

January 23, 1997

M E M O R A N D U M

TO: Martin Bauer, Chief
Air Quality Permitting Bureau

FROM: Daniel P. Salgado, Air Quality Engineer
Air Quality Permitting Bureau

SUBJECT: PERMIT TO CONSTRUCT TECHNICAL ANALYSIS
P-960168 Potlatch Corporation, Lewiston
(Saltcake System PTC Amendment)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01.200 (Rules for the Control of Air Pollution in Idaho) for issuing Permits to Construct.

PROJECT DESCRIPTION

Potlatch Corporation is requesting an amendment to their Permit to Construct (PTC) for the saltcake (sodium sulfate, Na_2SO_4) conveying systems on their No. 4 and No. 5 recovery boilers. The amendment includes the following: A requirement for the system to be operated in accordance with an Operations and Maintenance (O&M) manual; The requirement that the pressure drop across the baghouses be maintained as described in the O&M manual; and the removal of an hours of operation limit. Also, Potlatch recently replaced one of the baghouses with a different model, and for consistency, the permit was changed to reflect that.

The saltcake is used as a makeup chemical in the pulping liquor cycle and will replace sodium hydroxide, vanillin black liquor and emulsified sulfur. The substitution is necessary because the vanillin black liquor supply is no longer available, and the sodium hydroxide is in short supply.

SUMMARY OF EVENTS

On December 10, 1996, DEQ received Potlatch's request for an amendment to their PTC for the saltcake system at their Lewiston, Idaho facility. Additional information was received on December 16, 1996, and the application was determined complete on January 10, 1997.

DISCUSSION

1. Process Description

Saltcake (Na_2SO_4), which is used as a makeup chemical in the pulping liquor cycle, is pneumatically unloaded into a portable storage tank (guppy). The saltcake from the guppy is then pneumatically conveyed to a day tank before it is fed into the existing black liquor saltcake mix tank with a feed screw. The process is the same for both the No. 4 and No. 5 recovery boiler saltcake systems.

2. Area Classification

The facility is located in Lewiston, Idaho, Nez Perce County, AQCR 62, Zone 11. This area is considered as attainment or unclassified for all criteria pollutants. PSD was triggered in this area on October 25, 1991 for NO_x.

3. Emission Estimates

The emission rate is not changing, therefore, emissions were not calculated for this action. The hours of operation limit in the original permit has been removed because the emissions are limited by the throughput rate, which is limited in the permit, this will not affect the emission rate.

4. Modeling

The emissions were modeled in the original analysis and no ambient air quality standards were predicted to be exceeded. Since the emission rate is not increasing no additional modeling is required.

5. Facility Classification

The facility is a designated facility as defined in IDAPA 16.01.01.006.25.c (Kraft Pulp Mills). The facility is a major facility as defined in IDAPA 16.01.01.006.54 and IDAPA 16.01.01.008.14. The facility is classified as an A1 source because the actual emissions of any one pollutant are greater than 100 T/yr. This action does not constitute a major modification as defined in IDAPA 16.01.01006.55. The facility is a Kraft Pulp Mill (SIC 2631).

6. Regulatory Review

The facility is requesting an amendment to an existing permit, requiring a Permit to Construct be issued.

The following rules and/or regulations were reviewed as part of this permit analysis:

<u>IDAPA 16.01.01.201</u>	Permit to Construct,
<u>IDAPA 16.01.01.202</u>	Application Procedures,
<u>IDAPA 16.01.01.203</u>	Permit Requirements for New and Modified Stationary Sources,

IDAPA 16.01.01.205

Permit Requirements for New
Major Facilities or Major
Modifications in Attainment or
Unclassifiable Areas,

IDAPA 16.01.01.209

Procedures for Issuing Permits,

IDAPA 16.01.01.210

Demonstration of Preconstruction
Compliance with Toxic Standards,
and

IDAPA 16.01.01.211

Obligation to Comply.

7. Interbureau Coordination

7.1 Operating Permits Section

Based on review of the January 6, 1997, Operating Permits tracking log, this facility has an active Operating Permit application submitted to DEQ at this time. This action will not significantly change the application.

7.2 Compliance Assurance Bureau

A draft copy of this PTC final action was not presented to the Compliance Assurance Bureau for review and comment as the changes are administrative in nature.

8. AIRS Information

This permit action does not change any emission points at the facility and is administrative in nature, therefore, no update to the AIRS database is required.

9. Permit Requirements

This amendment allows the facility to exceed the manufactures recommended pressure drop for short periods of time so long as the procedures in the O&M manual are followed. The O&M manual requires the equipment to be immediately shut down for maintenance to correct the problem. A copy of the O&M manual is attached as Appendix A.

The hours of operation limit has been removed from the permit. The requirement was deemed unnecessary because emissions will actually be limited by throughput limits.

10. Fees

Fees apply to this facility in accordance with IDAPA 16.01.01.526 because the facility is a major facility as defined in IDAPA 16.01.01.008.14. The facility has paid registration fees for approximately 5,276 tons per year of pollutants required to be registered in accordance with IDAPA 16.01.01.527 as of August 2, 1996. This amendment does not increase the amount of pollutants required to be registered.

RECOMMENDATION

Based on review of application materials and state and federal rules and regulations, staff recommend that Potlatch Corporation be issued an amended Permit to Construct for the saltcake system at the Lewiston, Idaho facility. No public comment period is recommended, no entity has requested a comment period and the project does not involve PSD Permit to Construct requirements.

DS/bb: \DAN\POTLATCH\SALTCAKE.TM

cc: Robert Wilkosz, TSB
Lewiston Regional Office
Source File (069-00001)
COF

APPENDIX A

***POTLATCH CORPORATION
PULP, PAPERBOARD & PACKAGING GROUP
SALTCAKE SYSTEM PTC AMENDMENT***

OPERATIONS AND MAINTENANCE MANUAL

**Potlatch Corporation
Pulp & Paperboard Group
Idaho Division**

P.O. Box 1016
Lewiston, Idaho 83501-1016
Telephone (208) 799-0123

December 12, 1996

Mr. Dan Salgado
Air Quality Engineer
Idaho Division of Environmental Quality
1410 North Hilton
Boise, ID 83706-1290

RECEIVED

DEC 16 1996

DIV. OF ENVIRONMENTAL QUALITY
AIR & HAZARDOUS WASTE

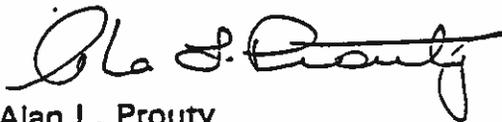
CERTIFIED MAIL # P 470 702 440

Dear Mr. Salgado:

Enclosed is the operation and maintenance guidelines we plan to use with the new permit.

