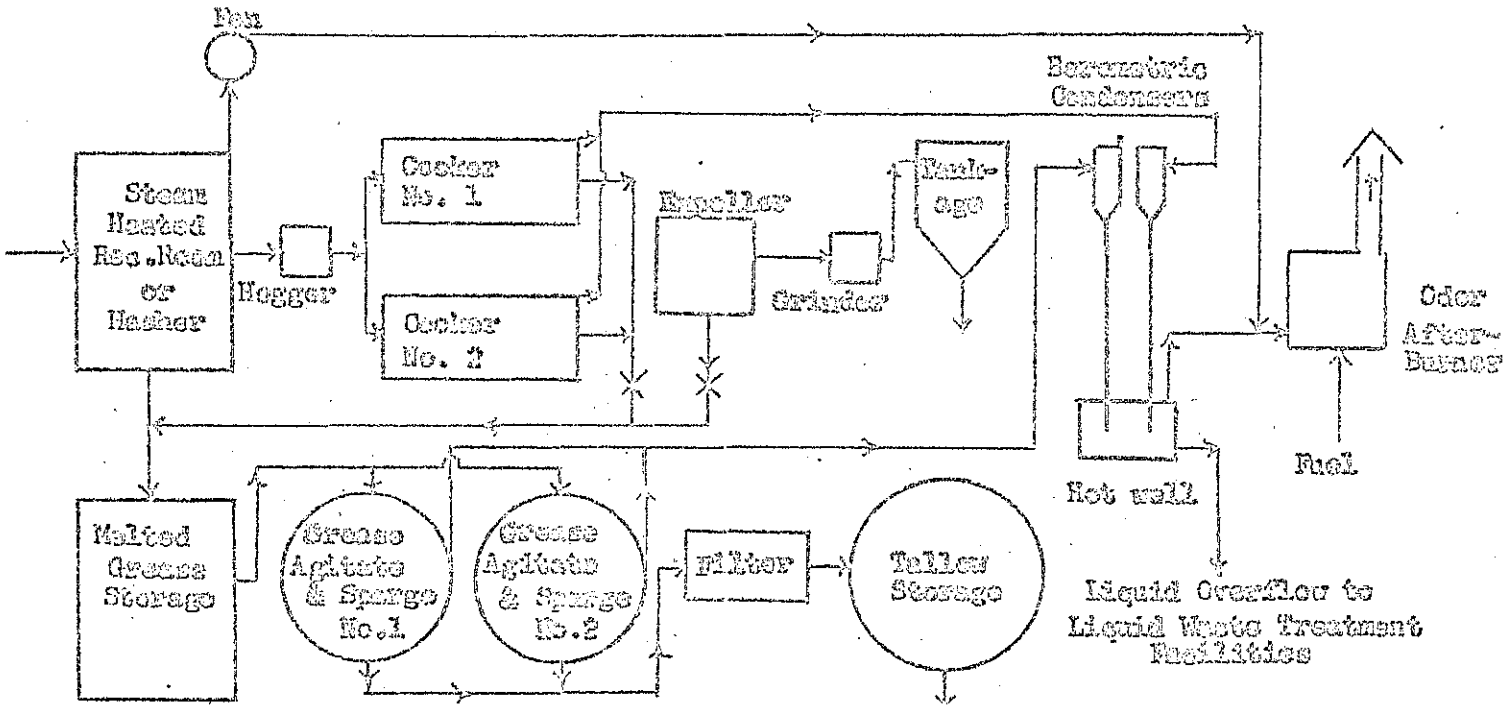
1. Housekeeping: The odors caused by poor housekeeping practices create strong odors in the immediate vicinity of the plant and can be controlled by prompt rendering to prevent putrefaction, and by a general plant cleanliness program.

2. Rendering: A rendering cooker without controls will emit large quantities of water vapor, entrained fatty particulate matter, and certain quantities of noncondensable gases. Since these latter gases will not condense at ordinary water and air temperatures, they are emitted to the atmosphere and may cause a nuisance over a wide area. The entrained fatty particulate matter may be deposited relatively close to the plant and add to the housekeeping problem.

The control found to be most acceptable is the combination of a barometric or surface condenser and a direct flame afterburner, or when feasible, gases may be vented to the firebox of a steam boiler for incineration.

Adequate consultant services should be obtained and plans and specifications for control equipment should be submitted for review to the Air Quality Control Section before installation work is started.

3. Liquid Waste: Approval by the Oregon State Sanitary Authority should be sought for the liquid waste treatment facilities. Liquid wastes should be discharged to a public sewer if available. A barometric condenser installed under (2) may add large quantities of contaminated waste water.



TYPICAL RENDERING PLANT

Schematic Diagram

Information Bulletin No. 1B
Date: October 14, 1964

RENDERING PLANTS

TECHNICAL ADDENDA (see attached schematic sketch)

A. Barometric Condensers

The following information should be considered when designing barometric condensers:

1. Weight of steam to be condensed, lb/min. (based upon maximum steam release).

2. Pressure and temperature of steam entering condenser.

3. Exit temperature of condensate so as to minimize evaporation to atmosphere upon dilution with other plant liquid effluents and subsequent exposure to outdoor temperatures.

4. The design of the condenser and barometric leg sizing should consider the suspended particulate matter. Condenser clean-out opening(s) should be used.

5. The hot well should be designed to prevent overflow of the odorous collected condensate. The hot well may be a good collection point for the subsequent negative draft removal of odors to a designed combustion facility (subsequent destruction of odorous compounds).

B. Direct Flame Afterburners

The following information should be considered when designing direct flame afterburners.

1. Determine the heat content per cubic foot of the total gas stream, including noncondensable vapors and gases entering the proposed combustion unit.

2. The heat capacity of the oil or gas auxiliary burner(s) should provide sufficient heat input to the combustion chambers to supplement the

minimum or negative net potential heat content of the vapors and gases to be burned (including water). The combustion chamber(s) should operate at temperatures in excess of 1200°F.

3. The burners should be designed to permit a maximum contact of the flame over the cross-section of the combustion chamber.

4. Gas velocities of 20-30 feet per second (460° Rankine basis) are recommended to maintain satisfactory mixing in the combustion chambers.

5. The residence times of the vapor and gases in the incinerator should be in the range of 0.25-0.50 second.

6. Additional burners, mixers, entrance baffles, and secondary chambers should be provided as necessary to permit sufficient temperature, mixing and retention time for the complete combustion of all gases and vapors.

7. Automatic draft control should be used to maintain satisfactory mixing and retention times in the unit.

8. The direct flame afterburner may be designed into a boiler unit so as to serve both as a heat source and as an afterburner.

9. Adequate consultant services should be obtained to assure that the proposed control facilities meet the requirements of plant source or sources.

ODOR EMISSIONS FROM RENDERING PROCESSES
AND EQUIPMENT

TYPE EQUIPMENT	ODOR CONCENTRATION RANGE	MODEL ODOR EMISSION RATE
	O.U./Std. Cubic Foot	O.U./Min
Rendering Cooker Inedible	5000 - 500,000 Mode 50,000	25,000,000
Rendering Cooker Edible	650-7,000 2,500	70,000
Rendering Cooker Blood Drying	10,000 - 1,000,000	Unknown
Contact Condenser 80°F Followed by afterburner 1200°F (inedible cooker)	25	2,000

Type of Compound Classes emitted from dry cooking:

Amines
Aldehydes
Fats
Mercaptans

Los Angeles County
Air Pollution Control District

RULE 64. (Adopted 6-25-59) REDUCTION OF ANIMAL MATTER. A person shall not operate or use any article, machine, equipment or other contrivance for the reduction of animal matter unless all gases, vapors and gas-entrained effluents from such an article, machine, equipment or other contrivance are:

a. Incinerated at temperatures of not less than 1200 degrees Fahrenheit for a period of not less than 0.3 second, or

b. Processed in such a manner determined by the Air Pollution Control Officer to be equally, or more, effective for the purpose of air pollution control than (a) above.

A person incinerating or processing gases, vapors or gas-entrained effluents pursuant to this rule shall provide, properly install and maintain in calibration, in good working order and in operation devices, as specified in the Authority to Construct or Permit to Operate or as specified by the Air Pollution Control Officer, for indicating temperature, pressure or other operating conditions.

For the purpose of this rule, ''reduction'' is defined as any heated process, including rendering, cooking, drying, dehydrating, digesting, evaporating and protein concentrating.

The provisions of this rule shall not apply to any article, machine, equipment or other contrivance used exclusively for the processing of food for human consumption.

This rule shall be effective on the date of its adoption as to any article, machine, equipment or other contrivance used for the reduction of animal matter not completed and put into service. As to all other such articles, machines, equipment or other contrivances this rule shall be effective October 1, 1959.

LOS ANGELES COUNTY
AIR POLLUTION CONTROL DISTRICT
434 South San Pedro Street, Los Angeles, California 90013/629-4711

LOUIS J. FULLER
Air Pollution Control Officer
ROBERT L. CHASS
Chief Deputy

January 5, 1967

047

Oregon State Sanitary Authority
1400 S.W. 5th Avenue
Portland, Oregon 97201

Attention: Mr. H. M. Patterson

Gentlemen:

The continuous rendering plants you mentioned are in operation here in the County. In order to qualify for operating permits, it is necessary for rendering equipment to be operated in compliance with all applicable provisions of our prohibitory Regulation IV, which includes Rule 64, a copy of which is enclosed. We cannot, unfortunately, provide any more specific information about these plants, since our regulations do not permit disclosure of operating details except for legal proceedings.

In general, objectionable emissions of air contaminants from oil presses can be prevented if they are not operated at high temperatures and pressures. Conversely, if high production rates are utilized, employing high pressures and temperatures, objectionable smoke, mists and odors may be expected. In such instances, additional air pollution control equipment may be needed.

With respect to odors from unloading pits and open screw conveyors, we find that good housekeeping is generally the most practical solution, including daily and thorough cleaning with hot water and detergents. Odors from decomposed carcasses are strong at such points, but the total odor emissions therefrom are minuscule compared with the odors from uncontrolled cookers processing the same material. A similar ratio exists for odors from fresher raw materials to those from cooking such materials, both being proportionately less. We have found that compliance with Rule 64 solves the majority of rendering plant problems. We recognize that this rule does not require collection and destruction of odors from raw materials or final products. If such

odors ever pose a nuisance problem here, we are prepared to require the entire process to be carried out in a gas-tight enclosure vented to a suitable odor control device.

If you are interested in measuring actual odor concentrations and output, may we recommend a paper entitled "Quantitative Odor Measurement", which appeared in the APCA Journal, 13, 10, pp. 468-475 (Oct. 1963).

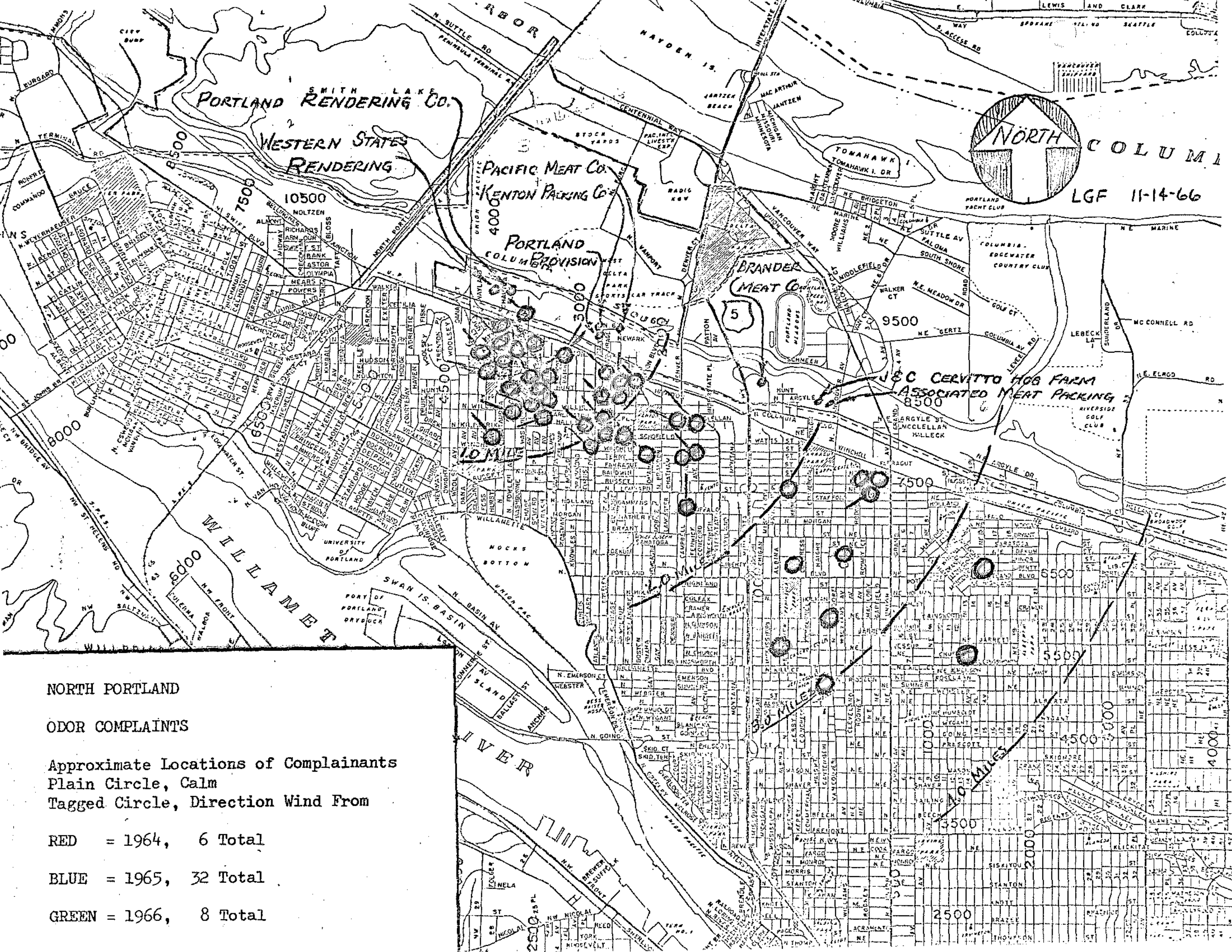
Very truly yours,

Louis J. Fuller
Air Pollution Control Officer

John L. Mills
Principal Engineer

JLM:af

Enclosure



NORTH PORTLAND

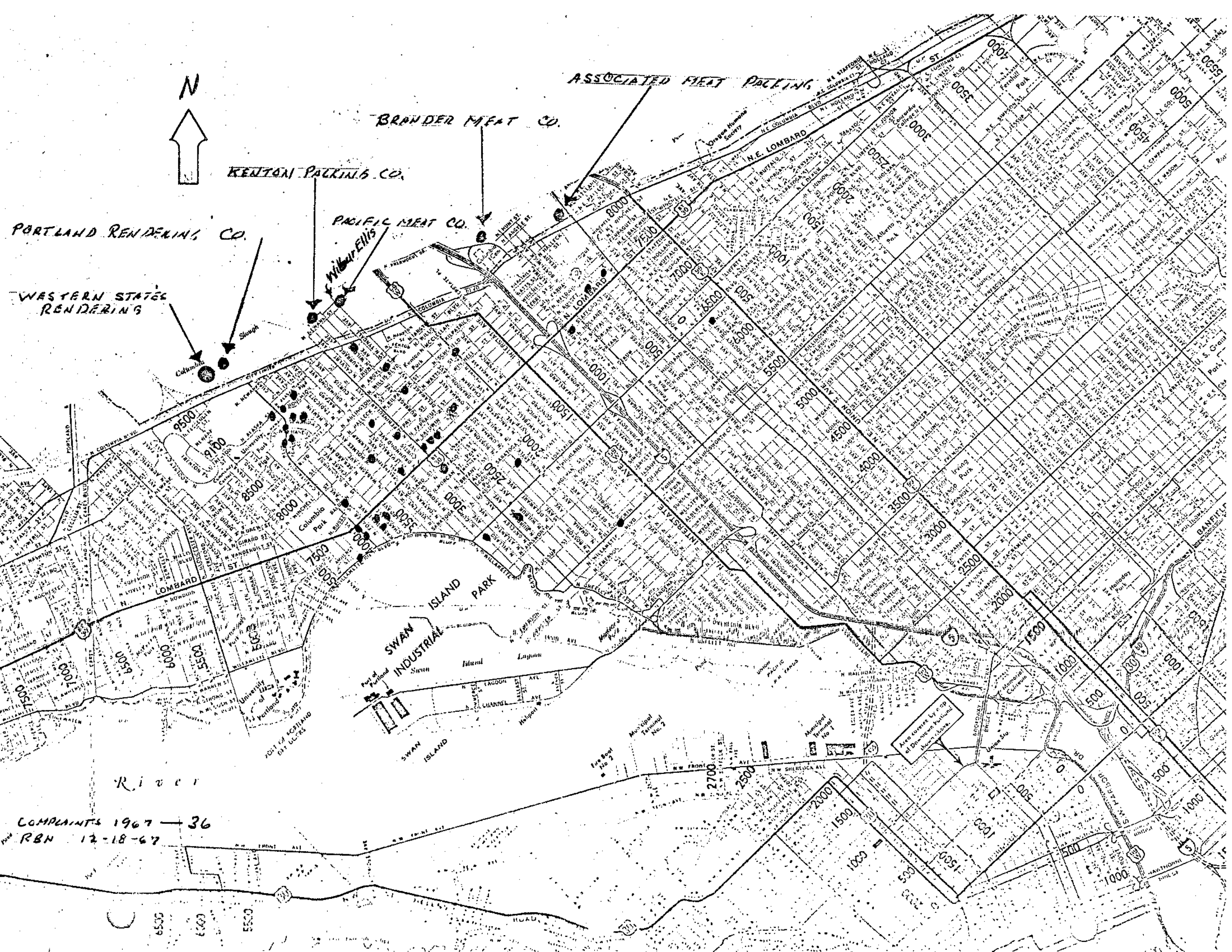
ODOR COMPLAINTS

Approximate Locations of Complainants
Plain Circle, Calm
Tagged Circle, Direction Wind From

RED = 1964, 6 Total

BLUE = 1965, 32 Total

GREEN = 1966, 8 Total


N
ASSOCIATED MEAT PACKING
BRANDER MEAT CO.
KENTON PACKING CO.
PACIFIC MEAT CO.
Wilbur Ellis
PORTLAND RENDERING CO.
WESTERN STATES RENDERING
SWAN ISLAND PARK
SWAN ISLAND
River
COMPLAINTS 1967 — 36
RBN 12-18-67

SUMMARY OF STAFF FIELD ODOR OBSERVATIONS

Date	Observer (1)	No. Odor Observ. Present	Absent	OBSERVATION: Odor Attributed to: Portland Rendering	Western States	Associated Meat Co.	Kenton Packing	Pacific Meat Co.	Brander Meat Co.	Wilbur Ellis	Unidentified
9-4-63	RFW	7	1	X	X						
9-6-63	RFW	23	1	X	X						
9-18-63	RFW	19	9	X	X						
8-21-64	RFW	7	6	X	X						
7-2-65	JRW	15	18	X	X						
7-13-65	LGF-JRW	15	3		X	X			(X)		X
7-26-65	LGF-JRW	4	5			X					
7-28-65	LGF	1				(X)					
7-20-65	JRW	8	11			(X)					
5-11-65	RFW	17	8	X	X						
5-12-65	RFW	58	19	X	X						
5-13-65	RFW	2		X	X						
8-6-65	LGF		1			-					
8-11-65	RFW	6	9	X	X						
8-18-65	LGF	3	3	-	-	X	-		-		
9-15-65	LGF	4	2	(X)	X	X	X	-	-		
9-17-65	LGF	5		(X)	(X)	X	(X)	(X)	(X)		
10-18-65	LGF	2	3		(X)	-	-	(X)	-		
10-21-65	LGF	2	3	-	(X)	X	-	-	-		
10-25-65	LGF	1	3	(X)	(X)		-	-	-		
10-26-65	LGF	2	2	(X)		(X)		-	X		
10-27-65	LGF	3	2	X	(X)	(X)	-	-	-		
12-3-65	LGF	1	1	(X)					X		
12-6-65	LGF	2	2		(X)	-		(X)	-		
12-23-65	LGF	1	2		-		-	(X)			
1-6-66	LGF	5	1	(X)	(X)	(X)	-	(X)	(X)		
2-2-66	LGF	3	2	(X)		-	-	(X)	(X)		
2-21-66	LGF	6		(X)	(X)		(X)	(X)	(X)		
7-26-66	LGF	4	2	X	(X)	-	-	(X)	(X)		
7-29-66	LGF	8		(X)	(X)	X	(X)	(X)	(X)		
6-29-67	LGF	5		X	X						
8-3-67	LGF	7		X	(X)	(X)	(X)	(X)	(X)	(X)	
8-8-67	LGF	6		X	X						
8-12-67	JRW	4						X			

(1) Odor Observers: RFW= R. F. Wood; JRW= Jim R. Willcox; LGF= Leo G. Farr

X = Present (X) = Reported only in immediate plant vicinity - = Absent

STAFF REPORT

TO : Members of Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

FROM : Air Quality Control Staff

DATE : For January 19, 1968

SUBJECT: PORTLAND RENDERING CO.

