

Jeb Bush
Governor

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

September 1, 1999

David B. Struhs
Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. J. Chris Bird, Director
Alachua County Environmental Protection Department
226 South Main Street
Gainesville, Florida 32601

Re: Multi-Stage Calciner
Florida Rock Cement Plant

We reviewed your letter dated August 28 regarding a multi-stage combustion system proposed by an outside consultant for installation on the cement kiln presently under construction in Newberry. On the basis of the information provided and the construction permit applicable to the facility, the Department does not object to installation of the equipment or require a permit modification to install it.

According to Specific Condition 5 of the referenced permit, "Florida Rock will install any additional control equipment during the two year period to insure compliance with the NO_x limit of 2.8 lb/ton clinker by the end of the period." According to the Department's Best Available Control Technology (BACT) determination for the project "this rate was obtained from the 2.5 lb/ton clinker given in the BACT Clearinghouse report (corrected for conditions in Florida) and achieved by a dry preheater/precalciner process plant."

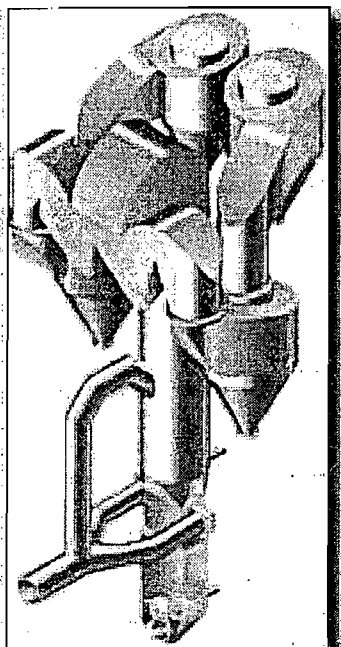
The Department expected the unit to meet the emission limit by employing "Process Control and Secondary Combustion of Fuel" as discussed in the BACT determination. The key to this method is to stage the introduction of fuels and air at various points during pyroprocessing to maintain the lowest possible flame temperatures while still attaining the necessary temperatures in the materials to make clinker. This staging minimizes formation of NO_x.

We were already aware that Florida Rock planned to incorporate *indirect firing*, whereby some of the combustion air at the hot side of the kiln is introduced with the pulverized coal, while a greater portion is introduced separately. The project also includes a precalciner, which provides additional heat at a point prior to entry of the raw materials into the kiln. This reduces the thermal load at the hot side of the kiln. Finally, the introduction of additional fuel into the colder side of the kiln (in the form of tires) further reduces thermal load at the hot side and the precalciner thus minimizing NO_x formation. We believed that these measures alone would be sufficient to meet the Department's BACT emission limits for NO_x, but we specified additional control requirements if for any reason the measures were not sufficient.

The device described in your letter is a further improvement in Process Control and Secondary Combustion of Fuel. It is not an add-on control device in the traditional sense as it does not remove or destroy a pollutant after it is emitted from the process. Rather it further minimizes the formation of that pollutant by staging the combustion within the calciner region while imparting the necessary heat to the raw materials to calcine them prior to introduction into the kiln.

The Krupp-Polysius (kiln manufacturer) version of the device is called a Multi-Stage Calciner (MSC). Following is a picture of the unit downloaded from the Polysius website. According to Polysius, the MSC process reduces emissions by staggered introduction of fuel, tertiary air, and raw meal. This causes the combustion to take place in several stages. In the first stage, the nitrogen oxides generated in the sintering zone of the rotary kiln are reduced by the presence of a burner in the kiln inlet. The fuel is injected against the direction of flow of the kiln gases and is pyrolyzed in its gas phase. In the reducing atmosphere that is formed, the nitrogen oxides are converted into nitrogen.

According to Polysius, in order to prevent new NO_x from being generated in the calciner, the calcining fuel also has to be burned under reducing conditions. This is achieved by staggered introduction of combustion air such that the fuel is first burned under reducing conditions, then under oxidizing conditions. This minimizes the generation of new NO_x in the calciner and further reduces the nitrogen oxides coming from the rotary kiln. Also, corresponding staggering of the raw meal infeed favorably influences the temperature in the reducing zone of the calciner. Fuller (another kiln manufacturer) offers a roughly equivalent product.



PREPOL®-MSC

We became aware of this technology approximately one year ago. Since that time, we discussed these products with Polysius, the applicant's consultant, and one or more County consultants, as the latest combustion-based option to reduce NO_x emissions. By implementing the technology during construction, we believe that the time to achieve the Department's BACT emission limit for NO_x will be reduced from the 24 months provided in the permit. Installation of the device will increase the chance that we will ultimately be able to lower the permitted NO_x limit.

The device falls within the description of the control technology and no permit is required if Florida Rock chooses to install it. We believe the kiln will still meet the permitted carbon monoxide limits with this device. However, if at any time Florida Rock determines that emissions of carbon monoxide emissions will increase beyond the permitted limits as a result of the device, they will need to submit a request for a permit modification.

If you have any questions regarding this matter, please call me at 850/921-9523.

Sincerely,

A. A. Linero, P.E. Administrator
New Source Review Section

AAL/al

Cc: Chris Kirts, DEP NED
Arthur Saarinen
Fred Cohrs, FRI

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1. ☐ Addressee's Address
- 2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Chris Bird, Director
Alachua Co. Encl. Prot.
226 S. Main St.
Gainesville, FL
32601

4a. Article Number

2 333 618 134

4b. Service Type

- ☐ Registered ☒ Certified
- ☐ Express Mail ☐ Insured
- ☐ Return Receipt for Merchandise ☐ COD

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9-1-99

5. Received By: (Print Name)

Vivian Shepherd

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6. Signature: (Addressee or Agent)

X Vivian Shepherd

Thank you for using Return Receipt Service.

PS Form 3811, December 1994

102595-98-B-0229

Domestic Return Receipt

2 333 618 134

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Receipt for Certified Mail

No Insurance Coverage Provided.

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Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	9-1-99
Multi Stage	
Calculus	

PS Form 3800, April 1995



Board of County Commissioners

ALACHUA COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION

226 South Main Street • Gainesville, Florida 32601-6538

Tel: (352) 955-2442 • Fax (352) 955-2440

Suncom: 625-2442

Home Page: www.co.alachua.fl.us

Chris Bird
Environmental Protection
Director

Barbara J. Pierce
Administrative Assistant

Richard J. Burges
Natural Resources
Supervisor

John J. Mousa
Pollution Prevention
Manager

August 28, 1999

Mr. Al Linero
Florida Department of Environmental Protection
Air Resources Management
Magnolia Center
MS 5505
Tallahassee, Florida

Dear Mr. Linero:

Alachua County is in the process of negotiating a potential settlement agreement between Alachua County and Florida Rock Industries, Inc. (FRI) to resolve ongoing legal disputes concerning the operation of the Florida Rock Industries Cement plant in Newberry, Florida. As part of this proposed settlement agreement, FRI has offered to pursue the installation of a Multi-Stage Combustion Burner as an additional air pollution control measure on the Newberry Cement plant as part of a strategy to further reduce the generation of nitrogen oxides from the plant. Alachua County and FRI understand that installation of such a system would be subject to approval by FDEP and would involve changes to the emissions of other gases such as carbon monoxide.

Since the offer to install the Multi-Stage Combustion System by FRI is a key element of the proposed settlement agreement, Alachua County is requesting an opinion from FDEP as to whether FDEP would support this general technological approach to nitrogen oxide reduction if a request is made by FRI to install this system on the Newberry Cement plant. Based on the opinion of cement kiln technology and air pollution experts hired by Alachua County, the County understands that this technology has the potential to reduce nitrogen oxide emissions by 30% to 40% and therefore believes that installation of such a system would be beneficial to the overall air quality in Alachua County and would have a positive impact on the levels of air pollution in the region. Alachua County understands that FDEP cannot give prior approval for a specific installation until all the required administrative procedures and technical evaluations are performed that are associated with a specific application. However we are trying to determine if such a technological change would be considered positively by FDEP.

I would appreciate a response from FDEP as soon as possible about this

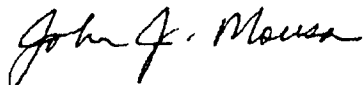
An Equal Opportunity Employer M.F.V.D.



August 28, 1999
Page 2

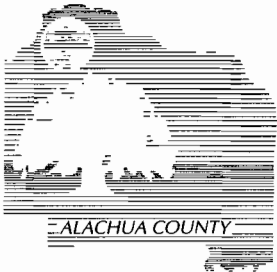
issue as we are anticipating public hearings on the negotiated settlement on September 2, 1999. Thank you very much in advance for your prompt attention to this matter. If you have any questions please contact me or Mr. Chris Bird, Director, Alachua County Pollution Prevention Department at (352) 955-2442.

Sincerely,

A handwritten signature in cursive script that reads "John J. Mousa".

John J. Mousa, Ph.D.
Pollution Prevention Manager

cc: Chris Bird



Board of County Commissioners

Chris Bird
Environmental Protection
Director

Barbara J. Pierce
Administrative Assistant

Richard J. Burges
Natural Resources
Supervisor

John J. Mousa
Pollution Prevention
Manager

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SEP 01 1999

August 28, 1999

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Florida Department of Environmental Protection BUREAU OF AIR REGULATION
Air Resources Management
Magnolia Center
MS 5505
Tallahassee, Florida

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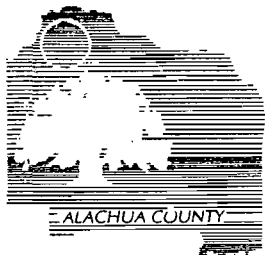
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Sincerely,

A handwritten signature in cursive script that reads "John J. Mousa".

John J. Mousa, Ph.D.
Pollution Prevention Manager

cc: Chris Bird



OFFICE OF THE COUNTY ATTORNEY

Post Office Box 2877
Gainesville, Florida 32602-2877
(352) 374-5218
Fax (352) 374-5216

Mary A. Marshall
County Attorney

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JAN 27 1999

DIVISION OF AIR
RESOURCES MANAGEMENT

Cherry
Howard
1/27

copy AL
Chris Kirts

January 26, 1999

Mr. David B. Struhs, Secretary
Florida Department of Environmental Protection
3900 Commonwealth Blvd, MS 10
Tallahassee, FL 32399-3000

Dear Secretary Struhs:

The Alachua County Board of County Commissioners has requested that it receive individual notice of any application submitted to the Florida Department of Environmental Protection by Florida Rock Industries, Inc., for an FDEP air operation permit for Florida Rock's cement plant now under construction in Newberry, Florida. The Board of County Commissioners also requests that it receive individual notice of all Notices of Intent to Issue Permits by the Florida Department of Environmental Protection for the Florida Rock cement plant in Newberry, Florida. The mailing address is:

Alachua County Board of County Commissioners
Chuck Clemons, Chair
P.O. Box 2877
Gainesville, FL 32602

Thank you for your assistance in this matter.

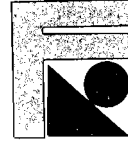
Sincerely,

Mary A. Marshall

Mary A. Marshall
County Attorney

:eeh

pc: All Members, Board of County Commissioners
Richard D. Tarbox, County Manager
Mr. Ernest Frey, Director, DEP, Northeast District,
7825 Baymeadows Way, Suite B-200, Jacksonville, FL 32356
Mr. Howard Rhodes, DEP, Air Resource Management
2600 Blair Stone Road, MS 5500, Tallahassee, FL 32399-2400



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February 23, 1998

FEB 24 1998

BUREAU OF
AIR REGULATION

Mr. A. A. Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

Subject: Electrostatic Precipitators

Dear Mr. Linero:

In my last week's mailing of the precipitator information provided pursuant to our PSD permit, I omitted the inclusion of the proposal by Environmental Elements which underlies the purchase order you received.

This document contains greater details of the design and of the guarantees for this equipment (see section 4).

Sincerely,

Fred W. Cohrs
Vice President

FWC/bs
Enclosure

ENVIRONMENTAL ELEMENTS CORPORATION
ELECTROSTATIC PRECIPITATOR

FOR

POLYSIUS CORPORATION

ATLANTA, GEORGIA

FOR

FLORIDA ROCK INDUSTRIES
THOMPSON S. BAKER CEMENT PLANT

NEWBERRY, FLORIDA

Environmental Elements Corporation
Proposal Number ACS-95-04-15290-R2110E-FC
August 11, 1997

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FOR MATERIAL AND EQUIPMENT

ENVIRONMENTAL ELEMENTS CORPORATION

SECTION 1

PROPOSAL SUMMARY

SECTION 11. PROPOSAL SUMMARYA. DESIGNATION

Throughout this proposal, Polysius Corporation, Atlanta, Georgia 30339 and Environmental Elements Corporation, Baltimore, Maryland 21203, shall be referred to as "Buyer" and "Seller", respectively.

B. TRADEMARKS

Trademarks of Environmental Elements Corporation, Baltimore, Maryland 21203:

ENELCO®
RIGITRODE™
DIGICON®
OPTI-CON II®
MODULOK®
OPTIPULSE™

C. SCOPE -- GENERAL

Seller will design, fabricate and deliver F.O.B. jobsite, two single chamber electrostatic precipitator one to clean the flue gases from the cement preheater kiln with roller mill circuit and one to clean the flue gas from the clinker cooler.

D. SCOPE -- SELLER

Included in the scope of this proposal as part of Seller's supply are:

1. Two single chamber electrostatic precipitators of the floating bottom design with trough hoppers.
2. A pressurized penthouse covering the entire precipitator hot roof for the housing of the high voltage insulators and bus bars, complete with pressurizing blower and insulator heaters.
3. Electric rapping system for the collecting plates, discharge electrodes and gas distribution plates, complete with solid state microprocessor rapper panel.
4. Transformer-rectifiers with digital microprocessor controllers.
5. Inlet and outlet nozzles.
6. Shop paint as described in the proposal.
7. Structural steel to support the precipitator from grade.

8. Access facilities to scope shown on the drawing.
9. Hopper conveyor and dust valve.
10. High dust level alarm system for the precipitator hoppers.
11. Insulation specifications.
12. A resident Construction Advisor/Superintendent.(Monthly rate)
13. Engineering personnel for mechanical and electrical inspections, precipitator start-up, and training of plant personnel. (Per Diem Rate)
14. Six (6) copies of operations and maintenance manuals.

E. SCOPE -- BUYER

Under this proposal, it shall be the responsibility of the Buyer to provide and/or complete the following:

1. Required foundations and anchor bolts.
2. All ductwork to and from precipitator, except inlet and outlet nozzles.
3. Inlet test ports with access thereto.
4. Stack with test ports and access thereto.
5. Dust removal system from the screw conveyor dust valve exit.
6. Performance tests.
7. Ventilated control room for rectifier controls.
8. Motor control center/power distribution panel.
9. Annunciator panel as required.
10. All interconnecting low voltage wiring.
11. Permanent area lighting.
12. Grounding of all precipitator equipment to mill grounding system.
13. Precipitator and nozzle insulation, insulation supports and lagging.
14. Erection of all materials furnished by Seller

F. GENERAL ARRANGEMENT1. Kiln/Mill Precipitator - Proposal Drawing 15290-D3-Rev. 3

ENELCO ESP Model SC 23-16-4x10.5x38T will be single chamber with 23 gas passages on 16 inch centers. The precipitator will have four mechanical and electrical fields in direction of gas flow. Each mechanical field will contain 24 collecting surfaces, 38 feet high by 10.625 feet long. This provides a total field length of 42.5 feet. Each of the four fields is independently powered.

2. Clinker Cooler - Proposal Drawing 15290-D-3 Rev. 3

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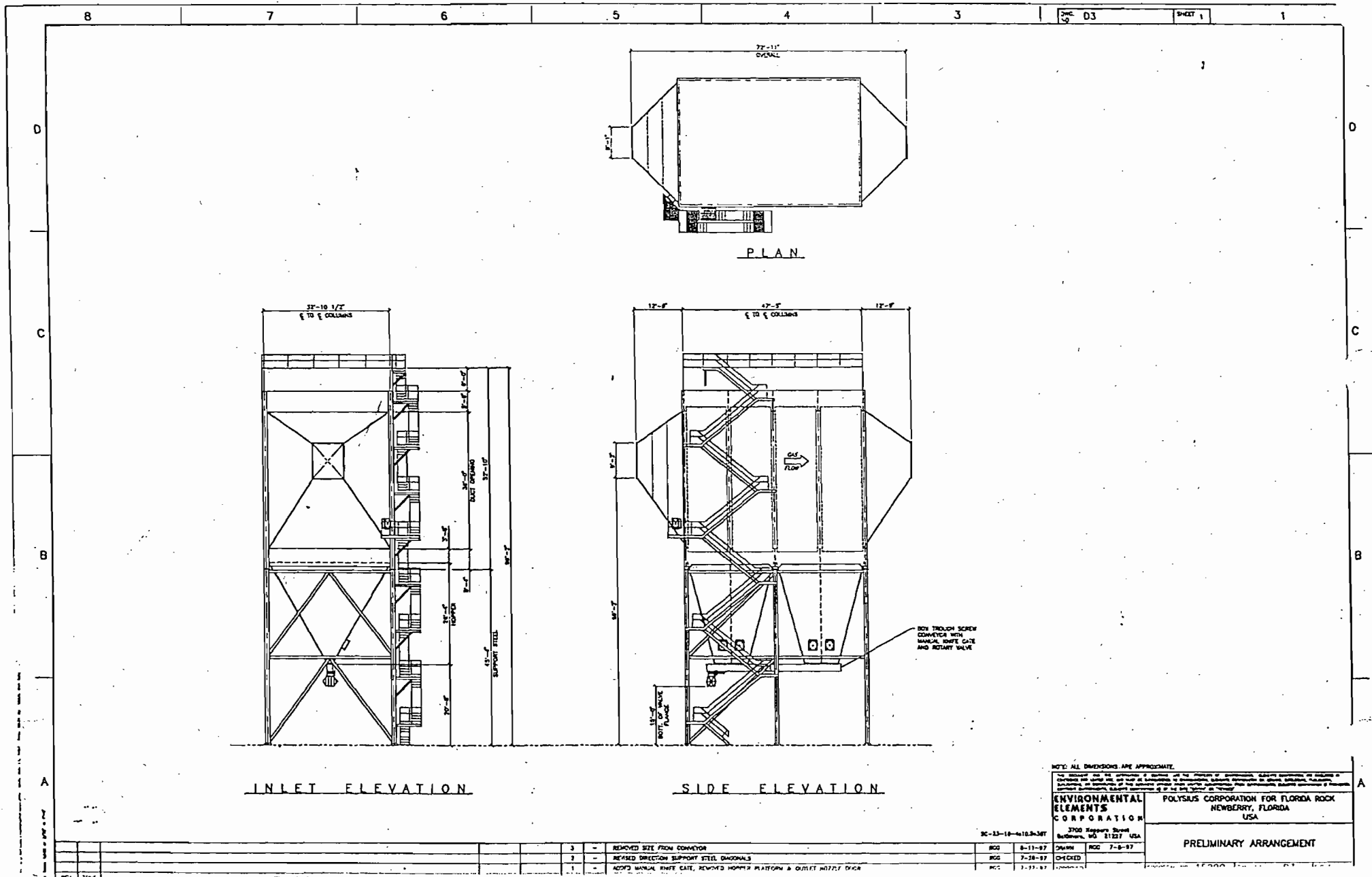
G. DESIGN FEATURES

1. The ENELCO electrostatic precipitator utilizes the RIGITRODE discharge electrode. This is a virtually indestructible rigid mast electrode system.
2. Patented MODULOK collecting surfaces are included providing a factory assembled, rigid, baffled, one piece collecting electrode. Field assembly of collecting electrodes is not required.
3. DIGICON OPTIPULSE microprocessor automatic power controllers provide the latest state-of-the-art precipitator control. These user-friendly controllers are among the most intelligent and responsive voltage controllers available today, and include programmable intermittent energization. In-house construction and testing before shipment insures trouble-free field installations.
4. Top mounted electronic impulse rappers, complete with microprocessor controllers, provides an adjustable, essentially maintenance free, rapper system mounted outside of the gas stream.
5. Rigid frame casing construction with no internal struts or bracing to support dust build-ups or disrupt uniform gas flow. Minimal number of support points to grade for ease of site maintenance.
6. Nozzle and hopper designs incorporate minimum 55° sloped sides and no ledges to impede the flow of collected materials.

H. SCHEDULE

1. Material will be delivered to support erection starting April 1, 1997.

Best Available Copy



SECTION 2

DESCRIPTION OF EQUIPMENT

SECTION 2

2. DESCRIPTION OF EQUIPMENT

A. CASING

The precipitator casing is fabricated from 3/16 inch ASTM A-36 steel plate with external columns and stiffeners. The design utilizes rigid frame construction with no internal struts or bracing thus avoiding ledges for dust buildup and disturbance to uniform gas flow. The roof and all internal loads are supported by fabricated plate girders. The design utilizes a "floating bottom" system where the precipitator is anchored at only one point on the support steel. Lubrite sliding plates are provided for the other support points to allow for thermal expansion in all directions.

Seller's shell design allows 4'-5" head room above the top of the dust plates for interior access to perform maintenance or inspection.

Interlocked single wall doors are provided for penthouse roof access. Access to the area above the collecting plates is gained through non-interlocked double wall doors in the precipitator hot roof.