If you have any further questions, please contact me at (208) 799-4104

Sincerely,



Alan L. Prouty
Environmental Engineering Manager

RECEIVED

DEC 16 1996

**DIV. OF ENVIRONMENTAL QUALITY
AIR & HAZARDOUS WASTE**

**NO. 4 AND NO 5 RECOVERY FURNACES'
SALT CAKE SYSTEM
OPERATION AND MAINTAINANCE PLAN**

**POTLATCH CORPORATION
IDAHO PULP AND PAPERBOARD DIVISION
LEWISTON, IDAHO**

DECEMBER 1996

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APPENDIX A-MANUFACTURER'S
MANUALS

SALT CAKE SYSTEM STARTUP PROCEDURE

OPERATOR: _____

DATE: _____

1. INITIATE DAY TANK FILLING PROCEDURES WHEN LOW LEVEL ALARM SOUNDS
2. CHECK THAT NO SALT CAKE UNLOADING OR TRANSFERRING PROCEDURES ARE IN PROGRESS
3. CHECK THAT BAGHOUSE AIR SUPPLY IS ON
4. STORAGE TANK HOPPER OUTLET ISOLATION HAND VALVES CLOSED
5. SALT CAKE TRANSPORT LINE HEADER ISOLATION HAND VALVE CLOSED
6. CROSSOVER HAND VALVE CLOSED (NORMALLY CLOSED)
7. START SELECTED BLOWER (DSR#1 OR #2) AT DCS CONTROL PANEL OR AT REMOTE PANEL
(6 SECOND DELAY SO SALT CAKE SWITCHING VALVE CAN TRAVEL AND SEAT PROPERLY)
(SALT CAKE SWITCHING VALVE WILL GO TO SELECTED TRANSPORT POSITION)
(STORAGE TANK AIR PADDING AUTOMATIC VALVE WILL OPEN)
(SELECTED BAGHOUSE WILL START AUTOMATICALLY)
8. PRESSURIZE STORAGE TANK TO 12 PSIG
9. WHEN THE BLOWER LINE PRESSURE REACHES 14 PSIG, OPEN THE SALT
CAKE TRANSPORT LINE HEADER ISOLATION VALVE IN ORDER TO SUPPLY
AIR TO THE TRANSPORT LINE
10. ACTIVATE SELECTED STORAGE TANK HOPPER VIBRATORS
11. OPEN SELECTED STORAGE TANK HOPPER OUTLET ISOLATION VALVE
12. IF THE TRANSPORT LINE PLUGS WITH SALT CAKE (TRANSPORT LINE PRESSURE
SUDDENLY JUMPS ABOVE 12 PSIG) IMMEDIATELY CLOSE THE STORAGE TANK
HOPPER OUTLET ISOLATION VALVE AND OPEN THE SALT CAKE TRANSPORT LINE
HEADER ISOLATION VALVE 100% UNTIL THE TRANSPORT LINE PURGES
13. IF THE SELECTED STORAGE TANK HOPPER IS EMPTY BEFORE THE SALT CAKE DAY
TANK HAS REACHED THE HIGH LEVEL, CLOSE THE HOPPER AND TRANSPORT LINE
ISOLATION VALVES AND REPEAT STEPS 8 THROUGH 11 FOR ANOTHER HOPPER

SALT CAKE SYSTEM NORMAL OPERATING PROCEDURES (PROPOSED)

RECORD KEEPING REQUIREMENTS

1. HOURS OF OPERATION
2. PRESSURE DROP
 - A. RECORD ONCE DAILY FOR EACH BAGHOUSE WHEN IN USE.
 - B. THE PRESSURE MONITORING DEVICES SHALL BE CERTIFIED BY THE MANUFACTURER TO BE ACCURATE WITHIN ONE INCH OF WATER GAUGE PRESSURE. THE DEVICES SHALL BE CALIBRATED ON AN ANNUAL BASIS IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTION.
3. MONTHLY THROUGHPUT OF SALTCAKE

PRESSURE DROP

1. THE PRESSURE DROP SHALL BE NO LESS THAN 0.5 INCHES OF WATER GAUGE.
2. THE PRESSURE DROP SHALL BE NO GREATER THAN 20 INCHES OF WATER GAUGE.
3. PRESSURE DROPS OUTSIDE THESE LIMITS WILL REQUIRE SYSTEM SHUTDOWN FOR INSPECTION AND REPAIRS.

VISUAL OBSERVATION

1. OPERATORS WILL CONDUCT ROUTINE VISUAL CHECKS ON BAGHOUSE VENTS.
2. HIGH VENT EMISSIONS REPORTED BY VISUAL CHECKS WILL REQUIRE SYSTEM SHUTDOWN FOR INSPECTION AND REPAIRS.

NOTIFICATION OF VIOLATIONS

1. THE ENVIRONMENTAL DEPARTMENT MUST BE NOTIFIED OF THE FOLLOWING VIOLATIONS BY VERBAL COMMUNICATION AND A WRITTEN NOTIFICATION FORM:
 - A. PRESSURE DROP IS BELOW 0.5 IN. AND/OR IS NOT BEING RECORDED DAILY.
 - B. RECORDS ARE MISSING.

OPERATOR _____

DATE _____

OPERATOR TIME

1. NOTIFY SHIFT SUPERVISOR

_____/_____
/

2. SHUT DOWN SALT CAKE SYSTEM

_____/_____
/

3. SHIFT SUPERVISOR TO NOTIFY ENVIRONMENTAL DEPARTMENT

_____/_____
/

4. CONTACT MAINTENANCE PERSONNEL TO INSPECT AND REPAIR BAGHOUSE

_____/_____
/

5. PLACE SALT CAKE SYSTEM BACK IN SERVICE AFTER REPAIRS ARE COMPLETE

_____/_____
/

COMMENTS:

SALT CAKE SYSTEM SHUTDOWN PROCEDURE

OPERATOR: _____

DATE: _____

1. WHEN THE DAY TANK HIGH LEVEL (95%) IS REACHED, CLOSE THE STORAGE TANK HOPPER OUTLET ISOLATION VALVE
(THE STORAGE TANK AIR PADDING AUTOMATIC VALVE WILL CLOSE)
(PURGE CYCLE WILL COMMENCE)
2. WHEN PURGE CYCLE IS COMPLETED:
(SELECTED BLOWER AND BAGHOUSE WILL AUTOMATICALLY SHUT DOWN)
3. FOR MANUAL SHUTDOWN, STOP SELECTED BLOWER (DSR#1 OR #2) AT DCS CONTROL PANEL OR AT REMOTE PANEL
CLOSE THE STORAGE TANK HOPPER OUTLET ISOLATION VALVE
(THE STORAGE TANK AIR PADDING AUTOMATIC VALVE WILL CLOSE)
(PURGE CYCLE WILL COMMENCE)
4. WHEN PURGE CYCLE IS COMPLETED:
(SELECTED BLOWER AND BAGHOUSE WILL AUTOMATICALLY SHUT DOWN)

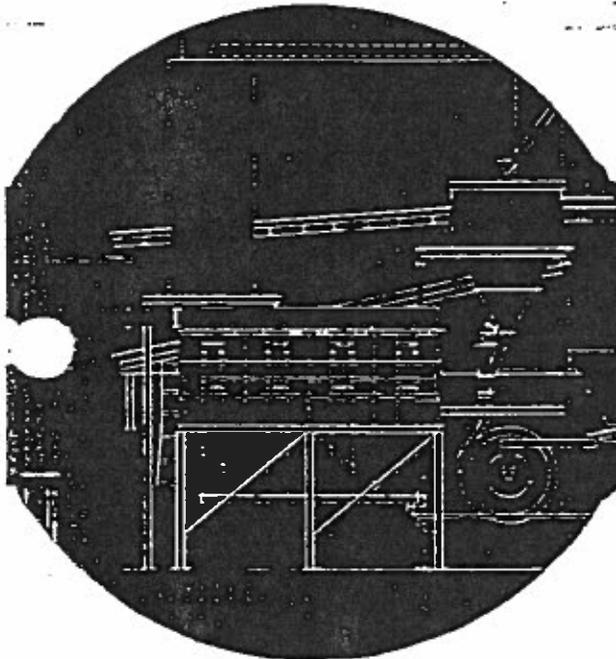
SALTCAKE MAINTENANCE SCHEDULE

1. BAGS WILL BE INSPECTED SEMI-ANNUALLY.
2. THE PRESSURE MONITORING DEVICES WILL BE CALIBRATED ANNUALLY.

SECTION 6-APPENDIX A-MANUFATURERS MANUALS

**THE NO. 4 AND NO. 5 RECOVERY FURNACE BAGHOUSES WERE
CONSTRUCTED BY THE SAME MANUFACTURER, AND THEREFORE, HAVE
THE SAME MANUAL.**

&
FABRI-JET™
FABRIC FILTERS



**INSTALLATION,
OPERATION
&
MAINTENANCE
MANUAL**

ULTRA INDUSTRIES INC.