As a result of complaints received in 1963 and staff surveys, Portland Rendering Company was requested, in a letter dated September 24, 1963, to retain a consulting engineer and submit plans for adequate control of odors.

Subsequently the company advised that the matter was being considered by their headquarters staff. Masking agents were employed to reduce odors, which the staff subsequently advised that experience has shown that masking agents were not an adequate solution to the odor problem.

Following a Sanitary Authority letter of January 13, 1964, plans for a barometric condenser and hot well system and direct flame afterburner were submitted and approved in a letter dated April 1, 1964.

The company however did not follow the approved plans, but did install a cooker vent control system of their own design in May of 1964. Based upon an evaluation from contact of complaintants, odors were still present during the 1964 summer season but at a reduced level.

The Company was requested in a letter dated May 24, 1965 to submit plans and a time schedule for completion of an odor control system. A follow-up letter was mailed on July 7, 1965. In a letter dated July 26, 1965, the Company advised the staff that plans and specifications would be available within 30 days. No plans were received by the staff.

Staff changes and work load prevented pursuit of the odor problem to an acceptable conclusion; however, on November 10, 1965 the Company was again requested to submit plans by February 1, 1966. Plans for a "continuous" plant process and control system were reviewed with company officials and engineers on December 12, 1966. Conditional approval of the plans was granted on December 28, 1966.

Odors persisted during the 1967 season. Based upon a report from the Company's engineering firm, the 1967 difficulties were caused by a delay in arrival of equipment for the new plant process, premature start-up of equipment, equipment failure, which in turn caused holding raw

stocks for long periods, the death of the project engineer, and inadequate water supply to condense vapors with the new process resulting in failure of effective operation of the afterburner system. The Company advised the Authority that a well was being drilled and a contract for a building to house raw materials had been let. In a letter dated September 13, 1967, the Company was requested to submit a time schedule for all features contributing to odors at the plant. No schedule has been received.

Attached to this report is a process description and flow diagram based upon staff surveys.

It is pointed out that recent construction by the Company has not been evaluated.

It is recommended that the Company be requested to:

(1) Immediately initiate a housekeeping improvement program that will include a daily hot water or steam wash down with detergent of facilities including storage facilities.

(2) Adequate vapor removal from the press discharge be provided.

(3) Additional blower capacity be provided on condensers.

(4) Unless the Company submits information to demonstrate adequate operation of combustion system for non-condensibles, that a separate direct flame afterburner be provided to combust non-condensibles at a minimum temperature of 1200° F. and 0.3 second.

(5) If the steps taken by the Company fail to control the odorous emissions, that consideration be given to providing control of total space ventilation within the plant.

PORTLAND RENDERING CO. (Division of Delaware Darling Co.) Foot N. Hurst Ave. (Mr. N. Wood, Mgr.)

PROCESS:

Continuous rendering process using an identical two stream flow to 2 10,000 pounds per hour cookers. Numbers on attached sketch correspond to numbers on flow outline below:

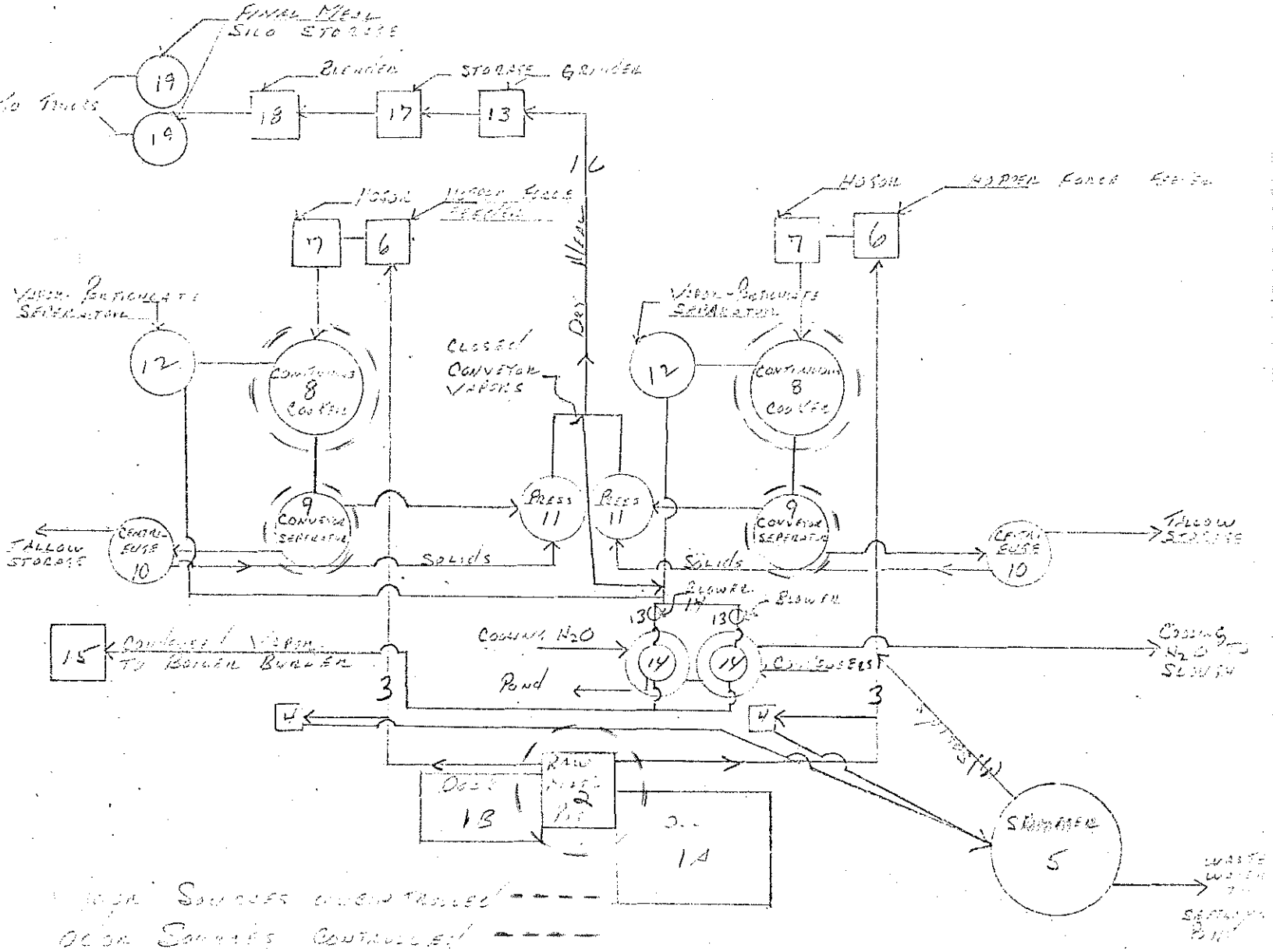
(1) Present dock is uncovered concrete unloading platforms. Barrels of meat scraps, bones and offal are unloaded from trucks, weighed and dumped to a raw material pit (2) which is also uncovered. Dead carcasses are unloaded from trucks just behind dock (1A) inside the main plant building with a chain fall. The carcasses are chopped up by hand and dumped in raw material pit (2). Under construction is a metal building on dock (1A) to house a hot house for restaurant grease and a pre-grinder for carcasses and larger chunks. This pre-grinder will feed (2).

Material from pit (2) is cross conveyed to incline conveyor (3). The raw material moves up conveyor (3) over a fine screen where water and fine material fall through and are collected in (4). This water, fines and juice mixture flows by gravity to a skimmer (5) where fines and lighter than water material is skimmed off and conveyed (6) back to conveyor (3). Waste water and settlings are drained off to a settling pond. Conveyor (3) dumps to hopper force feeder (6). Raw material from hopper (6) enters grinder (7) where it is ground for cooking. Material from (7) is fed to (8) batchwise initially. Batch is brought up to temperature of 250° F and cooked for 1-2 hours. At this point continuous discharge from (8) and continuous feed from (7) is started and system becomes continuous. This cooker is steam jacketed and has a 10,000 pounds per hour through-put capacity.

Discharge from (8) is screw conveyed (9). The trough conveyor with lid, has a perforated steel bottom through which flows tallow to a bird centrifuge (10). Tallow is separated from the fines, tallow discharged to tallow storage, fines conveyed to press (11). Solids from conveyor (9) are discharged to press (11). On top of each cooker is mounted a cyclone type vapor-particulate separator (12). Steam from the cooker passes through the separator, solids drop back to the cooker and vapor passes through to two H_2O cooled shell

condensers (14). On top of each condenser, pulling through a common header (14) are two small blowers. Besides pulling vapors from (12) vapor-separator, the blowers pull from the dry meal grinder (13) discharge with doubtful efficiency. The condensers are supplied with cooling H_2O from a well through an 8" line. There is no temperature instrumentation. The condensers and H_2O flow to the condensers is controlled by pinching back on a valve. The flow from the condensers is as follows: (a) Cooling water is piped to slough. (b) Condensed vapors go to settling pond. (c) Vapor goes to the fire box of the steam boiler (15) for incineration. The temperature of the fire box ranges from 1400-1600°F.

The dry meal leaves the presses (11) and is conveyed (16) to the dry meal grinder (13). The ground meal leaves the grinder (13) and is conveyed to a storage bin (17) to a blender (18) for uniform product and to storage silo's (19) for bulk loading.



Portland Rendering Co.

STAFF REPORT

TO : Members of Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

FROM : Air Quality Control Staff

DATE : For January 19, 1968

SUBJECT: WESTERN STATES RENDERING CO.

As a result of complaints received in 1963 and staff survey, Western States Rendering Company was requested by letter dated September 24, 1963, to make corrections and to control emissions from the cooker during the cooking process and control non-condensibles being discharged from the barometric condenser.

An additional letter was sent to the Company on September 16, 1964 requesting continued progress on control of odorous emissions and requesting the Company to advise the Sanitary Authority of progress made.

A letter dated October 21, 1964 from Bissinger and Co. requesting clarification of the Sanitary Authorities' intent was received, and answered on November 4, 1964. The letter to the Company pointed out that the major sources of odor at the plant which should receive further attention were: non-condensible off-gases from the barometric condenser hot well, cooking and press room odors, and general housekeeping and storage of raw and process materials.

In response to our letter of January 14, 1965, the Company advised on January 20, 1965 that improvements had been made in handling, housekeeping and an all-out effort was being made to keep cooker heads closed when cooking. The Company advised that no dead animals were being handled, and they were adding a deodorant material to cookers containing any decomposed material. The Company proposed to remodel condensate lines from the cookers, and subsequently it was reported the steam condensate lines had been replaced. (October 21, 1965).

Odor surveys conducted in 1965, 1966 and 1967 have shown odors to be present near the plant.

Attached to this report is a process description and flow diagram based upon staff surveys.

It is recommended that the company be requested to:

1) Immediately initiate a housekeeping improvement program that will include a daily hot water or steam wash-down with detergent of facilities including storage facilities.

2) Install adequate vapor collection and control for the raw materials hogger, cooker dome and unloading doors, and tallow press area.

3) Provide for incineration at a temperature of 1200°F and 0.3 seconds of odorous and non-condensible gases, or control by an equally effective means.

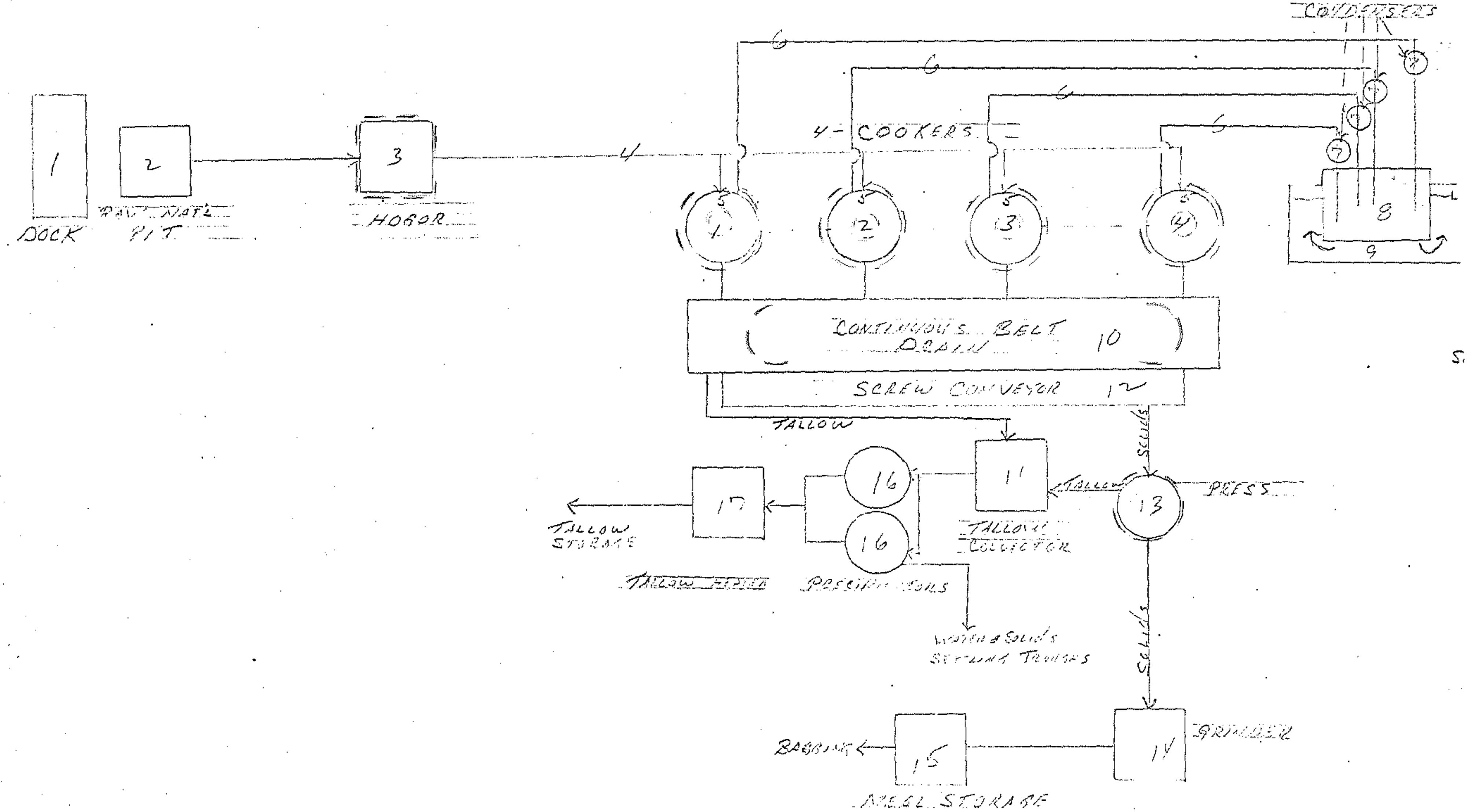
WESTERN STATES RENDERING CO. - N. Columbia Blvd. & Hurst Ave. (Mr. C. Pace, Mgr.)

PROCESS:

Western States has a batch type rendering process. They handle various degrees of fresh scraps and offal, taking no dead carcasses. This plant has 4 cookers handling from 6000-8000 pounds each with a cycle of 2-4 hours at 220" F. The cookers are steam jacketed. Numbers on the attached sketch correspond to the numbers on the flow outline below.

Scraps, bones and offal are received in drums on dock (1). The raw material is dumped into the raw material pit (2). The raw material is conveyed from (2) to the grinder (3). From the grinder (3), the material is conveyed (4) over the cooker (5) to be filled. The top of the cookers open and material falls into the cooker from the conveyor. The cooker dome is secured and the material is heated at 220° F. for from 2-4 hours. A sample is taken from the cooker and tested by feeling to determine the correct time to dump. Pressure and vapors from the cookers are relieved through line (6) through small contact condensers approximately 1' dia. by 2' length into a closed water trap (8). Any gas bubbles under inner closed chamber to outer scum covered overflow pit (9). At the time of inspection no gas bubbles were observed, no odor was detected and clean water was overflowing to the slough.