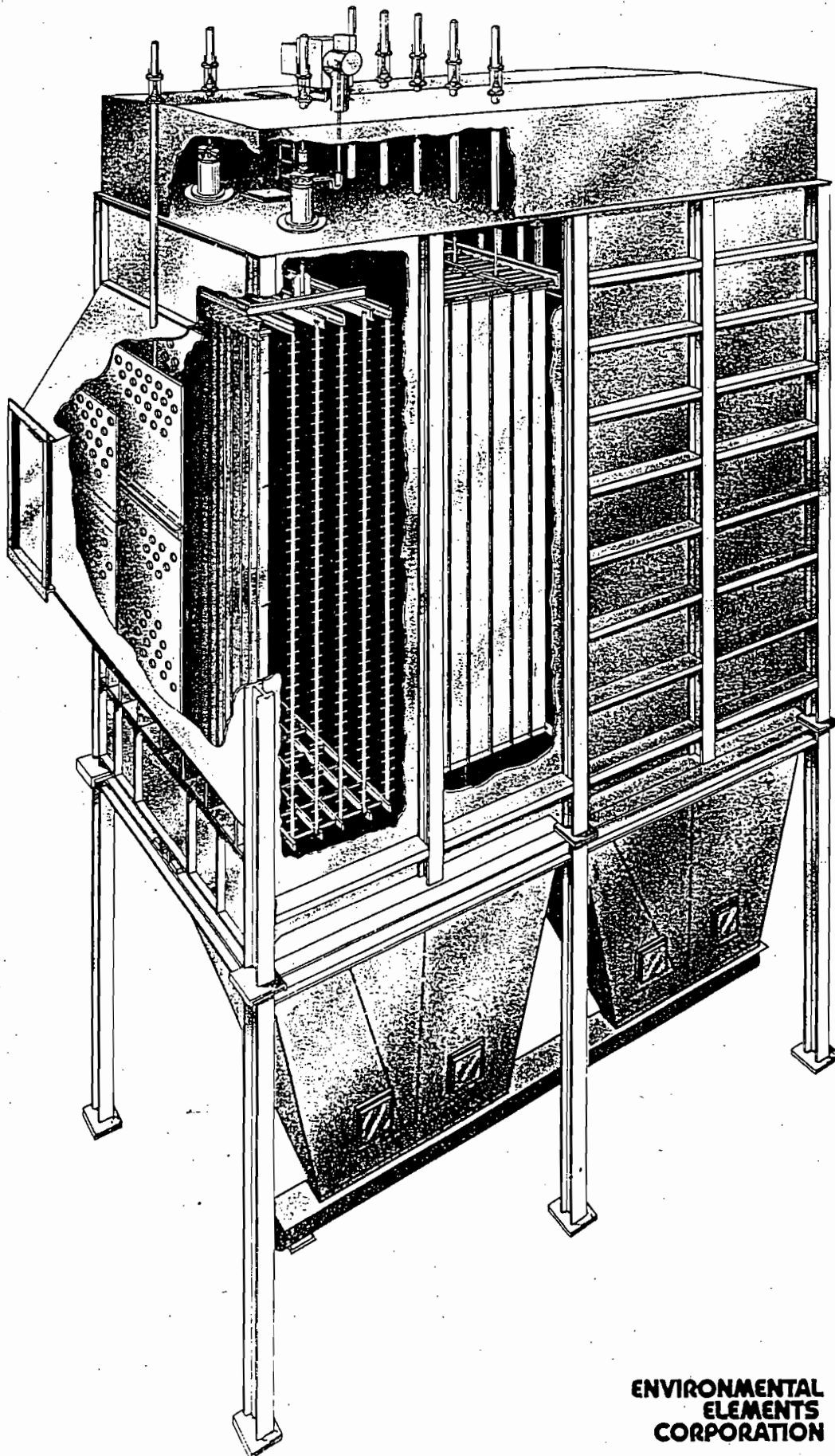
B. NOZZLES

Inlet and outlet nozzles are fabricated from 3/16 inch ASTM A-36 steel with external structural stiffeners of uniform depth to provide full support for insulation and siding. The bottom of the nozzles are sloped 55° with no horizontal ledges to impede free flow of dust fallout inherent with reduction in gas velocity.

The inlet nozzle is complete with three perforated plates to distribute the gas across the face of the treatment zone. The lower 4 inches of the perforated plates are open to allow any dust that falls out in the nozzle to be carried into the inlet field hopper. A double wall, quick-opening, interlocked door is provided in each nozzle for internal inspection and maintenance. Bolted panels are incorporated into the perforated plates for through access.

C. HOPPERS

Trough type hoppers are provided fabricated from 1/4 inch ASTM A-36 steel with external stiffeners of uniform depth to provide support for thermal insulation and siding. The hoppers are designed to support a full dust load. The sides and ends are sloped 60° and 75°, respectively, from the horizontal. The valley angle resulting from this design is 57-1/2°. The between field baffles are extended to the hopper outlet to eliminate gas bypassing in the hoppers. A double wall interlocked door is provided as shown to permit access into each baffled section of each hopper. Each hopper is provided with high level alarms, strike plates for manual hopper rapping, and dust removal system. Hoppers should not be used for storage.



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CORPORATION**

D. HOPPER LEVEL DETECTORS

A Bindicator or equal high level switch is provided for each section of each hopper. This system operates by radio frequency oscillation, which is dampened by a high ash level, producing a proportionate A/C signal. The detector operates a DPDT relay for alarm actuation. The probe is mounted in the side wall of the hopper with the electronics mounted in the hopper area away from high temperatures.

E. DUST REMOVAL SYSTEM

The dust removal system consists of hopper screw conveyor sized to operate at 25 rpm maximum to reduce wear. The hopper conveyor is designed for normal rated conditions and powered for flooded operation in the event of hopper dust buildup.

To insure positive dust removal a Sprout Bauer, or equal, motor operated rotary dust valve with Type 2 rotor with ni-hard adjustable tips is furnished at the outlet of the hopper conveyor.

F. PRECIPITATOR SUPPORTING STEEL

Structural steel is provided to support the precipitator as shown on the proposal drawings. All columns, beams, wind bracing and other structural members supplied by Seller for support of the precipitator will be rolled or fabricated from ASTM A-36 steel. Connections will be bolted and the overall structural design will be in accordance with the latest applicable AISC Standard except as noted under Design Conditions. The support steel and bracing is arranged to provide maximum access for maintenance and cleanup.

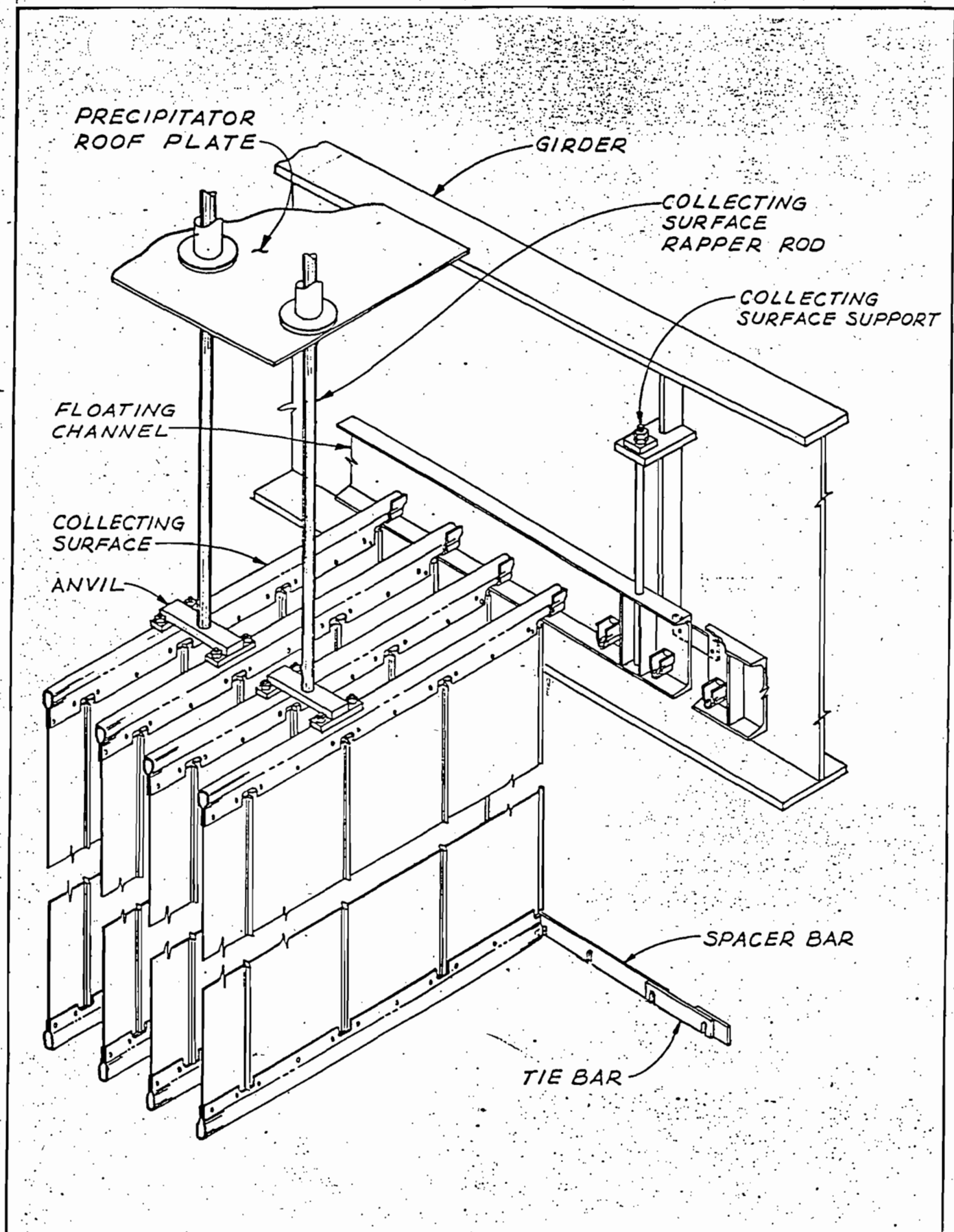
G. ACCESS FACILITIES

Access facilities are provided to the scope as shown on the proposal drawings. Structural steel is ASTM A-36 designed for 100 psf loading. Stairtreads and grating are galvanized. The handrail will be dual rail using 1-1/4 standard pipe rail and post. Platforms will be provided with 4 inch x 1/4 inch toe plates. Walkways are 36 inch minimum width. Stairways are 30" width.

H. COLLECTING ELECTRODE SYSTEM -- Drawing No. 1120

Seller's C1010 steel MODULOK collecting surfaces (U.S. Patent # 3,418,792) are roll formed into 18 inch modules having tightly interlocked edges which when factory assembled form a rigid one piece baffled structure, which provides maximum stiffness, optimum gas exposure and minimum field assembly.

The top and bottom edges of each collecting surface are reinforced and stiffened by 7 gauge and 11 gauge respectively tubular structural members which are factory welded to the roll formed collecting surfaces. These members prevent edge effect arc-over where the discharge electrodes enter and leave the collecting field. This horizontal welding at the top and bottom is the only heat applied to the plate during manufacture. This procedure prevents the deformation and "oil-canning" which can easily result when individual modules



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CORPORATION**

COLLECTING SURFACE
RAPPER ARRANGEMENT

DWG. No 1120

ELX 2-21-76

are welded together. The collecting surfaces are rapped by electric impact type rappers located on the penthouse roof. Full provision is made in the collecting system suspension for uniform thermal movement up to the maximum design temperature without disturbance to internal alignment.

These collecting surfaces are shipped and lifted into the precipitator shell in nested, upright packages thereby affording maximum protection against handling damage for optimum straightness and uniformity in operation.

I. DISCHARGE ELECTRODE SYSTEM -- Drawing No. 1121

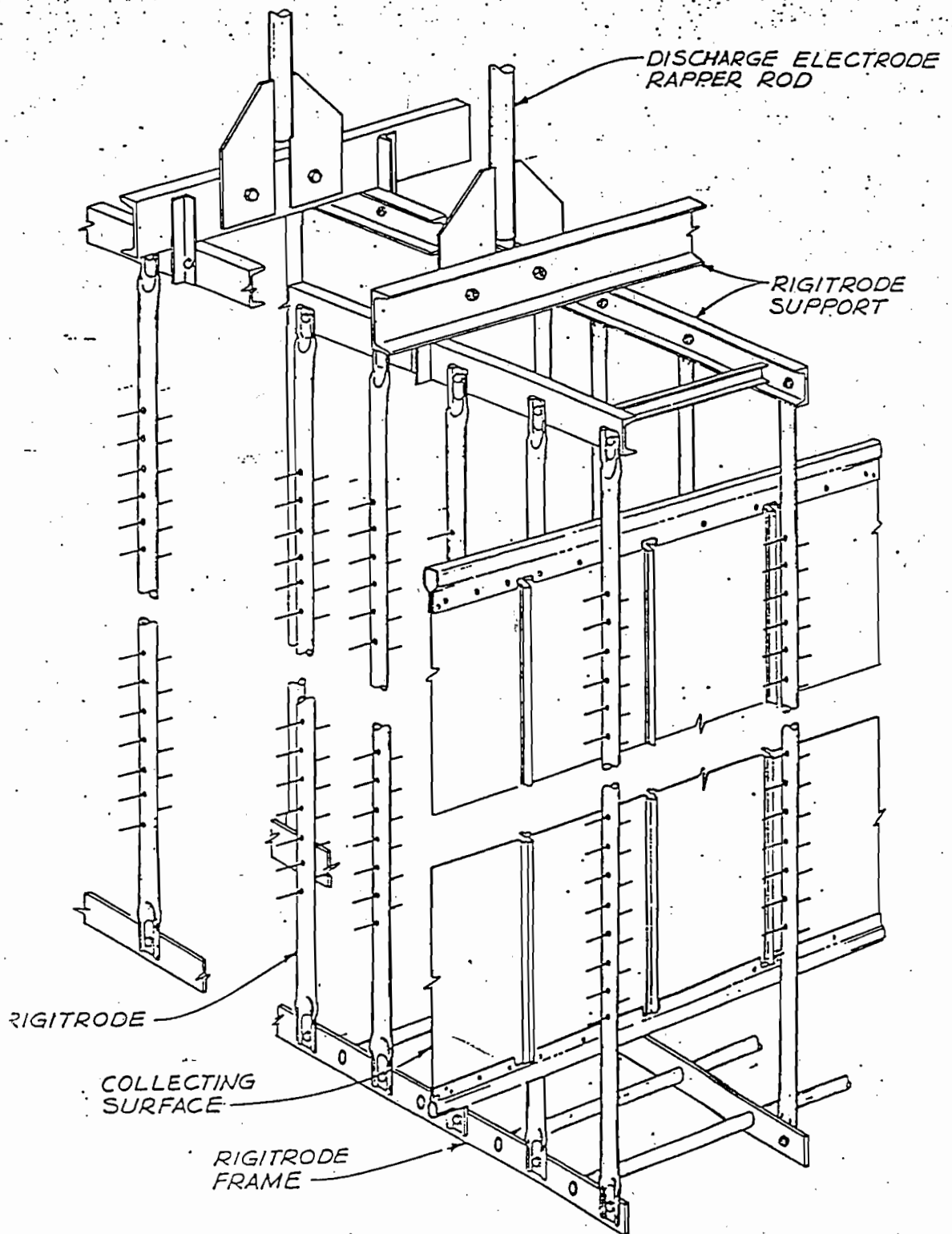
Seller's RIGITRODE electrode is a true unbreakable rigid discharge electrode. The RIGITRODE electrode is a 1-1/2 inch diameter 16 gauge mild steel tube with corona-generating studs welded to it. The studs are 12 gauge and are fully annealed to eliminate fatigue cracking. The RIGITRODE electrode exhibits a low corona onset voltage typical of a pointed discharge electrode. This feature makes it appropriate in inlet fields where dust loadings are high. As voltage is increased, the V-I relationship approaches that of a smooth electrode. This feature allows the same RIGITRODE electrode to be used effectively in outlet fields. Laboratory tests and commercial operation has shown this design to have a unique combination of several characteristics: high sparkover voltage, high field strength and an even current distribution from discrete emission points.

The restoring forces of this system are substantial; therefore, an overfull hopper will not cause permanent misalignment. The system will return to correct alignment when the hopper is emptied, thus avoiding unscheduled outages. Further, the computerized power control (discussed in detail later in this proposal) will protect the power supply and prevent the formation of fused ash in a full hopper.

J. HIGH VOLTAGE SUPPORT -- PENTHOUSE DESIGN -- Drawing No. 1217

Each bus section is supported by two (2) suspension insulators located on the precipitator roof. An epoxy filled glass filament rod connects an externally located rapper to the high voltage support rod to transmit energy while at the same time providing the necessary electrical insulation.

The insulators are housed in a gas-tight 6 foot high penthouse covering the entire roof area. The sides are fabricated from 10 gauge steel. The roof is fabricated from 1/4 inch checker plate to provide a firm walk surface. All rappers, transformer-rectifiers and rapper panels are located on the penthouse roof allowing inspection and maintenance with the precipitator in operation. The penthouse construction reduces the radiator effect of the many projections through the precipitator and eliminates the roof corrosion inherent with the use of individual insulator compartments. The insulators are totally accessible for cleaning and inspection. The penthouse roof is sloped 1/4 inch in 12 inches for drainage. The penthouse is pressurized by a forced air system, sized to supply 100 cfm per insulator, to prevent the entrance of dust into the penthouse and to keep the inside surface of the support insulators clean.



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RIGITRODE
DISCHARGE ELECTRODE
ARRANGEMENT

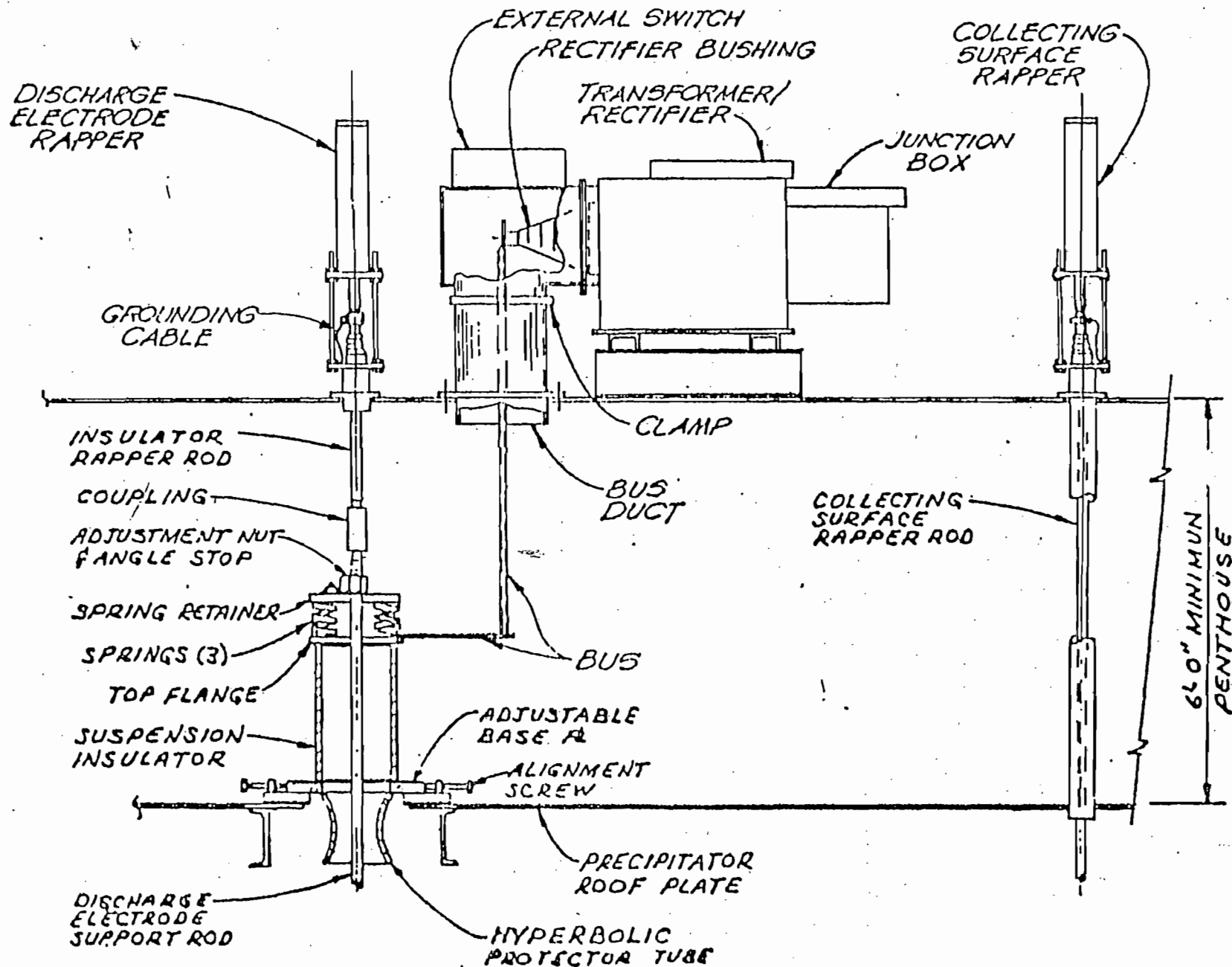
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A.H.W. 2-84

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CORPORATION

HIGH VOLTAGE SYSTEM
PENTHOUSE ARREST
DWG. NO. 1217



K. INSULATOR HEATERS

A 0.4 KW contact heater is provided around each support insulator. Insulator heaters are not essential to operation of the precipitator since the precipitator is normally heated prior to energization. The insulator heaters are included, however, as insurance in the event that the precipitator is energized cold.

L. ELECTRIC IMPULSE RAPPER MODEL ESI-I -- Drawing No. 1076

The electric impulse rapper has been specifically designed for rapping the collecting surfaces, discharge electrodes and perforated distribution plates of electrostatic precipitators. The ESI-I is a single impulse gravity impact type rapper consisting of an integral DC coil and steel housing assembly, a 20 pound piston and mounting hardware. Its features include:

Accurate Control. Rapper impact is precisely repeatable. Intensity of impact and frequency of operation are controlled by a microprocessor based controller. With the optional Data Management System, the operating characteristics can be controlled from a remote control room through the CRT.

One Piece Construction. The coil is permanently bonded to the inside of the housing and is totally encapsulated in epoxy to seal out the environment. Long life is assured with this uncomplicated construction.

Lubrication. None is required.

Maintenance Free. The ESI-I requires absolutely no periodic adjustment or maintenance over its entire service life.

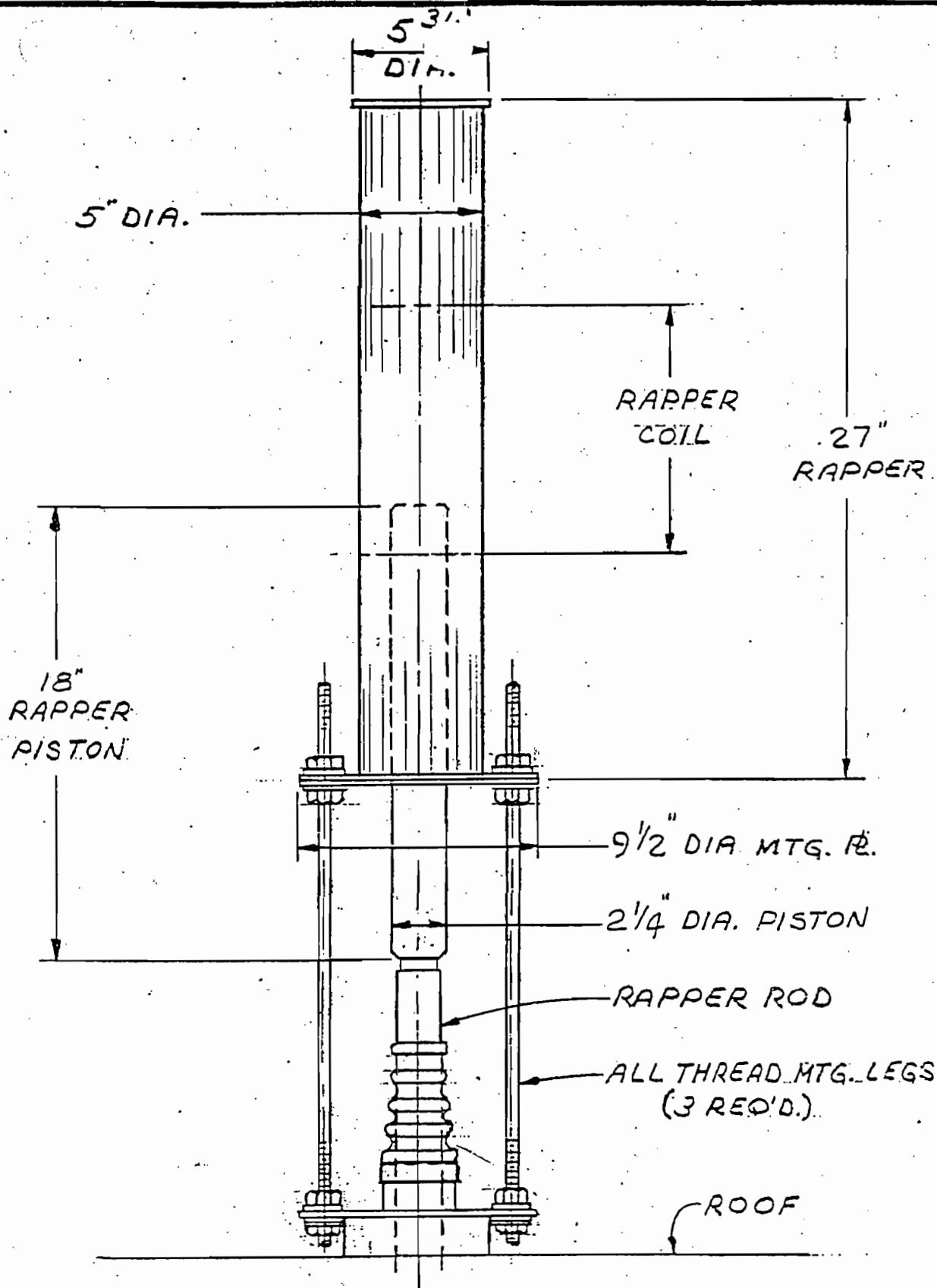
Roof Mounting. The rapper is mounted on the roof by means of three (3) support rods. The piston moves freely in and out of the rapper body when striking the rapper rod. The impact does not impart a shock to the housing which eliminates any chance of material fatigue. The rapper is weatherproof for outdoor operation.