OPERATING PRINCIPLES

ULTRA and FABRIJET™ dust collectors remove 99.9% of dust particles quickly, efficiently. Units operate by this simple method:

Dust-laden air enters the hopper where heavier particles drop out of the air stream. Lighter particles are trapped in the air stream and rise.

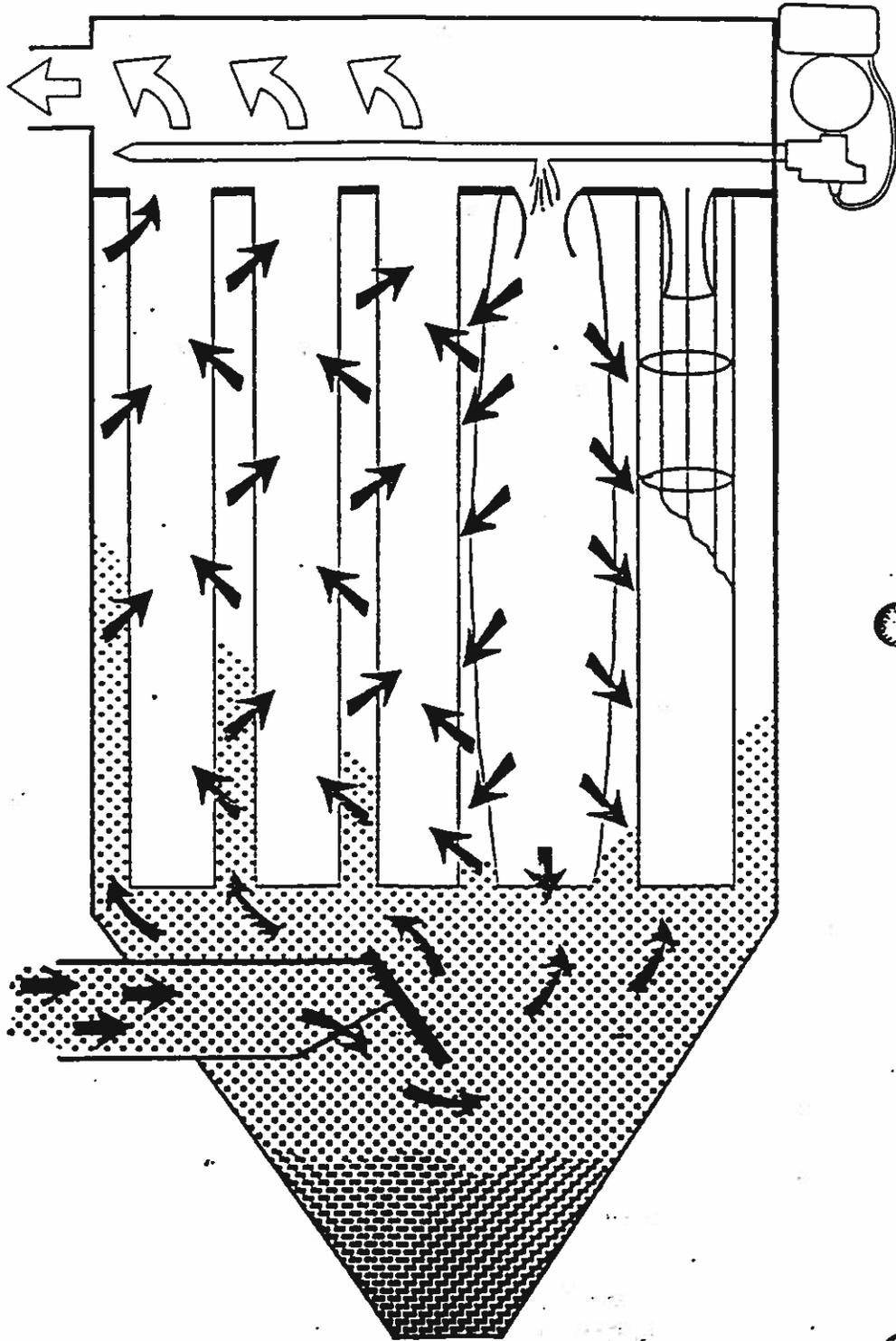
As the air passes through the filter bags, dust particles are collected on the outside surface of the filter bags and the cleaned air is exhausted from the collector.

At precise intervals, jets of high pressure air pass through the venturis, inducing a strong flow of secondary air, briefly reversing the air flow through the bags.

Shock waves pass down the inside of the bags, flexing the bags outward. The reversed air flow dislodges accumulated dust from the bag and the dust drops into the hopper.

With this method of cleaning, airflow through a row of bags is reversed for only a fraction of a second, resulting in steady airflow through the collector. The system is therefore maintained at steady-state conditions.

Collection operation is controlled by an easily-adjusted solid state timer. A Magnahelic gauge permits optimum regulation of the timer. Pulse durations and pulse intervals can be simply and accurately set at the timer to minimize air consumption.



RECEIVING YOUR COLLECTOR

Congratulations on selecting a ULTRA or FABRIJET™ collector for state of the art, efficient, thorough air pollution control and product recovery. We urge that you read and follow the instructions and advice which follow. We want you to be thoroughly satisfied with your collector.

SHIPMENT

ULTRA and FABRIJET™ collectors have been designed to minimize customer assembly. Air headers, solenoids, air piping and air pressure gauges are all shipped mounted on the collectors, completely piped for operation.

Housings for the ULTRA and FABRIJET™ Models BB, CB, CF and SQ collectors are shipped as completely welded assemblies. Larger rectangular collectors are shipped in two subassemblies. The hopper is often inverted and nested inside the main housing. Walk-in plenums for top bag removal collectors are shipped as a separate subassembly.

Timers, bags, bag clamps, cages and differential pressure gauges are shipped separate from the collector. These shipments are carefully marked for identification.

INSPECTION

ULTRA and FABRIJET™ collectors are carefully inspected before shipment to ensure high quality workmanship. Heavy skids and secure truck cribbing are used but at times damages do occur during shipment. We recommend that you inspect your collector when it is received for any possible damage — if there is any damage or a shortage, it should be noted on your bill of lading. Purchaser should file claims against the carrier within a few days of receipt of the shipment. Damage incurred in transit is the responsibility of the common carrier. Since it is the manufacturers policy to ship F.O.B. the factory, any claims must be initiated against the carrier by the purchaser.

STORAGE

The standard finish for the outside of the collector is one coat of factory primer, unless additional finish coats or special coatings were specified.

If additional protection is required because of lengthy outside storage, corrosive atmosphere or other conditions, the collector should be given an additional protective coat while the prime coat is in good condition.

Bags and cages, which will arrive in a separate shipment to avoid shipping damage, should be stored in a dry, indoor location.

INSTALLATION All accessories and a detailed instruction sheet are packed in the box with your gauge.

LOCATION Mount the gauge in a location that is free from excessive vibration and where the temperature does not exceed 140°F. Avoid direct sunlight.

CONNECTING GAUGE For a permanent installation it is recommended that 1/4" O.D. copper tubing be used with regular compression fittings. An in-line paper filter will prevent dust from getting into the gauge line. If this is not used, it is recommended that a loop be placed in the high pressure line that leads from the dirty air housing so that dust does not enter the gauge.

Adjust the differential pressure gauge to indicate zero.