After a cook is completed (5) top cover on cooker is opened. Since there is no space ventilation, steam and odors fill the room and diffuse out open windows and doors to the atmosphere. The end doors of the cooker (5) is opened and the meal and tallow are conveyed out of cooker onto a continuous belt drain. The tallow drains through and is collected in a tallow collector (11). The meal is conveyed up over the edge into a screw conveyor (12). The screw conveyor (12) moves the meal to a press (13). The press separates any remaining tallow from the meal. The tallow flows to the tallow collector (11) and the meal is conveyed to a grinder (14). The grinder pulverizes the meal and drops it to storage bin (15) from which the meal is bagged. Tallow from collector (11) is sent to one of two precipitator tanks (16) where the water is chemically separated. Water is drained off the bottom and tallow is pumped to tallow heater (17) for final refinement. Tallow is heated to drive off water, goes down to 2% H_2O and tallow is pumped to storage tanks ready for bulk shipment.



WESTERN STATES RENDERING
CO. - BATCH PROCESS

STAFF REPORT

TO : Members of Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

FROM : Air Quality Control Staff

DATE : For January 19, 1968

SUBJECT: KENTON PACKING COMPANY

On September 16, 1964, the Company was requested to control odors as a result of a field evaluation of the total North Portland problem. The plant manager advised of his cooperative intent on September 17, 1964, and on December 14, 1964 advised that the Company had retained Metz Engineering Company of Portland to make the necessary studies and evaluation of the problem.

On February 25, 1965, the Company submitted a copy of the engineer's letter of evaluation. It was stated that the Company's problem could be resolved by installation of collection and control equipment for $5000 - $8000. The report recommended that perhaps other more offensive sources existed in the area and an over-all program should be undertaken.

Attached to this report is a process description and flow diagram based upon staff surveys.

It is recommended that the Company be requested to:

1) Continue good housekeeping practices that will include a daily hot water or steam wash-down with detergent.

2) Install adequate vapor collection and control for the cooker dome, discharge doors, and press area.

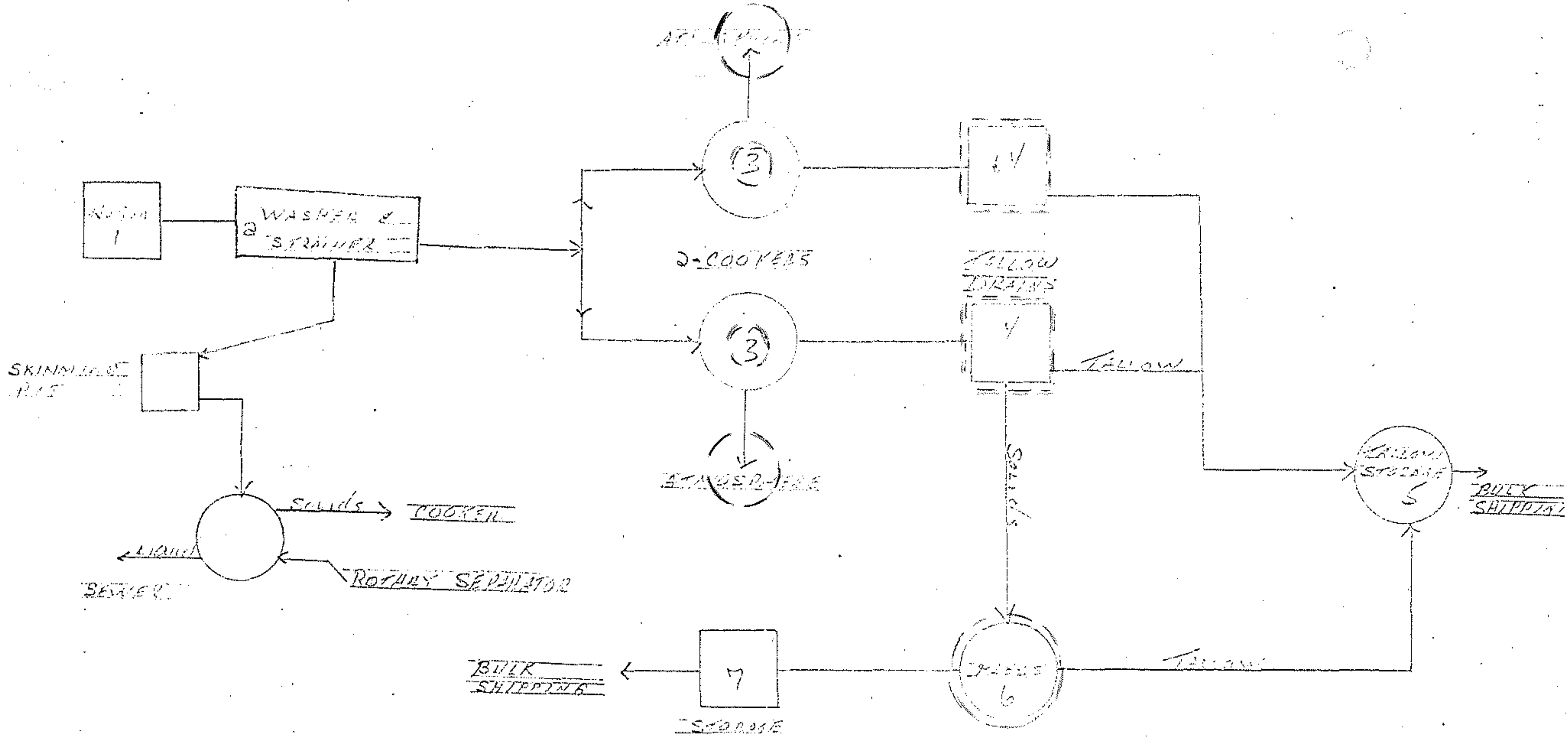
3) Provide for incineration at a temperature of 1200°F and 0.3 seconds of odorous and non-condensible gases, or control by an equally effective means.

KENTON PACKING CO. - N. Columbia Blvd. & Burr ge Ave. (Mr. Boyd,Foreman)

PROCESS:

Kenton Packing Co. processes only offal internally generated by their slaughtering activities. The blood collected is sent bulk to the Wilbur-Ellis Co. The plant has 2 cookers which hold 6000-8000 pounds per batch, cooks at 220° F from 2-4 hours. The cookers are vented to stacks with vapor going directly to the atmosphere. Flow description follows:

Bones and offal are dumped to hogor (1) and drop to a rotary washer and strainer (2). From (2) the washed, ground material is conveyed to the open hatch of one of two dryers (3). The material is cooked at 220° F for 2-4 hours, batch weight 6000-7000 pounds. Cookers are unloaded to a tallow strainer (4), and tallow drains out bottom and is piped to (5). Solids are conveyed to a press (6). Solids are pressed dry. Tallow goes to (5). Dry meal goes to storage (7).



WASHER &
STRAINER
2-COOKERS
TALLOW
DRAINS
TALLOW
SOLIDS
COOKER
ROTARY SEPARATOR
SEWER
STORAGE
BULK
SHIPPING

STAFF REPORT

TO : Members of the Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

FROM : Air Quality Control Staff

DATE : For January 19, 1968

SUBJECT: BRANDER MEAT CO.

Brander Meat Co. was advised of the general odor problem and surveys at other rendering plants in letter of January 8, 1965, and requested to reduce odors originating from the Company's operations, and to advise the Sanitary Authority of any plans for reducing odorous emissions. No additional letters were sent or received from the Company.

Attached to this report is a process description and flow diagram based upon staff surveys.

It is recommended that the Company be requested to:

1) Immediately initiate a housekeeping improvement program that will include a daily hot water or steam wash-down with detergent of facilities including storage facilities.

2) Install adequate vapor collection and controls for the cooker dome, doors, dumping and drain bins and expeller discharge.

3) Provide for incineration at a temperature of 1200°F and 0.3 seconds of odorous and non-condensible gases, or control by an equally effective means.

BRANDER MEAT CO. - 955 N. Columbia Blvd. (Walter Steel, Mgr.)

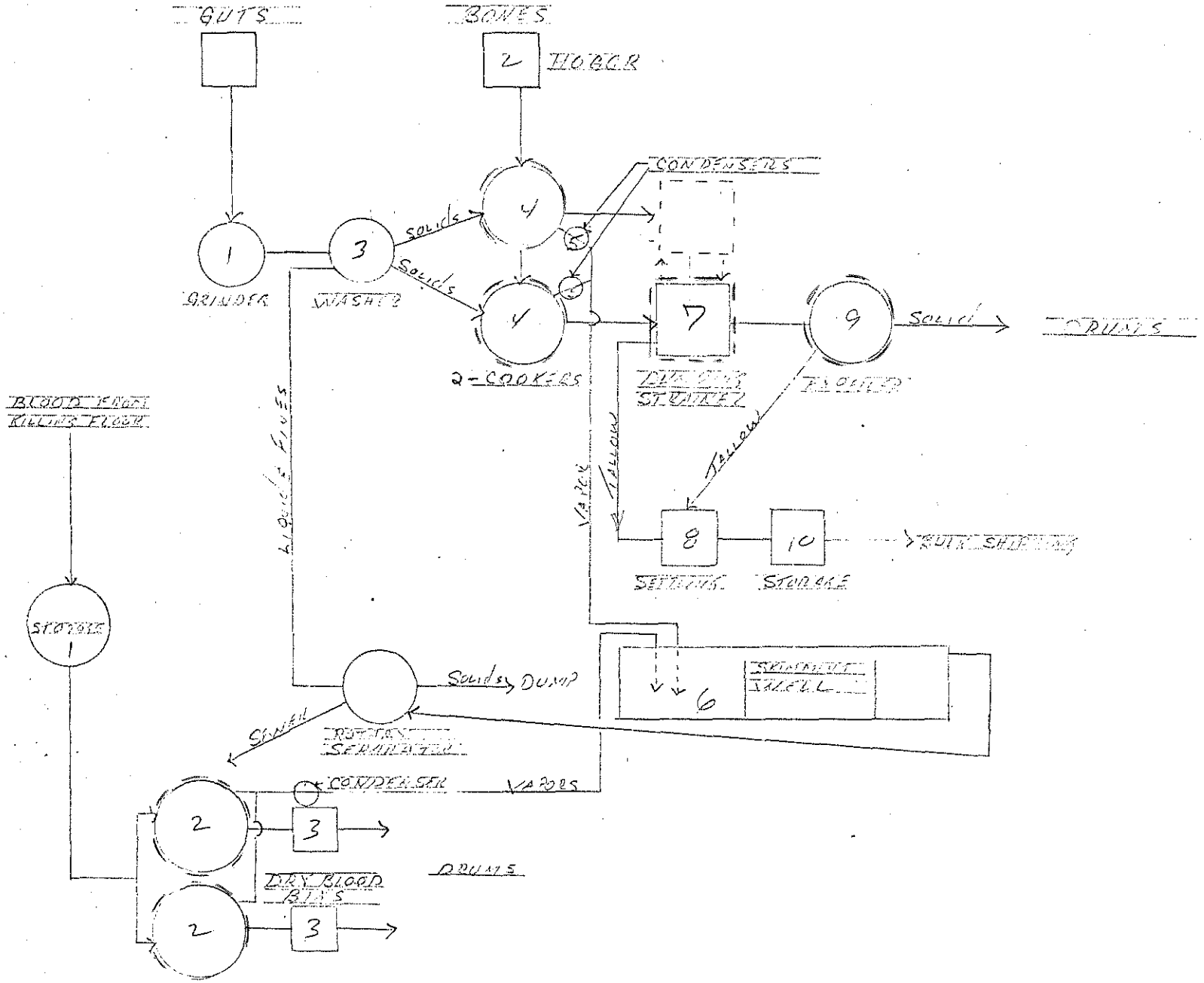
PROCESS:

Brander has a 2 cooker batch rendering process. Also two blood driers. Brander processes internally generated offal, bones and blood from its own and Coast Packing Co.'s slaughtering operation. Flow description follows:

(1 & 2) Offal and bones are ground in separate grinders and proportioned to the cookers. The ground offal is washed in (3). The material is cooked in (4) at 225° F for 2-4 hours, 6000-8000 pounds per batch. The vapors from the cookers are condensed in a contact condenser (5) and drain to a skimming well (6) with vapors discharging under the water surface. The cookers are discharged into a dumping tallow strainer (7). The tallow drains to a settling tank (8). Solids are conveyed to an expeller (9), tallow drains to (8), dry meal goes to drums for sale to a meal processer. Tallow is dumped to storage tank (10) for bulk shipping.

BLOOD DRYING:

Blood from the killing floor is piped to an open storage tank (1). The blood is pumped to one of two blood drying cookers (2). The blood is dried at 225° F for 3 hours with about 1000 pounds of product. (3) the dry powered blood is dumped to a bin and drummed.


GUTS
BONES
2 HOGGR
1
GRINDER
3
WASHER
SOLIDS
SOLIDS
4
4
2-COOKERS
CONDENSERS
7
9
SOLIDS
DRUMS
FAT SEPARATOR
FAT SEPARATOR
BLOOD TANK
KILLING FLOOR
STORAGE TANK
1
LIQUIDS & FINES
VAPORS
YELLOW
YELLOW
8
10
SETTLING
STORAGE
QUICK SHIPPING
SOLIDS DUMP
SCREW
ROTARY SEPARATOR
6
SCREW CONVEYOR
INCELL
CONDENSER
VAPORS
2
3
DRUMS
DRY BLOOD BITS
2
3
2 BLOOD COOKERS
odor SOURCES UNCONTROLLED
odor SOURCES CONTROLLED
BRADLEY PIT CO.

STAFF REPORT

TO : Members of the Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

FROM : Air Quality Control Staff

DATE : For January 19, 1968

SUBJECT: PACIFIC MEAT CO.

On September 16, 1964 the Company was advised of the Sanitary Authority program in the area, and requested that specific attention be given to the waste lagoon. The Company initiated use of an odor masking agent, and on October 19, 1964 was furnished a copy of the staff prepared bulletin on rendering plants with a request for a plant evaluation.

Attached to this report is a process description and flow diagram based upon staff survey.

It is recommended that the Company be requested to:

1) Immediately initiate a housekeeping improvement program that will include a daily hot water or steam wash-down with detergent of facilities including storage facilities.

2) Install adequate vapor collection and control over dump doors, tallow drain bins, and expeller discharge.

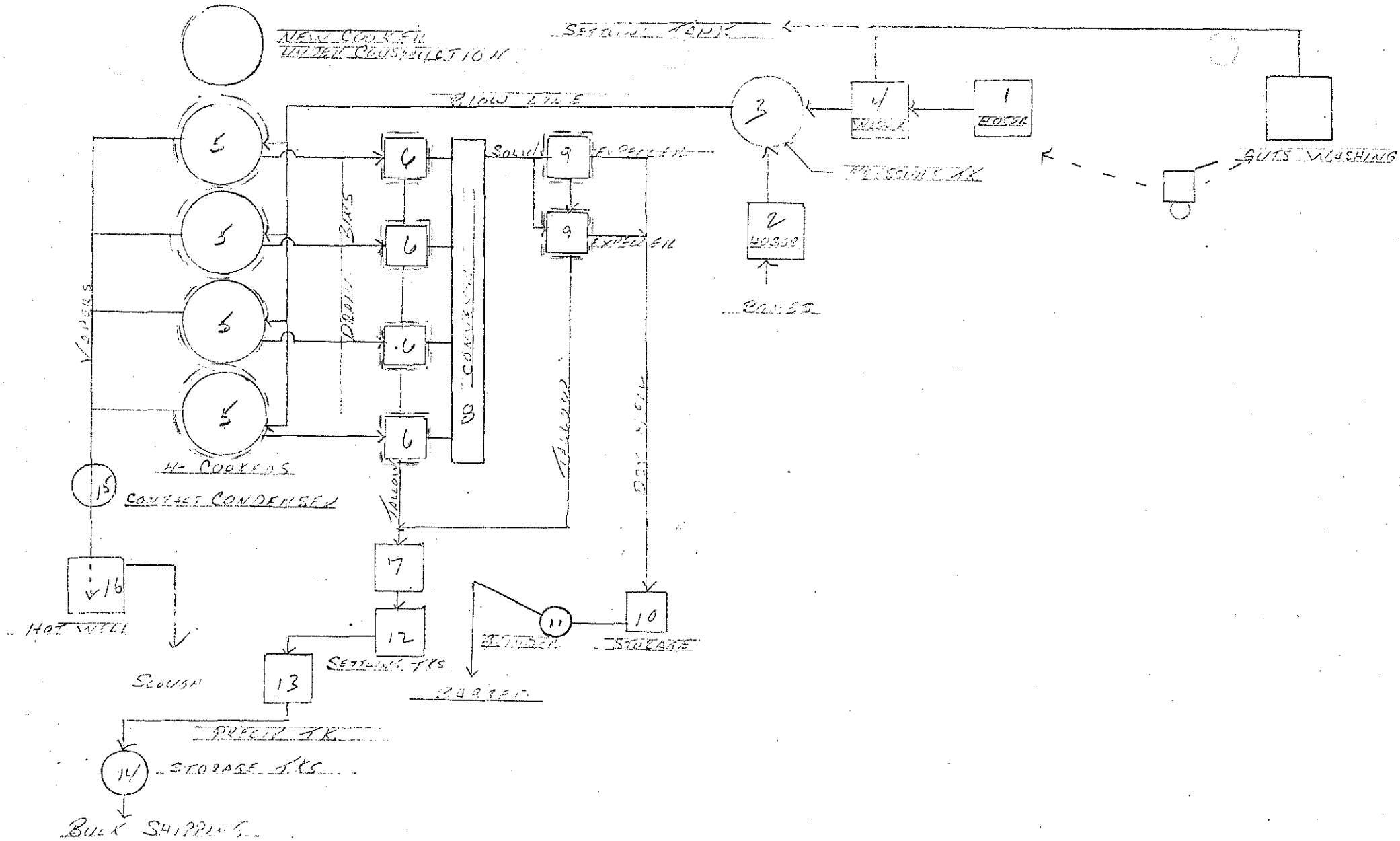
3) Provide for incineration at a temperature of 1200°F for 0.3 seconds of odorous and non-condensible gases, or control by an equally effective means.

PACIFIC MEAT CO. - N. Columbia Blvd. (Louie Ludo, Plant Engineer).