Power Supply. The rapper operates from a 240 volt supply and draws an instantaneous current of 22 amperes maximum. The three (3) wire conductor cable supplied with the rapper is used to make the electrical connections. An additional grounding strap is provided for connecting the housing to the precipitator roof.

Energy Output. Microprocessor controlled output levels are provided.

M. RAPPER CONTROLS

The microprocessor based rapper controls are housed in a NEMA 4 weathertight enclosure. The rapper control system is designed to operate within ambient temperature limitations of -25°C to 85°C. The rappers for the discharge electrodes and each collecting surface field are individually controlled to permit adjustment of rapper impact intensity and cycle time for each section. Impact is variable up to 10 foot pounds. On time is 1 to 8 half line cycles and



ENVIRONMENTAL
ELEMENTS
CORPORATION

ESI RAPPER

DWG. NO. 1076

off time is variable from 1 to 999 seconds. Control, rapper status indication and fault detection can be transferred to a remote location by multiplex signals from the optional Data Management System. For further details, see Attachments.

N. TRANSFORMER-RECTIFIER -- Drawing No. C37533

Each field is energized by a high voltage, coolant filled, silicon diode transformer-rectifier. Power is conducted to the precipitator through 3/4 inch A-36 steel bus bar enclosed in a 16 inch round 10 gauge A-36 steel water-tight housing.

The transformer is single phase, liquid cooled with the silicon diode rectifiers immersed in the same tank. Line voltage is regulated by a full range thyristor controller (SCR) which provides automatic power control. The current linear reactor is located in the junction box.

The transformer-rectifiers are furnished with a magnetic liquid level gauge, dial thermometer, drain, low voltage junction box and liquid filled bushings. The units are designed for a 55°C rise, at rated load, based on operation in an average ambient temperature of 40°C providing the maximum daily ambient shall not exceed 50°C. An alarm contact is provided on the temperature gauge.

The high voltage ground switch is integrated into the key interlock system to insure that the transformer-rectifier bushing is grounded before entry can be gained to the precipitator.

O. AUTOMATIC GROUNDING SYSTEM - Drawing No. C29652

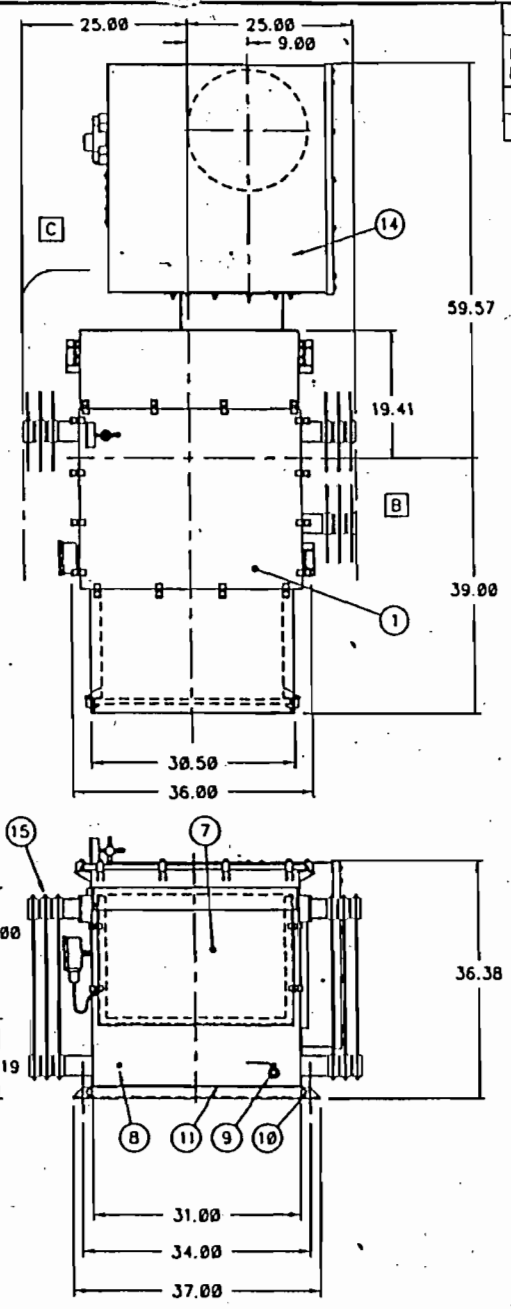
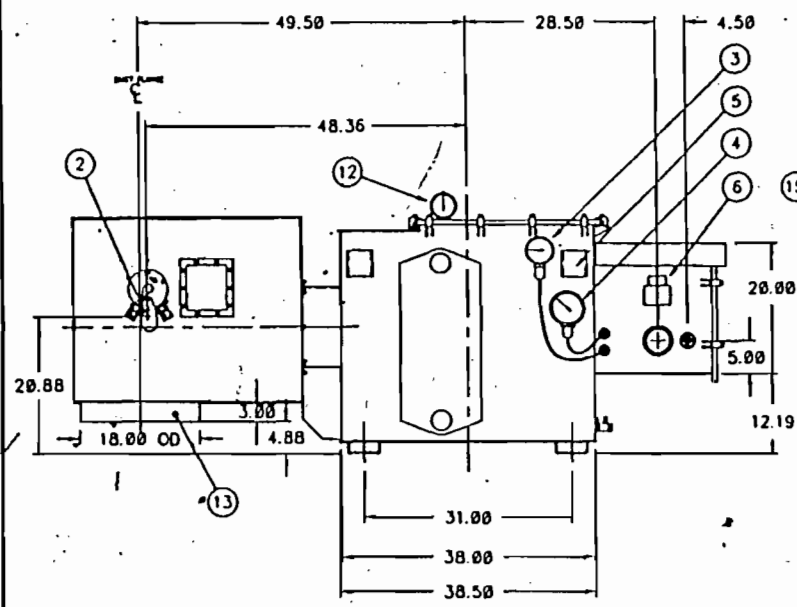
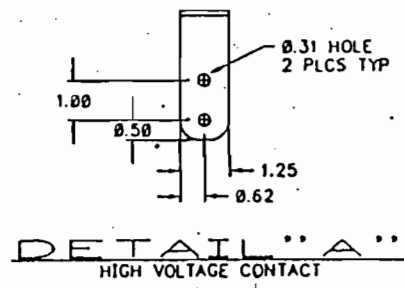
The automatic grounding switch is located in the bus duct between the transformer-rectifier and penthouse insulator compartment. The automatic grounding of the high voltage system is solenoid activated when the transformer-rectifiers are deenergized on CO gas detection signal. The automatic grounding system will be provided for the kiln precipitator only.

P. RECTIFIER CONTROL CABINETS -- Drawing No. 1224, 1225

Environmental Elements rectifier control cabinets are fabricated as attractive two section (2-PAC) dead front, NEMA 12 enclosures. The cabinets are independent of one another, each containing separate assemblies to apply voltage to the primary of an associated transformer-rectifier at levels determined by a dedicated automatic power controller. Access to all equipment is through the front door allowing easy access for maintenance. Components include the circuit breaker, contactor, control transformer, monitoring circuits, relays, firing circuit and Silicon Controlled Rectifiers (SCR's). The SCR assembly utilizes two (2) SCR's fitted to electrically isolated heat sinks of an appropriate size. The electronic components of the firing circuit are mounted on a printed circuit board attached to the heat sink. The firing circuitry determines the conduction angle (0° to 180°) of the SCR's as a function of the signal from the automatic power control or manual control.

A separately enclosed high impedance linear reactor (CLR) with an iron core and air chimneys in the windings is connected in series with the SCR's to limit primary current surges during sparking.

1 2 3 4 5 6 7 8 9



SPECIFICATIONS					
MODEL NUMBER	OUTPUT		APPROX WEIGHT	FLUID CAPACITY	NO. OF RADIATORS
	K.V.D.C.	M.A.D.C.			
39267	65	750	3800#	120 GAL	2
39268	65	1000	3300#	120 GAL	3
					LOC. OF RADIATORS
					A, B
					A, (2)B

- ① HANDHOLE FOR INTERNAL ACCESS WITH REMOVABLE COVER
- ② HIGH VOLTAGE CONTACT SEE DETAIL "A"
- ③ MAGNETIC FLUID LEVEL INDICATOR LOW LEVEL CONTACTS OPTIONAL
- ④ TEMPERATURE INDICATOR MOUNTED IN WELL TO FACILITATE REPLACEMENT OVERTEMP ALARM CONTACTS SHOWN ARE OPTIONAL
- ⑤ LIFTING CHANNEL, C4-7.25" x 4.00 LG. 4 PLCS
- ⑥ NAMEPLATE LOCATION
- ⑦ LOW VOLTAGE JUNCTION BOX WITH REMOVABLE COVER AND TOP, 1 - 3" CPLG. 1 - 1" CPLG PROVIDED
- ⑧ GROUND BOSS, 1/2-13UNC THREAD WITH THREAD PROTECTIVE PLUG
- ⑨ Ø.5" VALVE & PLUG FOR DRAIN OR SAMPLING
- ⑩ MOUNTING HOLES, Ø.75 DIAMETER 4 PLCS
- ⑪ Ø.25" PLATE BOTTOM WITH (2) FORMED STEEL CHANNELS
- ⑫ Ø.5" FILL CPLG. WITH PRESSURE RELIEF VALVE PRESSURE-VACUUM GAUGE OPTIONAL
- ⑬ H.V. DUCT FLANGE, 18.00 OD
- ⑭ GROUNDING SWITCH, 2 POSITION EXTERNAL WITH PROVISIONS FOR 2 ZERO BOLT EXTENSION INTERLOCKS, APPROVED LOCKS: KIRK TYPE F, SUPERIOR TYPE B4003, OR EQUIVALENT. REF DWG: D37449
- ⑮ COOLING RADIATOR

NWL TRANSFORMERS
RISING SUN ROAD, BORDENTOWN, N.J. 08805

ENVIRONMENTAL ELEMENTS

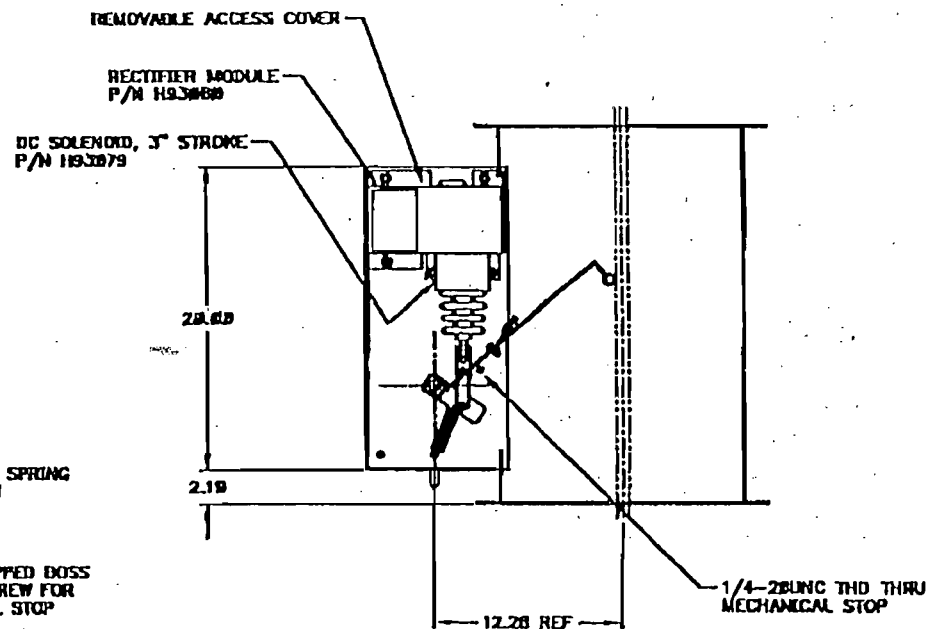
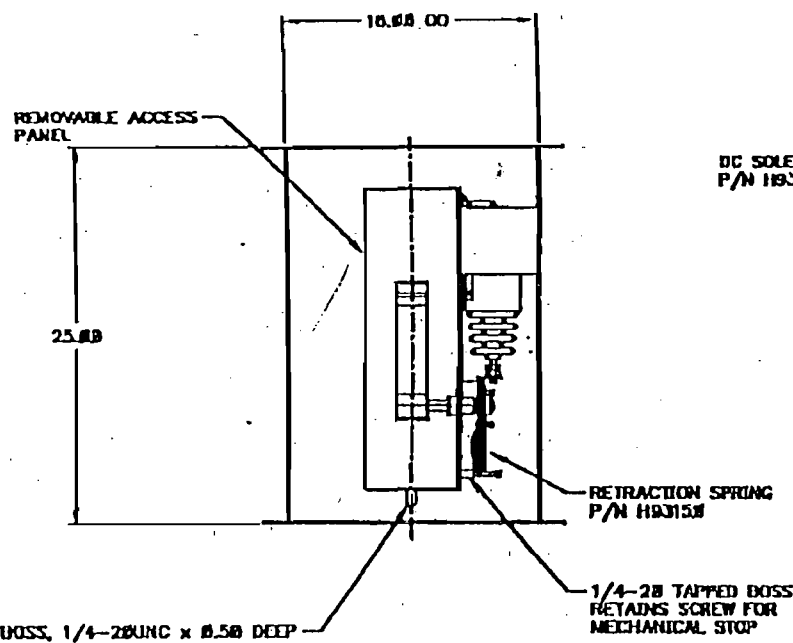
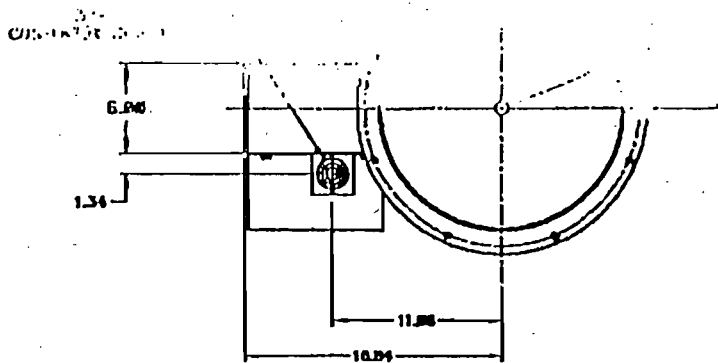
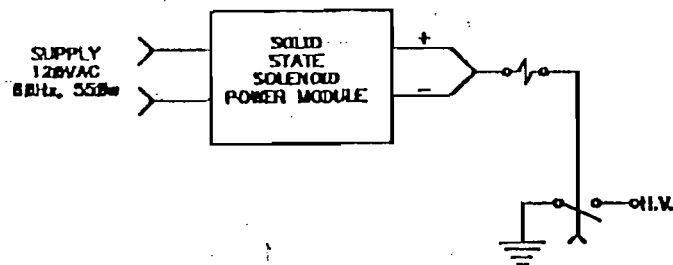
SCALE 1=14

DATE 3/4/96

PGF PGF C37533

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REV	DATE	BY	DESCRIPTION



NOTES:

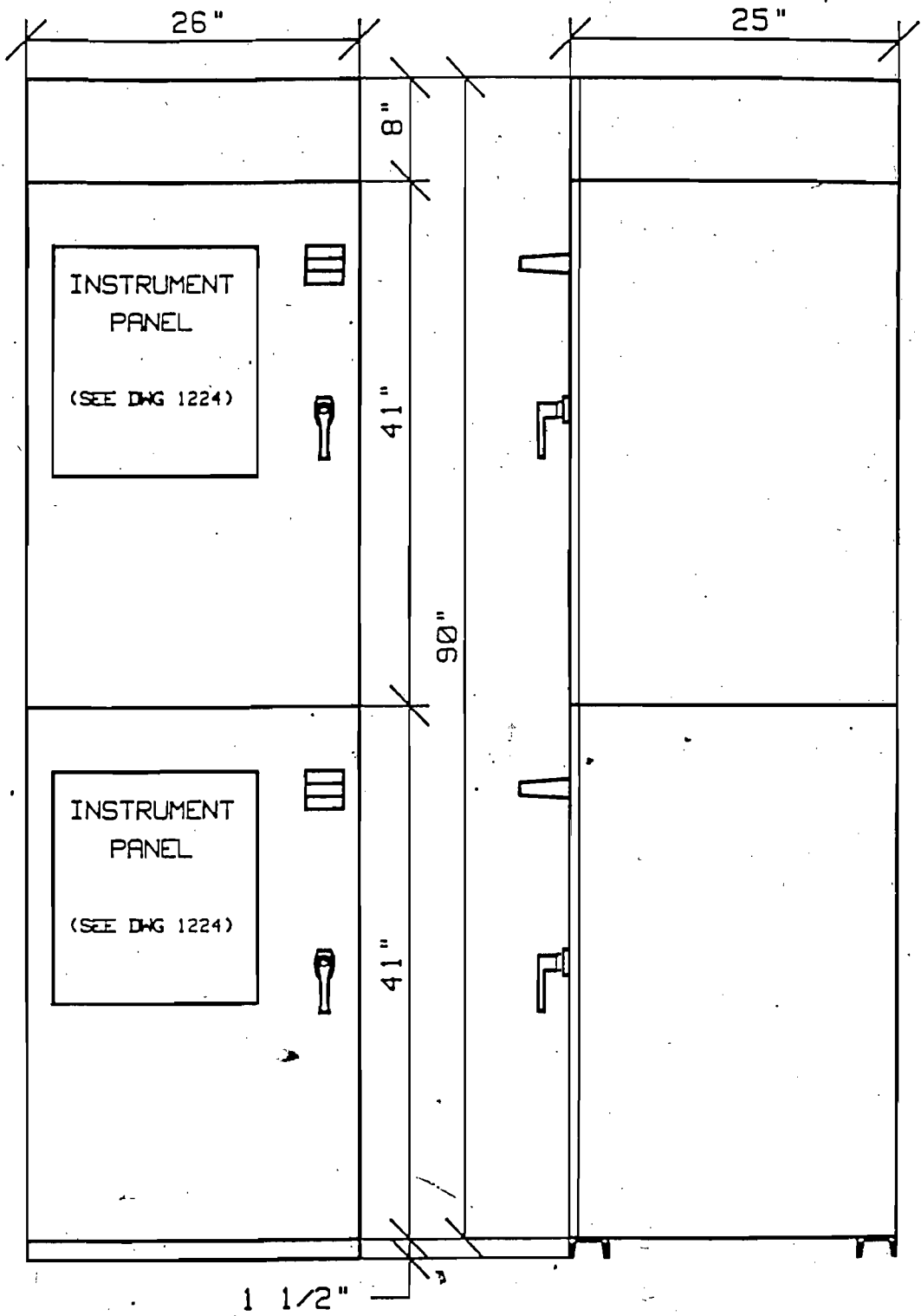
1. THIS DUCT IS TO BE SELF SUPPORTING.

REV.	DATE	BY	DESCRIPTION
1			DESIGN CHANGES FOR MECHANICAL STOP
2			DESIGN CHANGES FOR MECHANICAL STOP
3			DESIGN CHANGES FOR MECHANICAL STOP
4			DESIGN CHANGES FOR MECHANICAL STOP
5			DESIGN CHANGES FOR MECHANICAL STOP
6			DESIGN CHANGES FOR MECHANICAL STOP
7			DESIGN CHANGES FOR MECHANICAL STOP
8			DESIGN CHANGES FOR MECHANICAL STOP
9			DESIGN CHANGES FOR MECHANICAL STOP
10			DESIGN CHANGES FOR MECHANICAL STOP

NWL TRANSFORMERS	
PHYSICAL OUTLINE	
NWL # 37136	
REV. 1-6	DATE 02/15
REV. BY RK	DATE 02/15
C29652	
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REV. B11

DWG. NO.



**ENVIRONMENTAL
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M.O. NO. DUAL CONTROL CONSOLE
WITH CIRCUIT BREAKER

DRAWN JTD 2-2-67

SIZE
A

FILE NAME: F01110C

DRAWING NO. 1225

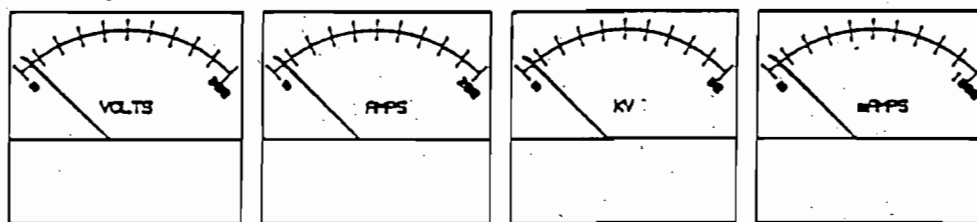
REV.

DATE

SCALE

SHEET

A & E INC. - BAL.



PRIMARY
VOLTAGE

PRIMARY CURRENT
171 AMP LIMIT

PRECIPITATOR
VOLTAGE

PRECIPITATOR CURRENT
1888 MA LIMIT

DIGICOM OPTIPULSE CONTROLLER

2000

1000

HV ON 18 SPN
PULSE 2/88 45-28

1000

1000

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CORPORATION

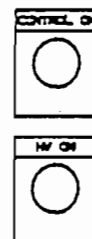
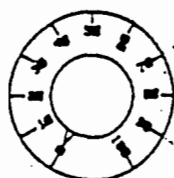
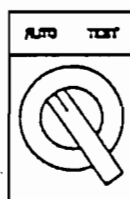
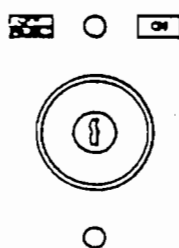
SECONDARY
VOLTAGE
LIMIT

SPARK
RATE
LIMIT

ON
OFF

OPTIPULSE
DIPPLE

PROGRAM
PORT



R153

**ENVIRONMENTAL
ELEMENTS
CORPORATION**

M.O. NO.