INSTALLING THE COMPRESSED AIR CLEANING SYSTEM

AIR CONSUMPTION The average amount of air that is consumed is listed on the drawing for each collector. This is based on a six second pulse interval, "OFF-TIME", and a pulse duration of .05 seconds, "ON TIME", which are average settings for most applications and can be varied up or down depending on the type of dust and dust loading. For example with a very light dust loading the "OFF TIME" could be set at 12 to 18 seconds thus reducing the air requirements to 1/2 or 1/3 of the stated volume. A corresponding reduction in the size of the air supply piping may be made.

AIR SUPPLY PIPING A 1" to 2 1/2" O.D. compressed air supply pipe furnishing 85 to 100 psig air (whether all or no other equipment on the same line is used) should be connected to the air header. Refer to RECOMMENDED PIPE SIZES table below. Higher pressures shorten bag life, lower pressures do not adequately clean the filter bags. It is good practice to blow down the air supply piping before connecting it to the air header. This removes any debris in the supply pipe before it is connected to your collector.

AIR QUALITY Dirt, scale, or foreign matter in the piping can cause problems of the air pulsing system. Oil in the air supply can eventually cause plugging of the bags. Water in the system can cause valve problems plus the chance of freeze-up in a cold atmosphere. It is, therefore, necessary that the air be clean, dry and oil-free. The air receiver should have an automatic moisture drain. In-line air filters with automatic drains may suffice if moisture content is not too great and if kept from freezing. However, if a large amount of moisture or oil is present, a desiccant-type filter is recommended.

RECOMMENDED PIPE SIZES

<u>Total free air consumption</u>	<u>Up to 100 ft.</u>	<u>Up to 500 ft.</u>	<u>Up to 1,000 ft.</u>
up to 50 SCFM	1" O.D.	1 1/4" O.D.	1 1/4" O.D.
51 to 100 SCFM	1 1/4" O.D.	1 1/2" O.D.	2" O.D.
101 to 200 SCFM	1 1/2" O.D.	2" O.D.	2 1/2" O.D.

1. Slip filter bag over the cage, making sure that the bag seam is not over the split in the top collar of cage. (See Fig. 1.)
2. Bottom of bag must be tight against the cage bottom, the seam should be straight and all wrinkles smoothed out.
3. Fold the top of the bag (about two inches) over the top of cage, smooth out the inside folds, and make sure that bag does not overlap the annular groove on inside of cage (trim off excess bag length if necessary). (See Fig. 2.)
4. Slip on the bag clamp (loosely). The tightening mechanism should not be over the bag seam. (See Fig. 3.)
5. Slide the bag and cage upward over the bag cup until the cage snaps into place on the groove in the bag cup. Bag and cage assembly should fit tight against tubesheet for proper alignment. (See Fig. 4.)
6. Tighten bag clamp. It is important that a $\frac{3}{8}$ " socket be used: a screwdriver may slip and puncture the bag. (See Fig. 5.)
7. Check to make sure that bags are hanging straight, and do not touch other bags or the collector housing. (See Fig. 6.)
8. Install the remaining bags in the same manner.
9. Close and tighten all access doors.



FIG. 1



FIG. 2

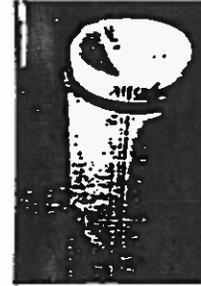


FIG. 3



FIG. 4



FIG. 5



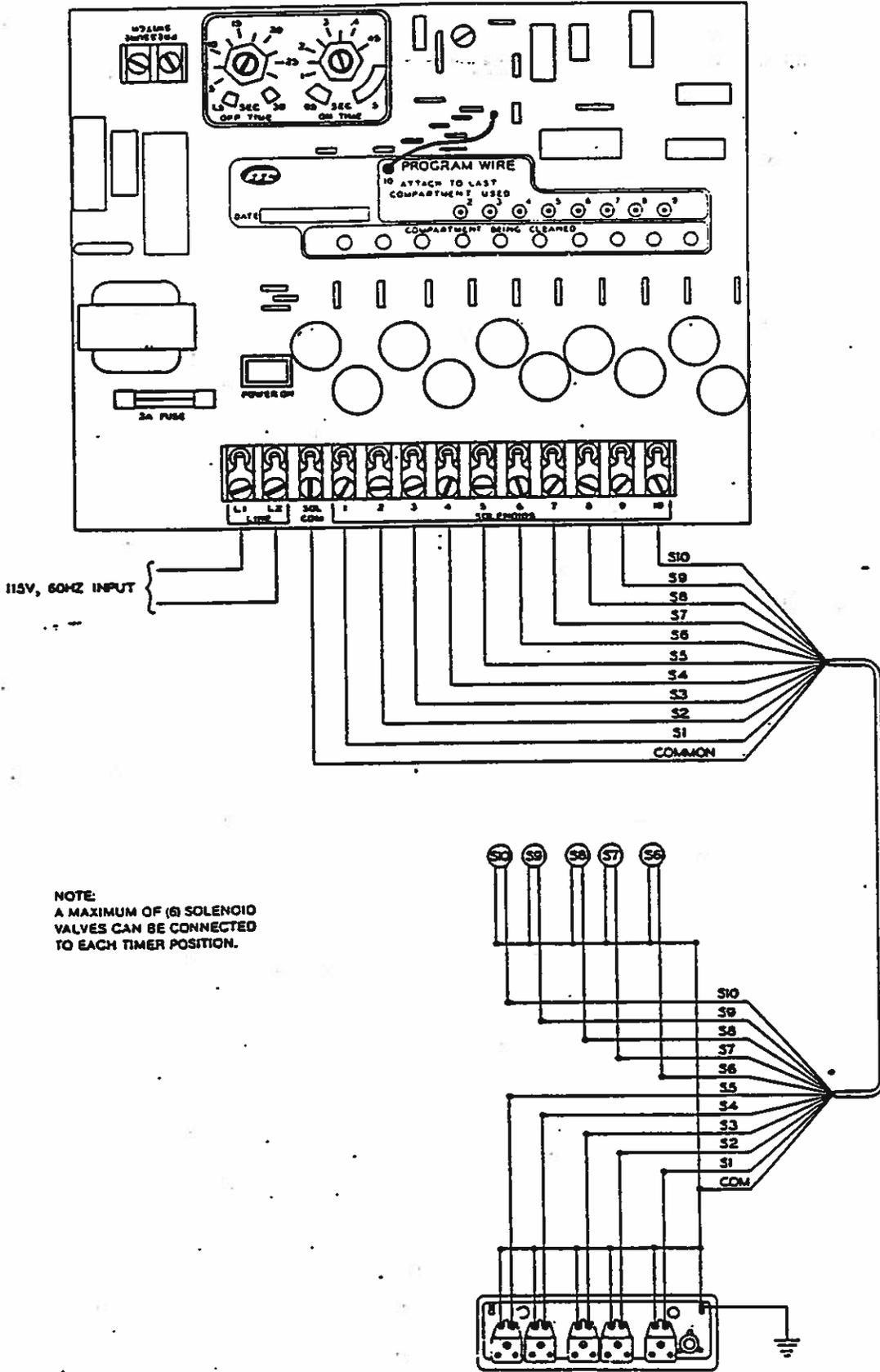
FIG. 6

TOP BAG REMOVAL COLLECTORS

1. From the top side of the tubesheet, lower the bag into the housing up to the bag cuff.
2. The bag cuff has two sewn-in steel bands. Collapse the cuff into a U-shape and lower the bag until one of the bands is below the tubesheet and one above. Then let the cuff spring back to its original shape. Smooth the cuff around the hole. The cuff should form a perfect seal at the tubesheet.
3. Lower the cage assembly into the bag and press firmly into place.
4. Install the remaining bags in the same manner.
5. Locate a blowpipe over each row of bags and connect each blowpipe to the air header by slipping the blowpipe into the coupling at the collector wall and tightening the collar.
6. Close and tighten all access doors.