PROCESS:

Pacific Meat Co. has a batch rendering process. They process offal and bones internally generated by their slaughtering process. Pacific Meat Co. also does all the killing for Armour & Co. and processes this material. Flow description follows:

Offal is ground is (1) and the bones are ground in (2). The bones drop directly into an 8000 pound pressure vessel (3). The ground offal is washed in a rotary washer (4) and drops into (3). When the pressure vessel (3) is filled to a cooker load of 6000-8000 pounds, the head is shut and 80 pound steam pressure is applied and the material is blown to one of four cookers (5). The material is cooked at 225°F for 2-4 hours and is discharged to dumping tallow drain bins (6). The tallow drains to a tallow settling tank (7). The meal is dumped to a screw conveyor (8). The meal is conveyed to one of two expellers (9) or both as production demands, and the remaining tallow is pressed out. Tallow goes to (7). The dry meal is conveyed to a storage bin (10) from where it is ground and bagged (11). The tallow is settled twice (7) and (12) and is pumped to a precipitation tank for further drying (13). The tallow is then pumped to a bulk storage tank (14) for bulk shipment. The cookers (5) are vented during the cooking process through a water contact condenser (15). The condenser water and non-condensible vapors are discharged under the water surface to a hot well (16).



PACIFIC MEAT CO.

STAFF REPORT

TO : Members of the Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

FROM : Air Quality Control Staff

DATE : For January 19, 1968

SUBJECT: ASSOCIATED MEAT PACKERS

On September 15, 1964, the Company was requested to control the vapor and gases from the cooker which were vented directly to the atmosphere. Following subsequent letter, the Company advised the Sanitary Authority on January 11, 1965 that a condenser control system was being installed.

Subsequent field odor surveys made in 1965 and 1966 showed occasional malodors present.

Attached to this report is a process description and flow diagram based upon staff surveys.

It is recommended that the Company be requested to:

1) Continue good housekeeping practices that will include a daily hot water or steam wash-down with detergent.

2) Install adequate vapor collection and control over cooker dome, discharge door and drain pan.

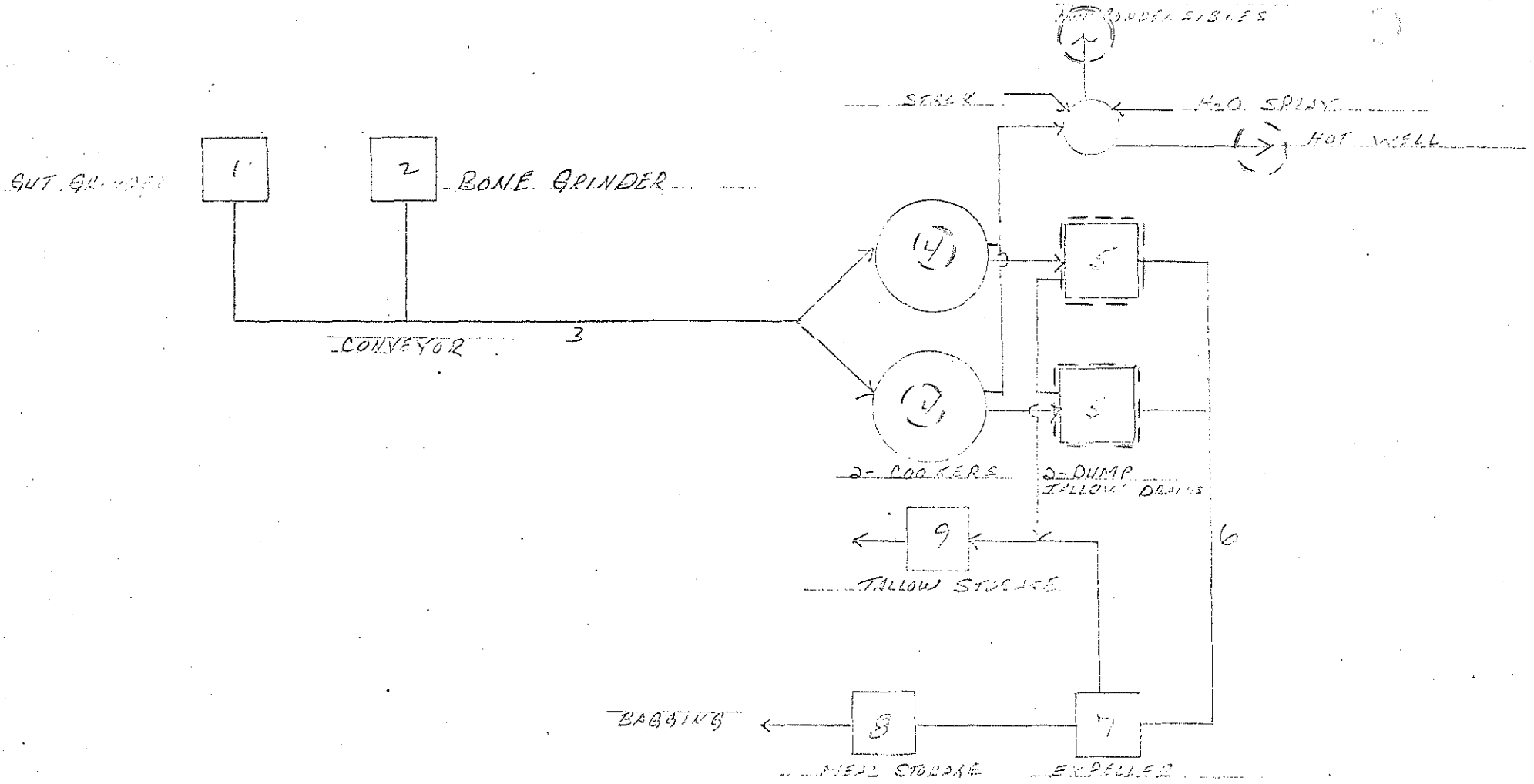
3) Provide for incineration at a temperature of 1200°F for 0.3 seconds of odorous and non-condensible gases, or control by an equally effective means.

ASSOCIATED MEAT PACKERS - N. Vancouver Avenue (Mr. Hotchkiss)

PROCESS:

Associated Meat has a batch rendering process. They process bones and offal internally generated by their slaughtering operation. Flow description follows:

Offal is ground in (1) and bones in (2). The ground material is fed to a common conveyor (3) which feed the cookers. The raw material is fed to one of two 8000 pound cookers (4). The material is cooked for 2-4 hours at 225°F. The vapors from the cookers go through a vent line into the side of the stack which has a water spray ring near the top. The condensed vapors fall and are piped to a hot well. The non-condensibles go to the atmosphere. The cookers are discharged to a dumping tallow drain bin (5). The drained meal is dumped to a screw conveyor (6). The screw conveyor moves the meal to an expeller (7) where the remainder of the tallow is removed. The dried meal is conveyed to a dry meal storage bin (8), from which it is bagged. Tallow is collected in a tallow bin and pumped to a tallow storage tank (9) for bulk shipment.



ASSOCIATED MEAT PACKERS

Odor Sources Controlled ———

Odor Sources Controlled ———

STAFF REPORT

TO : Members of the Oregon State Sanitary Authority

Mr. John Mosser, Chairman
Mr. Herman P. Meierjurgen, Member
Mr. B. A. McPhillips, Member
Mr. Edward C. Harms, Jr., Member
Mr. Storrs Waterman, Member

FROM : Air Quality Control Staff

DATE : For January 19, 1968

SUBJECT: WILBUR ELLIS CO. (at Pacific Meat)

As a result of a field survey, the Wilbur Ellis Company was advised in our letter of September 16, 1964 that it was the conclusion of the staff that the gases from the blood drying operation were contributing to the area-wide odor problem. The Company advised in a letter of October 13, 1964 that a study had been completed, and by revising storage and collection procedures, the problem had been resolved. Odor masking agents sprayed into the stack were found unnecessary after corrections had been made.

Attached to this report is a process and flow diagram for the Company operation.

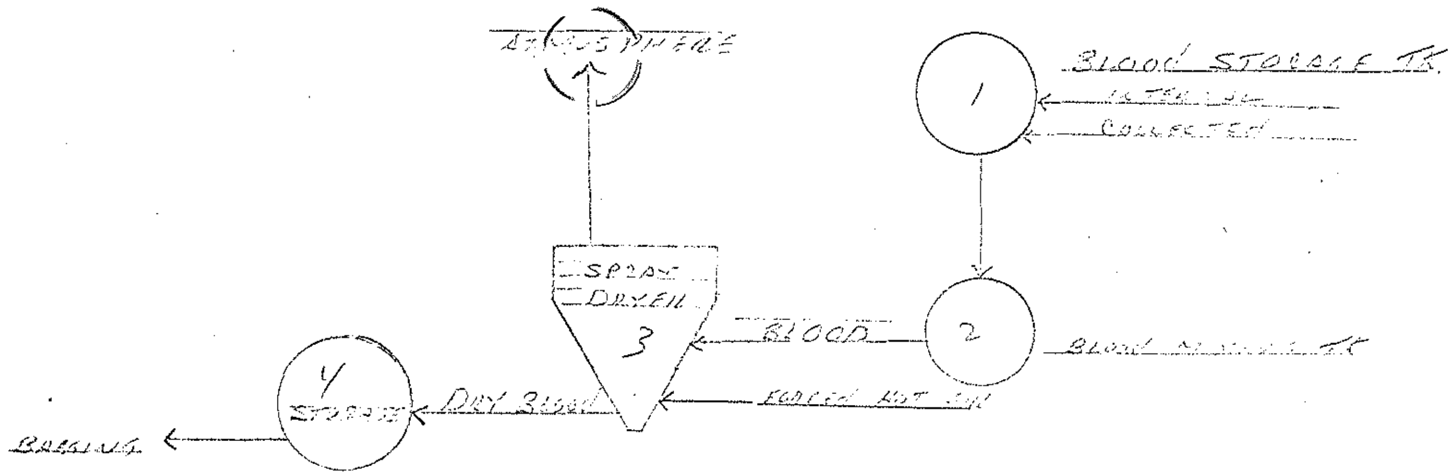
It is recommended that further treatment of gaseous emissions be provided.

WILBUR-ELLIS CO. - Pacific Meat Co. Bldg. (Blood drying)

PROCESS:

Wilbur-Ellis Co. dries blood which is generated by Pacific Meat Co., also picks up blood in tank trucks. Flow description:

Blood is received and stored in (1). Blood is pumped to (2) a mixing tank where a deodorizer is added. Blood is dried in (3), a spray drier 40-50 GPH with air to drier at 160° F. Dry powdered blood is discharged from (3) into storage bin (4) and is bagged.



BLOOD DRYING

WEBER - FELLS CO.

Odor Sources uncontrolled — — — —

S-5A—5-49

Office Memorandum • OREGON STATE BOARD OF HEALTH

To : H. M. PATTERSON Date: Dec. 12, 1967

From : R. B. HUSEMANN

Subject: AP - 6 Multnomah County - Rendering Plants

The following is a General Summary, 1963 to present, of the odor problem connected with the rendering plants in North Portland area. Attached to the summary is a more complete rundown on each plant individually.

1963: Numerous complaints by residents of North Portland were received by the OSSA and also a petition signed by 25 residents of the area. Odor survey by staff was made and odor problem did exist. Letters were sent to Portland Rendering Co. and Western States Rendering Co. notifying them of the complaints and informing them that an odor survey had been conducted. Both plants were instructed to start work controlling the odors from their plants.

1964: Six complaints received in 1964. Continued correspondence with Portland Rendering Co. on plans for odor abatement. In September, Western States Rendering Co., Associated Meat Packers, Pacific Meat Co., Kenton Packing Co., Wilbur-Ellis Co., were all sent letters advising them of odor surveys made at their plants giving them until January 1, 1965 to correct their specific odor problems.

1965: In January, Brander Meat Co. was notified by letter of their odor problems and that they were to advise the OSSA staff of the steps they would take to correct their problems. By January, all plants now operating were aware of the complaints by citizens and had been instructed to correct the situation. There were 32 complaints received in 1965.

1966: Emphasis was placed on Portland Rendering Co. and work on their proposed equipment changes was carried out throughout the year. Eight complaints were received in 1966.

1967: Portland Rendering Co. started up their continuous rendering equipment in July. Forty-two complaints and two petitions containing 1,014 signatures have been received so far in 1967. A plant survey of each operation has been made by the OSSA staff. A flow diagram and description with odor sources indicated has been made of each plant.

SUMMARY OF ACTIVITIES RELATED TO

PORTLAND RENDERING CO.

December 12, 1967

September 24, 1963 - Letter to Portland Rendering Co. notifying them of complaint of 25 citizens about odors. Odor survey had been conducted and odor did exist. Told to retain an engineering firm to design adequate controls for his plant. Instructed to notify OSSA by October 7, 1963 of preliminary plans. (letter by REH)

October 7, 1963 - Letter from N. P. Wood, Manager, Portland Rendering, stated Corporation had been notified of above letter, and Corp. would notify him of a decision on the matter. No time specified.

October 15, 1963 - Notified OSSA they would use a masking chemical in each cooker.

October 24, 1963 - Portland Rendering notified masking was not satisfactory and plans for controls would be expected by November 15, 1963.

September, 1963 Numerous odor surveys made - many odor 3's recorded.

January, 1964 Activity resumed in files

January 13, 1964 - Portland Rendering notified they would not be allowed to operate through the summer unless adequate odor controls were installed. Wanted Co. to proceed with controls by May, 1964.

March 30, 1964 - Plans submitted by Portland Rendering for condenser and after burner. Plans approved by REH April 1, 1964.

September 16, 1964 - Odor still persist. Portland Rendering asked to continue odor control equipment improvement.

May 24, 1965 - Odor still nuisance. Requested plans, time schedule and expected completion date for control of odorous emissions. HMP.

November 10, 1966 - Portland Rendering Co. directed by letter to submit plans and time schedule on odor control by February 1, 1967.

December 16, 1966 - Portland Rendering notified office they had decided to go to a continuous rendering process.

December 28, 1966 - Portland Rendering given conditional approval to install Duke, Inc. continuous rendering plant.

August 3, 1967 - Report by L. G. Farr on Portland Rendering Co. giving background and present problems.

August 3, 1967 - Numerous complaints received. New plant put into operation but not running satisfactorily. Letter stated continuous rendering system was not approved as an adequate pollution abatement process.

August 8, 1967 - Odor survey made by J. R. Willcox.

August 11, 1967- Survey by C. A. Ayer and H. W. McKenzie.

August 21, 1967- Letter to N. P. Wood from E. J. Weathersbee pointing out complaints and surveys. Time schedule requested by September 8, 1967.

September 5,1967- Letter from Duke, Inc. explaining steps being taken to stop odors.

September 13,1967- Letter acknowledging receipt of letter above reiterating request for odor abatement.

SUMMARY OF ACTIVITIES RELATED TO

WESTERN STATES RENDERING CO.

December 12, 1967

September 24, 1963 - Western States Rendering Co. told that there were complaints of odor attributed to their plant. Survey of plant made. Told to make corrections.

September 16, 1964 - Notified Western States Rendering Co. complaints had been received since 1963. Asked company to continue work on the control of odor and keep office advised of progress.

October 21, 1964 - Letter from Bissingen & Co., paremt company of Western States Rendering Co. stating they were not happy about inequities of control.

November 14, 1964 - Letter to Bissingen and Co. explaining the above.

January 14, 1965 - Letter to Western States Rendering Co. requesting information on what they were doing to improve odor control.

January 20, 1965 - Western States Rendering Co. answered above letter stating they improved housekeeping and planned to remodel condensate line from cookers.

January 25, 1965 - Letter to Western States Rendering Co. acknowledging above letter stating more surveys would be made to check their odor levels.

SUMMARY OF ACTIVITIES RELATED TO

BRANDER MEAT CO.

December 12, 1967

January 8, 1965 - General letter to Brander requesting that they keep staff advised as to status of their odor control equipment and any plans they have for reducing odors.

July 13, 1965 - Odor survey taken by J. Willcox. No odors detected.

April 12, 1966 - Odor survey taken by L. G. Farr from 7-13-65 to 2-21-66. 3 out of 16 surveys had odor 2 - 13 times odor level 0.

SUMMARY OF ACTIVITIES RELATED TO

ASSOCIATED MEAT PACKING

December 12, 1967

September 15, 1964 - Directed over to control sources of odor by January 1, 1965. Advise office by October 15, 1965 of plsns.

January 8, 1965 - Letter to Associated Meat Packers requesting above information which had not been sent.

January 11, 1965 - Letter from Associated Meat Packers stating they were installing a condensor type control of their stacks.

February 26, 1965 - Memo from R. F. Wood, field survey of Associated Meat Packers condensor on stack appeared to be working satisfacborily.

SUMMARY OF ACTIVITIES RELATED TO

PACIFIC MEAT CO.

December 12, 1967

September 16, 1964 - Notified Pacific Meat Co. that lagoon odor must be corrected. Have until January 1, 1965.

September 17, 1964 - Pacific Meat Co. replied above that they intended to mask odor.

September 21, 1964 - Letter to Pacific Meat Co. stating masking was not a solution.

SUMMARY OF ACTIVITIES RELATED TO

WILBUR-ELLIS CO.

September 16, 1964 - Letter sent to the above with regard to odor from Blood Dryer.

October 13, 1964 - Wilbur-Ellis Co. wrote back that they were getting spoiled blood from one source and that they had corrected the problem.

SUMMARY OF ACTIVITIES RELATED TO

KENTON PACKING CO.

December 12, 1967

September 16, 1964 - Letter directing above to control odors by January 1, 1965, advise of plans by October 15, 1964.

September 17, 1964 - Kenton Packing Co. called and said they had no problem but to cooperate. Wanted name of consulting engineer.

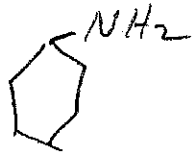
December 14, 1964 - Kenton Packing Co. retained Metz Engineering Co. to look into their odor problem.

February 19, 1965 - No word from Kenton Packing Co. on engineering findings. Requested same by March 1, 1965.

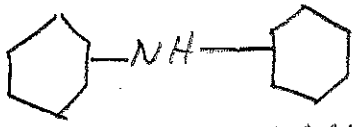
February 25, 1965 - Letter from Kenton Packing Co. with Metz Engineering report attached. Questioned his correcting any problems before whole area started making corrections.