INSTRUMENT PANEL

SIZE FSCM NO.

DRAWING NO.

DRAWN J. HAMLIN

1224

DATE 2-16-87

SCALE

SHEET

The control cabinets also contains a number of features that protect the precipitator and other components. Associated fuses and surge arresters protect the SCR's and metering circuits against external circuit failure and transient current sparks. An electronic overcurrent relay provides additional protection.

To eliminate the manual monitoring of the units, each cabinet contains a DIGICON OPTIPULSE automatic power controller to maintain optimum power input to the precipitator.

Each controller has a two line 32 character alphanumeric Liquid Crystal Display (LCD) located on the front panel which presents a user-friendly interface to the plant operator. Controller faults, operating status and other information are presented in plain English.

Six standard alarms are annunciated through the controller:

- Overcurrent
- Undervoltage
- Overspark
- SCR Phase Imbalance
- High Ambient Temperature
- T-R High Temperature

In the event that power is interrupted due to one of the above mentioned faults, the fault is indicated on the LCD display. An additional three (3) alarm points are available for customized alarming (e.g. SCR high temperature, T-R low liquid level, ...etc.). Process related alarms may also be incorporated into the controller to trip the precipitator field due to such conditions as incomplete combustion in the boiler.

The DIGICON OPTIPULSE controller is described in more detail on the following pages.

Each cabinet is provided with the following meters:

- Primary Current
- Primary Voltage
- Secondary Current
- Secondary Voltage
- Spark Rate (Digital)

The control cabinets are equipped with face mounted breakers. The circuit breaker interrupting capacity is greater than or equal to 50,000 amperes symmetrical. As a safety feature, each cabinet is integrated into the key interlock system.

Where space is limited, the 2-PAC arrangement offers an attractive alternative to conventional rectifier control cabinets which house the automatic power controller, power components and current limiting reactor all in one enclosure.

Q. DIGICON OPTIPULSE AUTOMATIC POWER CONTROLLER

The DIGICON OPTIPULSE Automatic Power Controller is a microprocessor based controller using the latest state-of-the-art components. The controller is equipped with dual specialized microprocessors for extremely fast processing of operational functions, and a 16K EEPROM for storage of all program parameters. The controller enclosure is NEMA 12, dust tight, and mounted inside the transformer-rectifier control cabinet. The ambient conditions can range from -10°C to +50°C and 0% to 95% humidity. On the front of the controller are two (2) digital selector switches: secondary voltage and spark rate. The controller uses this information to regulate the power level supplied to the precipitator. An additional selector switch is provided to enable the intermittent energization mode of operation. For further details regarding other features including host computer interfacing, user friendly displays and on line program modification capabilities, see Attachments.

R. UNDERVOLTAGE RELAY PROTECTION

Dust build-up into the electrostatic field is a possibility with failure of the dust removal system. The result is high heat generated due to the resistive ground formed by the dust bridging the space between the discharge and collecting electrodes. This leads to distortion of the discharge and collecting systems. To guard against this, undervoltage protection is built into the controllers to trip the power and sound an alarm in the event of a dead short or ground.

S. ALARM SYSTEM

Alarm contacts are provided in the following circuits for incorporation into Buyer's annunciator system. These contacts may also be integrated into Seller's optional Data Management System.

1. Transformer-rectifier control cabinet trip.
2. Penthouse blower failure.
3. Rapper failure.
4. High dust level in hoppers.
5. Dust conveying system failure.
6. Dust valve failure.
7. Hopper low temperature.

T. GROUNDING DEVICES

Grounding devices, permanently located within the penthouse, are provided for attachment to the high voltage frame whenever work is being performed on the system.

U. ELECTRICAL -- GENERAL

All electrical equipment furnished is in accordance with current accepted engineering practices including the National Electrical Code, NEMA standards and the AIEEE standards, wherever they apply. Controls for the high voltage are assembled into self-contained units of standard dead-front switchboard construction.

All control circuits will operate on 120V unless otherwise specified. All pushbutton and indicating lights will be combination type. Terminal boards are furnished in each control panel to which customer's signal circuit or safety circuits may be connected.

V. INTERLOCK SYSTEM

Seller's offering is complete with key-interlock system for the portions of the precipitator where high voltage may be a hazard. Access may not be gained to these danger zones without first turning off the power and grounding the appropriate high voltage elements.

Interlocks are provided for the following:

1. Transformer-rectifier control cabinets.
2. Transformer-rectifier grounding switches.
3. Penthouse roof access doors.
4. Hopper access doors.
5. Inlet nozzle door.

W. ACCESS DOORS

Seller's standard quick-opening 22 inch x 28 inch access doors are provided. Each opening through thermal insulation will be of double-door construction consisting of a hinged, dogged outer door of ductile iron and a clamped steel inner doorplate, fabricated of 11 gauge carbon steel. Dogs and lugs on the outer door are made of stainless steel to assure free operation in all environments. This dual construction reduces or eliminates the need for insulation at the door area, and the inner plate provides an additional safety feature not found in competitive designs. The hopper inner door plate is provided with a 1-1/2 inch diameter inspection port which allows the operator to determine if the ash level is above the door level. A Viton coated aramid blend fiber gasket with a stainless steel mesh core is provided on the outer door to maintain a gas-tight seal, and positive interlocking is provided to prevent accidental entry. Each door bears a highly visible "Warning" sign made of enameled aluminum.

X. SHOP PAINT

External uninsulated surfaces will be cleaned per Specification SSPC-SP-6 and given one (1) coat of zinc rich primer.

Y. THERMAL INSULATION

Seller will provide thermal insulation specifications for the electrostatic precipitator system. Three inch thick, 8 pcf, 1000°F mineral wool and 0.032 inch ribbed unpainted aluminum lagging (exterior surfaces) is recommended to insulate the hoppers, inlet nozzle, outlet nozzle precipitator casing and penthouse sides. The penthouse floor should be covered with 3 inches of calcium silicate block insulation. The transformer-rectifier bus duct and the penthouse blower system need not be insulated.

Z. VENDOR'S LIST

The items not manufactured in fabrication shops are furnished by the following suppliers or equal.

Transformer-rectifiers:	NWL
Control Cabinets:	Electronic Power and Control
Rapper Panels:	Forry Incorporated
Hopper Alarms:	Drexelbrook, Bindicator,
Penthouse Blowers:	ACME or Equal
Screw Conveyors:	Jervis B. Webb Co., Summelot or Equal
Dust Valves:	Sprout Bauer or equal

AA. GAS DISTRIBUTION MEDIA AND BAFFLING (WITHOUT MODEL STUDY)

Uniform gas distribution to the precipitator is essential if performance guarantees are to be achieved for the specified service. Included in this proposal are the perforated distribution plates as shown on the proposal drawing. Other vanes, splitters, turning devices and grids as required for uniform gas distribution are to be included in the ductwork contract.

Seller has extensive experience with ductwork configurations and will provide an aerodynamic (not structural) design without additional charge or a model study.

AB. FIRE PROTECTION

The potential for fires exists in all equipment cleaning the exhaust gases from a pyro process where a combustible gas mixture or burning char carryover can occur through improper firing or loss of process control. Risk of fire is minimal where process monitors are installed and maintained to alarm and control a developing hazardous condition. In the rare instance where the process cannot be controlled, the precipitator must be de-energized until conditions are safe for restart.

AC. QUALITY ASSURANCE PLAN

Our Corporate Quality Assurance Section is staffed, trained and equipped to maintain effective quality management of a contract from the time it is awarded until final customer acceptance has been made.

This group routinely provides the following for all contracts:

1. Review of the customer's procurement and technical documents to determine that the requisite requirements have been defined and documented as well as to assure that Seller's resources and capabilities are adequate to meet the requirements.

2. Assist Seller's Purchasing Section in the selection and development of quality fabricators including judgments relative to potential fabricator's abilities to conform to those requisite requirements.
3. Review and assess, for approval, designated fabricator's quality systems including their organizational structure, responsibilities, procedures, processes and resources for implementing quality management to conform to contractual requirements.
4. Schedule source inspection visits by Seller's Quality Assurance Representatives (QAR's) to monitor in-process activities and/or to provide shipping releases.
5. Assure qualifications of all welders to AWS D1.1 for arc welding and AWS C1.1 for spot welding or equivalent as required.
6. Perform system, product and process audits as required to assure conformance and implementation to contractual requirements including the pertinent documentation.

SECTION 3

TECHNICAL TABULATION

SECTION 33. TECHNICAL TABULATIONA. KILN MILL PRECIPITATOR1. Structural Design Parameters

a. Structural Design	AISC Code throughout
b. Wind Load	90 mph
c. Live Load	50 psf on precipitator roof 100 psf on all access
d. Seismic Zone	1
e. Dust Bulk Density - Structural Volumetric	115 pcf 35 pcf
f. Snow Load	Nil
g. Temperature	750°F
h. Pressure	±25 inches H ₂ O

2. Mechanical Design Data

a. Number of Precipitators	1
b. Number of Chambers	1
c. Fields	4
d. Bus Sections Per Field	1
e. Total Number Bus Sections	4
f. Gas Passages	23
g. Spacing of Gas Passages	16 inches
h. Precipitator Casing Dimensions	See Drawing 15290-D-3 Rev. 3
i. Number & Type Hoppers	2 trough

- j. Hopper Material 1/4 inch A-36 steel
- k. Casing Material 3/16 inch A-36 steel
- l. Distribution Plates 12 gauge mild steel

3. Collection Surface Systems

- a. Type of Material Modular Roll Form
18 gauge Mild Steel
- b. Baffle Stiffeners Integrally formed on
18 inch centerlines
- c. Number and Size of Surfaces 96@10.625'x38'
- d. Total Active Collecting Surface 74,290 sq. ft.
- e. Floating Channel Support System Leading and trailing edges of
each mechanical field

4. Discharge Electrode System

- a. Type 1.5 inch diameter Rigid Tube with
emitting studs
- b. Effective Length Per Electrode 38 feet
- c. Number of Electrodes Per Gas Passage 28
- d. Total Number Electrodes 644
- e. Total Effective Length 24,472 feet
- f. Suspension Insulators
 - (1) Number and Material 8 Alumina
 - (2) Manufacturer Coors
 - (3) Dry Arc-Over K.V. RMS 99.1 KV, 60 Cycle
 - (4) Wet Arc-Over K.V. RMS 97.0 KV, 60 Cycle
 - (5) Leakage Distance 19 3/4 inch

5. Rapping System

- a. Quantity and Type of Rappers Electrical impulse
- | | |
|------------------------------------|----------------|
| (1) Collecting Surfaces | 48 Model ESI-I |
| (2) Discharge Electrodes | 8 Model ESI-I |
| (3) Perforated Distribution Plates | 1 Model ESI-I |
- b. Weather-Proof Rapper Panels
- | | |
|-----------------------|---------------------|
| (1) Material | Steel - NEMA 4 |
| (2) Quantity | 1 |
| (3) Type | Solid State |
| (4) Power Transformer | 15 KVA 480/240 volt |

6. Electrical

a. Transformer-Rectifiers

(1) Type	Silicon
(2) Voltage Rating	70kv (DC Avg.) 83kv (AC) RMS 118 kv (DC) Peak
(3) Output Wave Form	Full Wave

	<u>Quantity</u>	<u>KVA</u>	<u>MA</u>
1st Field	1	100.1	1000
2nd Field	1	100.1	1000
3rd Field	1	100.1	1000
4th Field	1	100.1	1000

- b. T-R Insulation Fluid Mineral Oil
- c. High Voltage Switch Type One per T-R unit, interlocked grounding switch with observation window
- d. T-R Control Cabinet One per pair of T-R's
NEMA 12 Construction
- e. Type of Control Thyristor (SCR)
- f. Maximum Ambient Temperature for Electrical Supply and Control Equipment 40°C

- g. Electrical Supply 480 Volt, 60 Hertz, 3 Phase
- h. Maximum Expected Power Consumption
- | | |
|--------------------------|----------|
| (1) Precipitator (T-R's) | 182.7 KW |
| (2) Rappers | 2.0 KW |
| (3) Insulator Heaters | 3.2 KW |
| (4) Penthouse Blowers | 1 1/2 HP |
| (5) Conveyor | 25 HP |
| (6) Dust Valve | 3 HP |
- i. Total Connected Load
(Transformer-Rectifier Units) 400.4 KVA
- j. Type of High Voltage Conductor 3/4 inch pipe in 16 inch round or square duct

7. Access Doors

Penthouse Roof	2, single door, interlocked
Precipitator Roof	4, double door, non-interlocked
Nozzles	1, double door, interlocked
Hoppers	4, double door, interlocked

8. Thermal Insulation - By Erector

Precipitator Roof	3 inch calcium-silicate block AREA = 1558 sq. ft.

Nozzles, Precipitator Sides Penthouse Sides and Hoppers	3 inch 8 PCF mineral wool AREA = 12948 sq. ft.

All lagging will be 0.032 inch ribbed aluminum on exterior surfaces.

9. Dust Removal

a. Hopper Conveyor Kiln ESP

(1) Quantity and Size	One 18" x 36'
(2) Type - Trough Screw	3/16" A-36 U through Full Flight
(3) Speed	20 rpm
(4) Capacity @ 46% load @ 100% load	1200 cfh 2,614 cfh
(5) Dust Density Volumetric Power	35 pcf 85 pcf
(6) Drive	25 Hp end mounted reducer
(7) Motion Sensor	By customer

Andritz Sprout-Bauer MST Modular Rotary Valve

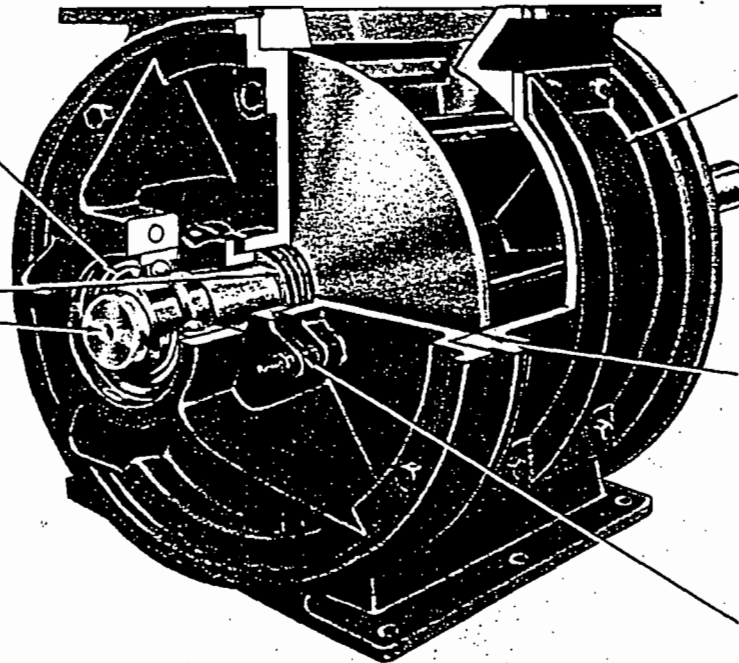
Rugged construction —
cast iron, stainless steel, or
cast iron lined with chrome
— permits service to 15 psi.

Plow distributor at inlet
minimizes torque required.

Outboard bearings prevent
contamination of product.

Integral stuffing boxes with
four packing rings and air
purge inlets in the end
plates increase packing
life and reduce maintenance costs.

Precision machining with
normal radial clearance rotor-to-tip of 0.002" to 0.004"
minimizes leakage.



Full-length inspection panel
allows easy cleaning and
tip adjustment.

Approximately 1/4-inch
clearance between closed-
end rotor and casing end
plate minimizes packing of
product.

Split packing glands allow
easy access to stuffing
boxes and reduce maintenance time.

Andritz Sprout-Bauer's modular rotary valves offer a wide range of sizes, models and materials of construction for versatile use in most pneumatic conveying and feeding systems. Andritz Sprout-Bauer valves provide rugged, trouble-free performance as feeders and air locks in both vacuum and low-pressure positive systems.

Andritz Sprout-Bauer's modular concept lets you stock fewer parts, reducing inventory costs. And Andritz Sprout-Bauer backs its valves with experienced service technicians and fast, dependable delivery of valves, systems and replacement parts.

Abrasive and Corrosive Systems

For abrasive applications, the rotor shrouds and the bore of the housing can be hard-surfaced with a variety of abrasive resistant coatings and inlays, including an 1/8-inch stellite-lined housing for extremely abrasive conditions. Highly corrosive-resistant alloys are also available.

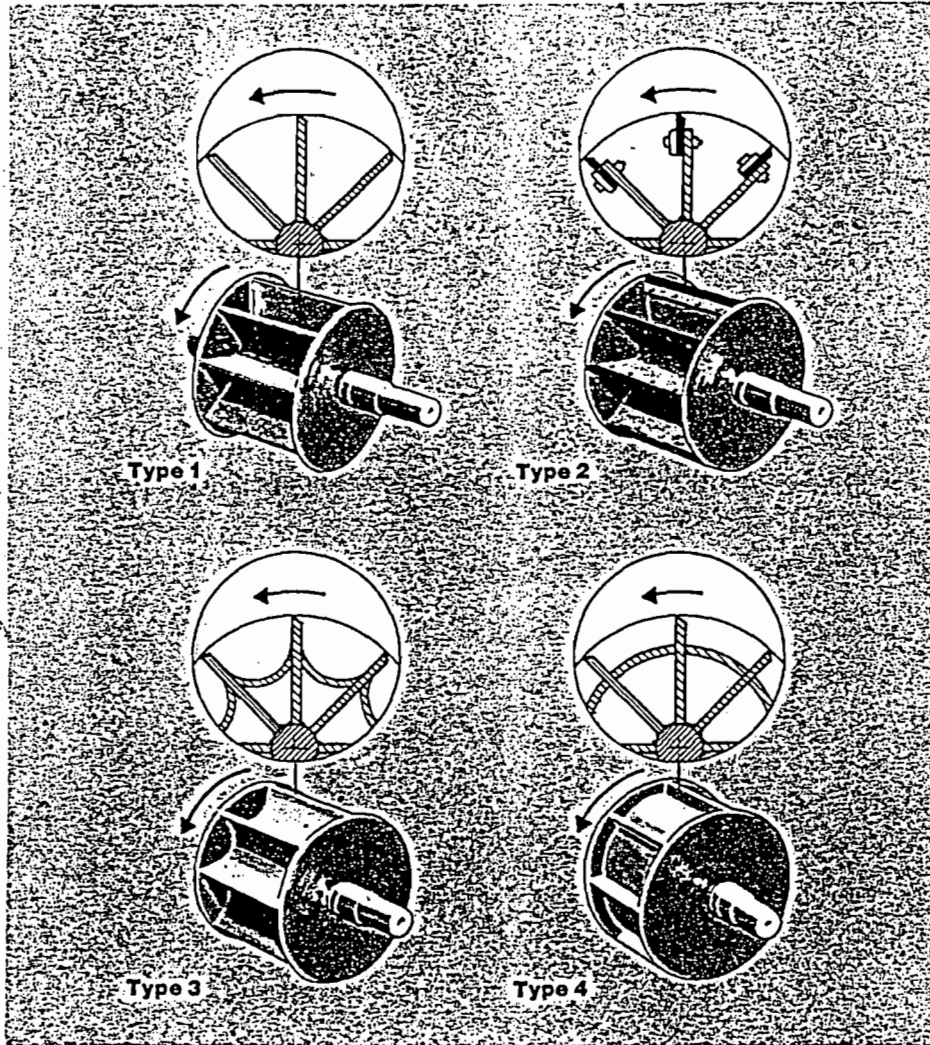
The split packing gland allows easy access to the stuffing boxes, where a minimum of three to four rings of packing maintains a proper seal. When the product is abrasive or difficult to seal, a lantern ring is available. Compressed air is piped into the lantern ring at a pressure one to two pounds above the valve's internal pressure.

Options

Modular rotary valves are usually equipped with enclosed roller chain drives, parallel shaft motor and reducer or gear-motor drive packages. Other options include:

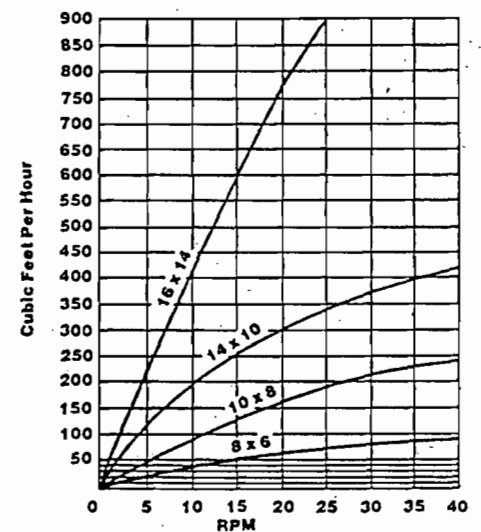
- right-angle gear motors
- variable speed drives
- weather-tight or oil-tight drives
- motion switches
- shearpin sprockets
- lantern rings

Andritz Sprout-Bauer Rotors



- Eight pockets per rotor
- Type 2 features adjustable tips for close rotor-to-housing clearances, peak valve efficiency and maximum life. Tips are manufactured in abrasion-resistant steel, stainless steel and Ni-hard. Tips are also available in brass, neoprene, teflon and polyurethane.
- Shroud (end plate) periphery, vane edges and adjustable tips may be hard-surfaced to minimize the effects of abrasive materials on the rotor.

Side Inlet Valve Curve



Rotor Displacement (dimensions in inches)									
ROTOR SIZE (DIA. X LENGTH IN INCHES)	Rotor displacement in cu. ft./rev.				NORMAL AIRLOCK RPM*	MAXIMUM RECOMMENDED FEEDER RPM*	NORMAL REQUIRED HP*	APPROXIMATE WEIGHTS (lbs.)	
	Type 1	Type 2	Type 3	Type 4				VALVES	DRIVES
0806	.122	.116	.063	.032	45	25	½	173	100
1008	.29	.27	.130	.070	45	25	¾	245	125
1410	.70	.65	.310	.155	45	25	1	443	185
1614	1.3	1.225	.650	.325	45	25	1½	640	250
2018	3.02	2.9	1.150	.575	35	25	2	1205	280
2422	4.95	4.92	2.30	1.15	31	25	3	2285	300

*Dependent upon characteristics of material handled.