INSTALLING THE SOLID STATE TIMER

1. The **ULTRA** and **FABRIJET™** timer is a completely solid state switching unit manufactured to rigid specifications. The timer is capable of switching up to 10 outputs at 1 amp each with 115 volts line input. Each output is capable of handling one solenoid on each air header and can handle up to six headers for a total of sixty solenoids, i.e. sixty rows of filter bags per timer.
2. The timing range is fully adjustable for optimum collector performance. The "ON TIME" (pulse duration) is adjustable from .05 seconds to .5 seconds. The "OFF TIME" (interval between pulses) can be varied from 1.5 to 30 seconds. An indicator light for "power on" is prominently located on the board as well as lights which indicate which row of bags is being cleaned. If desired, the timer can be activated by an external differential pressure switch. In this arrangement the cleaning cycle would be used only when it is necessary, as determined by a preset pressure drop across the tubesheet.
3. The standard timer is shipped in a NEMA 4, weatherproof enclosure for mounting by the customer. Other enclosures are available for hazardous applications.
4. If the timer is to be mounted on the collector, vibration mounts should be provided. It is more desirable to mount the timer away from the collector in an accessible location that is free from vibration. The timer should not be exposed to temperatures over 120°F.
5. Install an "ON-OFF" switch in the power supply to the timer. Connect 115 volt, single phase, 60 Hz, 10 amperes input through this switch to timer terminals marked "Line L1" and "L2". In grounded systems connect neutral of line to "L2".
6. Connect wiring between the timer and solenoid valves; one side of each solenoid to the timer common terminal marked "SOL COM.", and the other side of the first solenoid to the timer output terminal marked "Solenoids 1", the second solenoid to "Solenoids 2", etc.
7. The black program wire in the timer should be connected to the "COMPARTMENT USED" socket number which is the same number as the highest numbered "Solenoids" terminal which is used. For example: if eight solenoids are connected to the timer, the program wire should be connected to the number 8 "COMPARTMENT USED" socket.
8. On collectors with more than one air header, one wire from each solenoid is connected to the timer terminal marked "SOL COM." The other wire from the first valve on each header should be connected to the timer terminal marked "Solenoids 1", the second valve on each header to "Solenoids 2", etc. On certain collectors the number of solenoid valves on each header differ. For example: a collector may have a total of 26 valves with three air headers. Two would have 9 valves, the third 8. The solenoids would be connected in sequence to the timer, with three wires on positions one through eight. On the ninth post there would be only two solenoid wires. The program wire would be connected to the ninth "COMPARTMENT USED" socket.



NOTE:
A MAXIMUM OF (6) SOLENOID
VALVES CAN BE CONNECTED
TO EACH TIMER POSITION.

AUXILIARY EQUIPMENT

Inspect all equipment before start-up to see that there are no foreign objects in rotating equipment and that safety equipment is in place.

Start the fan, screw conveyor and/or airlock and inspect for proper rotation and that all equipment runs smoothly. After making the necessary corrections turn all this equipment off.

DUCTWORK

See that all connections are tight and that all cleanout ports are closed. The ductwork must be free of debris.

STARTING SYSTEM

1. All doors and ports should be closed, with timer and auxiliary equipment off. Turn on compressed air to collector and inspect the system for leaks. If air is leaking from any blowpipe with the timer off there may be a leak between its solenoid and diaphragm valve. Inspect the 1/4" O D tubing between the solenoids and diaphragm valves to be certain that all connections are tight and there are no leaks. The tubing must not be crimped. Shut off compressed air supply.

2. Turn on timer. The red "power on" indicator should light. Turn "OFF TIME" and "ON TIME" knobs fully counterclockwise. The individual timing lights should blink at 1.5 second intervals and the corresponding solenoid valves will be activated (audible).

3. Turn on the air supply to the air header. All solenoid valves should be operating and the exhaust air from each valve can be felt.

Let the collector pulse for ten minutes to clear all lines then set "OFF" time to between six to ten seconds with 85 psig air supplied. Later this may be adjusted to suit your collection requirements based on the dust loading.

4. Turn on all dust discharge equipment such as rotary valves, screw conveyors, etc.

5. If water vapor or other condensables are present, it will be necessary to preheat the system so that the surface temperature of the piping and collector are above the dew point. Dryers, coolers and some grinding systems are common examples.

6. Start the fan with the fan damper set at about half-flow and run for 30 minutes because it is good practice to introduce the dust stream to a new bag at a reduced rate. This is particularly true when very fine solids (less than 2 microns) or high concentrations are present.

7. Observe the differential pressure gauge. At start-up the pressure drop will be low. After 30 minutes of operation the bags will start to be coated, the filtering efficiency will increase and the pressure differential will start to rise. Then the main fan damper should be opened to the design setting.

8. When the collector has stabilized (may require eight hours) the differential pressure should remain steady at some value between 1" and 6" W.G. If it is below 4" gradually increase the "OFF" time until it reaches 4" W.G. If it is over 4" the "OFF" time should be decreased until it reaches 4" W.G.

9. Temperature of the system must be controlled to remain below the maximum temperature capability of the filter bags.

10. The collector is now ready for use.

STANDARD START UPS Subsequent start ups (exception: after new bags are installed follow the **INITIAL SYSTEM START UP procedure**) should begin with all systems off. Turn on in the following sequence:

1. Filter bags installed, all ports, access doors and rotating equipment closed with safety equipment, (belt guards, etc.) in place.
2. Turn on compressed air.
3. After pressure reaches 85 psig minimum, turn on timer.
4. Turn on all dust discharge equipment.
5. Turn on main fan. Preheat system if necessary.
6. You have purchased equipment to filter 99.9% of dust particles. If the collector discharge is visible refer to the **TROUBLE SHOOTING CHECK LIST** that follows.

SHUTTING DOWN YOUR COLLECTOR

DUST CONTROL AND PNEUMATIC CONVEYING SYSTEMS Reverse start-up procedure. First turn off the fan, wait five to ten minutes and turn off the timer and discharge (auxiliary) equipment.

PROCESS SYSTEM Dryers and the system to the collector discharge should be run until empty and heat maintained at a reduced rate until the collector metal surfaces and filter bags are dry. Then proceed as above.

ROUTINE MAINTENANCE

INSPECTION Frequency will vary as widely as there are operating conditions. Your experience will be the best guide. In general proceed as follows:

1. Daily adjust timer "OFF" time to achieve differential pressure of 4" W.G.
2. Weekly check timer and solenoid valves for proper operation. Usually listening to determine that there is an uniform time interval between solenoid air discharge blasts will suffice.
3. Monthly lubricate fan, rotary valve and screw conveyor. Inspect seals on latter two for dust loss.
4. Quarterly inspect filter bags for condition and that every bag clamp is tight.
5. Inspect, clean and replace air supply and differential filters as operating conditions require.

SAFETY Before entering dust collector:

1. Run cleaning mechanism 20 minutes with fan off to clean the filter bags.
2. Run solids out of the hopper.
3. Lock out electrical power on all rotating equipment.
4. If toxic gases and/or solids are present purge collector housing and block off inlet duct.
5. Install catwalks and safety cables.
6. Secure access doors in open position or remove doors by lifting from the hinge pins.
7. Use buddy system.
8. Wear respirator.
9. Use common sense.

First be sure that you have used the complete STANDARD START UP procedure.