AMINE - $-NH_2$ GROUP

EXAMPLES:



ANILINE



DIPHENYLAMINE

CH_3NH_2 METHYLAMINE

ALDEHYDE $-\overset{O}{\overset{\|}{C}}-H$

$H-\overset{O}{\overset{\|}{C}}-H$ IS FORMALDEHYDE

SOME ALDEHYDES SMELL LIKE RANCID BUTTER

FATS ARE COMPOUNDS OF GLYCERINE. ANIMAL FATS ARE BUTTER, LARD & TALLOW

FATTY ACIDS

STEARIC ACID $CH_3(CH_2)_{16}COOH$

PALMITIC ACID $CH_3(CH_2)_{14}COOH$

$CH_3(CH_2)_X$ IS FAT RADICAL

$COOH$ IS ACID RADICAL

ALIPHATIC HYDROCARBONS

are compounds such as FATS, OILS, AMINE MERCAPTANS ETC.

MAINLY THIS GROUP

CH_3

CH_3SH

CH_3NH_2

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

ODOR SURVEY PROCEDURES

Background

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

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

Intensity Scale

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

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

#1 - Threshold level of the component.

#2 - Definite odor of component.

#3 - Strong odor of component.

#4 - Overpowering odor of the component.

Instructions

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

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

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

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

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

Bibliography

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

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

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

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

OREGON STATE SANITARY AUTHORITY
1400 S. W. 5th Avenue
Portland 1, Oregon

REPORT OF ODOR SURVEY

Location _____ Date _____

Suspected Source _____ Observer _____

LOCATION of OBSERVATION	TIME	WEATHER CONDITIONS		*ODOR INTENSITY
		WIND DIR.	INVERSION & OTHER DESCRIPTION	

*Scale of Intensity
0 - No odor or no odor of the designated component.
- Threshold level of the component.
2 - Definite odor of the component.
3 - Strong odor of the component.
4 - Overpowering odor of the component.

APC-6 9/59

TECHNICAL INFORMATION REPORT FROM THE TI-2 COMMITTEE

ROBERT T. WALSH,*
Principal Author
Air Pollution Control District—
County of Los Angeles

Air Pollution Aspects of the Inedible Rendering Industry

Informative Report No. 7 on the inedible rendering industry is one of a series of survey reports prepared by APCA's TI-2 Committee on air pollution problems and control methods encountered in the chemical industry today.

The rendering industry is one that most people do not care to see or discuss and, if at all possible, would prefer to exclude from their olfactory systems. Traditionally, malodorous rendering plants have been swept under the community rug by relegation to sparsely populated areas and to low-rent "offensive trades" zones. In recent years, rendering operations have been modernized, mechanized, and, to some degree, deodorized. Yet annoying malodors persist in many rendering areas where operators remain indifferent to proved air pollution control methods, or where care is not exercised in control of putrifaction.

Almost every type of otherwise unsalable animal matter finds its way to a rendering process. Slaughterhouse trimmings, entrails, blood, butcher shop fat and bone, restaurant grease, poultry feathers, "dead stock" from ranches and dairy farms, slow race horses, and even good ole Bowser make up typical rendering feedstocks. At rendering plants meat-packing houses these materials are thermally reduced to yield tallow, proteinaceous livestock feed supplements, and fertilizers.

Historically, tallow has been the most important product, although livestock feed supplements have found expanded markets in recent years.

In 1964, 4.1 billion lb of tallow were produced in the United States. Of this total, 2.3 billion lb were exported. Approximately one-half of the export tallow was processed into soap. Only one-third of the 1.8 billion lb domestic consumption went into soap, the rest being divided almost equally between feed fats and the production of fatty alcohol.

* Now with the U.S. Public Health Service.

Informative Report No. 7 of the TI-2 Chemical Committee was first submitted to APCA's Steering Committee and Technical Council on February 9, 1966. It was processed in accordance with the 14 step procedure outlined in the March 1963 *Journal* and was finally approved by APCA's Board of Directors on October 15, 1966. In accordance with the objectives of the Association as they appear in Article XV, Section 4 of the By-Laws, each technical coordinating committee has the task of reviewing and amending its studies as often as necessary in the light of technological changes.

In accordance with procedures adopted by the APCA Technical Council and the Board of Directors, it is now published as representing "the best thinking of the Association."

The Process

Most animal matter reduction systems can be classified as dry rendering, air-drying, or wet rendering. In the dry rendering process animal matter is cooked in steam-jacketed vessels to effect a separation of tallow and solids. Almost all contained moisture (about 40% of the charged weight) is evaporated. Cooker exhaust products are principally steam, but also include small quantities of extremely odorous gases. Tallow is pressed from cooked meal, filtered, and further dehydrated by centrifuging, settling, or air blowing. From 5 to 8% moisture is left in the meal. Most dry rendering cookers are batch-operated, horizontal cylindrical vessels with paddle agitators. Cooking cycles range from 1 to 4 hr. A plant utilizing batch cookers is depicted in Fig. 1.

In recent years several continuous rendering systems have been developed. Most of these fall into the general classification of dry rendering and offer the promise of decreased malodors. In one process, the typical batch system is conveyorized with animal matter being ground before and during the cook cycle. Other systems employ recycle tallow to increase heat transfer and to allow the material to be pumped. Vacuum cooking is employed in at least one continuous process to allow low-temperature cooking and to accelerate evaporation of water. From the air pollution standpoint, the most promising processes are those in which moisture is removed mechanically, as by centrifuging, rather than by evaporation. Feedstocks are finely hashed but are not heated above 212°F, so that much of the odorous air contaminants are retained in the water layer. All continuous systems offer the advantage of rapid handling. Since malodorous exhaust volumes are more uniform than those of batch systems, the design of odor control equipment is usually more straightforward.

In the wet-rendering process, feedstocks are heated in a closed pressure vessel, usually a vertical tank, by the addition of live steam. Heat effects a phase separation such that the resulting water layer, tallow, and solids can be separated by filtering, settling, expressing, and centrifuging. The water layer contains soluble proteins which are sometimes concentrated in evaporators.

Some materials which do not contain tallow, such as blood and feathers, are also digested and dehydrated in dry-rendering cookers. Raw or "green" blood contains about 87% moisture. Complete drying in a rendering cooker is slow, particularly near the end of the cycle when there is little moisture left in the meal. Feathers require pressure

cooking at about 50 psig to break down complex proteins. Feather meal, like blood meal, can be finished in the same dry-rendering cooker in which it was cooked, but again the process is time consuming and dusty near the end of the cycle.

There are few airdrying processes used for the primary reduction of animal matter. In most instances air driers are employed to remove moisture from material that has been digested previously in a dry or wet rendering cooker. Feather meal and blood meal are frequently finished in such equipment, usually in steam-tube driers rather than direct-fired units. Fired driers can produce stronger odors if temperatures are excessive.

The reclaiming of waste restaurant grease, trap grease, etc., is conducted by some rendering plants. It requires heating to about 190°F, settling, and decanting grease from the water layer. Decanted grease is sometimes further dried by boiling and air blowing. Grease operations are characterized by an abundance of barrels and other small containers which must be washed frequently to suppress objectionable odors.

Air Pollution Aspects

Malodors constitute the principal air contaminants generated in rendering processes, although minor quantities of dust are also created in the grinding of cooked solids. Obnoxious odors are evolved from the handling and storage of feedstocks, but, by far the greatest quantity of odors is generated in heated reduction equipment. Odor quantities are greatly increased throughout the process if putrefied feedstock is used or normal sanitation is not observed.

Some odors are liberated when animal matter is hashed or milled prior to dry rendering. After the material is charged to the cooker, initial heating generates significant quantities of malodorous gases, the more objectionable being amines and sulfur compounds.[1, 2] These objectionable gases constitute less than 5% of the exhaust volume and are intimately mixed with steam. As the cooking progresses, degassing is completed and additional odorous compounds are created by the overheating of proteinaceous materials. At the completion of a batch cook, remaining tallow and solids are discharged into a percolator drain pan accompanied by the discharge of substantial quantities of steam and odors, probably the largest odor quantity next to that of the cooker itself. The further refining of tallow is reasonably innocuous, but dehydration by boiling or air blowing does produce measurable malodors. Minor volumes of smoke and odors are evolved from expellers if properly designed and operated when tallow is expressed from

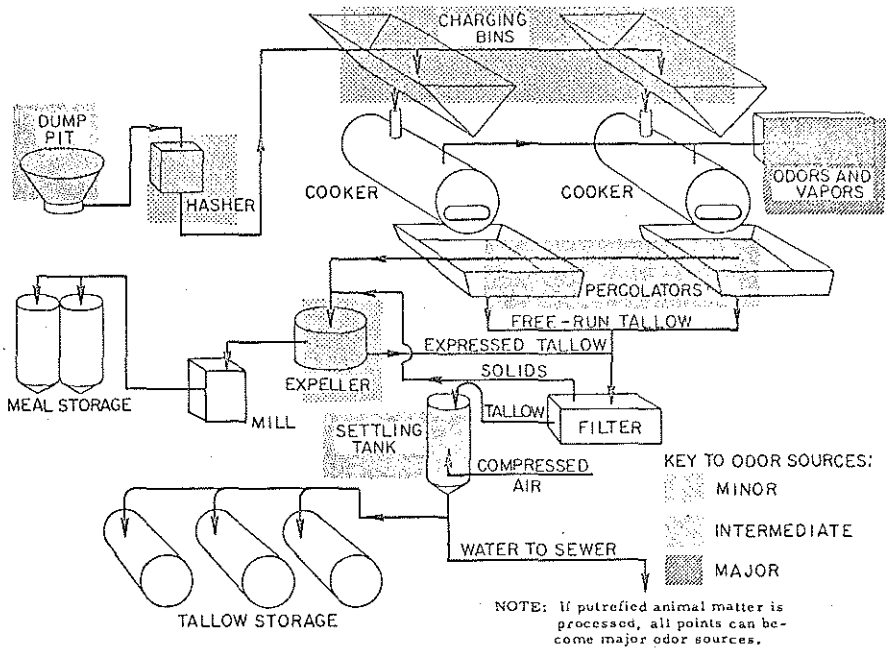


Fig. 1. A typical rendering plant equipped with batch cookers.

rendered solids.

Discharge vapors from wet-rendering cookers are markedly less voluminous than those produced in dry-rendering processes. A small vent is usually left open in the cooker to bleed air and other uncondensed gases from the system. A significant quantity of odors is discharged when the wet-rendering cooker is depressurized and also when it is emptied.

In secondary airdrying processes, discharge gases are less odorous than those from rendering processes, but they contain large percentages of air and other uncondensable gases. Moisture usually constitutes less than 25% of the exhaust volume.

The foregoing describes odor control in modern, well-designed plants. Many old plants in operation emit many more odors and need to be updated with process improvements to comply with good practice.

Quantitative Odor Measurements

Odorous air contaminants can be measured quantitatively by dilution techniques. Gas samples are diluted with odor-free air to various concentrations and presented to a test panel for evaluation. Panelists report positive or negative odor detection in each diluted sample. Dilution-response data are plotted to determine the dilution at threshold and thence odor concentration, which is essentially the reciprocal of the threshold dilution. Concentration and stack discharges are expressed in terms of odor units. Mills, *et al.*, define an odor unit as "the quantity of any odorous substance or of any given mixture of odorous substances which, when completely dispersed in 1 cu ft of odor-free air, produces a median threshold odor detection response in humans.[3] With dilution methods no attempt is made to judge the objectionability of an odor. Panelists are asked only to report whether or not they detect an odor in each diluted sample. For exhaust gases from similar malodorous processes, it usually can be assumed that the nuisance potential is a function of the rate of odor discharge. Odor discharge rate is the product of odor concentration and exhaust volume rate—the number of odor units emitted per minute or per hour.

Odor concentrations of rendering cooker off-gases vary from 5000 to over 500,000 odor units per standard cubic foot. The modal concentration is about 50,000 odor units per scf. For a typical (5000–8000 lb/charge) batch-type dry rendering cooker discharging approximately 500 scfm of vapors, the average odor rate is about 25,000,000 odor units per minute. Almost 25,000,000 scfm of odor-free air would be required to dilute such a stream below the odor threshold. However, even this large volume would not provide sufficient dilution during times of peak odors when concentrations can be over ten times greater than average.

Exhaust gases from blood driers can be somewhat more odorous than those from dry rendering operations, depending largely on the freshness of "green" (raw) blood. However, most concentrations fall within the same range as rendering cookers, viz, 5000–500,000 odor units per scf. Since raw blood contains about 87% moisture, each pound produces a greater quantity of odors than do other rendering feedstocks. None the less, blood drying cycles are longer than dry-rendering

Table I—Odor [illegible] ing Typical Dry Rendering Cookers[a]

Odor Control Equipment	Exit Odor Conc., o.u./scf[b]	Exit Volume, scfm	Odor Emission Rate, o.u./min	Odor Removal Efficency, %[c]
Afterburner, at 1200°F[c]	120	750	90,000	99.7
Surface condenser, condensate at 80°F	500,000	25	12,500,000	50
Contact condenser, condensate at 80°F	10,000	10	100,000	99.7
Surface condenser, 80°F, followed by afterburner, 1200°F	75	90	7,000	99.97
Contact condenser, 80°F, followed by afterburner, 1200°F	25	90	2,000	99.99

[a] Vapors from cooker at 50,000 odor units per scf, 500 scfm at 25,000,000 odor units per minute.
[b] Odor units per standard cubic foot.
[c] Efficiencies based on odor emission rates.
[d] Afterburner of direct-fired design, gases at 1200°F after incineration.

cycles, so that average odor emissions are often of the same magnitude, about 25,000,000 odor units per minute.

Airdrying processes exhaust larger volumes of relatively less odorous gases. A typical feather meal drier, for instance, will discharge 2000 scfm of gases at 1000–25,000 odor units per scf. At the higher level, odor emissions of 50,000,000 odor units per minute are greater than those of dry-rendering cookers. If secondary drying processes are properly operated, viz, no overheating and feedstocks adequately cooked beforehand, exit concentrations should not exceed 2000 odor units per scf.

Sanitation

While specific air pollution control devices are required to deodorize major process streams, stringent sanitation measures will eliminate appreciable rendering plant odors. Uncooked materials are most prone to decomposition and, therefore, the handling of raw feedstocks should be carefully scrutinized. Incoming materials must be processed as rapidly as possible, preferably within 8 hr. Refrigeration facilities should be provided if feedstocks are to be held longer than 24 hr. Some raw materials, namely blood, poultry feathers, and "dead stock," are particularly objectionable in the uncooked state. These materials should never be allowed to stand unrefrigerated over a weekend as is the practice in many plants.

Raw materials should be transported to rendering plants in closed tanks or, at worst, in covered trucks. Trucks and containers should be designed to allow adequate flushing of surfaces in contact with animal matter. All equipment and exposed surfaces must be designed such that they can be flushed readily with steam and hot water solutions. Any insulation should be covered with metal or otherwise waterproofed to prevent damage during washdown. All floors, driveways, and other exposed surfaces should be concrete, preferably with acid-resistant cement. Asphalt is to be avoided. Floors should be adequately sloped and provided with flushing troughs between major processing equipment. Ceramic tile or plaster are desirable for walls and ceilings. If steel buildings are utilized, care should be taken to avoid pockets where animal matter can collect and decay. Spraying with bactericide solutions, such as chlorine and potassium permanganate,[4] is recommended for problem areas.

Odor Control Methods

Incineration and condensation are the most commonly used odor control methods in the rendering industry. Scrubbers and activated carbon adsorbers also find limited use. The principal consideration is the makeup of the odorous stream. Steam-laden streams from rendering cookers lend themselves to control by condensation, while those from air driers and auxiliary processes require incineration, scrubbing, or adsorption. Exhaust streams containing large quantities of uncondensable gases are generally more expensive to deodorize than those from rendering cookers.

Odor Incineration

Since all of the known and suspected malodorous compounds discharged from rendering cookers are combustible organics, incineration is a possible control method. Indeed incineration at 1400°F for 0.3 sec will destroy enough of the odorous components of almost any rendering exhaust stream to eliminate an odor nuisance. Nevertheless, a large fraction of these streams consist of nonodorous water which can be condensed at much less expense than it can be heated to 1400°F. Incineration of steam-laden streams from dry rendering cookers is seldom a desirable solution. However, in the rendering industry afterburners are used in combination with condensers to control cooker malodors. As primary control devices, afterburners are employed to destroy odors in exhaust streams from air [illegible] listed in the accompanying table.

Condensers

In the control of dry rendering cookers, combinations of condensers and incineration devices have been utilized to achieve odor removal efficiencies greater than 99.99%. Contact condensers are less expensive than surface condensers and are quite acceptable where cooling water and sewage facilities are abundant. They require 15–20 gal. of cooling water for each gal. of steam condensed. This odor-laden water cannot be run through a cooling tower and, therefore, cannot be reused. Effluent condensate volumes are often greater than sewage facilities will allow. Nevertheless, contact condensers dissolve and condense much of the odorous fraction of the exhaust stream, such that the remaining small volume of uncondensed gases can be incinerated effectively at 1200°F or higher temperature* in a small afterburner or boiler firebox. The effluent waste water should be discharged to a sanitary sewer for subsequent treatment to preclude a water pollution problem.

Surface condensers are more acceptable in most areas than contact condensers. Water-cooled and air-cooled surface condensers are used with success to remove 95% of the exhaust volume. Condensate is less voluminous and richer in odorous materials. As would be expected, the remaining uncondensed gases are considerably more odorous than those from contact condensers. These gases usually contain some methane and other combustible organics which can be incinerated easily with the aid of auxiliary fuel. Most surface condensers used in the rendering industry have been constructed with stainless steel tubes. Some success has been achieved with brasses where acidic conditions prevail; however, it is characteristic of many rendering operations that pH conditions vary from acid to alkaline depending upon feedstocks. Aluminum and copper are used as extended surfaces for air-cooled condensers, usually being bonded to stainless steel tubes.

Interceptors in Vent Lines

Rendering cookers are subject to so-termed "wild blows." These blows result from momentary blockage of the vent and from gassy feedstocks. In either case, much of the cooker charge is suddenly forced through the exhaust line. To prevent fouling of condensers or other control devices, an interceptor should be provided of sufficient size to contain at least one entire cooker charge.

* It must be understood that if inadequate incineration is obtained at 1200°F, the temperatue must be raised until adequate incineration is obtained.

The interceptor should be designed to allow the gravity discharge of trapped animal matter during operation as in Fig. 2.