SCREW CONVEYOR SPECIFICATION SHEET

CUSTOMER: ENVIRONMENTAL ELEMENTS CORP.	DATE: 08/07/97
CUSTOMER REF: BOB BROWN	PAGE: 2 OF 2
SPEC NUMBER: 230	PREPARED BY: TERRY HANDLIN

DESCRIPTION: (1) 18" DIA. X 36'-0" LONG CARBON STEEL SCREW

GENERAL SPECIFICATIONS

Incline: 0	Mat'l: KILN DUST	Capacity:
Loading: 46+ (norm)	Bulk Density: 35.0 PCF(min)	1,200 CFH (normal)
100.0 for H.P.	85.0 PCF(max)	2,612 CFH (max)
	RPM: 20	

CONVEYOR

Screw Flights: 18S924-R 3/8" THK Pipe: 6" SCH 80	Drive Shaft Size: 3 15/16" Mat'l: 4140 PHT Bolt-Drlg: 3-BOLT Bearing: DODGE TYPE E	Shaft Seals Type: SPLIT GLAND Size: 3 15/16"
Trough Type: FORMED FLANGE Thickness: 3/16"	Coupling Shaft Size: 3 15/16" Mat'l: 4140 PHT HARDENED Bolt-Drlg: 3-BOLT	Gasketing Mat'l: 1/4" X 2. HIGH TEMP
Hanger Style: 326 Size: 18 X 3 15/16" Brg.Matl: HARD IRON	Tail Shaft Size: 3 15/16" Mat'l: 4140 PHT Bolt-Drlg: 3-BOLT Bearing: S-2000 EXPANSION	Inlet(s) Qty: 2 Size: 19" X 108"
Cover Style: FORMED FLANGED Thickness: 10 GA Fasteners: BOLTED	Coupling Bolts Size: 1 1/8 X 7 3/4" Grade/Matl: GD 5	Discharge(s) Qty: 1 Size: 18" X 18"
Trough End Plates Type: PEDESTAL Thickness: 3/8"		Miscellaneous: OIL BATH CHAIN GUARD MOTION SENSON BRACKET RELIEF HATCH W/LIMIT SWITCH. DRIVE MOUNT SHEAR PIN SPROCKET

DRIVE

Reducer Mfg: FALK Size: 1080FZ3 Ratio/Output RPM: 44.2 Motor Mount: SCOOP Slide Base: N/A Hi-Speed Cplg: FALT T-10 Lo-Speed Cplg: N/A	Motor Mfg: SIEMENS HP: 25 RPM: 1750 Voltage: 460/60/3 Spec: RGZESD	Roller Chain Drive Ratio: 2.2:1 Chain Size: RC200 Sprocket Teeth: 15/33 V-Belt Drive Ratio: N/A Belt Size: N/A Sheave P.D.: N/A

EXCLUSIONS: MOTION SENSORS BY OTHERS

REMARKS: COMPLETE ASSEMBLY AND TEST RUN.
(1) COAT SHOP PRIMER
INCLUDES DRAWINGS

**SUMMERLOT
ENGINEERED PRODUCTS, INC.**

MAILING ADDRESS	P.O. BOX 5216 TERRE HAUTE, IN 47805
SHIPPING ADDRESS	11655 N. U.S. 41 ROSEDALE, IN 47874
PHONE NUMBERS	(812) 466-7266 OFFICE (812) 466-7269 FAX

Best Available Copy

SUMMERLOT ENGINEERED PRODUCTS

Screw Conveyor & Screw Feeder Design

pment I.D.: KILN DUST CONVEYOR

Time 13:17:41

DATE 08-05-1997

SCREW: DIAMETER: 18 in. PITCH: 18 in.
PIPE O.D. 6.625 in. SPEED: 20 RPM (Specified)

TROUGH: TYPE: U LENGTH: 63 ft.
INCLINE: 0 deg. FILL: 45.9336 % (Calculated)

MATERIAL DESCRIPTION: KILN DUST
DENSITY: 35 lbs./cu.ft. 85 lbs./cu.ft.
CAPACITY: 1200 CFH (Specified) 1200 CFH (Calculated)

GENERAL FACTORS: MATERIAL FACTOR: 1.5 BEARING FACTOR: 4.4
INCLINE CAPACITY EFFICIENCY: 100 %

FLIGHT FACTORS:	CAP. FACTOR	HP FACTOR
For CUT & FOLDED:	1	1
WHEEL FACTORS:	1	1
WHEEL FACTORS:	1	1

HP POWER: CALCULATED 11.69687 HP SUGGESTED MOTOR SIZE: 15 HP
TORQUE FOR 15 HP MOTOR & 20 RPM: 47250 lb.-in.

pment I.D.: SAME AS ABOVE EXCEPT 100% FILL

13:17:43

DATE 08-05-1997

SCREW: DIAMETER: 18 in. PITCH: 18 in.
PIPE O.D. 6.625 in. SPEED: 20 RPM (Specified)

TROUGH: TYPE: U LENGTH: 63 ft.
INCLINE: 0 deg. FILL: 100 % (Specified)

MATERIAL DESCRIPTION: KILN DUST
DENSITY: 35 lbs./cu.ft. 85 lbs./cu.ft.
CAPACITY: 2612.467 CFH (Calculated)

GENERAL FACTORS: MATERIAL FACTOR: 1.5 BEARING FACTOR: 4.4
INCLINE CAPACITY EFFICIENCY: 100 %

FLIGHT FACTORS:	CAP. FACTOR	HP FACTOR
For CUT & FOLDED:	1	1
WHEEL FACTORS:	1	1
WHEEL FACTORS:	1	1

HP POWER: CALCULATED 24.58965 HP SUGGESTED MOTOR SIZE: 25 HP
TORQUE FOR 25 HP MOTOR & 20 RPM: 78750 lb.-in.

SUMMERLOT ENGINEERED PRODUCTS

Screw Conveyor Screw Deflection & Stress Calculations.

HP. @ 20 RPM

Time 13:24:28

DATE 08-05-1997

SCREW SPECIFICATIONS:

Flighting type:	Sectional
Diameter:	18 inches
Thickness:	.375 inches
Pitch:	18 inches
Pipe or tubing?	Pipe
Nominal size & schedule:	6 inch sch.80
Size:	6.625 inches O.D. x 5.761 inches I.D.
Length:	140 inches
Bare pipe:	0 inches

Calculated data:

Screw weight:	536 pounds
Bearing load (opposite bare pipe):	268 pounds
Bearing load (bare pipe end):	268 pounds
Maximum deflection:	.0163 inches
Bending stress:	768 lbs/in ²
Torsional stress:	3222 lbs/in ²

PRINCIPAL STRESS:

3628 lbs/in²

NOTE: Allowable Principal Stress for stainless steel construction is 3500 psi.
For carbon steel construction 6700 psi is sufficient.

$$\text{SHAFT D.A.} = \sqrt[3]{\frac{5.1}{12000} \times 1.5 \times \frac{63000 \times 25}{20}} = 3.684 \quad \text{use } 3\frac{5}{16} \text{ D.A.}$$

SHAFT MAT 4140 P.H.T.

Best Available Copy

SUMMERLOT ENGINEERED PRODUCTS

Roller chain drive selection

=====

HEADING NOT SPECIFIED

Time 13:05:57

Date 08-06-1997

=====

SELECTED RC DRIVE:

1-Strand RC200 chain,

15 Tooth (12.02435 p.d.) driver sprocket @ 44.2 RPM

33 Tooth (26.3003 p.d.) driven sprocket @ 20.09091 RPM

Has a caculated HP = 30.23839

Which is good for motor HP up to 25.19866 (with 1.2 service factor.)

Actual ratio = 2.2 :1

=====

SCREW CONVEYOR SPECIFICATION SHEET

CUSTOMER: ENVIRONMENTAL ELEMENTS CORP.
 CUSTOMER REF: BOB BROWN
 SPEC NUMBER: 229

DATE: 08/07/97
 PAGE: 1 OF 2
 PREPARED BY: TERRY HANDLIN

DESCRIPTION: (1) 14" DIA. X 36'-0" LONG CARBON STEEL SCREW
 CONVEYOR WITH FLARED TROUGH

GENERAL SPECIFICATIONS

Incline: 0
Loading: 40% (norm) 100.0 for H.P.
Mat'l: CLINKER DUST
Bulk Density: 35.0 PCF(min) 85.0 PCF(max)
Capacity: 510 CFH (normal) 1,274 CFH (max)
RPM: 20

CONVEYOR

Screw
 Flights: 14S724-R
 Pipe: 4" SCH 80

Drive Shaft
 Size: 3 7/16"
 Mat'l: 4140 PHT
 Bolt-Drlg: 3-BOLT
 Bearing: DODGE TYPE E

Shaft Seals
 Type: SPLIT GLAND
 Size: 3 7/16"

Trough
 Type: FLARED
 Thickness: 3/16"

Coupling Shaft
 Size: 3 7/16"
 Mat'l: 4140 PHT HARDENED
 Bolt-Drlg: 3-BOLT

Gasketing
 Mat'l: 1/4" X 2 HIGH TEMP

Hanger
 Style: 326
 Size: 14 X 3 7/16"
 Brg. Mat'l: HARD IRON

Tail Shaft
 Size: 3 7/16"
 Mat'l: 4140 PHT
 Bolt-Drlg: 3-BOLT
 Bearing: S-2000 EXPANSION

Inlet(s)
 Qty: 2
 Size: 19" X 108"

Cover
 Style: FORMED FLANGED
 Thickness: 10 GA
 Fasteners: BOLTED

Coupling Bolts
 Size: 7/8 X 5 3/4"
 Grade/Matl: GD 5

Discharge(s)
 Qty: 1
 Size: 15" X 15"
Miscellaneous:
 OIL BATH CHAIN GUARD
 MOTION SENSOR BRACKET
 RELIEF HATCH W/LIMIT
 SWITCH. DRIVE MOUNT
 SHEAR PIN SPROCKET

Trough End Plates
 Type: FLARED PEDESTALS
 Thickness: 5/16"

DRIVE

Reducer
 Mfg: FALK
 Size: 1070PZ3
 Ratio/Output RPM: 46.3
 Motor Mount: SCOOP
 Slide Base: N/A
 Hi-Speed Cplg: FALT T-10
 Lo-Speed Cplg: N/A

Motor
 Mfg: SIEMENS
 HP: 15
 RPM: 1750
 Voltage: 460/60/3
 Spec: RGZESD

Roller Chain Drive
 Ratio: 2.31:1
 Chain Size: RC160
 Sprocket Teeth: 16T/37T
V-Belt Drive
 Ratio: N/A
 Belt Size: N/A
 Sheave P.D.: N/A

EXCLUSIONS: MOTION SENSORS BY OTHERS

REMARKS: COMPLETE ASSEMBLY AND TEST RUN.
 (1) COAT SHOP PRIMER
 INCLUDES DRAWINGS

SUMMERLOT

ENGINEERED PRODUCTS, INC.

MAILING ADDRESS

P.O. BOX 5216
TERRE HAUTE, IN 47805

SHIPPING ADDRESS

11655 N. U.S. 41
ROSEDALE, IN 47874

PHONE NUMBERS

(812) 466-7266 OFFICE
(812) 466-7269 FAX

SUMMERLOT ENGINEERED PRODUCTS

Screw Conveyor & Screw Feeder Design

Equipment I.D.: CLINKER COOLER CONVEYOR

Time 11:19:25

DATE 08-06-1997

SCREW:	DIAMETER: 14 in. PIPE O.D. 4.5 in.	PITCH: 14 in. SPEED: 20 RPM (Specified)
TROUGH:	TYPE: U INCLINE: 0 deg.	LENGTH: 63 ft. FILL: 40.00334 % (Calculated)

MATERIAL DESCRIPTION: CLINKER DUST

DENSITY: 35 lbs./cu.ft.

85 lbs./cu.ft.

CAPACITY: 510 CFH (Specified)

510 CFH (Calculated)

GENERAL FACTORS:	MATERIAL FACTOR: 1.5	BEARING FACTOR: 4.4
	INCLINE CAPACITY EFFICIENCY: 100 %	

FLIGHT FACTORS:	CAP. FACTOR	HP FACTOR
CUT or CUT & FOLDED:	1	1
PADDLE FACTORS:	1	1
RIBBON FACTORS:	1	1

HORSEPOWER: CALCULATED 5.60441 HP

SUGGESTED MOTOR SIZE: 7-1/2 HP

TORQUE FOR 7-1/2 HP MOTOR & 20 RPM: 23625 lb.-in.

Equipment I.D.: SAME AS ABOVE EXCEPT 100% FILL

Time 11:19:27

DATE 08-06-1997

SCREW:	DIAMETER: 14 in. PIPE O.D. 4.5 in.	PITCH: 14 in. SPEED: 20 RPM (Specified)
TROUGH:	TYPE: U INCLINE: 0 deg.	LENGTH: 63 ft. FILL: 100 % (Specified)

MATERIAL DESCRIPTION: CLINKER DUST

DENSITY: 35 lbs./cu.ft.

85 lbs./cu.ft.

CAPACITY: 1274.894 CFH (Calculated)

GENERAL FACTORS:	MATERIAL FACTOR: 1.5	BEARING FACTOR: 4.4
	INCLINE CAPACITY EFFICIENCY: 100 %	

FLIGHT FACTORS:	CAP. FACTOR	HP FACTOR
CUT or CUT & FOLDED:	1	1
PADDLE FACTORS:	1	1
RIBBON FACTORS:	1	1

HORSEPOWER: CALCULATED 12.1035 HP

SUGGESTED MOTOR SIZE: 15 HP

TORQUE FOR 15 HP MOTOR & 20 RPM: 47250 lb.-in.

SUMMERLOT ENGINEERED PRODUCTS

Screw Conveyor Screw Deflection & Stress Calculations.

HP. @ 20 RPM

Time 11:32:27

DATE 08-06-1997

SCREW SPECIFICATIONS:

Flighting type:	Sectional
Diameter:	14 inches
Thickness:	.375 inches
Pitch:	14 inches

Pipe or tubing?	Pipe
Nominal size & schedule:	4 inch sch.80
Size:	4.5 inches O.D. x 3.826 inches I.D.
Length:	140 inches
Bare pipe:	0 inches

Calculated data:	
Screw weight:	340 pounds
Bearing load (opposite bare pipe):	170 pounds
Bearing load (bare pipe end):	170 pounds
Maximum deflection:	.0436 inches
Bending stress:	1393 lbs/in ²
Torsional stress:	5533 lbs/in ²

PRINCIPAL STRESS:	6273 lbs/in ²

NOTE: Allowable Principal Stress for stainless steel construction is 3500 psi.
For carbon steel construction 6700 psi is sufficient.

SUMMERLOT ENGINEERED PRODUCTS

Roller chain drive selection

=====
HEADING NOT SPECIFIED
=====

Time 12:52:56

Date 08-06-1997
=====

=====

SELECTED RC DRIVE:

=====

1-Strand RC160 chain,

16 Tooth (10.25167 p.d.) driver sprocket @ 46.3 RPM

37 Tooth (23.58328 p.d.) driven sprocket @ 20.02162 RPM

Has a caculated HP = 18.40563

Which is good for motor HP up to 15.33803 (with 1.2 service factor.)

Actual ratio = 2.3125 :1
=====

SECTION 4

OPERATING CONDITIONS AND GUARANTEES

SECTION 44. OPERATING CONDITIONS AND GUARANTEESA. OPERATING CONDITIONS - KILN/MILL PRECIPITATOR

Process - Type	Preheater Cement Kiln with Roller Mill Circuit	
Mode of Operation	<u>Direct</u>	<u>Compound</u>
Gas Volume ACFM	200,000	194,000
Gas Temperature °F	356/300	220/205
Inlet Particulate Loading gr/ACF	18	25
Dew Point °F	138	115
Collection Efficiency (percent removal)	99.96	99.97
Outlet Particulate Residual gr/ACF	0.007	0.007
Precipitator Gas Velocity (f.p.s.)	2.9	2.8
Time of Treatment (Sec.)	14.9	15.3
SCA (Ft ² collecting surface per 1,000 ACFM)	371.5	382.9
Aspect Ratio	1.0	1.0
Pressure Loss (in. H ₂ O)	1.0	1.0

B. PERFORMANCE GUARANTEE1. Direct Operation

With all electrical fields energized under normal conditions of operation with kiln only, as stipulated under "Operating Conditions", when passing 200,000 ACFM of gas through the precipitator, with an inlet loading of 18 gr/ACF or more, the efficiency is guaranteed to 99.96% removal.

Under identical conditions of operation, with an inlet particulate loading of 18 gr/ACF or less, the outlet particulate residual is guaranteed not to exceed 0.007 gr/ACF.

2. Compound Operation

With all electrical fields energized under normal conditions of operation with kiln only, as stipulated under "Operating Conditions", when passing 194,000 ACFM of gas through the precipitator, with an inlet loading of 25 gr/ACF or more, the efficiency is guaranteed to 99.97% removal.

Under identical conditions of operation, with an inlet particulate loading of 25 gr/ACF or less, the outlet particulate residual is guaranteed not to exceed 0.007 gr/ACF.

C. OPERATING CONDITIONS - Clinker Cooler

Process - Type	Clinker Cooler Exhaust
Gas Volume ACFM	160,000
Gas Temperature °F	480
Inlet Particulate Loading gr/ACF	13
Moisture Content (% by volume)*	2 to 3
Collection Efficiency (percent removal)	99.92
Outlet Particulate Residual gr/ACF	0.01
Precipitator Gas Velocity (f.p.s.)	2.3
Time of Treatment (Sec.)	18.5
SCA (Ft ² collecting surface per 1,000 ACFM)	464.3
Aspect Ratio	1.0
Pressure Loss (in. H ₂ O)	1.0

*Note: Additional moisture may be required.

D. PERFORMANCE GUARANTEE

With all electrical fields energized under normal conditions of operation with kiln only, as stipulated under "Operating Conditions", when passing 160,000 ACFM of gas through the precipitator, with an inlet loading of 13 gr/ACF or more, the efficiency is guaranteed to 99.92% removal.

Under identical conditions of operation, with an inlet particulate loading of 13 gr/ACF or less, the outlet particulate residual is guaranteed not to exceed 0.01 gr/ACF.

Attention is drawn to the fact that the material, workmanship and performance guarantee clauses are contingent upon the Buyer's assuring that the equipment is erected according to plans and specifications.

E. PERFORMANCE TEST

All particulate emission tests will be conducted in accordance with the methods set down by the Environmental Protection Agency in 40 CFR Part 60, Appendix A (Reference Methods), and any subsequent revision to these methods in effect on the date of this proposal. The EPA Method 17 will be used for inlet sampling and the dry, front half of the EPA Method 5 will be used for outlet sampling. Test ports with suitable access are to be furnished with inlet duct and outlet duct or stack to meet EPA and OSHA standards.

Performance tests will be conducted within ninety (90) days after the equipment is first commercially operated, but no later than (Later). Performance testing will be done by an independent testing company mutually acceptable to both Buyer and Seller. The cost of testing will be borne by Buyer. If, through no fault of Seller, performance test cannot be run within the time periods given above, the equipment will be treated as though the performance tests were run and the performance guarantees met.

The performance test shall be deemed "passed" when the Buyer and Seller have analyzed the test results and determined that equipment guarantee has been met. The test results will be available to the Buyer and Seller for said analysis within three (3) weeks after completion of testing. Whatever security Buyer has retained to secure compliance with the performance guarantee shall be due and payable to Seller immediately upon the determination that the performance test has been "passed".

Seller shall have the right to witness testing and to have access to all information acquired by said third party which is relevant to determining whether the equipment has passed the performance test. Seller does not assume the risk that the performance test will be improperly performed, or that tests results will be improperly computed. If, as a result of the fault of either Buyer and/or the third party responsible for conducting the performance test, the determination that the equipment has passed the performance test is delayed, the amount outstanding on the contract price, if any, shall be subject to a per diem interest charge at the maximum rate allowed by law, chargeable from the time the equipment would have passed the performance test but for said fault.

Compliance with the performance criteria on a majority of the tests performed shall constitute fulfillment of the performance guarantee. Seller shall have the right to make, at its own expense, any adjustments, changes, or additions to the equipment in an endeavor to obtain performance in accordance with the guarantee. If Seller in good faith determines that compliance with the performance guarantee is unobtainable, Seller shall forfeit its right to the funds or security retained by Buyer to secure equipment compliance with the guarantee, unless Buyer has not suffered actual damages which are recoverable hereunder.

SECTION 5
PROPOSAL PRICES

SECTION 55. PROPOSAL PRICESA. MATERIAL

Seller will design, fabricate, deliver F.O.B. jobsite two electrostatic precipitator as described in this proposal and shown on Drawing Number 15290-D-3 Rev. 3 for the sums listed below.

<u>Item</u>	<u>Lbs. Weight</u>	<u>\$ Material</u>	<u>\$ Freight</u>
1. Precipitator and Nozzles	1,046,664	----	----
2. Support Structure	75,800	----	----
3. Access	44,942	----	----
4. Conveyor and Dust Valve	----	----	----
5. Hopper Level Detectors	----	----	----
Total		\$1,414,000	\$65,000

B. PRICE NOTES

1. Material Delivery Terms: F.O.B. jobsite.
2. To obtain a total delivered price the freight price must be added to the material price.
3. Material and freight prices are firm for delivery starting on or about April 1998 based on an award or notice to proceed August 1997. Delays past this date may be subject to escalation.

C. CONSTRUCTION ADVISOR

In the event the equipment is erected by others, the services of a Construction Advisor will be furnished at a per diem or monthly rate of \$13,500 including all living and travel expenses. Material, workmanship and performance guarantees are contingent upon the Buyer's assuring the equipment is erected according to plans and specifications. If Buyer does not purchase the services of the Construction Advisor, no backcharges will be accepted unless authorized in advance by Seller. Guarantees are contingent on an inspection by Seller's engineer prior to start-up to ensure that the equipment is erected according to plans and specifications.

The Construction Advisor will assist as requested in efficient and economical conduct of the work. He will determine if the required materials have been furnished and delivered, assist in the identification of the various items, make recommendations as to sequence and methods of erection, make suggestions as to size and organization of work crews and interpret the drawings and specifications. He will advise Buyer's erection supervisors as to results desired and make such inspections as are deemed necessary to assure that these results are obtained. An inspection of the unit to determine if the equipment is ready for operation will be performed by a Test and Service Engineer.

D. CHECK OUT, TRAINING AND START-UP SERVICES

Following the completion of erection, Seller will provide engineering personnel to make a complete mechanical and electrical check of all work. When certified ready to operate, an engineer will supervise the start-up of the equipment, make final adjustments and instruct the plant personnel in the operation, adjustment and maintenance of the precipitator.

These services will be furnished at the following per-diem rate.

The daily fee per man for traveling days and working days on the jobsite for working time up to but not in excess of eight hours per day will be charged at the following rates:

SIX HUNDRED FIFTY DOLLARS (\$650.00) per Traveling Day to and from Baltimore, Maryland, on any day of the week.

SIX HUNDRED FIFTY DOLLARS (\$650.00) per Working Day, Monday through Friday.

NINE HUNDRED SEVENTY-FIVE DOLLARS (\$975.00) per Working Day on Saturdays.

THIRTEEN HUNDRED DOLLARS (\$1,300.00) per Working Day on Sundays.

Any working time in excess of eight hours per day will be charged at the following rates:

Week Days, Monday through	Friday:	\$122.00 per hour
	Saturdays:	\$122.00 per hour
	Sundays:	\$162.50 per hour

All living and all travel expenses will be charged at actual cost per calendar day, on a seven day per week basis, including traveling days.