PROBLEMS & PROBABLE CAUSES (SOLUTIONS)

VISIBLE EXHAUST DUST LOSS

1. Missing bag, dust loss will be constant not in synchronization with valve blasts. (Locate and replace missing bags.)

2. Improperly installed bags. Loose clamps or bag tops not clamped between cages and venturi collars. Constant dust loss. (Reinstall bags and cages properly.)

3. Holes in bags from mechanical damage during installation, abrasion, thermal or corrosive attack or wear. Generally in synchronization with valve blasts. (Replace worn or damaged bags with bags made from filter medium suitable for application. Plugging venturis with 3" diameter rubber plugs from the clean air (plenum) side of the collector is a quick temporary measure until the bags can be replaced.)

4. Dust in plenum after bags fail. (Always clean plenum before installing new bags.)

INSUFFICIENT AIR PRESSURE

5. Piping leaks. (Tighten fittings.)

6. Additional usage from plant system. (Revise system to furnish adequate air supply.)

ENTIRE ROW OF BAGS INADEQUATELY CLEANED

7. Debris in diaphragm valve.

8. Dirt in solenoid plunger. (Remove solenoid cover and clean.)

9. Solenoid valve inoperative. Electric, solenoid, or timer fault. (Establish power to solenoid and proper wiring to timer. Check solenoid and if O.K. change wiring at timer to next unused terminal and move

defective, replace.)

RANDOM BAG INADEQUATELY CLEANED

10. Debris in air distribution pipe hole. (Remove debris.)

HIGH DIFFERENTIAL PRESSURE

11. Excessive air flow. (Adjust fan damper until pressure gauge indicates proper pressure.)

12. Compressed air pressure below 75 psig. (See paragraphs 5 & 6.)

13. Solenoids skipping. (See paragraph 9.)

14. Reverse leakage through rotary valve. (Check rotary valve for wear or damage and correct.)

15. Dust on inside of bags after previous bag failure. (Clean plenum and inside of bags.) (See paragraph 4.)

16. Blinding (plugging) of bags due to condensables. (Change operations upstream so that liquids remain vaporized through unit. May be necessary to insulate the collector. Usually operating the collector with no solids flowing through will permit recovery.)

17. Re-entrainment of dust due to hopper overloading, bridging, or plugging. (Run out dust from discharge system with main fan off, consider increasing capacity of discharge system or reducing load and consider installing hopper vibrators.)

18. Improper timer sequence. (Inspect timer for proper solenoid wiring and program wire position.)

19. Defective timer. (Return timer to us for repair or replace.)

20. Bags too tight. (If bags were cleaned they may have shrunk and are too tight to permit proper flexing. Replace bags.)

21. Solenoid valves not working. (See paragraph 9.)

22. Continuous air flow through diaphragm valve. (See paragraphs 7 & 8. Leak in tubing between solenoid and diaphragm valves.)

INSUFFICIENT DUST COLLECTION (SYSTEM VOLUME TOO LOW)

23. Fan running backwards. (Correct fan rotation.)

24. High differential pressure. (See paragraphs 5 through 9, 16, 17, 18 & 19.)

25. Fan belt slippage. (Tighten or replace belts.)

26. Air short-circuiting between collection point(s) and fan. (Stop leaks.)

27. Additions to system. (Increase system capacity.)

28. System blockage. (Use proper shut-down procedure. Inspect piping for foreign material and remove. See paragraphs 9 and 15 through 19. Bags should feel soft to the hand or be replaced.)

29. High temperature. (Bleed in ambient air and/or replace with bags of high temperature rated fabric.)

30. Chemical attack. (Contact us for recommendation.)

31. Localized wear from rubbing. (Straighten cages so that bags do not rub against each other or the collector housing. Replace bags and corroded or broken cages. Wear at air inlet may require an inlet baffle.)

TIMER MALFUNCTION

32. "Power on" indicator light not on. (Ascertain that timer "ON-OFF" switch is on, that timer wiring is connected, and that indicator bulb is good. Inspect for blown fuse. Replace with 3 amp., 3 AG fuse. Do not use slow blow type.)

33. Solenoids skipping. (See paragraph 9.)

UNUSUAL DIFFERENTIAL PRESSURE GAUGE READINGS

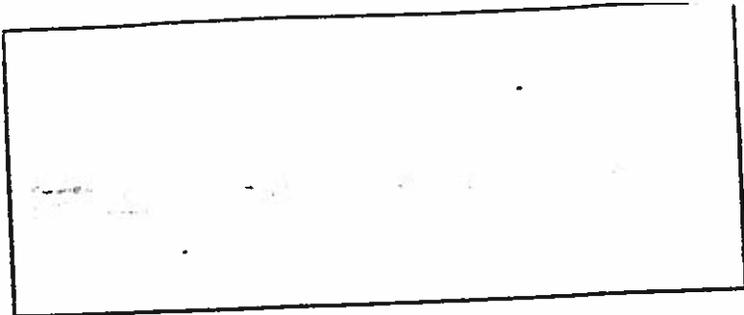
34. Unusual readings. (Inspect gauge filter, replace if plugged.) Blocked gauge tubing. (Disconnect and remove blockage. If blockage occurs frequently, install filter and replace it routinely.)

REPLACEMENT PARTS

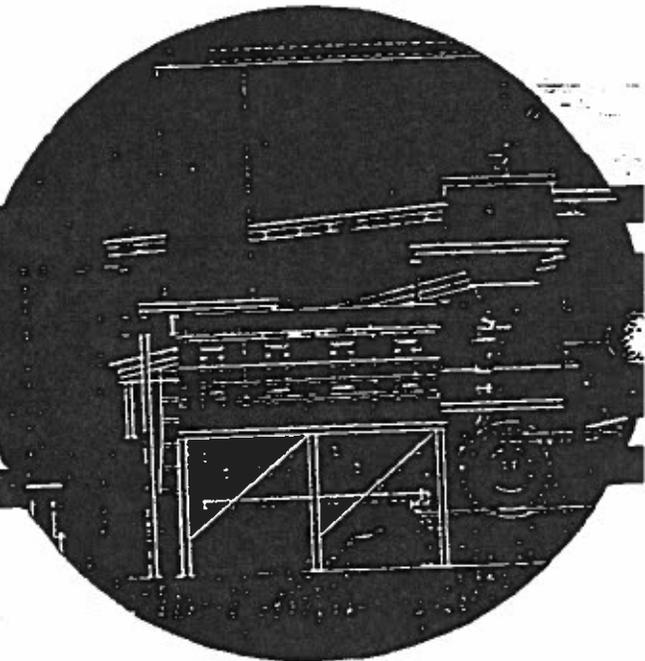
Your ULTRA and FABRI-JET™ collectors use the finest components available. To ensure continued trouble free operation of your collector we recommend that only factory engineered components be used. The following components are suggested to be kept on hand to maintain trouble free service.

1. A spare set of filter bags and bag clamps.
2. Extra solenoid valves and diaphragm valves.
3. A spare timer board for multi-collector installations.

Our collector components can be used to maintain peak performance of collectors manufactured by Mikro Pul, Flex-Kleen and other leading manufacturers.



**INSTALLATION,
OPERATION
&
MAINTENANCE
MANUAL**



Manufacturers of
Pollution Control
Equipment

ULTRA
INDUSTRIES, INC.