Controlling Air Driers

Exhaust gases from airdrying processes contain about 80% air and other uncondensable gases; thus a condenser does not effect a great reduction in volume. Total incineration at 1200°F or higher temperature* can be employed. Higher temperatures are required if the stream contains excessive particulates. Scrubbers may be useful in selected areas such as those described by Mills, *et al.*, for use with fishmeal driers.[3] The latter system uses dry chlorination followed by a one-pass, sea water scrubber which, of necessity, is also a contact condenser. If scrubber liquor is to be recirculated, it is necessary to cool and condense excess moisture prior to scrubbing, i.e., to use a two-stage process. Oxidizing scrubber liquors, e.g., hypochlorite, potassium permanganate,[5] or chlorine dioxide[6] solutions would possibly be effective deodorizing agents, although there are few documented records of such operations. Any of the latter scrubbing solutions would have to be recirculated. Thus, in almost all rendering applications pre-condensers would be required.

Hoods and Ventilation

Adequate control of odors generated inside equipment may not produce adequate odor control for the operation as a whole unless suitably designed exhaust hoods are provided at points where batch equipment must be opened or gases and solids can escape from equipment. For instance, milling and hashing operations can emit dust on certain materials. Batch feather cooking can create a real odor problem when the cookers are opened for charging or venting.

Points that should receive careful consideration in hood design are sufficiently high hood inlet velocity to insure capture of all odors and dusts. Hood configuration should be such as to minimize the face opening as much as possible. This will reduce the quantity of exhaust air needed which must all be incinerated or otherwise treated to remove odors.

Carbon Adsorption

The high moisture content of rendering cooker effluent gases essentially precludes the use of activated carbon as a primary control device. Carbon will not adsorb malodorous gases adequately at temperatures greater than 120°F.[7] At this temperature saturated air holds only 11.5% moisture by volume. Hence, activated carbon can be used only as a secondary control device, e.g., following a condenser, unless the moisture level of the malodorous gases is 11.5% or less. Also the gas stream must be relatively free of particulates which will readily foul an adsorbent. Activated carbon is highly effective in deodorizing large volumes which contain low concentrations of rendering odors. It can be employed in exhaust systems ventilating such areas as dead stock cutting rooms. Carbon adsorption is also a satisfactory method of deodorizing exhaust gases from air driers when the temperature is reasonably low, viz., below 120°F.

Wherever activated carbon is used for odor control, care must be taken to assure that carbon is regenerated before it becomes saturated and ineffective. Odorous materials displaced on regeneration must be incinerated or otherwise controlled to prevent discharge to the atmosphere.

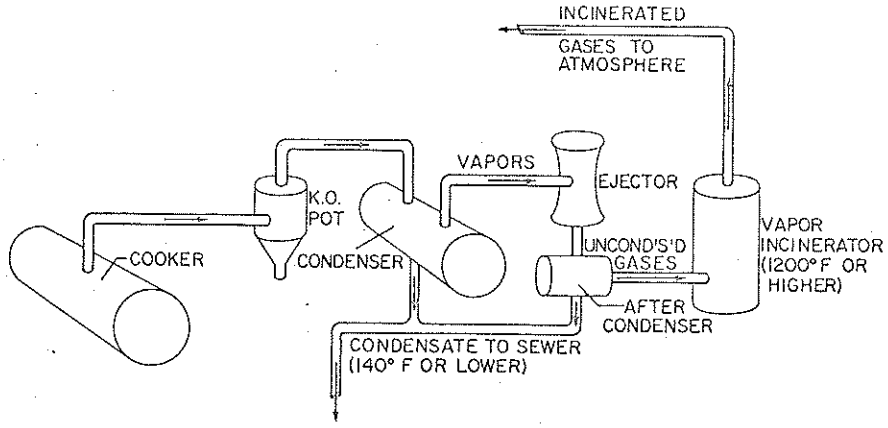


Fig. 2. An odor control system with interceptor, surface condenser, and afterburner.

Masking Agents and Odor Counteractants

Odor masking agents and odor counteractants are often suggested for the control of rendering plants. These materials may indeed provide some worker comfort in the immediate vicinity of rendering feedstocks and operations. Nevertheless, there is no reliable information to show that masking agents or counteractants are effective in eliminating local odor nuisances caused by rendering process effluents. In most instances masking agents merely substitute one strong odor for another. To some individuals the masking agent may be more objectionable than the original odor. Also downwind dilution can result in the original odor again becoming dominant.

The usefulness of odor counteractants is possibly more questionable than that of masking agents. While there appears to be some basis for odor counteraction, sound scientific data are lacking. In one of the few objective studies made on the subject,[8] First found that a particular odor counteractant did not reduce malodors or make them more acceptable until the counteractant concentration was increased to the point where it overpowered (masked) the malodor. Unfortunately, the case for counteractants and masking agents, to date, has been based principally on conjecture and testimonial.[9, 10]

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9. H. N. Josleyn, "The Odor Problem," *The National Provisioner*, (December 20, 1956).
10. National Provisioner (author not listed), Rendering Firm Loses Scents and Wins Friends, *National Provisioner* (June 6, 1959).

Complaints Attributed to Plants by Complainant

	Te Gen	Western States Port Rendering	Kenton Pacific Brander Assoc	Swift
9-2-64				/
9-25-64	/			
8-19-64			/	
8-21-64			/	
8-11-64	/			
8-13-64	/			
7-28-65		/	/	
5-26-65			/	
7-7-65			/	
7-9-65	/		/	
8-9-65			/	
8-10-65	//		/	
8-11-65	////	//	///	
8-18-65				/
8-19-65	/			
8-17-65	/			
8-20-65	/			
9-2-65	/			
9-3-65				/
9-20-65			/	
10-25-65	/			
10-25-65	//////		/	
10-26-65	/			
6-1-66	/			
7-19-66	//			
7-29-66	//			
8-2-66	/			
8-10-66	/			
5-22-67		/	/	
6-1-67	/			
8-2-67	//			
8-3-67	///		///	
8-4-67	/			
8-9-67	/			
8-10-67	//			
8-11-67	/			
8-14-67	/			
8-15-67	////			
8-16-67	//		//	
8-18-67	/	/	///	
8-20-67	/			
8-31	/			
9-7-67	/			
9-21-67	/			
7-16-67	/	/		
7-20-67	///			
7-25-67	/			
7-26-67	///	/	/	

Armour & Co. Jan 1966 odors & stack discharge

Swift & Co April 12 1966 odor open burning

J. & C. Cervetto Hog Ranch and Rendering Co April 12 1966 manure open burning was Associated

Pacific Mineral Shell Co Processes Oyster shells, shell flour & salvage grain

Portland Provision odor free in rendering area

In-Plant Surveys:

Ron Huseman: Most recent in Nov & Dec 1968
For each plant Ron H. completed
(1) Process description
(2) Flow diagram
(3) Comments on odor sources for control

L.C. Farr: He has been in and around each plant & is familiar with them.

Ron C. Householder has been in Western States & Portland Rend.

H.M. Patterson: I believe I was in Portland Rendering Western States, Kenton in 1967 but wouldn't be able to recall any details.

Plant Process.

General: H.M.P can do using flow diagram

Specific Plant: Ron Huseman

Area Odor Survey

Complaints

Complaint forms for 1964, 1965, 1966, 1967 HM Patterson has
Map Complaints for 1964, 1965, 1966 Prepared by Leo G Farr
Map Complaints for 1967 Prepared by Ron B Huseman

Odor Surveys
Conducted by RF Wood
JR Wilcox
L G Farr
Summarization in file completed by H M Patterson

Staff reports: Prepared by HMP from files of staff.

Meteorological: R B Snyder

Exhibit 1
General Summary
General Recommendations

Project Plans

During the month of December, 1967, the following 12 sets of project plans and engineering reports were reviewed and the action taken as indicated by the Water Quality Control Section:

Date	Location	Project	Action
12/6/67	Eugene	Cl_2 Facilities for Airport Lagoon	App.
12/6/67	Canby	Wait Dr. & Neff Rd.	Prov. app.
12/13/67	Dallas	Sewage Treatment Plant	Prov. app.
12/15/67	Klamath County	Sanitary Sewer System Weyerhaeuser Complex	Prov. app.
12/26/67	Metzger Sanitary District	Sewer Extension	Prov. app.
12/26/67	West Slope Sanitary District	Sewer Extension	Prov. app.
12/26/67	Green Sanitary District	Sewer Lateral	Prov. app.
12/27/67	Springfield	Sanitary Sewer	Prov. app.
12/27/67	Scio	Chlorination Facilities	Prov. app.
12/27/67	East Salem # 1	Sanitary Sewer	Prov. app.
12/28/67	La Grande	Sewer Main	Prov. app.
12/28/67	Springfield	Sanitary Sewers	Prov. app.

PROJECT PLANS AND REPORTS

The following project plans or reports were received and processed by the Air Quality Control staff during the month of December, 1967.

DATE	LOCATION	PROJECT	ACTION
7	St. Helens	Boise Cascade, E. S. Precipitator; Chemco SF venturi scrubber for lime kiln	Conditionally approved
8	Lane County	Lane Regional APA Federal Clean Air Grant Application for $21,066	Approved
14	Washington County	Cooper Mountain Elementary School incinerator	Additional information requested
14	Lane County	Crow High School Incinerator (Note: 12/29 - Architects advised us incinerator had been deleted. Central collection will be utilized)	Additional inf. requested
14	Washington County	Walter L. Henry Elementary School incinerator	Add. information requested
14	Clackamas County	Linwood Grade School incinerator	Add. Information requested
28	Lane Regional Air Pollution Authority	Application for control authority and State grant of $9,677	Approved
28	Columbia Willamette Air Pollution Authority	Application for control authority and State grant of $30,180	Approved

To: State Sanitary Authority
Mr. John D. Mosser, Chairman
Mr. Storrs S. Waterman, Member
Mr. B. A. McPhillips, Member
Mr. Herman P. Meierjurgen, Member
Mr. Edward C. Harms, Jr., Member

Date: January 19, 1968

From: Harold E. Milliken
Assistant Chief Sanitary Engineer

Subject: Construction Grants

We have been notified that the Federal funds for construction grants which have been frozen for three months have been released again and Oregon's share for this fiscal year is $2,294,200.

Some of these funds have already been allocated to specific projects and the balance available now is $2,109,342.

The City of Amity has already received a Federal grant offer of 50% of the eligible cost of its project, and an agreement with the City of Amity has been prepared for a 25% grant amounting to $24,540. It is requested that the Secretary be authorized to sign and deliver this agreement to the City of Amity. This money is not under the supervision of the Emergency Board.

The attached list shows the projects which are pending for this fiscal year. The first five of these projects are under construction. Twin Rocks and Oakridge are nearly ready to start construction. It is recommended that the Secretary be authorized to request the State Emergency Board to release $709,880 for 25% grants to Halfway, Monroe, Portland (211), Gladstone, Port of Tillamook Bay, Twin Rocks Sanitary District and Oakridge.

It is requested that the Secretary be authorized to sign agreements making State grants for the above projects; provided Federal grants of 50% or more are made.

Multnomah County has been forced by legal difficulties to change its financial arrangements and will be delayed in beginning its project, but they do have a plan for financing it after July 1, 1968.

Lincoln City has been delayed by legal problems of incorporation and in planning, but is pushing ahead with final plans and expects to hold a bond election and if successful, get started on construction this spring.

Portland (212), Sewage Treatment Plant Improvements, is expected to get started before July 1, 1968. The table shows the balance of Federal funds to be negative after Portland 212 project is allocated. Authorization for the release of funds for Multnomah County Central District #1, Lincoln City and Portland (212) will be requested at a later date.

Project No.	Applicant	Federal Grant from 1968 Fund	State Grant
171	Halway	$ 33,100 (b)	$ 21,834
201	Monroe	20,900 (b)	20,650
211	Portland	426,350 (ab)	527,875
189	Gladstone	12,900 (b)	9,111
227	Port of Tillamook Bay	15,810	7,907
247	Twin Rocks Sanitary District	86,000	43,000
208	Oakridge	159,050	79,525
		sub total	709,902
193	Multnomah County	266,630 (ab)	185,728
185	Lincoln City	--- (d)	73,500
	TOTALS	$1,020,740	$ 969,130
	Funds available	$2,109,342	$2,543,460
	- Total above	1,020,740	969,130
	Balance	1,088,602	1,574,330
	212 Portland	1,287,000	585,000
	Balance	$ 198,398 (-)	$ 989,330 (+)

a - 55% grant
b - increase in grant
d - 20% increase to be made by E.D.A.

Construction Grant Funds - January 19, 1968

No.	Applicant	Eligible Cost	Federal Grant from 1968 Fund	Federal Cumulative	State Grant	State Cumulative
171	Halfway	$ 87,332	$ 33,100 (b)	$ 33,100	$ 21,834	$ 21,834
193	Multnomah County	742,914	266,630 (ab)	299,730	185,728	207,562
185	Lincoln City	294,000	58,800 (d)	299,730	73,500	281,062
201	Monroe	82,600	20,900 (b)	320,630	20,650	301,712
206	Amity	98,160	29,730 (b)	350,360	24,540	326,252
211	Portland	2,111,500	426,350 (ab)	776,710	527,875	854,127
189	Gladstone	36,445	12,900 (ab)	789,610	9,111	863,238
227	Port of Tillamook Bay	31,630	15,810	805,420	7,907	871,145
247	Twin Rocks Sanitary District	172,000	86,000	891,420	43,000	914,145
217	N. Umpqua Sanitary District	199,980	66,660 (c)	958,080	---	914,145
208	Oakridge	318,100	159,050	1,117,130	79,525	993,670
212	Portland	2,340,000	1,287,000 (a)	2,404,130	585,000	1,578,670
231	Dallas	372,818 (e)	205,040 (a)	2,609,170	93,204	1,671,874
215	Albany	1,987,500	1,093,120 (a)	3,702,290	496,875	2,168,749
199	Jefferson	159,000	79,500	3,781,790	39,750	2,208,499
213	Malin	53,600	26,800	3,808,590	13,400	2,221,899
230	Hillsboro	1,675,000	921,250 (a)	4,729,840	418,750	2,640,649
236	Tigard	74,500	40,970 (a)	4,770,810	18,625	2,659,274

(a) 55% Federal Grant (b) grant increase (c) 33% grant (d) from E.D.A. (e) for interceptor only assuming R & D grant for treatment plant

MEMORANDUM

January 19, 1968

TO: Members of the Sanitary Authority

FROM: Harold L. Sawyer

SUBJECT: Application for Certification of Pollution Control Facility for Tax Relief Purposes, No. T-1, submitted by Publishers Paper Company, Newberg Division

Both Parts I and II of an "Application for Certification of Pollution Control Facility for Tax Relief Purposes" were filed by Publishers Paper Company, Newberg Division, on November 24, 1967. This application has been reviewed and its contents are summarized as follows:

1. Publishers Paper Company, Newberg Division, operates a pulp and paper manufacturing plant, which is located at the south end of Wynooski Street in Newberg, Oregon, Yamhill County. The plant is leased from Spaulding Pulp and Paper Company, a wholly owned subsidiary of the Times-Mirror Company.

2. The principal wastes produced at this plant are spent sulfite liquor and fibre bearing effluents, known as white waters.

3. Pollution control facilities at this site, which are <u>not</u> claimed for certification, are:

    a. Collection and screening systems for spent sulfite liquor.
    b. Two lagoons for spent sulfite liquor storage.
    c. White water collection, screening and storage systems.
    d. Barker effluent screening systems.

4. The facilities covered in this application consist of the equipment for primary treatment of fibre bearing effluents. The purpose of these facilities is to reduce the amount of wood fibre discharged to the Willamette River. All fibre bearing effluents are piped to a clarifier. The clarified overflow discharges to the river through a submerged outfall. The sludge solids are removed from the bottom of the clarifier, dewatered by centrifuging and disposed of as land fill or dewatered on an existing obsolete pulp machine for sale or disposal. Company officials indicated by telephone on January 11, 1968, that pulp machine dewatering will be discontinued and all solids disposed of for land fill when the paper mill is placed in operation in February. A maximum daily average of 60,000 lbs. of solid material is expected to be removed, and a maximum daily average of 7,300 lbs. is expected to be discharged to the river.

5. Construction of the facilities was started on November 7, 1966, and the unit was completed and placed in operation on April 21, 1967.

6. The facility claimed is made up of the following components:

    a. Piping to the clarifier from the existing pulp mill and the new paper mill.
    b. Bar screen.
    c. Clarifier structure and mechanism.
    d. Equipment building with internal piping and sludge pumps.
    e. Flow measurement equipment and outfall piping.
    f. Centrifuge.
    g. Sludge conveyors.
    h. Sludge transport boxes (3) and disposal truck.
    i. Instrumentation and motor controls.

7. The actual cost of this facility, as certified by an independent certified public accounting firm, is stated to be $660,555. A copy of the cost breakdown and accountant's certification is attached.

The findings of the staff are as follows:

1. An application has been filed by Publishers Paper Company, Newberg Division, on the form provided by the Sanitary Authority.

2. The construction and installation of the facility was completed after January 1, 1967.

3. The facility is designed for and is being operated for the principal purpose of preventing, controlling and reducing water pollution.

4. The facility is necessary to satisfy the intents and purposes of ORS Chapter 449 and regulations thereunder.

5. The actual cost of the facility is $660,555.

6. The Sanitary Authority, at its meeting on June 18, 1964, took action which required the installation of facilities to remove settleable solids from the effluents from this pulp mill.

It is, therefore, recommended that a "Pollution Control Facility Certificate" be issued to Publishers Paper Company, Newberg Division, for the facilities claimed in its application.

Attachment

EXHIBIT F

ERNST & ERNST
COMMONWEALTH BUILDING
PORTLAND, OREGON 97204

Publishers Paper Co.
Oregon City, Oregon

We examined Exhibit F of the Application for Certification of Pollution Control Facility for Tax Relief Purposes of Publishers Paper Co. as of November 2, 1967. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

Our examination included a review of the cost of construction of the pollution control facility at the Newberg, Oregon plant site of Publishers Paper Co., lessee, as reflected on the accounting records of Spaulding Pulp & Paper Co., lessor.

In our opinion, the costs of the pollution control facility at the Newberg, Oregon plant site of Publishers Paper Co. as of November 2, 1967, as reflected in Exhibit F of Application for Certification of Pollution Control Facility for Tax Relief Purposes are fairly stated at $660,555.