Traveling expenses from Baltimore, Maryland, to jobsite, from jobsite to Baltimore, Maryland and local traveling expenses while on the jobsite will be billed at actual costs.

Seller's Field Test & Service Engineer will supervise start-up, testing, training of your operating personnel, do trouble shooting, determine if equipment is ready for operation and perform other related duties requested of him by the Customer.

Since he will be utilized in an advisory capacity, Seller will not be liable for any damages to equipment, loss of time or product, for production rates of workmen and quality of field

workmanship. The Buyer will have the direct responsibility for planning, supervising and executing the work, and under such circumstances, neither Seller nor the Field Test and Service Engineer will be responsible for the progress or cost of the work.

E. SCHEDULE

A firm schedule will be established to meet the specific requirements of the project. The following is typical for these applications:

DRAWINGS

The load diagram and general arrangement drawings showing firm dimensions, loads and interface connections will be mailed within 4 to 6 weeks from date of an order. These drawings will contain all loads and interface dimensions to design the foundations and related equipment. Electrical drawings will be mailed within 8 to 12 weeks from receipt of an order.

Due to the proprietary nature of the detail drawings for the electrostatic precipitator, the only drawings being submitted for approval will be the general arrangement, load diagram and the one line electrical drawings.

The "construction package" drawings, required for erection, will be submitted "for reference" and will not be subject to approval. It is necessary to clarify this point since requisitions will be released into our system to initiate fabrication upon receipt of the approved general arrangement, load diagram and one line electrical drawings.

MATERIAL AND ERECTION

The material can normally be shipped to support an erection schedule starting 7 to 8 months from date of an order. Erection period will normally extend over a 3 to 4 month period dependent on scope of work, weather and labor conditions.

F. MATERIAL TERMS OF PAYMENT

Payment of 10% of the material selling price will be made on submittal of load diagram, General Arrangement and Electrical one line drawing. Monthly, Seller shall submit to Buyer a certified statement showing the degree of completion of work to be shipped under this Contract, and the estimated value of said work in its then state of completion based upon the total material selling price. Seller shall be paid 100% of the amount of such estimated value of said work within twenty (20) days after receipt of such certified statement by Buyer until 95% of the total contract price has been paid.

The retainage of 5% of the material selling price shall be payable to Seller upon successful completion of performance tests, as elsewhere defined, but in no event later than (to be determined). At Seller's option, a letter of credit in the amount of 5% of the material selling price may be substituted for the retention.

No Green Card

Z 333 612 494

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

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K Don Duley	
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Jax FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	
Miami Quarry 11-5-98 Rock crusher Replacement	

PS Form 3800, April 1995

G. TAXES

Buyer shall pay all Federal, State and Local taxes, resulting from this Agreement, including, but not limited to, manufacturer's excise tax, gross receipts tax, sales and use tax or any direct or indirect tax of similar nature, on all or any part of the work performed under this Contract including sales and use taxes on materials purchased by Seller for the erection of the equipment. A tax exemption certificate shall be forwarded to Seller along with the purchase order, if such is applicable to the Equipment or services being furnished. If Seller is required to collect and/or pay such taxes, Buyer shall reimburse Seller for the full amount.

H. MATERIAL PRICE ADJUSTMENTS

1. The material and freight prices are firm based on delivery starting on or about April 1998. In the event the schedule of delivery and/or erection is delayed after award (through no fault of Seller), the material/erection prices will be subject to escalation, for the time period from the originally scheduled delivery until the revised delivery. The material price will be escalated in accordance with the following:

Seventy percent (70%) of the total material equipment selling price is subject to adjustment based upon the percentage of increase in the U. S. Department of Labor, Wholesale Prices and Indices, Machinery and Equipment, Code 11, Sub-group 114 (General Purpose Machinery).

Thirty percent (30%) of the total material equipment selling price is subject to adjustment based upon the percentage of increase in the U.S. Department of Labor, Wholesale Prices and Indices, Labor SIC34, Fabricated Metal Products Hourly Rate.

If the material is purchased excluding escalation, the computation of the percentage will be based on the average of the index for the month three (3) months prior to initial shipment and the index for the month of final shipment, as compared with the index for the month the contract is signed. The amount of escalation shall be submitted on a separate invoice and will include the computation details.

2. Premium Steel - Prices and delivery are predicated on procurement of steel based on the most economical mill runs and schedules currently in effect. Should Buyer change specified delivery date and request Seller to obtain steel from premium mills or warehouses, Buyer shall reimburse Seller for the additional cost of steel. Such purchases must be authorized in writing by Buyer prior to actual procurement.
3. Extra Material - Seller shall provide additional equipment and materials related to the Equipment requested and authorized by Buyer in writing. Prices, terms, and delivery for the additional equipment and materials will be furnished after Buyer provides Seller with sufficient specifications and information.

Non-Specified Preferences - Seller reserves the right to select purchased components with respect to type and manufacturer unless specified preferences are stated in the Buyer's bidding specifications. Any additional costs (including normal burdens and

markup for overhead and profit) incurred by Seller in meeting Buyer's preference outside the specifications shall be for Buyer's account.

SECTION 6

GENERAL CONDITIONS OF SALE
FOR MATERIAL AND EQUIPMENT



RECEIVED

February 23, 1998

FEB 24 1998

BUREAU OF
AIR REGULATION

Mr. A. A. Linero, P.E.
Administrator, New Source Review Section
Florida Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

Subject: Electrostatic Precipitators

Dear Mr. Linero:

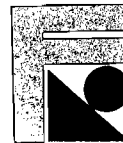
In my last week's mailing of the precipitator information provided pursuant to our PSD permit, I omitted the inclusion of the proposal by Environmental Elements which underlies the purchase order you received.

This document contains greater details of the design and of the guarantees for this equipment (see section 4).

Sincerely,

Fred W. Cohrs
Vice President

FWC/bs
Enclosure



February 17, 1998

Mr. A. A. Linero, P.E.
Administrator, New Source Review Section
Twin Towers Office Building
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

RE: Final Permit No. AC01-267311, PSD-FL-288
Portland Cement Plant

Dear Mr. Linero:

Pursuant to condition No. 26 of subject permit we are herewith forwarding one (1) set of copies of the final design drawings, the pertinent specifications and the purchase order containing the manufacture's guarantees.

Further, as required by condition No. 26 please be advised that the precipitators will be supplied by Environmental Elements, and erected under its supervision. The erection contractor is The Hardaway Company / Stone & Webster Engineering Corporation J.V.. Erection will commence in August 1998 and be completed in December 1998.

Should you desire not to keep the drawings in your file please let me know so I can retrieve them.

If you require additional information, I'd be glad to provide it to you.

Sincerely,

Fred W. Cohrs
Vice President

Enclosure
FWC/bs

Florida Rock Industries, Inc.
Cement Group

Thompson S. Baker Plant

4000 N.W. C.R. 235

Newberry, FL 32669

Phone: (352) 472-4722 Fax: (352) 472-2449



IMPORTANT:		PAGE 1	OF 7
THESE NUMBERS MUST APPEAR ON ALL PAGES AND PACKAGE			
CONTRACT NO. 7402-6823	CODE NAME ROCKFA	P.O. NUMBER 160100501	REV.

ISSUED TO:
 Environmental Elements Corporation

 700 Koppers Street
 Baltimore, MD 21227
 Attn: David Losaw

PURCHASE ORDER ☒
 PURCHASE ORDER ☐
 CHANGE NOTICE

THIS PURCHASE ORDER MUST BE ACKNOWLEDGED
 PROMPTLY.
 PLEASE SIGN AND RETURN ATTACHED COPY.

SHIP TO:
 TO BE ADVISED

HIP VIA Motor Frt	P.R. NUMBER 3 & 4	FREIGHT CHARGE ~~Prepay & Add~~	FOB, FAS, CIF Jobsite	TERMS	SHIP DATE 4/98	TO BE INSPECTED	ISSUE DATE 9/4/97

ITEM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE ()
			Reference Environmental Elements Corp. Proposal No. ACS-95-04-15290-R2110E-FC, dated August 11, 1997.		
1	E 19 01	1	Electrostatic Precipitator Capacity (ACFM): 200,000 194,000 Operation: Direct Compound Temp. (Deg. F): 356/300 220/205 Inlet Dust Load (GR/ACF) 18 25 Outlet Dust Load (GR/ACF) 0.007 0.007 Pressure Loss (IN. WG.) 1.0 Including the following items:		
	E 19 02	57	El. Impulse Rappers 48 Collecting Surfaces 8 Discharge Electrodes 1 Perforated Distribution Plate		
	E 19 0301-04	4	Ground High Voltage Switch (Interlocked Grounding)		

Acct. Code: 404100

NOTICE TO VENDORS

DO NOT SUBSTITUTE OR CHANGE THIS ORDER WITHOUT PROPER AUTHORIZATION.
 ADVISE IMMEDIATELY ANY ANTICIPATED DELAYS IN SHIPMENT.
 VOICES TO BE RENDERED IN ORIGINAL AND THREE COPIES.
 ESTIMATING WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

Edward R. Graham

SUED TO:
Environmental Elements Corporation

700 Koppers Street
Baltimore, MD 21227
Attn: David Losaw

**Florida Rock Industries, Inc.
Cement Group**



IMPORTANT: PAGE 2 OF 7
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CONTRACT NO. 7402-6823	CODE NAME ROCKFA	P.O. NUMBER 160100501	REV.

EM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE ()
	E 19 0401-02	2	T-R Control Cabinets NEMA 4 Construction 2 TR Controllers with: 2 - 4-20 mA isolated voltage outputs and 2 - 4-20 mA isolated current outputs		
	E 19 05	1	Insulation (by contractor)		
	E 19 06	1	Penthouse Blower		
	E 19 07	1	Penthouse Blower Motor (1.5 HP)		
	E 19 0801-02	2	Motion Sensors Millpulse 600 2/mounting hardware		
	E 19 09	1	Rotary Air Lock (18 RPM)		
	E 19 10	1	Rotary Air Lock Motor (2 HP)		
	E 19 11	4	High Dust Alarms		
	E 19 12	4	TR Control Cabinet Trip Alarm		
	E 19 13	1	Penthouse Blower Failure Alarm		
	E 19 14	1	Rapper Failure Alarm		
	E 19 15	1	Hopper Low Temp. Alarm (Type K Thermocouple)		
	E 19 17	1	High Voltage System		
	E 19 18	1	Comp't Heater for Insulator		
	E 19 19	1	Screw Conveyor, 18" x 36', 20 RPM		
	E 19 20	1	Screw Conveyor Motor (25 HP)		

NOTICE TO VENDORS

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ORDERS TO BE RENDERED IN ORIGINAL AND THREE COPIES.
QUANTITIES, WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

Edward R. Graham

ISSUED TO:
Environmental Elements Corporation

700 Koppers Street
Baltimore, MD 21227
Attn: David Losaw

Florida Rock Industries, Inc.
Cement Group



IMPORTANT: PAGE 3 OF 7
THESE NUMBERS MUST APPEAR ON ALL PAGES AND PACKAGE

CONTRACT NO. 7412-6823	CODE NAME ROCKFA	P.O. NUMBER 160100501	REV.

EM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE ()
	E 19 30	1	Transformer Rectifiers Type: Silicon 70 KV DC Avg., 83 KV AC RMS, 118 KV DC Peak Full Wave Output		
	E 19 31	1	Transformer Rectifiers Type: Silicon 70 KV DC Avg., 83 KV AC RMS, 118 KV DC Peak Full Wave Output		
	E 19 32	1	Transformer Rectifiers Type: Silicon 70 KV DC Avg., 83 KV AC RMS, 118 KV DC Peak Full Wave Output		
	E 19 33	1	Transformer Rectifiers Type: Silicon 70 KV DC Avg., 83 KV AC RMS, 118 KV DC Peak Full Wave Output		
	E 19 40	11	Access Doors w/Key Interlock		
2	K 13 01	1	Electrostatic Precipitator Capacity: (ACFM): 160,000 Gas Temp. (Deg. F): 480 Inlet Dust Load (GR/ACF): 13 Outlet Dust Load (GR/ACF): 0.01 Moisture Content: 2% or less Pressure Loss (IN. W.G.): 1.0 Design Pressure (IN. W.G.): 25.0 Including the following items:		

NOTICE TO VENDORS

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ORDERS TO BE RENDERED IN ORIGINAL AND THREE COPIES.
ORDERING WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

Edward R. Graham

SUED TO:
Environmental Elements Corporation

00 Koppers Street
Baltimore, MD 21227
Attn: David Losaw

**Florida Rock Industries, Inc.
Cement Group**



IMPORTANT: PAGE 4 OF 7
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CONTRACT NO. 7402-6823	CODE NAME ROCKFA	P.O. NUMBER 160100501	REV.

ITEM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE ()
	K 13 02	57	El. Impulse Rappers 48 Collecting Surfaces 8 Discharge Electrodes 1 Perforated Distribution Plate		
	K 13 0301-04	4	High Voltage Switch		
	K 13 0401-02	2	T-R Control Cabinets NEMA 4 Construction 2 TR Controllers with : 2 - 4-20 mA isolated voltage outputs and 2 - 4-20 mA isolated current outputs		
	K 13 05	1	Insulation (by contractor)		
	K 13 06	1	Penthouse Blower		
	K 13 07	1	Penthouse Blower Motor (1.5 HP)		
	K 13 0801-02	2	Motion Sensor Millpulse 600 w/Mounting Hardware		
	K 13 09	1	Double Tipping Valve w/Motor (460V, 3 ph)		
	K 13 11	4	High Dust Alarms		
	K 13 12	4	TR Control Cabinet Trip Alarm		
	K 13 13	1	Penthouse Blower Failure Alarm		
	K 13 14	1	Rapper Failure Alarm		
	K 13 15	1	Hopper Low Temp. Alarm (Type K Thermocouple)		
	K 13 17	1	High Voltage System		
	K 13 18	1	Comp't. Heater for Insulator		
	K 13 19	1	Screw Conveyor, 14" x 36', 20 RPM		

NOTICE TO VENDORS

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ORDERS TO BE RENDERED IN ORIGINAL AND THREE COPIES.
LOADING WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

Edward R. Graham

SUED TO:
Environmental Elements Corporation

700 Koppers Street
Baltimore, MD 21227
Attn: David Losaw

**Florida Rock Industries, Inc.
Cement Group**



IMPORTANT: PAGE 5 OF 7
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CONTRACT NO. 7402-6823	CODE NAME ROCKFA	P.O. NUMBER 160100501	REV.

EM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE ()
	K 13 20	1	Screw Conveyor Motor (25 HP)		
	K 13 30 K 13 31	2	Transformer Rectifiers Type: Silicon 70 KV DC Avg., 83 KV AC RMS, 118 KV DC Peak Full Wave Output		
	K 13 32 K 13 33	2	Transformer Rectifiers Type: Silicon 70 KV DC Avg., 83 KV AC RMS, 118 KV DC Peak Full Wave Output		
	K 13 40	11	Access Doors w/Key Interlocks ATTACHMENTS: 1. Requirements for Engineering Data and Design (REDD) Form. 2. General Specifications for Quotations and Purchase Orders. 3. Surface Preparation and Painting. 4. Specification for Electrostatic Precipitator, Specification No. 7402-6823-3. 5. Specification for Electrostatic Precipitator, Specification No. 7402-6823-4. 6. The attached Florida Rock Industries' Terms and Conditions, with clarifications and modifications, shall be an integral part of this purchase order. NOTES: 1. DOCUMENTATION - All documents contained herein form an integral part of this Purchase Order.		

NOTICE TO VENDORS

DO NOT SUBSTITUTE OR CHANGE THIS ORDER WITHOUT PROPER AUTHORIZATION.
ADVISE IMMEDIATELY ANY ANTICIPATED DELAYS IN SHIPMENT.
COPIES TO BE RENDERED IN ORIGINAL AND THREE COPIES.
ORDERING WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

Edward R. Graham

SUED TO:
Environmental Elements Corporation

700 Koppers Street
Baltimore, MD 21227
Attn: David Losaw

**Florida Rock Industries, Inc.
Cement Group**



IMPORTANT: PAGE 6 OF 7
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CONTRACT NO. 7402-6823	CODE NAME ROCKFA	P.O. NUMBER 160100501	REV.

EM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE ()
			2. TAGGING, MARKING INSTRUCTIONS - Equipment shall be tagged and marked with the corresponding POS Number where shown for each item. Vendor shall supply a Detailed Tagging List and Packing List (detailed instructions and blank forms supplied by Polysius). All documentation shall be submitted by telefax message to the attention of Mr. Jeff Baker at a minimum of two (2) weeks prior to shipping. Vendor shall supply Bill of Lading, FEDEX Tracking Number, UPS Tracking Number, etc., after shipping to the attention of Mr. Jeff Baker. This Purchase Order will not be considered complete and payment of invoices will not be due until all specified documents and information have been received by Polysius Corp. 3. DRAWINGS - Vendor shall comply with the instructions and schedule in the "Requirements for Engineering Data and Design (REDD) Form." Drawings shall be per the attached "REDD" document and forwarded to the attention of Mr. Jeff Baker as follows: Polysius Corp. 180 Interstate North, Suite 500 Atlanta, GA 30339 Attn: Mr. Jeff Baker Drawings for approval shall be supplied on/or before 9/19/97. 4. Delivery: 4/98 FOB: Jobsite - ~~Freight shall be at cost~~		

NOTICE TO VENDORS

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INVOICES TO BE RENDERED IN ORIGINAL AND THREE COPIES.
QUOTING WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

Edward R. Graham

ISSUED TO:
Environmental Elements Corporation

700 Koppers Street
Baltimore, MD 21227
Attn: David Losaw

**Florida Rock Industries, Inc.
Cement Group**



IMPORTANT: PAGE 7 OF 7
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CONTRACT NO.	CODE NAME	P.O. NUMBER	REV.
7402-6823	ROCKFA	160100501	

EM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE ()
			NOTE: Vendor shall proceed immediately with engineering, drawings and manufacture of equipment.		
			5. Technical Contact: Mr. Oleg Geskin at (770) 980-5072.		

Total: 1,414,000.00

NOTICE TO VENDORS

DO NOT SUBSTITUTE OR CHANGE THIS ORDER WITHOUT PROPER AUTHORIZATION.
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COPIES TO BE RENDERED IN ORIGINAL AND THREE COPIES.
MINIMIZING WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

Edward R. Graham

**Florida Rock Industries, Inc.
Cement Group**

Thompson S. Baker Plant

4000 N.W. C.R. 235 P.O. Box 459

Newberry, FL 32669

Phone: (352) 472-4722 Fax: (352) 472-2449



IMPORTANT: PAGE 1 OF 1
THESE NUMBERS MUST APPEAR ON ALL PAGES AND PACKAGE

CONTRACT NO.	CODE NAME	P.O. NUMBER	REV.
7402-6823	ROCKFA	160100501	1

SHIP TO:
TO BE ADVISED

ISSUED TO:
Environmental Elements Corporation

3700 Koppers Street
Baltimore, MD 21227
Attn: David Losaw

PURCHASE ORDER ☐
PURCHASE ORDER ☒
CHANGE NOTICE

THIS PURCHASE ORDER MUST BE ACKNOWLEDGED
PROMPTLY.
PLEASE SIGN AND RETURN ATTACHED COPY.

SHIP VIA	P.R. NUMBER	FREIGHT CHARGE	FOB, FAS, CIF	TERMS	SHIP DATE	TO BE INSPECTED	ISSUE DATE
Motor Frt	3 & 4	--	Jobsite		4/98		9/15/97

ITEM	POS. NUMBER	QTY	DESCRIPTION	PRICE PER	PRICE (US\$)
3		1	This revision issued to add freight charges to P.O. as requested by David Losaw, 9/12/97. Lot Freight charges per Environmental Elements Proposal ACS-95-04-15290-R2110E-FC, dated 8/11/97. ORIGINAL P.O. TOTAL NEW P.O. TOTAL All other items on this purchase order remain unchanged.		\$65,000.00 \$1,414,000.00 \$1,479,000.00

Total: \$1,479,000.00

Acct. Code: 404100

NOTICE TO VENDORS

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INVOICES TO BE RENDERED IN ORIGINAL AND THREE COPIES.
ITEMIZING WEIGHTS, PRICES, EXTENSIONS, AND ACCOMPANIED BY BILL OF LADING.

PURCHASING MASTER

R. G. Graham

Edward R. Graham

**ENVIRONMENTAL
ELEMENTS**

C O R P O R A T I O N

S I N C E 1 9 4 6

3700 KOPPERS STREET · BALTIMORE, MARYLAND 21227 · TELEPHONE 410-368-7000

December 1, 1997

Polysius Corporation
180 Interstate North
Atlanta, GA 30339-2194

Attention: Mr. E. Graham

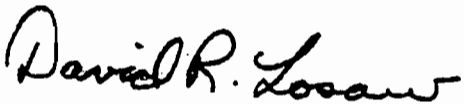
Subject: Florida Rock Industries
Thompson S. Baker Plant
Contract No. 7402-6823 (Rock - FA)
P.O. No. 160100501-R1
Electrostatic Precipitators
EEC M.O. No. 420624

Gentlemen:

As requested by Oleg Geskin, enclosed please find revised copies of data sheets included in the Technical Tabulation Section of our proposal dated August 11, 1997. Revisions are shown on pages 3:1 and 3:5.

If you need additional information please let me know.