1908 DeKoven Ave.
Racine, WI 53403
(414) 633-5070
FAX: (414) 633-5102

Summit
FILTER CORPORATION
879 RAHWAY AVENUE - UNION, NJ 07083

MAILING ADDRESS
PO Box 427 - Union, N.J. 07083
TEL: (908) 687-3500
FAX: (908) 687-4202

DATE : November 29, 1994
COMPANY NAME : Potlatch, Inc.
ATTENTION : Mr. Roger Small

FAX # : (208) 799-1541

№ PAGES : 4

Dear Roger:

Thank you for your patience. I am faxing the charts we discussed and am pleased to quote our Unipore prices for your filter bags as below:

<u>QTY</u>	<u>PRODUCT</u>	<u>MATERIAL</u>	<u>PRICE/EACH</u>
24	Filter Bags, 5" X 60" Lg. Fuller Snap Ring Top & Disc Bottom	16 oz. Polyester W/ Unipore Membrane (exact Goretex duplicate)	\$ 30.20
16	Filter Bags, 5 1/2" X 100" Lg. Ultra Raw Top & Disc Bottom	16 oz. Polyester W/ Unipore Membrane (exact Goretex duplicate)	\$ 31.15

* Standard delivery is 2 weeks after receipt of order
(Rush Deliveries are generally accommodated)

I look forward to discussing this quotation in detail with you and hopefully in serving you with an order for the above. If you have any questions or if I may be of further assistance please do not hesitate to call me at 1-(800) 321-4850.

With Best Regards
Summit Filter Corporation



Cathy Maher
Marketing Manager

CM/rol

When Second Best Won't Do

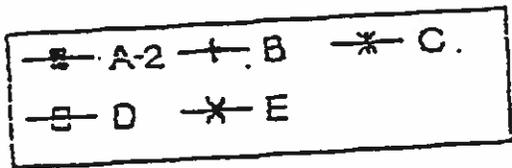
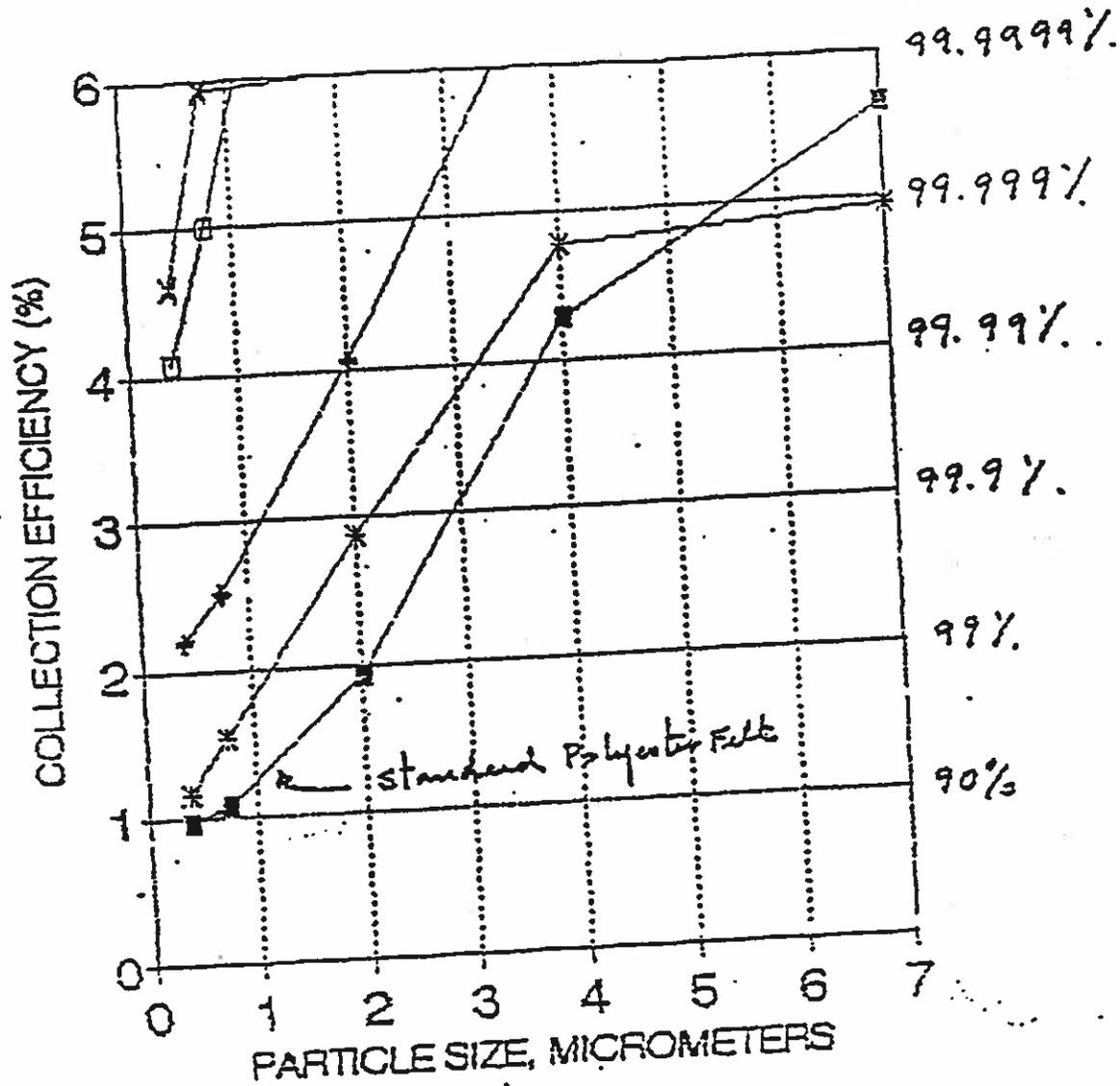


Figure 17. Collection efficiency as a function of particle size, for fabric with an established dust layer, runs A to E. Coal flyash, G/C = 10 fpm.