Ernst & Ernst

Portland, Oregon
November 16, 1967

EXHIBIT F

APPLICATION FOR CERTIFICATION OF
POLLUTION CONTROL FACILITY FOR
TAX RELIEF PURPOSES

November 2, 1967

		Direct Material	Contractors Labor and Material	Total
1.	Piping to Clarifier	$ 32,416	$ 60,758	$ 93,174
2.	Clarifier Structure, Building and Piping Including Outfall	81,668	257,596	339,264
3.	Clarifier Mechanism	30,100		30,100
4.	Sludge Pumps	14,151		14,151
5.	Centrifuge	37,917		37,917
6.	Bar Screen	4,154		4,154
7.	Instrumentation	6,162		6,162
8.	Motor Controls	3,099		3,099
9.	Installation Items 3, 4, 5, 6, 7, 8		36,580	36,580
10.	Sludge Conveyors	7,760	13,511	21,271
11.	Sludge Disposal Boxes and Truck	14,086		14,086
12.	Sub-total	$231,513	$368,445	599,958
	Following costs taken at same ratios as total project:			
13.	Field Expense at 0.8% of Item 12			4,800
14.	Field Engineering at 1.1% of Item 12			6,600
15.	Engineering at 8.2% of Item 12			49,197
16.	Total			$660,555

MEMORANDUM

January 19, 1968

TO: Members of the Sanitary Authority

FROM: Harold L. Sawyer

SUBJECT: Application for Certification of Pollution Control Facilities for Tax Relief Purposes, No. T-2, submitted by Columbia Steel Casting Company, Inc.

Both Parts I and II of an "Application for Certification of Pollution Control Facility for Tax Relief Purposes" were filed by Columbia Steel Casting Company, Inc., on November 28, 1967. This application has been reviewed and its contents are summarized as follows:

1. Columbia Steel Casting Company owns and operates a steel casting plant which manufactures replacement parts for mining, aggregate, logging, and steel companies. The plant is located at 10425 N. Bloss Avenue in Portland, Oregon, Multnomah County.

2. The principal wastes produced are dust and/or fumes from the various stages of the casting and finishing operation.

3. Air pollution control facilities have previously been installed to collect dust from the pattern making, reclaiming, shake out, sand blasting, and cleaning operations and are not claimed for certification.

4. The facility covered in this application consists of the equipment to collect dust from the arcing and burning operations. The collection device is commonly referred to as a "bag house." Air containing the dust is pulled through fabric bags, which remove the dust. Dust is then shaken from the bags into hoppers and periodically hauled to a land fill area for disposal. An estimated 300 pounds of dust is removed by the facility each week. Suppliers of the equipment indicate that the collection efficiency of the unit is 98% to 99%.

5. The construction and installation of the facility was started on February 7, and the unit was completed and placed in operation on April 3, 1967.

6. The facility claimed is made up of the following components:

    a. Concrete foundations.
    b. Dust collector with fan and bags.
    c. Electric motors and starters.
    d. Electric wiring and panels.
    e. Duct work.

7. The actual cost of the facility, as certified by an independent Certified Public Accountant, is stated to be $61,715.48. A copy of the cost breakdown and accountant's certification is attached.

The findings of the staff are as follows:

1. An application has been filed by Columbia Steel Casting Company on the form provided by the Sanitary Authority.

2. The construction and installation of the facility was completed after January 1, 1967.

3. The facility is designed for and is being operated for the principal purpose of preventing, controlling and reducing air pollution.

4. The facility is necessary to satisfy the intents and purposes of ORS Chapter 449 and regulations thereunder.

5. The actual cost of the facility is $61,715.48.

6. The Portland Air Quality Control Program reviewed and approved plans for this facility. They have indicated that although they did not in fact require the installation of this facility, it would have been required when their program of area by area studies reached this section of the city.

It is, therefore, recommended that a "Pollution Control Facility Certificate" be issued to Columbia Steel Casting Company, Inc., for the facilities claimed in its application.

Attachment

JAMES A. THOMPSEN
CERTIFIED PUBLIC ACCOUNTANT

PHONE 228-1333

YEON BUILDING
PORTLAND, OREGON 97204

December 8, 1967

Columbia Steel Casting Co., Inc.,
10425 N. Bloss Avenue,
Portland, Oregon.

Gentlemen:

The following list of direct cost of air pollution control facilities was verified by me as having been expended by the company:

Concrete Foundations	$ 1,197.00
Dust Collector, fan, bags	41,479.26
Electric motors, starters	2,633.80
Electric wiring, panels	1,905.42
Duct work	14,500.00
Total Cost	$61,715.48

JT:a

James A. Thompsen

James A. Thompsen, CPA

MEMORANDUM

January 19, 1968

TO: Members of the Sanitary Authority

FROM: Harold L. Sawyer

SUBJECT: Temporary Permits

Since the last meeting on December 28, 1967, 61 permit applications have been received. These applications have been sorted into categories as was done before. 59 of these applications are listed on the attached sheets according to category and recommended expiration date. One application was received from Northwest Aluminum Company regarding the proposed plant at Warrenton. Action on this application will be delayed until detailed plans are submitted and approved. One application was filed by Mr. Ivan D. Bice of Rickreall. This application will be considered separately.

It is recommended that Temporary Permits be issued to the 59 applicants listed in the categories on the attached three pages.

I. SUFFICIENT INFORMATION IS AVAILABLE

For the applications listed in this category, adequate information has been provided and the staff is sufficiently familiar with the applicant's operation to draft permit conditions. It is recommended that temporary permits be issued to allow time to draft permit conditions.

A. Domestic Wastes

Recommendation: Temporary Permit to Expire on March 31, 1968

Application Number	Applicant's Name
469	Homes Association of Cedar Hills
493	Housing Authority of Yamhill County
476	Jacksonville
506	Pilot Rock
478	Umatilla
479	Willamina
511	Cannon Beach

II. ADDITIONAL INFORMATION IS REQUIRED

For the applications listed in this category, additional information or a staff inspection (or both) is required before permit conditions can be drafted. It is recommended that temporary permits be issued to allow time to obtain the necessary information.

A. Domestic Wastes

Recommendation: Temporary Permit to Expire on June 30, 1968

Application Number	Applicant's Name
477	Cottage Grove
499	Hayden Island, Inc.
486	Idaho Power Company, Oxbow Trailer Court
475	Idaho Power Company, Oxbow Village
466	Malin
456	McNary Manor
490	Monroe
501	Mount Hood Meadows
467	Sandy
485	Surfpoint Inn

B. Industrial Wastes

Recommendation: Temporary Permit to Expire on March 31, 1968

Application Number	Applicant's Name
470	Pacific Power & Light - Astoria (Service Center)
488	Rhodia, Inc.

II. ADDITIONAL INFORMATION IS REQUIRED (Continued)

C. Industrial Wastes (Continued)
Recommendation: Temporary Permit to Expire on June 30, 1968

Application Number	Applicant's Name
491	Cecil Agee - Lebanon
497	Cabell City Mines - Baker
473	Carolina Pacific Plywood - Grants Pass
474	Carolina Pacific Plywood - White City
509	Cascade Fiber Company - Eugene
508	Clyde's Redimix - Cave Junction
464	Coos Head Timber Company
500	Garrison Meat Packing - Lebanon
453	E. Raymond Holmes - Independence
462	Marvin Jenkins - Independence
455	Long Creek Meat - Banks
465	Mobil Oil Corporation
487	Newport - San. Land Fill
454	Northwest Organic Products - Donald
459	Oregon Steel Mills
471	Rogers Construction, Inc. - Pendleton
472	Rogers Construction, Inc. - Stanfield
468	Rogue Valley Plywood
480	Union Oil Company
495	U. S. Plywood-Champion Papers - Reedsport
458	Valley View Egg Farm - Woodburn
505	Vancouver Plywood - Albany
504	Vancouver Plywood - Grants Pass

III. SPECIAL STUDIES ARE REQUIRED

At the last meeting, several categories were indicated where special studies by the staff are required before permit conditions can be drafted. Additional applications have been received which fit into these categories. It is recommended that Temporary Permits be issued to allow time to complete these studies.

A. Cooling Waters
Recommendation: Temporary Permit to Expire on December 31, 1968

Application Number	Applicant's Name
481	American Portable Irrigation
492	Del Monte Corporation - Salem
461	Eugene Water and Electric Board
494	Hercules, Inc. - Eugene
463	Monsanto Company - Eugene

III. SPECIAL STUDIES (Continued)

B. Fish Processing Wastes

Recommendation: Temporary Permit to Expire on December 31, 1968

Application Number	Applicant's Name
457	Chetco Cove Cannery - Harbor
452	Edmonds Fish and Crab - Garibaldi

C. Log Deck Drainage and Log Pond Overflows

Recommendation: Temporary Permit to Expire on December 31, 1968

Application Number	Applicant's Name
502	American Can Company - Junction City
482	Brooks Scanlon, Inc. - Bend
460	Burkland Lumber - Turner
510	Cone Lumber Company - Goshen
484	Fir Ply Company - White City
507	Frank Lumber Company - Mill City
496	Georgia-Pacific - Springfield
512	Herbert Lumber Company - Riddle
489	Larson Lumber Company - Philomath
503	Vancouver Plywood Company - Springfield

MEMORANDUM

January 19, 1968

TO: Members of the Sanitary Authority

FROM: Harold L. Sawyer

SUBJECT: Waste Discharge Permit Application No. 483

In September of 1967, a complaint was received regarding pollution in Rickreall Creek. An investigation made on September 19, 1967, indicated that the problem was caused by the discharge of liquid wastes from a silage pit, milking parlor, cattle loafing sheds, and corral areas located on a dairy farm operated by Mr. Ivan Bice, Route 1, Box 171, Rickreall, Oregon. By letter, dated September 29, 1967, Mr. Bice was requested to immediately eliminate the discharge of silage wastes and further to provide a continuously workable method for keeping all other wastes from the stream by June 1, 1968.

During an inspection made on November 22, 1967, it was observed that treatment facilities were being installed at the Bice farm. No plans had been submitted or approved prior to such installation. Mr. Bice was informed that the Sanitary Authority had not approved the facility.

On November 29, 1967, Mr. Jack Nunn, President of Bio-Pure, Inc., indicated to the staff during a conference that the facility was being installed as an experimental installation. He was requested to submit complete plans and information regarding his proposed experimental operation. To date, acceptable engineering plans have not been submitted.

On January 2, 1968, an application for a waste discharge permit was received and assigned application No. 483. This application was reviewed and on January 11, 1968, a letter was sent to Mr. Bice which reads, in part, as follows:

> "The staff has reviewed your application in which you indicate that animal wastes from your dairy will be subjected to treatment and disposed of to an old drain field with only seepage reaching the waters of Rickreall Creek. The staff will recommend to the Sanitary Authority that a permit be denied for the following reason:
>
> > Wastes can be discharged to the waters of Rickreall Creek only if adequate treatment is provided by a treatment facility which has been submitted to and approved by the Sanitary Authority in accordance with the provisions of ORS 449.395. ORS 449.395 requires that detailed engineering plans and specifications for any proposed waste treatment facility be submitted to the Sanitary Authority for review and approval prior to construction. The facility which is being installed at your dairy farm has not been adequately submitted or approved by the Sanitary Authority.
>
> If wastes are to be discharged to a drain field which has been properly designed such that the wastes do not reach any of the waters of the state, then a permit will not be required.
>
> It is the opinion of the staff that animal wastes from a dairy farm operation can reasonably be disposed of by spreading on farm lands

in a manner such that the wastes will not reach the waters of the state. It is recognized that some of the wastes disposed of in this manner may reach public waters indirectly. However, the natural degradation of the waste on the land will minimize the pollutional effects of such an occurrence."

It is recommended that a permit be denied for the reason stated in this letter.

BIO-PURE

BIO-PURE, INC.

7535 N. E. GLISAN PORTLAND, OREGON 97213

PHONE: (AREA CODE 503) 255-1884

January 17, 1968

Mr. Harold L. Sawyer
Oregon State Sanitary Authority
P. O. Box 231
Portland, Oregon 97207

Re: Waste Discharge Permit
Application No. 483

Dear Mr. Sawyer,

Thank you for your letter of January 11, 1968. Due to the urgency of time as Mr. Bices representative we are replying to your letter.

We are Pleased to note that no "Waste Discharge Permit" will be require, "if the wastes are discharged to a drain field which has been properly designed."

We have discussed the drain field with Mr. Pat Curran on January 11, 1968 and he confirms that the installation does not fall under the permit requirements.

In view of the above the application for "Waste Discharge Permit" is hereby withdrawn.

Very truly yours,
Bio-Pure, Inc.

J. R. Nunn,
President

JRN:sn

MEMORANDUM

To: State Sanitary Authority Members

From: Staff

Subject: Sewage Treatment Plant at Silverton

Date: January 19, 1968

In 1963 the city of Silverton constructed an expansion to their sewage treatment plant to accommodate wastes for a population equivalent of 20,000. This plant was designed to serve a population of 4,000 for the city and 16,000 for industrial wastes.

In 1964 the city's consulting engineers, Cornell, Howland, Hayes and Merryfield (CH_2M) who designed the plant proposed certain modifications in flow patterns and addition of nutrients to control odors. Also, because Kolstad Cannery had expanded their corn pack on the sewer, the treatment plant was running very near its design capacity.

In September 1966, due to complaints, an inspection of the plant and small receiving stream was made by the Oregon State Sanitary Authority staff. This inspection revealed that the plant was grossly overloaded with corn processing wastes. The receiving stream, Silver Creek, during very low flows at this time of year could not assimilate these large discharges of wastes and heavy growths of bacterial slime resulted. By letter dated October 4, 1966, the city was requested to solve this problem prior to the 1967 cannery season. CH_2M conducted tests on the cannery wastes during 1966, and in February 1967 they presented a project schedule to the city for the construction of needed improvements to the city's waste treatment plant. It was proposed that the 1967 cannery season would be used to gather additional design data.

The Sanitary Authority on June 1, 1967, adopted its water quality standards and implementation and enforcement plan which established August 1, 1968, for the completion of additional facilities for the city of Silverton.

Numerous complaints were received in August and September of 1967 due to waste discharges from the city's treatment plant to Silver Creek.

A fish kill and an investigation in early September were reported to the Sanitary Authority by the Oregon State Game Commission. Heavy slime growths were again observed in the creek on September 7, 1967.

In October 1967 a letter was sent to the city advising of stream conditions and reviewing the stream flows, the waste loads, and the limited stream capacity for assimilating these loads and requesting that the effluent from the proposed treatment facility should not exceed 20 mg/L of Biochemical Oxygen Demand (BOD) and suspended solids. One of the surveys at the plant which was made during the corn processing season gave results of 305 mg/L of BOD and 100 mg/L in suspended solids in the plant effluent.

An engineering report by CH_2M dated November 1967 was submitted November 17, 1967. This report outlined preliminary design factors and a proposed project schedule to construct necessary additions by August 1, 1968. Waste loads collected by CH_2M in 1966 and 1967 were reported as follows:

Population	Present Design Capacity	Waste Loads 1966	Waste Loads 1967
Domestic	4,000	4,030	4,030
Industrial P.E.	16,000	25,400	18,300
Total P.E.	20,000	29,430	22,330

This report and proposed schedule were approved although it was realized that the schedule was extremely tight due to the need for approval of bonds by the city, the design of final plans, and procuring the necessary equipment to be used in the treatment facility.

A waste discharge permit application was submitted and this proposed schedule was a part thereof.

In late December 1967 it developed that the cannery in Silverton was in the process of changing ownership. The new owners, Stayton Canning Company, indicated that they cannot at this time provide the necessary information on future cannery packs. The city believes it would be unwise to proceed with the present expansion plans based on the loading rates

of the previous owners. They, therefore, submitted a letter dated January 9, 1968, with a revised construction schedule attached requesting that it be considered in review of their discharge permit application. This revised schedule calls for a construction completion of necessary facilities for August 1969.

It is emphasized that the schedule originally proposed by the city is now extremely tight and because of the limited assimilative capacity of the receiving stream, it may be required to reduce waste loads by curtailing production of the cannery's pack.

The recommended permit conditions for the city of Silverton based on their first proposed schedule are attached.

RECOMMENDED PERMIT CONDITIONS FOR CITY OF SILVERTON

Recommended Expiration Date: August 31, 1968

1. The sewerage system (pipelines, conduits, pumping stations, force mains, and all other facilities used for collecting or conducting wastes to an ultimate point for treatment or disposal) shall be operated and maintained in a manner which will minimize waste discharges.

2. The quantity and quality of liquid effluent discharged from the treatment facility shall be governed by the following:

   a. All waste treatment facilities and equipment shall be operated and maintained at all times at maximum efficiency and in a manner which will minimize waste discharges.

   b. The liquid effluent from the treatment facility shall receive adequate disinfection prior to discharge from the controlled confinement of the treatment facility. The effectiveness of disinfection shall be equivalent to that obtained by adequately mixing sufficient chlorine with the effluent to provide a residual of 0.5 milligrams per liter of chlorine after 60 minutes of contact time at the average design flow.

3. The permittee shall proceed immediately to construct and place into operation before August 1, 1968, approved waste treatment facilities adequate to insure that during any dry weather month, the 5 day 20° centigrade Biochemical Oxygen Demand (BOD) and suspended solids concentrations in the effluent shall not exceed an average of 20 milligrams per liter (mg/L) with the total quantity of BOD and suspended solids not to exceed 150 pounds per day in accordance with the following schedule:

City vote on bond issue - - - - - - - - - -	February 1, 1968
Advertise for bids - - - - - - - - - - - -	April 1, 1968
Award contract and start construction - -	May 1, 1968
Complete construction - - - - - - - - - - -	August 1, 1968

4. Construction of facilities shall be planned and conducted in a manner such that all existing facilities can be operated at maximum efficiency during the construction period. Work requiring shutdown of existing facilities shall be scheduled and completed during the period from October 1 to June 1 unless otherwise approved by the Sanitary Authority. The duration of all such shutdowns shall be kept as short as possible.

5. In the event the permittee is temporarily unable to comply with any of the conditions of this permit, due to breakdown of equipment or other cause, the permittee shall immediately notify the Sanitary Authority of the breakdown, its cause and the steps taken to correct the problem and prevent its recurrence. A permanent record of all such occurrences shall be maintained.

6. The permittee shall effectively monitor the operation and efficiency of the treatment facilities and the quantity and quality of effluent discharged. A permanent record of all such data shall be maintained at the plant. Reports containing this data shall be submitted to the Sanitary Authority at the end of each calendar month on prescribed forms. Data collected and recorded shall include but not be limited to the following parameters and minimum frequencies:

Parameter	Minimum Frequency
Flow	Daily
Lbs. Chlorine Used	Daily
Chlorine Residual	Daily
BOD (raw and final composite)	2 times weekly
Suspended Solids (raw and final composite)	2 times weekly
pH (raw and final)	3 times weekly

7. All information, reports, or other data that the Sanitary Authority deems necessary shall be promptly provided in writing.

8. No additional source of waste may be connected to the treatment facility until needed modifications are approved and constructed.