Very truly yours,



David R. Losaw
Project Director
Environmental Elements Corporation
(410) 368-7201

DRL/sle

Enclosures

cc: Bill Arnold
Rob Kimberl

Oleg Geskin (Fax)



ENVIRONMENTAL ELEMENTS CORPORATION

ACS-95-04-15290-R2110E-FC

SECTION 33. TECHNICAL TABULATIONA. KILN MILL PRECIPITATOR1. Structural Design Parameters

a.	Structural Design	AISC Code throughout
b.	Wind Load	90 mph
c.	Live Load	50 psf on precipitator roof 100 psf on all access
d.	Seismic Zone	1
e.	Dust Bulk Density - Structural Volumetric	115 pcf 35 pcf
f.	Snow Load	Nil
g.	Temperature	750°F
h.	Pressure	<u>±25 inches H₂O</u>

2. Mechanical Design Data

a.	Number of Precipitators	1
b.	Number of Chambers	1
R- c.	Fields	4
d.	Bus Sections Per Field	1
e.	Total Number Bus Sections	4
f.	Gas Passages	23
g.	Spacing of Gas Passages	16 inches
h.	Precipitator Casing Dimensions	See Drawing 15290-D-3 Rev. 3
i.	Number & Type Hoppers	2 trough

ENVIRONMENTAL ELEMENTS CORPORATION

ACS-95-04-15290-R2110E-FC

- j. Hopper Material 1/4 inch A-36 steel
- k. Casing Material 3/16 inch A-36 steel
- l. Distribution Plates 12 gauge mild steel
- 3. Collection Surface Systems
 - a. Type of Material Modular Roll Form
18 gauge Mild Steel
 - b. Baffle Stiffeners Integrally formed on
18 inch centerlines
 - c. Number and Size of Surfaces 96@10.625'x38'
 - d. Total Active Collecting Surface 74,290 sq. ft.
 - e. Floating Channel Support System Leading and trailing edges of
each mechanical field
- 4. Discharge Electrode System
 - a. Type 1.5 inch diameter Rigid Tube with
emitting studs
 - b. Effective Length Per Electrode 38 feet
 - c. Number of Electrodes Per Gas Passage 28
 - d. Total Number Electrodes 644
 - e. Total Effective Length 24,472 feet
 - f. Suspension Insulators
 - (1) Number and Material 8 Alumina
 - (2) Manufacturer Coors
 - (3) Dry Arc-Over K.V. RMS 99.1 KV, 60 Cycle
 - (4) Wet Arc-Over K.V. RMS 97.0 KV, 60 Cycle
 - (5) Leakage Distance 19 3/4 inch

ENVIRONMENTAL ELEMENTS CORPORATION

ACS-95-04-15290-R2110E-FC

5. Rapping System

- a. Quantity and Type of Rappers Electrical impulse
- | | |
|------------------------------------|----------------|
| (1) Collecting Surfaces | 48 Model ESI-I |
| (2) Discharge Electrodes | 8 Model ESI-I |
| (3) Perforated Distribution Plates | 1 Model ESI-I |
- b. Weather-Proof Rapper Panels
- | | |
|-----------------------|---------------------|
| (1) Material | Steel - NEMA 4 |
| (2) Quantity | 1 |
| (3) Type | Solid State |
| (4) Power Transformer | 15 KVA 480/240 volt |

6. Electrical

a. Transformer-Rectifiers

(1) Type	Silicon
(2) Voltage Rating	70kv (DC Avg.) 83kv (AC) RMS 118 kv (DC) Peak
(3) Output Wave Form	Full Wave

	<u>Quantity</u>	<u>KVA</u>	<u>MA</u>
1st Field	1	100.1	1000
2nd Field	1	100.1	1000
3rd Field	1	100.1	1000
4th Field	1	100.1	1000

- b. T-R Insulation Fluid Mineral Oil
- c. High Voltage Switch Type One per T-R unit, interlocked grounding switch with observation window
- d. T-R Control Cabinet One per pair of T-R's
NEMA 12 Construction
- e. Type of Control Thyristor (SCR)
- f. Maximum Ambient Temperature for Electrical Supply and Control Equipment 40°C

ENVIRONMENTAL ELEMENTS CORPORATION

ACS-95-04-15290-R2110E-FC

- g. Electrical Supply 480 Volt, 60 Hertz, 3 Phase
- h. Maximum Expected Power Consumption
- | | |
|--------------------------|----------|
| (1) Precipitator (T-R's) | 182.7 KW |
| (2) Rappers | 2.0 KW |
| (3) Insulator Heaters | 3.2 KW |
| (4) Penthouse Blowers | 1 1/2 HP |
| (5) Conveyor | 25 HP |
| (6) Dust Valve | 3 HP |
- i. Total Connected Load
(Transformer-Rectifier Units) 400.4 KVA
- j. Type of High Voltage Conductor 3/4 inch pipe in 16 inch round or square duct

7. Access Doors

Penthouse Roof	2, single door, interlocked
Precipitator Roof	4, double door, non-interlocked
Nozzles	1, double door, interlocked
Hoppers	4, double door, interlocked

8. Thermal Insulation - By Erector

Precipitator Roof	3 inch calcium-silicate block AREA = 1558 sq. ft.

Nozzles, Precipitator Sides Penthouse Sides and Hoppers	3 inch 8 PCF mineral wool AREA = 12948 sq. ft.

All lagging will be 0.032 inch ribbed aluminum on exterior surfaces.

9. Dust Removala. Hopper Conveyor Kiln ESP

(1) Quantity and Size	One 18" x 36'
(2) Type - Trough Screw	3/16" A-36 U through Full Flight
(3) Speed	20 rpm
(4) Capacity @ 46% load	1200 cfm
@ 100% load	2,614 cfm
(5) Dust Density Volumetric Power	35 pcf 85 pcf
(6) Drive	25 Hp end mounted reducer
(7) Motion Sensor	By customer

ENVIRONMENTAL ELEMENTS CORPORATION

ACS-95-04-15290-R2110E-FC

b. Dust Valve Kiln ESP

(1)	Type	Sprout Bauer Rotary Valve w/Type 2 Rotar and Ni-Hard
(2)	Adjustable Tips	
(3)	Quantity and Size	One Size 2018
(4)	Capacity @ 80% Load	2,500 cfh
(5)	Speed	18 rpm
(6)	Drive	2 Hp
R- (7)	Motion Sensor	By Customer

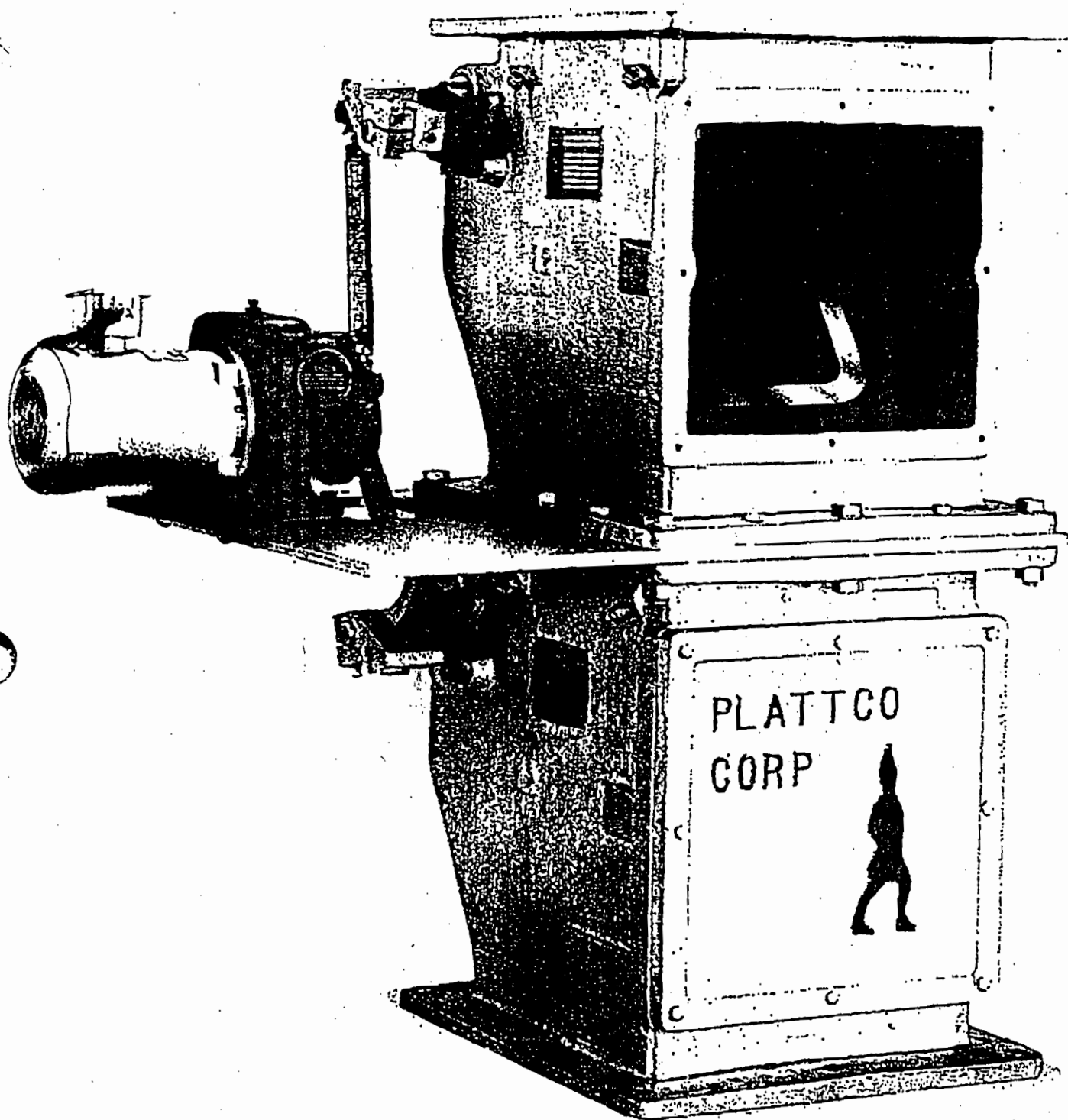
c. Hopper Conveyor Clinker Cooler ESP

(1)	Quantity and Size	One 14" x 36'
R- (2)	Type-Trough Screw	3/16" A-36 Flared Trough Full Flight
(3)	Speed	20 rpm
(4)	Capacity @ 40% Load	510 cfh
	@100% Load	1274 cfh
(5)	Dust Density Volumetric Power	35 pcf 85 pcf
(6)	Drive	15 Hp end Mounted Reducer
(7)	Motion Sensor	By Customer

R- d. Dust Valve Clinker Cooler ESP

(1)	Type	Plattco Corp., Double Flap Value w/Cast Iron Body and Hi- Chrome Seats and Flappers
(2)	Quantity and Size	One, Size H-1212
(3)	Capacity @ 40% Load	510 CFH
(4)	Speed	20 rpm
(5)	Drive	1 1/2 Hp
(6)	Motion Sensor	By Customer

Best Available Copy



H-Series

Double Isolation Flap Gate

Model: 12", Electric Drive, Standard Covers

Electric drive with slip clutch and self-flushing. Floating link feature protects against surge load plugging and damage. Very easy, in-line maintenance.

- Temperatures to 1800°F (982°C).
- Pressures: Negative to 10" Mercury, Positive to 1.5" Mercury.
- Available Alloys: Cast Iron, Ni-Hard, High Chrome, Stainless Steel.
- Sizes: Pneumatic 6" to 48", Electric 6" to 48".

Accionamiento eléctrico con embrague deslizante y corredera móvil de nivelación automática para protección contra obstrucciones y daños por oscilaciones bruscas de carga. Mantenimiento sumamente fácil en línea.

- Temperaturas hasta 1800°F (982°C).
- Presiones: Negativa hasta 10 pulgadas de mercurio, Positiva hasta 1,5 pulgadas de mercurio.
- Aleaciones disponibles: Fundición, acero duro al níquel, acero con alto contenido de cromo, acero inoxidable.
- Tamaños: Con accionamiento eléctrico, de 6 a 48 pulg. (15,2 cm a 1,22 m). Con accionamiento neumático, de 6 a 48 pulg. (15,2 cm a 1,22 m). Disponible también en dimensiones métricas.

Plattco H

Compuerta con charnela de doble separación

Modelo: 12 pulg. (30,5 cm), con accionamiento eléctrico, cubiertas normales

Best Available Copy

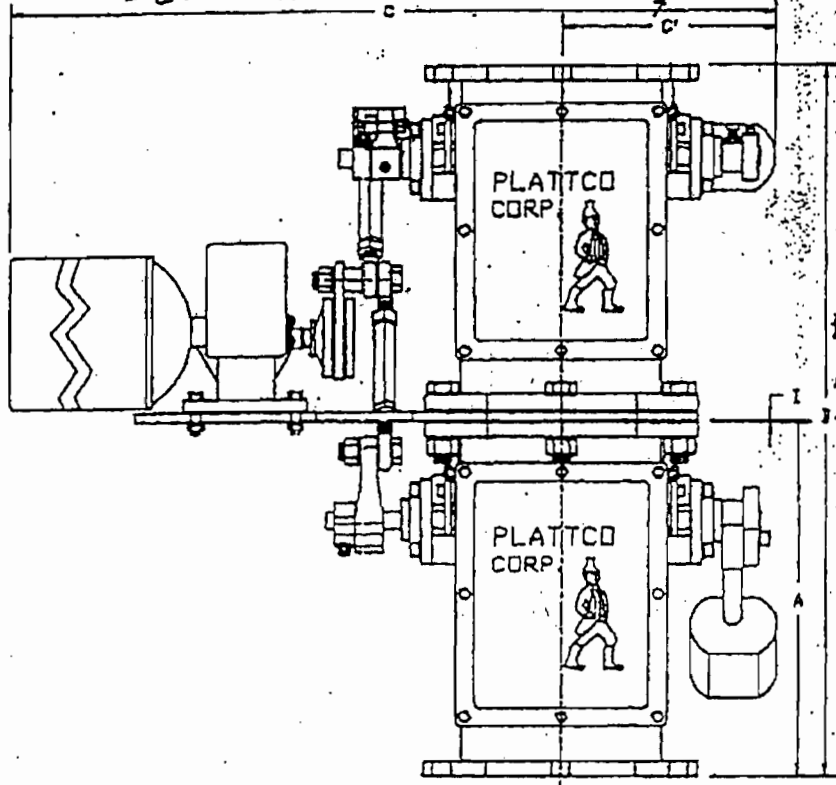
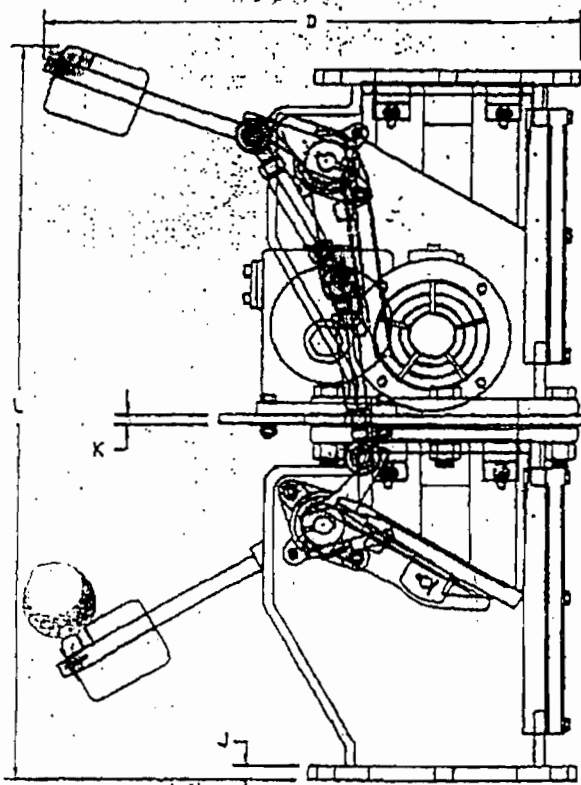
3/4-18 TAP
TOP FLANGE ONLY
6" DIA ONLY

VALVE SIZE	CAPACITY
612	60 (CU FT)
812	90 (CU FT)
1012	150 (CU FT)
1212	300 (CU FT)
1812	800 (CU FT)

CUBIC FT./HR. @ 6 CYCLES/MIN.

+ 10" DUTCHMAN
= 620 CFH

SIZE	612	812	1012	1212	1812
A	14.75	18.00	18.00	22.00	32.68
B	30.00	32.50	36.50	51.00	86.75
C	37.50	41.50	44.50	47.75	58.00
C'	9.00	12.00	13.50	15.25	24.50
D	24.75	29.00	31.50	38.25	68.75
E	.81	.81	.81	.81	.81
F	4.75	5.88	7.13	8.88	9.00
G	11.00	13.50	16.00	20.00	31.50
H	6.00	8.00	10.00	11.63	18.00
I	.06	.06	.06	.06	.13
J	.63	.89	.75	.68	1.13
K	.38	.38	.50	.50	.75
L	32.61	38.50	45.00	51.00	81.00



Serie H

Doppeltrennklappschütz

Modell: 12 Zoll (30,5 cm), elektrischer Antrieb
Normalklappen

Serie H

Vanne à clapet à double séparation

Modèle: 12" (30,5 cm), Mécanisme
d'entraînement électrique. Couvercles standard

Serie H

Suzacinesca ribaltabile a doppio
isolamentoModello: 12" (30,5 cm), azionamento elettrico,
protezioni standardElektrischer Antrieb mit Rutschkupplung und selbstspülendem schwebenden Zwischenstück schützt gegen
Verstopfen und Beschädigung bei Stoßlast. Sehr leichte In-line-Wartung.

- Temperaturen bis zu 1800°F (982°C).
- Drücke: negativ bis zu 10 Zoll Hg, positiv bis zu 1.5 Zoll Hg.
- Verfügbare Legierungen: Gußeisen, Ni-Hard, nichtrostender hochlegierter Chromstahl.
- Größen: elektrisch 6 bis 48 Zoll (15,2 cm bis 1,22 m), pneumatisch 6 bis 48 Zoll (15,2 cm bis 1,22 m).
In metrischen Größen erhältlich.

Mécanisme d'entraînement électrique muni d'un accouplement à glissement et d'une articulation flottante à
curage automatique pour la protection contre les endommagements et les obstructions par montée subite de la
charge. Entretien en ligne très facile.

- Températures jusqu'à 1800°F (982°C).
- Pressions: Négative jusqu'à 25,4 cm de mercure. Positive jusqu'à 3,8 cm de mercure.
- Alliages disponibles: Fonte, Ni-Dur (Ni-Hard), alliage riche en chrome, acier inoxydable.
- Dimensions: Électrique 6" à 48" (15,2 cm à 1,22 m), pneumatique 6" à 48" (15,2 cm à 1,22 m).
Dimensions établies selon le système métrique également disponibles.

Azionamento elettrico con frizione a slittamento e connessione galleggiante con autoallineamento, che protegge
contro un eventuale otturazione o danneggiamento del carico a causa di un rialzo del livello. Manutenzione in
linea estremamente semplice.

- Temperature: fino a 1800°F (982°C).
- Pressione: negativa fino a 25,4 cm di mercurio. Positiva fino a 3,8 cm di mercurio.
- Leghe disponibili: ghisa; ghisa al nichel-cromo con durezza Brinell 550-650; ad alto tenore di cromo;
acciaio inossidabile.
- Dimensioni: elettrica, da 6" a 48" (da 15,2 a 122 cm); pneumatica, da 6" a 48" (da 15,2 a 122 cm).
Disponibile anche in dimensioni metriche.

AIR CLEANING SYSTEMS

Recent Rock Product Precipitator Installations
Dry and Wet Process Rotary
Cement Kilns and Mills

INSTALLATION LIST

Air Cleaning Systems Group
P.O. Box 1318; 3700 Koppers Street
Baltimore, Maryland 21203
Telephone: 301-368-7222

<u>COMPANY</u>	<u>PROCESS/PLANT</u>	<u>EQUIPMENT</u>
Ash Grove Cement Company Kansas City, Missouri	Dry, Louisville, Nebraska	1 Precipitator on Grate- Preheater Kiln (1975)
Climent Quebec, Inc. St. Basil Cte Portneuf Province of Quebec, Canada	Dry St. Basil Cte Portneuf Province of Quebec, Canada	4 Precipitators on 4 stage Suspension Preheater in Circuit with Roller Mill (1981)
Dundee Cement Company Dundee, Michigan	Wet Dundee, Michigan	2 Precipitators on Kilns #1 and #2 (1972)
Empresa Industrias Guapan, S.A.Ecuador	Dry Azogues, Ecuador	1 Precipitator on 4 stage Suspension Preheater in Circuit with Roller Mill (1980)
General Portland, Inc. Dallas, Texas	Wet Paulding, Ohio	2 Precipitators on Kilns #1 and #2 (1967)
	Wet Fredonia, Kansas	2 Precipitators on Kilns #1 and #2 (1974)
	Dry New Braunfels, Texas	1 Precipitator on 4 stage Suspension Preheater with Flash calciner, in Circuit with Roller Mill (1980)
	Alkali Bypass New Braunfels, Texas	1 Precipitator (1980)

**ENVIRONMENTAL
ELEMENTS
CORPORATION**

<u>COMPANY</u>	<u>PROCESS/PLANT</u>	<u>EQUIPMENT</u>
Lehigh Portland Cement Co. Allentown, Pennsylvania	Dry Mason City, Iowa	2 Precipitators on kiln #7 (1957)
	Dry Union Bridge, Maryland	2 Precipitators each on Kilns #1, #2, and #3 (1956) 1 Precipitator following above 6 units (1974)
	Dry Mitchell, Indiana	1 Precipitator on #3 single stage Suspension Preheater Kiln (1976)
Lehigh Portland Cement Co. Allentown, Pennsylvania	Dry Leeds, Alabama	1 Precipitator on 4 stage Suspension Preheater in circuit with Roller Mill, high suction (1975)
	Calcium Aluminate Buffington, Indiana	1 Precipitator on Rotary Kiln (1970)
Lone Star Industries Greenwich, Connecticut	Wet Bonner Springs, Kansas	1 Precipitator on Kiln #4 (1969) 2 Precipitators on Kilns #1, #2, and #3 (1970)
	Dry Roanoke, Virginia	1 Precipitator each on Kilns #1 and #2 (1951) 1 Precipitator each on Kilns #3 and #4 (1953 & 1956) 1 Precipitator on Grate- Preheater Kiln #5 (1975)
	Raw Mills Roanoke, Virginia	2 Precipitators on 2 Roller mills, high suction (1975)
	Wet Pennsuco, Florida	1 Precipitator each on Kilns #1 and #2 (1969) 1 Precipitator each on kilns #3 and #4 (1975)
	Clinker Cooler Pennsuco, Florida	1 Precipitator each on Kilns #1 and #2 (1969)

<u>COMPANY</u>	<u>PROCESS/PLANE</u>	<u>EQUIPMENT</u>
Lone Star Industries Greenwich, Connecticut	Dry Davenport, California	1 Precipitator on 4 stage Suspension Preheater with Flash Calciner, in circuit with Roller Mill high suction (1980)
	Alkali Bypass Davenport, California	1 Precipitator (1980)
	Wet Neville Island, Pennsylvania	1 Precipitator on Kiln #1 (1963)
Louisville Cement Company Louisville, Kentucky	Dry Speed, Indiana	1 Precipitator on 4 stage Suspension Preheater in circuit with Roller Mill Circuit, high suction (1977)
Louisville Cement Company Louisville, Kentucky	Alkali Bypass Speed, Indiana	1 Precipitator (1977)
Medusa Cement Cleveland, Ohio	Dry Wampum, Pennsylvania	2 Precipitators on Kilns #1 and #2 (1979) Follows existing precipitators
National Cement Company Birmingham, Alabama	Dry Ragland, Alabama	1 Precipitator on Kiln #1 4 stage Suspension Preheater with flash Calciner, in circuit with Roller Mill (1977)
	Alkali Bypass Ragland, Alabama	1 Precipitator (1977)
River Cement Company St. Louis, Missouri	Dry Festus, Missouri	1 Precipitator on Kiln #2 (1968)
	Dry Festus, Missouri	2 Precipitators on Kilns #1 and #2 (1981) Follows existing precipitators

<u>COMPANY</u>	<u>PROCESS/PLANE</u>	<u>EQUIPMENT</u>
Signal Mountain Cement Co. Chattanooga, Tennessee	Wet Chattanooga, Tennessee	1 Precipitator on Kiln #5 (1964)
		1 Precipitator on Kiln #3 (1971)
SME Cement Inc. Middle Branch, Ohio	Dry Middle Branch, Ohio	1 Precipitator on Grate- Preheater Kiln
SME Cement Inc. Bessemer, Pennsylvania	Wet Bessemer, Pennsylvania	1 Precipitator each on #4 (1968) and #5 (1966) kilns.
South Dakota Cement Rapid City, South Dakota	Wet Rapid City, South Dakota	3 Precipitators on Kilns #1 #2, and #3 (1968)
Southern Province Cement Company Gizan, Saudi Arabia	Dry Gizsan, Saudi Arabia	2 Precipitators on 2-4 stage Suspension Preheaters with Flash Calciners, in circuit with Roller Mill (1980)
Southern Province Cement Company Gizan, Saudi Arabia	Alkali Bypass Gizan, Saudi Arabia	2 Precipitators on 2 Kilns (1980)
State Cement Corp. Pakistan	Dry Javedan, Pakistan	1 Precipitator on 4 stage Suspension preheater in circuit with Raw Mill (1977)
	Alkali Bypass Javedan, Pakistan	1 Precipitator (1977)
	Cement Finish Mill Javedan, Pakistan	1 Precipitator (1977)



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

November 5, 1998

Mr. R. Don Darley
Director Environmental Affairs
Florida Rock Industries Inc.
155 East 21st Street
Jacksonville, Florida 32201

Re: Miami Quarry - Rock Crusher Replacement

Dear Mr. Darley:

I have reviewed your letter of October 22, 1998 (copy enclosed) addressed to Mr. Ewart Anderson of Dade County DERM advising of your intention to replace a Williams 445X crusher with a Hazmag 13151KA crusher at Florida Rock's Miami Quarry. This facility is identified by the Department by Facility ID# 0250006, and is permitted by current permits numbered 0250006-002-AC and 025006-003-AO. As you suggest in your letter, the proposed replacement appears to qualify for the exemption from regulation under the NSPS Subpart OOO, pursuant to rule 40 CFR 60.670(d)(1), and the Department does not object to such replacement or exemption.