10:1 A/C ratio

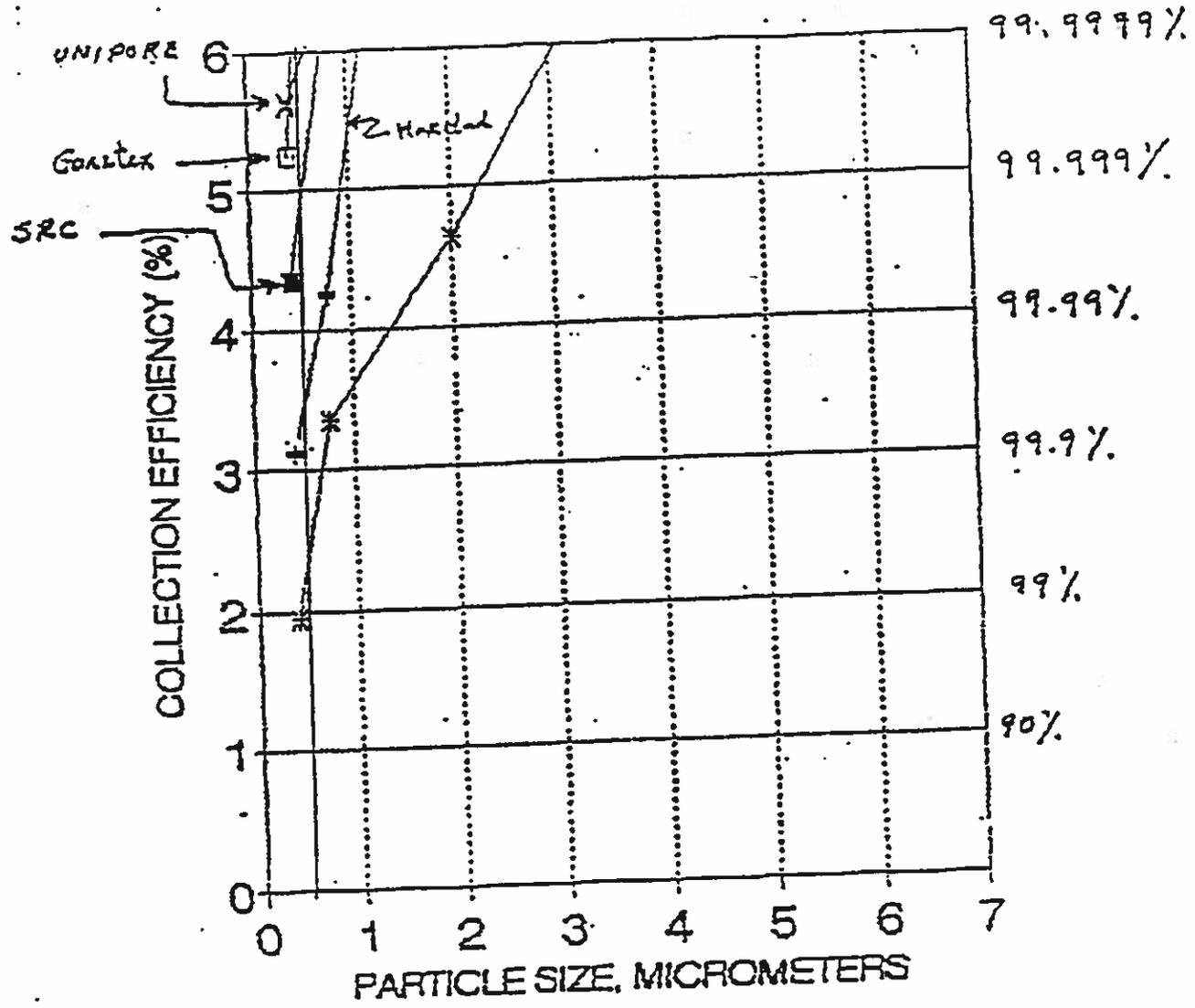


Figure 18. Collection efficiency as a function of particle size, for fabric with an established dust layer, runs F to J. Coal flyash, G/C = 10 fpm.

10:1 A/C ratio

PARTICLE SIZE SUMMARY

POPULATION (OPTICAL PARTICLE COUNTER MEASUREMENT):

20.0% OF THE POPULATION IS BELOW 0.3 MICRON (EXTRAPOLATED)
32.7% OF THE POPULATION IS BELOW 0.5 MICRONS
70.0% OF THE POPULATION IS BELOW 1.0 MICRONS
81.3% OF THE POPULATION IS BELOW 3.0 MICRONS
99.8% OF THE POPULATION IS BELOW 5.0 MICRONS

VOLUME (OPTICAL PARTICLE COUNTER):

0.03% OF THE VOLUME IS BELOW 0.3 MICRONS (EXTRAPOLATED)
0.29% OF THE VOLUME IS BELOW 0.5 MICRONS
4.09% OF THE POPULATION IS BELOW 1.0 MICRONS
56.80% OF THE POPULATION IS BELOW 3.0 MICRONS
85.60% OF THE POPULATION IS BELOW 5.0 MICRONS

MASS (BAHCO MEASUREMENT):

4.17% OF THE MASS IS BELOW 1.71 MICRONS
14.88% OF THE MASS IS BELOW 3.38 MICRONS
43.08% OF THE MASS IS BELOW 8.77 MICRONS
49.71% OF THE MASS IS BELOW 10.24 MICRONS
65.66% OF THE MASS IS BELOW 15.55 MICRONS
74.55% OF THE MASS IS BELOW 28.23 MICRONS
77.93% OF THE MASS IS BELOW 35.25 MICRONS
79.57% OF THE MASS IS BELOW 38.65 MICRONS

SASKATCHEWAN MINERALS

DIVISION OF GOLDCORP INC.
SODIUM SULPHATE ANALYSIS REPORT

SAMPLE DATE: OCTOBER - 1994 PRODUCT: ING. P.O.C. COMPOSITE
ANALYSIS DATE: NOVEMBER 1, 1994 SAMPLE #: SHIPPING

SCREEN ANALYSIS							
SCREEN #		ON SCREEN			CUMULATIVE		
TYLER	US	MIN	MAX	ACT	MIN	MAX	ACT
20	20			15.4			15.4
28	30			5.8			21.0
35	40			4.6			25.6
48	50			5.2			30.8
60	60			4.8			35.6
65	70			3.9			39.5
80	80			5.7			45.2
100	100			6.9			52.1
150	140			13.9			66.0
200	200			13.8			79.8
270	270			6.9			86.7
400	400			6.2			92.9
500	500			4.9			97.8
PAN				2.2			100.0
TOTAL				100.0			

CHEMICAL ANALYSIS			PHYSICAL PROPERTIES			
RESULTS AS % OF DRY BASIS	SPEC	ACT		MIN	MAX	ACT
WATER INSOLUBLES		0.03	ODOUR			NORMAL
CALCIUM SULPHATE (CaSO4)		0.07	APPEARANCE			NORMAL
MAGNESIUM SULPHATE (MgSO4)		0.33	WHITENESS			88.9
SODIUM CARBONATE (Na2CO3)		0.00	DENSITY - TAMPED (lb/ft3)			85.81
SODIUM BICARBONATE (NaHCO3)		0.10	DENSITY - UNTAMPED (lb/ft3)			81.81
SODIUM CHLORIDE (NaCl)		0.25	pH @ 1% SOLUTION			7.7
SUB TOTAL		0.78	pH @ 5% SOLUTION			8.9
SODIUM SULPHATE (Na2SO4)		99.22	pH @ 10% SOLUTION			9.3
TOTAL		100.00	SPECS			
WATER		0.018	FBFB			

COMMENTS: 10 BULK TRUCK SAMPLES
8 BULK CAR SAMPLES

PERFORMED BY:  LEO SCHNEIDER

REVIEWED BY:  W.E. AVERY

REVISED 23 NOVEMBER 1993

January 29, 1997

MEMORANDUM

TO: Orville D. Green, Assistant Administrator
Air & Hazardous Waste Division

FROM: Martin Bauer, Chief *M. Bauer*
Air Quality Permitting Bureau

SUBJECT: P-960168 Potlatch Corporation, Lewiston
(Saltcake System PTC Amendment)

PROJECT DESCRIPTION

Potlatch Corporation is requesting an amendment to their Permit to Construct for the saltcake (sodium sulfate, Na₂SO₄) conveying systems on their No. 4 and No. 5 recovery boilers. The amendment includes the following requirements: the system must be operated in accordance with an Operations and Maintenance (O&M) manual; the pressure drop across the baghouses must be maintained as described in the O&M manual. In addition, the hours of operation limit was removed. Potlatch recently replaced one of the baghouses with a different model, and for consistency, the permit was changed to reflect that.

DISCUSSION

On December 10, 1996, DEQ received Potlatch's request for an amendment to their PTC for the saltcake system at their Lewiston, Idaho facility. Additional information was received on December 16, 1996, and the application was determined complete on January 10, 1997.

FEES

Fees apply to this facility in accordance with IDAPA 16.01.01.526 because the facility is a major facility as defined in IDAPA 16.01.01.008.14. The facility has paid registration fees for approximately 5,276 tons per year of pollutants required to be registered in accordance with IDAPA 16.01.01.527 as of August 2, 1996. This amendment does not increase the amount of pollutants required to be registered.

RECOMMENDATION

Based on review of application materials and state and federal rules and regulations, staff recommend that Potlatch Corporation be issued an amended Permit to Construct for the saltcake system at the Lewiston, Idaho facility. No public comment period is recommended, no entity has requested a comment period and the project does not involve PSD Permit to Construct requirements.

DS/bb: \POTLATCH\SALTCAKE.MM

cc: Robert Wilkosz, TSB
Lewiston Regional Office
Source File (069-00001)
COF