9. Whenever a change which results in an increase in the waste to be discharged is anticipated, a new application shall be submitted together with the necessary reports, plans, and specifications for the proposed changes. No change shall be made until plans are approved and a new permit issued.

10. Authorized representatives of the Sanitary Authority shall be permitted access to the premises of all facilities owned and operated by the permittee at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, and carrying out other necessary functions related to this permit.

11. This permit is subject to termination if the Sanitary Authority finds: (a) that it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (b) that there has been a violation of any of the conditions contained herein.

12. In the event that a change in the conditions of the receiving waters results in a dangerous degree of pollution, the Sanitary Authority may specify additional conditions to this permit.

13. This permit, or a photocopy thereof, shall be displayed at the sewage treatment plant.

CITY OF SILVERTON
CITY HALL, 306 SOUTH WATER STREET
SILVERTON, OREGON 97381

CITY MANAGER
JACK R. BROWN

CITY ENGINEER
ROBERT E. BORLAND

CITY TREASURER
ALTHEA M. MEYER

CITY HALL
TELEPHONE
873-5323

Re: Waste Discharge Permit
Application Number 136

9 January 1968

Mr. Kenneth H. Spies
Secretary and Chief Engineer
Oregon State Sanitary Authority
1400 S.W. 5th Avenue
Portland, Oregon

Dear Mr. Spies:

The City of Silverton has an application for a waste discharge permit for 1968 on file with the Sanitary Authority. The main supporting document with this application is an Engineering Report on Silverton Sewage Treatment Plant, November 1967, developed by Mr. Robert Pailthorp of Cornell, Howland, Hayes and Merryfield.

Approximately 30-days following the submission of this application for a waste discharge permit, it became known to the city that Kolstad Canneries was in the process of being sold to the Stayton Canning Company. At that time the Sewer Committee of the city met with interested parties from both organizations to launch discussions with the new owners. The most recent such meeting was conducted on Wednesday, 3 January 1968, at which Mr. Ed Lynd and Mr. Fred Bolton of the Sanitary Authority were present and participated in the general discussion. They were informed of the impending sale expected to be officially confirmed by mid-January. The affect this sale would have upon the proposed plans of the city to expand treatment facilities to the previously announced time schedule was discussed at length.

Stayton Canning Company indicated to the city that it is not possible at this time to provide sufficiently accurate information on the level of proposed packs over the next twenty years to permit a determination of design limits by Cornell, Howland, Hayes and Merryfield in order to

properly control pollution of Silver Creek. Mr. F.M. "Farmer" Smith of the Stayton Canning Company stated that he would not be in a position to make such commitments until he has operated the Silverton facility for one season. Silverton therefore feels that it would be unwise to proceed with expansion plans based upon production goals established by Kolstad Canneries and no longer applicable.

We ask that the attached revised proposed project schedule, developed by Mr. Robert Pailthorp of CH2M,at the request of the city and following the conference discussed above, be considered by the Sanitary Authority in the processing of our application for a waste discharge permit for 1968.

Sincerely,

Jack R. Brown
City Manager

JRB:os

cc Robert Pailthorp
F.M.Smith

REVISED: 3 JANUARY 1968

PROPOSED PROJECT SCHEDULE	REVISED DATES
Complete Predesign Report	1 Oct '68
City Complete a Financing Plan	1 Nov '68
City Obtain Option to Buy Required Lands	1 Dec '68
Engineer Begin Design	Dec '68
City Vote on Bond Issue	Nov '68
City Purchase Required Lands	1 Mar '69
Engineers Complete Design	1 Mar '69
Advertise for Bids	1 Mar '69
Call for Bids	21 Mar '69
Award Contract and Begin Construction	1 Apr '69
Sell Bonds	1 Apr '69
Complete Construction	Aug '69

Recommended Permit Provisions - 1/19/68 to 6/30/70 (2-1/2 years)

Boise Cascade, St. Helens

1. After June 30, 1968 (to allow time for completion and start-up of new production and control facilities) the average daily 5-day 20° C. BOD discharges to the river for each reporting period shall not exceed 26,000 lbs. per operating day.
2. After June 30, 1968, the average daily suspended solids discharges to the river for each reporting period shall not exceed 0.4 #/1000 gal. or 12,000 lbs. per operating day.
3. All plant processes and equipment and all waste treatment and control facilities shall be operated and maintained at all times at maximum efficiency and in a manner which will minimize waste discharges.
4. The company shall effectively monitor all waste discharges and submit reports of daily data to the Sanitary Authority immediately following the end of each calendar month of operation. Data shall be collected daily for each contaminated water discharge for the following parameters unless otherwise agreed to by the Sanitary Authority:
    a. Flow
    b. pH
    c. Temperature
    d. Turbidity
    e. Color
    f. BOD
    g. Suspended Solids
    h. Conductivity

i. Production

1) Total Pulp

2) Bleached Pulp

3) Paper

j. General observations of outfall and river (related to the waste discharge plume).

1) Color

2) Foam

3) Odor

4) Slime

5) Deposits

k. Flow and temperature for separate, clean cooling water discharges.

5. Sanitary wastes shall be disposed of by properly functioning septic tank and seepage field systems or by other approved means.

6. A specific and detailed program shall be developed and submitted by July 1, 1969, for providing, by not later than July 1, 1970, year-round control of total mill wastes equivalent to secondary treatment. (85% reduction of BOD of total mill wastes after chemical recovery.)

7. Authorized representatives of the Sanitary Authority shall be permitted access to the plant premises at all reasonable times for the purposes of making inspections or surveys and for collecting samples or obtaining data and carrying out other necessary functions related to this permit.

8. In the event the permittee is temporarily unable to comply with any of the above conditions of this permit, due to breakdown of equipment or other cause, the permittee shall immediately notify the Sanitary Authority of the breakdown, its cause and the steps taken to correct the problem and prevent its recurrence.

9. Whenever a change in the waste to be discharged in excess of the conditions of this permit is anticipated, a new application shall be submitted together with plans and specifications for proposed changes. No change shall be made until plans are approved and a new permit issued.

10. This permit is subject to termination if the Authority finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of any of the conditions thereof; (3) That a material change in quantity or strength of waste disposal exists.

11. In the event that a change in the conditions of the receiving waters results in a hazardous degree of pollution the Authority may specify additional conditions to this permit.

Recommended Permit Provisions - 1/19/68 to 6/30/69 (1-1/2 years)

Kaiser Gypsum, St. Helens

Receiving Waters - Scappoose Bay

1. The average daily 5-day 20° C. BOD discharges for each reporting period shall not exceed 6000 lbs. per operating day.
2. The average daily suspended solids discharges for each reporting period shall not exceed 1000 lbs. per operating day.
3. All plant processes and equipment and all waste treatment and control facilities shall be operated and maintained at all times at maximum efficiency and in a manner which will minimize waste discharges.
4. The company shall effectively and continuously monitor all of its waste discharges and submit reports of daily data to the Sanitary Authority immediately following the end of each calendar month of operation. Data shall be collected daily for the following parameters unless otherwise agreed to by the Sanitary Authority:
    a. Flow
    b. pH
    c. Temperature
    d. Turbidity
    e. Color
    f. BOD
    g. Suspended Solids

h. Production

1) Wood fiber board

2) Mineral fiber board

i. General observations of outfall and river (related to waste discharge plume).

1) Discoloration

2) Foam

3) Odor

4) Slime

5) Deposits

j. Flow and temperature for any separate, clean cooling water discharges.

5. Sanitary wastes shall be disposed of by properly functioning septic tank and seepage systems or by other approved means.

6. A detailed program and time schedule shall be submitted by July 1, 1968, for providing either a completely closed system, or year-round secondary treatment for total residual mill wastes by June 30, 1969.

7. Authorized representatives of the Sanitary Authority shall be permitted access to the plant premises at all reasonable times for the purposes of making inspections or surveys and for collecting samples or obtaining data and carrying out other necessary functions related to this permit.

8. In the event the permittee is temporarily unable to comply with any of the above conditions of this permit, due to breakdown of equipment or other cause, the permittee shall immediately notify the Sanitary Authority of the breakdown, its cause and the steps taken to correct the problem and prevent its recurrence.

9. Whenever a change in the waste to be discharged in excess of the conditions of this permit is anticipated a new application shall be submitted together with plans and specifications for proposed changes. No change shall be made until plans are approved and a new permit issued.

10. This permit is subject to termination if the Authority finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of any of the conditions thereof; (3) That a material change in quantity or strength of waste or type of waste disposal exists.

11. In the event that a change in the conditions of the receiving waters results in a hazardous degree of pollution the Authority may specify additional conditions to this permit.

To: State Sanitary Authority Members
Mr. John D. Mosser, Chairman
Mr. Storrs S. Waterman, Member
Mr. B. A. McPhillips, Member
Mr. Herman P. Meierjurgen, Member
Mr. Edward C. Harms, Jr., Member

Date: January 19, 1968

From: Water Pollution Control Section

Subject: Waste Discharge Permit for Tillamook Cheese and Dairy Association

At the last regular meeting of the Oregon State Sanitary Authority held on December 28, 1967, a motion was adopted to deny the Tillamook Cheese and Dairy Association a waste discharge permit.

The reasons for denial were three-fold: (a) Dairy product processing wastes and domestic waste flows from employees and visitors averaging 62,500 gallons per day are being discharged without adequate treatment into the Wilson River, a tributary of Tillamook Bay; (b) Water quality standards are being violated in the Wilson River and the shellfish rearing areas of Tillamook Bay are being impaired as a result of these waste discharges; (c) No current proposed schedule for abatement of these waste discharges had been submitted, except that reference had been made to the January, 1967 CH_2M report that recommended completion of treatment facilities by October 15, 1967.

Immediately following the denial of the permit, the staff received a letter from the Tillamook Cheese and Dairy Association, signed by Mr. L. M. Thorpe, General Manager. This letter is dated December 29, 1967 and states, "We agree to construct and operate an approved waste treatment facility prior to November 1, 1968 for all industrial and domestic wastes emitting from the Tillamook Cheese and Dairy Association Plant."

On the strength of this brief letter, a temporary permit was issued to the Tillamook Cheese and Dairy Association on January 3, 1968 with expiration date

of January 19, 1968. The Association was advised to submit a more detailed program and time schedule prior to this meeting today which would serve as a basis for recommending conditions for continuance of the waste discharge permit.

On January 18, the staff met with Mr. Pailthorp, representing Cornell, Howland, Hayes & Merryfield, Consulting Engineers. Mr. Pailthorp presented a time schedule on behalf of the Tillamook Cheese and Dairy Association which calls for completion of construction of the waste treatment facility by November 1, 1968. Mr. Pailthorp indicated that this was pushing matters considerably for their organization to fulfill this schedule, but he thought it could be done.

A letter dated January 17, 1968 from Mr. Ernest Bonyhadi, Attorney for Tillamook Cheese and Dairy Association has also been received. This letter indicates concurrence in the schedule submitted by Mr. Pailthorp and requests an extension of time "sufficient to permit us to clarify the proposal being submitted to you to your satisfaction."

It is also our understanding that both the Cheese and Dairy Association and the County Creamery Association are making one last attempt to come to an agreement for the construction of a joint treatment facility rather than building individual units as they have been asked to do. This, of course, is still the most desirable approach.

In view of the recently received schedule, it is the recommendation of the staff to issue a short-term discharge permit to the Tillamook Cheese and Dairy Association. This permit should contain the same provisions that are outlined in the permit issued to the Tillamook County Creamery Association, as well as the same expiration date, November 1, 1968. In addition, the Cheese and Dairy Association must continue to provide effective chlorination of the domestic flows emanating from its plant.

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HARDY MYERS, JR.
LARRY R. VOLCHOK
LEONARD A. GIRARD

ALLAN A. SMITH
DONALD A. SCHAFER
OF COUNSEL

January 17, 1968

Mr. Ely J. Weathersbee
Deputy State Sanitary Engineer
Oregon State Sanitary Authority
State Office Building
1400 S. W. 5th Avenue
Portland, Oregon 97201

Re: Tillamook Cheese & Dairy Association

Dear Mr. Weathersbee:

Your letter of January 3, 1968 and the temporary waste discharge permit No. 440, issued to our above-named client, were referred to us for our attention.

For your information, Tillamook Cheese & Dairy Association has instructed Cornell, Howland, Hayes & Merryfield to finalize plans and submit to the State Sanitary Authority a detailed program and time schedule prior to your January 19 meeting for the construction and operation of an approved waste treatment facility serving our client's Tillamook plant, prior to November 1, 1968.

We understand that Mr. Robert E. Pailthorp will submit such a program and time schedule to the Authority before the end of this week.

In the event that you have some further question or desire clarification of all or any part of the program and schedule being sent to you, please feel free to communicate directly with Mr. Pailthorp and the undersigned.

Since the temporary permit [No. 440] expires on January 19, the date of the meeting of the Authority, it would be deeply appreciated if the Authority would extend the temporary permit for a sufficient length of time to permit us to clarify the proposal being submitted to you to your satisfaction. I myself expect to be in Philadelphia and New York on some urgent business for another client until after Wednesday of next week and hope that any further proceedings on this matter can await my return.

Very truly yours,

Ernest Bonyhadi

ERNEST BONYHADI

EB:ss
cc: Tillamook Cheese & Dairy Association
Cornell, Howland, Hayes & Merryfield

CORNELL, HOWLAND, HAYES & MERRYFIELD
ENGINEERS AND PLANNERS

1600 WESTERN AVENUE • CORVALLIS, OREGON 97330
TELEPHONE: AREA CODE 503/752-4271
OTHER OFFICES IN: SEATTLE • BOISE • PORTLAND

Record No. C4844.0

17 January 1968

Oregon State Sanitary Authority
1400 S.W. 5th Avenue
Portland, Oregon

Attn: Mr. Ken Spies, P.E.

Gentlemen:

On behalf of the Tillamook Cheese and Dairy Association, we submit the enclosed design and construction schedule. We have been instructed by the Association to make every effort to adhere to this schedule.

In preparation of the attached schedule, several assumptions have been made. These are: (a) that the design staff will be available to complete the design, (b) equipment delivery can be obtained as anticipated, and (c) the weather is suitable for construction of the facilities. It will be difficult to maintain this schedule. In view of the current demands in the Northwest for engineering staff and treatment equipment, a schedule which would plan for construction during the 1969 construction season would be more desirable. It is our hope that the Sanitary Authority will extend the discharge permit to September 1969.

Sincerely yours,

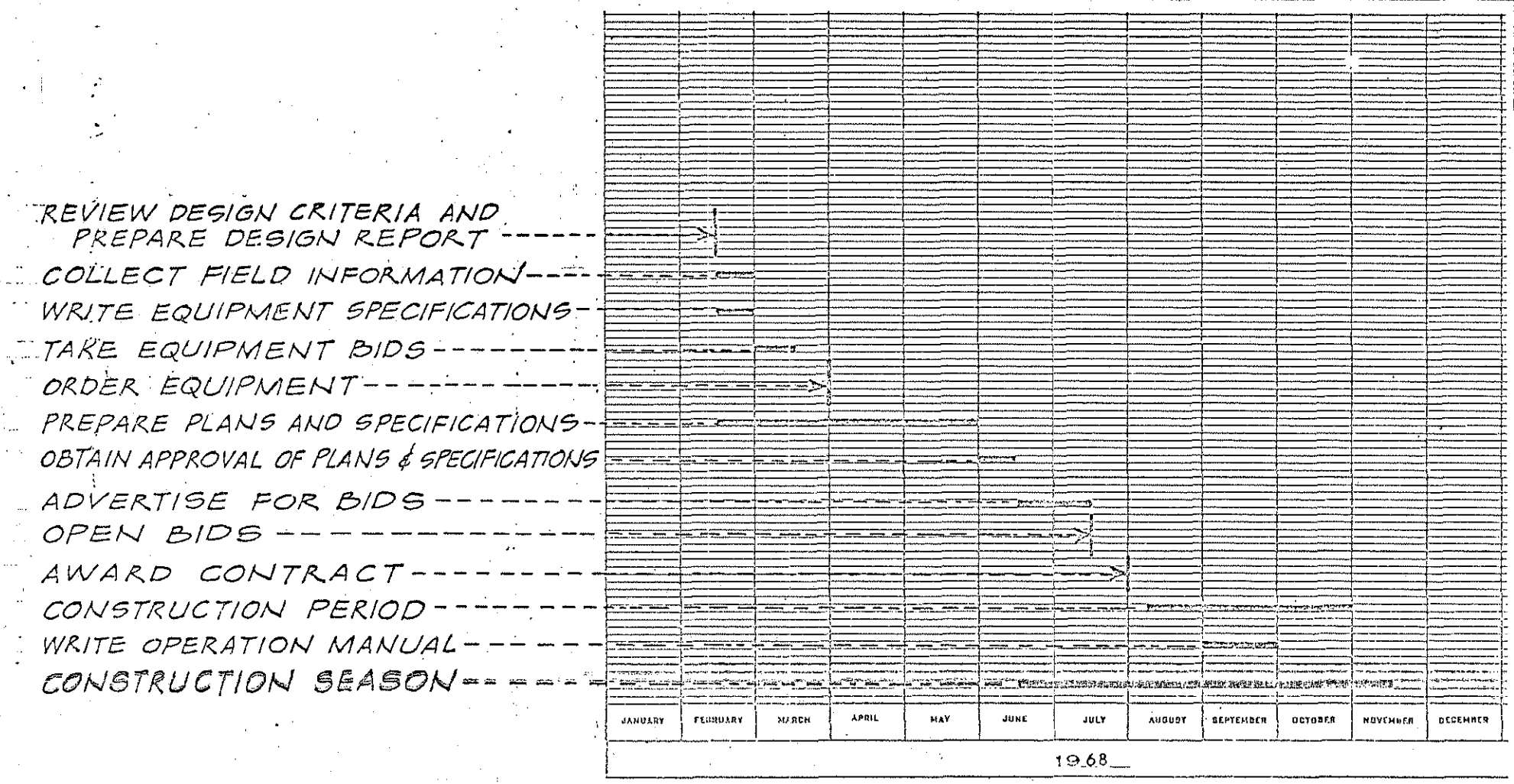
CORNELL, HOWLAND, HAYES & MERRYFIELD

R. E. Pailthorp

R. E. Pailthorp, P.E.
Asst. Projects Manager

REP/le

cc: Tillamook Cheese & Dairy Assoc.
Ernest Bonyhadi



TILLAMOOK CHEESE & DAIRY ASSOCIATION

CORNELL, HOWLAND, HAYES & MERRYFIELD
Engineers and Planners
SEATTLE CORVALLIS BOISE PORTLAND

C0844.0