No change to the quarry's current permits is required now to reflect this replacement; a copy of this letter can be retained with the permits at the Miami Quarry site, and Attachment B to the permits that list the on-site equipment can be updated with the latest model numbers upon revision or renewal of the operation permit. Please copy the Department's Southeast District Air Program and the Dade County DERM local program with any notification submitted to EPA pursuant to rules 40 CFR 60.676(a) and (i), and retain a copy of such notification with the permits at the Miami Quarry site.

Please contact me at 850-921-9519 if you have any questions about the above.

Sincerely,

Joseph Kahn, P.E.
New Source Review Section

/jk

enclosure

cc: Manny Delosantos, DEP, SE District
Ewart Anderson, DERM

**FLORIDA ROCK INDUSTRIES INC**

Mining, Ready Mix Concrete, and Construction Products

155 East 21st Street
Jacksonville, Florida 32201
Phone: (904) 355-1781
Fax: (904) 355-0469R. Don Darley
Director Environmental Affairs

October 22, 1998

Mr. Ewart L. Anderson
Dade County Environmental Resources Management
Air Quality Section
33 W. 2nd Avenue, Suite 900
Miami, Florida 33130

Re: Miami Quarry - Rock Crusher Replacement

Dear Mr. Anderson:

Sometime back you and I discussed the procedure for replacing a worn out non-NSPS rock crusher with a new one that would become NSPS. The old and new crushers would qualify as equal or smaller size replacement. We went through the process and they replaced the crusher last year.

This rock crusher had a companion crusher in our plant also of like size, brand name, etc. As with the one last year, this rock crusher has reached the end of its service life and requires replacement. This component replacement should also qualify for the exemption provided in US-EPA Rule 40CFR60.670 (d) (i) for equal or smaller size replacement.

Specifications for the old and new crushers are:

	Old Crusher	New Crusher
Manufacturer	Williams	Hazmag
Model	445X	13151KA
*Capacity (tons per hour)	190-490	200-300

*Capacity is stated as a range of TPH based on output settings. The larger the output setting (stone size), the greater the output rate in TPH. Larger output size requires less crushing which in turn produces less emissions.

We are aware that we must comply with EPA rule 60.676, (a) to report such replacements.

We will appreciate your assistance in this matter. Should you need additional information, please call me at 800-874-8382, (ext. 203)

Sincerely,

A handwritten signature in cursive script, appearing to read 'R. Don Darley', written over a horizontal line.

R. Don Darley
Director Environmental Affairs

cc: Bill Smith
Bob Martin



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 10, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Chris Watson
Council of Environmental Quality
722 Jackson Place Northwest
Washington, DC 20503

Re: Florida Rock Industries Cement Plant-PSD-FL-228
Materials Requested by Mr. Selwach

Dear Mr. Watson:

Per our conversation on July 9, 1997, enclosed is a copy of all materials requested by Mr. Selwach plus additional information relevant to the issuance of the final permit.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/kt

Enclosures

P 265 659 241

US Postal Service
Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to		Chris Watson
Street & Number		Council of Env. Quality
Post Office, State, & ZIP Code		Washington DC
Postage	\$	
Certified Fee	(F a. Rock)	
Special Delivery Fee		
Restricted Delivery Fee		
Return Receipt Showing to Whom & Date Delivered		
Return Receipt Showing to Whom, Date, & Addressee's Address		
TOTAL Postage & Fees	\$	
Postmark or Date		7-11-97 Pkg of Fla Rock Stuff

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Chris Watson
Council of Env. Quality
72 Jackson Place NW
Washington, DC
20503

4a. Article Number
P 265 659 241

4b. Service Type
☐ Registered
☐ Express Mail
☐ Return Receipt for Merchandise
☒ Certified
☐ Insured
☐ COD

7. Date of Delivery
JUL 14 1997

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
X WHITE HOUSE MAIL ROOM

Thank you for using Return Receipt Service.

PS Form 3811, December 1994

Domestic Return Receipt



EARTH ACTION RECYCLERS

To Promote the Environmental Awareness of the Public

July, 1st, 1997.

Richard Selwach,
President

RECEIVED

JUL 07 1997

DIVISION OF AIR
RESOURCES MANAGEMENT

Howard L. Rhodes, Director
State of Florida Department
of Environmental Protection
Division of Air Resources Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Rhodes:

Re: DEP File PSD-FL-228 Federal Construction Permit, and State Permit AC01-267311
Florida Rock Industries, Proposed Cement Plant

As per our phone conversation on June 30th, 1997... Please provide a copy of the Federal Construction Permit for FL Rock (PSD-FL-228). In addition, I request the following relevant documents specifically related to this permitting action.

- ✓ 1. Application received on March 17, 1995.
2. Department's letters dated April 3, April 14, June 16, June 19, July 14, Aug 1, 1995, March 13, and October 3, 1996.
3. Alachua County Department of Growth Management's letter to John Baker dated 3/3/95.
- ★ 4. U.S. Department of Interior's letter dated June 9, 1995.
- ★ 5. U.S. EPA's letter dated June 19, 1995.
6. U.S. EPA's letter dated November 3, 1995. ✓

Please send the requested items promptly so that the Council on Environmental Quality can designate lead and coordinating agencies to supervise the preparation of an Environmental Impact Statement as required by the National Environmental Policy Act of 1969 for FL Rock.

This letter also serves as notification of an error of fact concerning the initial DEP permit for FL Rock. The initial permit that decisions have been based on has a location error. The permit says the plant will be located 2.5 miles NE of Newborn. There is no Newborn in Alachua County or the State of Florida.

Thank you for your assistance in the matters and I await the requested items.

If you have any questions, please contact me personally at (352)376-0892.

507 NW 5th Ave. • Gainesville, FL 32601 • 1-800-EARTH ACTION • 904-376-6969

Printed on recycled paper

Sincerely, Richard Selwach





AX-922-6979
(930)

Department of
Environmental Protection

488-0114

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

PERMITTEE:
Florida Rock Industries
155 East 21st Street
Jacksonville, FL 32206

Permit Number: AC01-267311
Federal → EBD-EL-228
Expiration Date: 12/31/98
County: Alachua
Project: Portland Cement Plant

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4, 210, 212, 272, 275, 296, and 297. The above named permittee is hereby authorized to construct the emission units described in the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a Portland cement manufacturing plant to be located approximately 2.5 miles Northeast of Newborn on Alachua County Road in Alachua County, Florida. The latitude and longitude are 29° 24' 21" and 82° 35' 00", respectively.

The emission unit shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application received on March 17, 1995.
2. Department's letters dated April 3, April 14, June 16, June 19, July 14, and August 1, 1995.
3. Alachua County Department of Growth Management's letter to John Baker dated March 3, 1995.
4. Koogler & Associates' correspondence dated May 16, June 30, July 17, July 25, August 15, and August 24, 1995.
5. U.S. Department of Interior's letter dated June 9, 1995.
6. U.S. EPA's letter dated June 19, 1995.
7. Haile Association's letters dated March 16, April 10, May 11, and June 5, 1995.

TOM Buegny. (322) ~~322-322~~



Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000
June 17, 1997

AL
for file
Pat - copy
orig to claim
the
RECEIVED
from:
Howard
6/26
JUN 20 1997
DIVISION OF AIR
RESOURCES MANAGEMENT
Secretary
FRI File

Mr. John Hankinson, Administrator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street
Atlanta, Georgia 30303

RECEIVED

JUN 26 1997

**BUREAU OF
AIR REGULATION**

Re: Florida Rock Industries, Cement Plant
Letter of March 23 from Mr. and Mrs. Saarinen

Dear Mr. Hankinson:

I was copied on the letter of March 23 which was sent to you by Mr. and Mrs. Saarinen regarding construction of a cement plant in Newberry. As you are aware, this matter is one which has generated a great deal of interest and activity at both the state and local levels and is now pending before the First District Court of Appeal here in Tallahassee.

Your air staff is also familiar with the issues. Copies of the application and related correspondence were forwarded to Region 4 during permit processing, so that your agency might be kept informed. You may or may not be aware, however, that the matter was subject to pre-issuance administrative litigation under the provisions of Florida's Administrative Procedure Act. Copies of the initial recommended order, the DEP remand order, the subsequent recommended order, and the DEP final order are attached to provide you with more complete information concerning the history of this permit.

While we recognize the petitioner's main concern regarding the issue of Particulate Matter smaller than 2.5 microns (PM_{2.5}), at this time, neither the Department nor EPA have standards which apply to this pollutant. We are satisfied that adherence by Florida Rock Industries (FRI) to the determination of Best Available Control Technology (BACT) determination made by the Department to control total PM and PM₁₀ will minimize the possible impacts from PM_{2.5}. We appreciate the opinions of the expert cited by the petitioners, but point out that according to state and federal regulations, the area would have to be declared as non-attainment for PM before we could require an applicant to apply a level of technology to achieve emissions 1/28th of the permitted level.

We are also sensitive to the issue of cement kiln dust (CKD). Currently it is subject to the Bevell Amendment that exempts it from certain sections of the RCRA rules. More importantly is the fact that the plant must recycle all of the CKD. This is possible through a more modern process than typical cement plants as well as the availability of good quality limestone. The plant will not fire any fuels except coal and tires. Virgin fuel oil will be used for startup.

Generally we do encourage use of natural gas at combustion sources, but have no authority to require it. In the case of cement kilns, the raw materials and intermediate clinker absorb sulfur dioxide in much the same way as a scrubber absorbs such pollutants when coal is fired in a power plant. The result is that

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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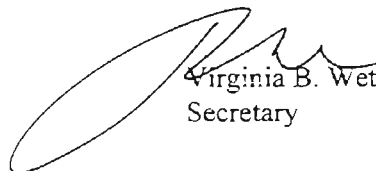
less would be gained than what the cited expert believes if the unit were to burn natural gas. Presence of sulfur compounds in the raw mineral feed, control of combustion parameters, and maintenance of a balance between sulfur and alkali compounds are more significant factors than the type of fuel used with respect to sulfur dioxide emissions. While we agree that reburn technology exists, we can only recommend it (or something equivalent) for cement plants in an ozone non-attainment area.

We disagree with the characterization given in the letter about our permit review process. We required reductions in particulate matter, sulfur dioxide and nitrogen oxides of 30 to 50 percent below what the applicant and its consultants originally claimed was representative of BACT. It is well-known that the final values for these pollutants are among the lowest for new cement plants. Although the EPA has no emissions limits for sulfur dioxide and nitrogen oxides from cement plants, we were able to require low emission limits through our well researched case-by-case technology review and authority under our State Implementation Plan. The issue as to the degree of specificity required in the design of the PM equipment was addressed by the hearing officer (now administrative law judge). We received the details of the design in March, 1996 and forwarded them to EPA. We have reasonable assurance that the design will comply with our BACT determination.

Implementation of BACT, along with projections that the plant will easily comply with existing ambient PM regulations, should minimize public health impacts within the purview of federal and state statutes and regulations.

As you know, I care deeply about Florida's environment and the health and welfare of its people. I have full confidence that the thorough review that the Department's staff and an independent administrative law judge have given to this project will result in protection of both the environment and the people of this state. I also welcome your interest in this project. It is always a pleasure to work with you to resolve these kinds of issues. Please feel free to call me if I can provide you with anything during your review of this matter.

Sincerely,



Virginia B. Wetherell
Secretary

VBW/pow

Enclosures

cc: Senator Bob Graham

Representative Karen Thurman

Representative Bob Casey

Administrator Carol Browner

Howard Rhodes, Florida DEP

Bobby Summers, Chair, Alachua County Board of County Commissioners

~~File Florida~~
3616 NW 186th Street
Newberry, FL 32669

23 March 1997

Mr. John Hankinson, Region IV Administrator
US Environmental Protection Agency
345 Courtland Stret, N.E.
Atlanta, GA 30365

File
Permy
RECEIVED

APR 10 1997

REF: Florida Rock Industries, Newberry, Alachua County, FL (PSD-FL-228) **Dept. of Environmental Protection
Office of General Counsel**

Dear John:

The citizens of Alachua County find themselves on the verge of having a new and unwanted member of their community: a 720,000 ton per year cement kiln proposed by Florida Rock Industries. The plant is proposed to burn up to 120,000 tons of coal per year and up to 30 percent of fuel requirements as whole tires. The permitting of this plant at both the state and county level has been challenged by every available legal means over the last two years. At present, the DEP air construction permit is under appeal to the First District Court of Appeals and the county site plan approval has been challenged by a suit filed in the Circuit Court.

Our chief concern with the plant is the level of air emissions permitted for the plant and the likely exceedance of proposed ambient air quality standards for PM2.5 when this plant goes on line. As reviewed by US EPA Region IV and permitted by the Florida DEP, this plant will emit up to 11 tons per day of regulated and unregulated hazardous air pollutants, including PM10 at 1335 lb/day (214 tons per year). As you may know, the particulate matter from cement kilns is in large part cement kiln dust, which has been described by EPA in the *Regulatory Determination* of February 1995 as "having the characteristics of a hazardous material."

According to an affidavit filed by an expert air quality consultant (copy enclosed), Alex Sagady, the level of PM10 emissions permitted for this plant represents only a 30 percent improvement over PM10 performance standards issued by US EPA in 1971. According to Mr. Sagady, technology exists and is in use at other cement kilns which could achieve as much as a 28-fold decrease in the particulate matter emitted by this plant.

The contribution of this plant to future PM2.5 nonattainment status could be further significantly diminished if Florida Rock had been required by the air permitting process to use natural gas as fuel with currently available NOx reburn technology.

DEPARTMENT OF
ENVIRONMENTAL PROTECTION

APR 08 1997

OFFICE OF THE SECRETARY

The suit we filed in Circuit Court against the county approval of a site plan for Florida Rock is based upon the county's refusal to apply its own regulations for industrial emissions.

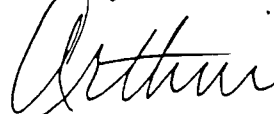
We wrote you three times (copies attached) in 1995 with our concerns and have never received a response.

Neither the US EPA, nor the Florida DEP, nor the Alachua County staff and board of county commissioners have adequately addressed the air quality and public health and environmental impacts of the emissions from this plant. The FDEP permitting review process was a travesty and a fraud, with such gross oversights as not requiring Florida Rock to submit any design information on the primary air pollution control device (electrostatic precipitator). Florida DEP knowingly and deliberately declined to require Florida Rock to prepare a public health assessment, although DEP staff knew or should have known of the presence of an unusually vulnerable population in Alachua County because of the location here of major southeastern regional US medical facilities.

Frankly, John, we are appalled at the lack of competent professional review of a facility which, according to Carol Browner's testimony before Senate hearings on the proposed ambient air quality standards, will have a significant impact on the health of the residents and the future attainment status of this region of Florida. We are frustrated beyond words.

We demand that you halt initiation of construction of this plant pending a thorough review of the DEP air construction permit and the permitting process as well as the earlier EPA PSD review.

Sincerely,



Arthur W. Saarinen, Jr.



Phyllis P. Saarinen

CC: Senator Bob Graham
Representative Karen Thurman
Representative Bob Casey
Administrator Carol Browner
Secretary Virginia Wetherell
Howard Rhodes, Florida DEP
Bobby Summers, Chair, Alachua County Board of County Commissioners

Memorandum

To: Fla Rock File

Florida Department of
Environmental Protection

TO: Doug Beason, OGC

FROM: Al Linero



DATE: May 16, 1997

SUBJ: Florida Rock Public Record Request from Priscilla Harris

On Thursday, May 15, Ms. Harris visited our office requesting to look at files regarding Florida Rock Industries. She presented a memo that requested all documents relating to Florida Rock which included documents that were written, prepared, dictated, sent or received (by Howard Rhodes, Clair Fancy, Al Linero, and Teresa Heron) after March 7, 1996 until May 15, 1997.

We let her look at the permit files and she copied a minimal amount of material. Please advise on fulfillment of the entire request. I assume that this may still be a matter in litigation and that she needs to make such requests through OGC.

AAL/kt

cc: P. Harris

To: Air Division (Dep)

From: P. Harris

Date: May 15, 1997

Re: Public Records

I request ALL documents, relating to or concerning the proposed cement plant to be built by Florida Rock Industries in Alachua County which are dated, were written, prepared, dictated, sent, &/or received AFTER March 7, 1996 until May 15, 1997.

This request applies to everyone in this office of Air Division, including but not limited to Al Linero, T. Meron, Clair Farcy, & Howard Rhodes. ~~Any person~~

Priscilla Harris

5/15/97 - 4 pages copied = 60¢ pd cash #mth

FLORIDA ROCK INDUSTRIES INC

Mining, Ready Mix Concrete, and Construction Products

May 8, 1997

Via Hand Delivered
Mr. A. A. Linero, P.E.
Bureau of Air Regulation
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Air Permit AC01-26311/PSD-FL-288
Florida Rock Industries, Inc.



RECEIVED

MAY 09 1997

**BUREAU OF
AIR REGULATION**

Dear Mr. Linero:

The purpose of this letter is to update your files with Florida Rock Industries, Inc.'s commencement of construction under the above-referenced permit. We previously notified you of the ground-breaking ceremony for the cement plant held on March 26, 1997.

Florida Rock Industries, Inc. has entered into binding contractual agreements with two contractors to undertake a program to construct the Portland Cement plant which is subject to the above-referenced permit. One contract was entered into between Florida Rock Industries, Inc. and Polysius Corporation on April 1, 1996, for process engineering and equipment supply, and another contract was entered into between Florida Rock Industries, Inc. and The Hardaway Company/Stone & Webster Engineering Corporation, J.V. on December 9, 1996, for engineering and construction services.

Both contractual agreements were activated by amendments to the original agreements on April 7, 1997. Non-refundable down-payments to both Polysius Corporation and The Hardaway Company/Stone & Webster Engineering Corporation, J.V. pursuant to the contractual agreements with Florida Rock Industries, Inc. were made on April 4, 1997.

In addition, we hereby provide to FDEP, pursuant to Specific Condition 27 of the above-referenced permit, the final construction schedule for the construction of the cement plant. The terms of the contracts with both major suppliers of goods and services for the construction of the cement plant (Polysius Corporation and The Hardaway Company/Stone & Webster Engineering Corporation, J.V.) Call for twenty-four (24) month's construction time. We anticipate

A. A. Linero, P.E.

May 8, 1997

Page Two

plant start-up to occur in May or June of 1999, provided certain delivery items will arrive on the job site as promised by the suppliers. With the activation of the contracts on April 7, 1997, this is consistent with the 24-month schedule previously discussed with you.

We also hereby provide FDEP with the design and manufacturer's guarantee for Electrostatic Precipitators (ESP's) for the cement plant pursuant to Specific Condition 26 of the above-referenced permit. See enclosed documents from Environmental Elements Corporation of Baltimore, Maryland. These documents were previously submitted to FDEP on March 11, 1996, in a letter from Florida Rock Industries, Inc.'s consultant, John B. Koogler, Ph.D., P.E., to Mr. Howard Rhodes, Director, FDEP, Division of Air Resources Management. Any as-built variations will be consistent and equivalent to these, and will be provided to you as we receive them.

I apologize for the delay in formally providing the attached documents for your files post-permit issuance. I have assumed all along that our previous submittal would have sufficed for Specific Condition 26, but submit these again in an overabundance of caution. If you need any further information, or have any questions concerning this letter of the attached documents, please contact me at 800/874-8382/Ext. 307.

Sincerely,

A handwritten signature in cursive script that reads "Fred W. Cohrs".

Fred W. Cohrs
Vice President

FWC:bvk

Enclosures/

**ENVIRONMENTAL ELEMENTS CORPORATION
ELECTROSTATIC PRECIPITATOR**

FOR

POLYSIUS CORPORATION

ATLANTA, GEORGIA

FOR

FLORIDA ROCK

NEWBERRY, FLORIDA

**Environmental Elements Corporation
Proposal Number ACS-95-04-15290-R2110E-F-A&B
May 5, 1995**

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SECTION 1

PROPOSAL SUMMARY

SECTION 1**1. PROPOSAL SUMMARY****A. DESIGNATION**

Throughout this proposal, Polysius Corporation, Atlanta, Georgia 30339 and Environmental Elements Corporation, Baltimore, Maryland 21203, shall be referred to as "Buyer" and "Seller", respectively.

B. TRADEMARKS

Trademarks of Environmental Elements Corporation, Baltimore, Maryland 21203.

ENELCO®
RIGITRODE™
DIGICON®
OPTI-CON II®
MODULOK®
OPTIPULSE™

C. SCOPE -- GENERAL

Seller will design, fabricate and deliver F.O.B. jobsite, two single chamber electrostatic precipitator one to clean the flue gases from the cement preheater kiln with roller mill circuit and one to clean the flue gas from the clinker cooler.

D. SCOPE -- SELLER

Included in the scope of this proposal as part of Seller's supply are:

1. Two single chamber electrostatic precipitators of the floating bottom design with trough hoppers.
2. A pressurized penthouse covering the entire precipitator hot roof for the housing of the high voltage insulators and bus bars, complete with pressurizing blower and insulator heaters.
3. Electric rapping system for the collecting plates, discharge electrodes and gas distribution plates, complete with solid state microprocessor rapper panel.
4. Transformer-rectifiers with digital microprocessor controllers.
5. Inlet and outlet nozzles.
6. Shop paint as described in the proposal.
7. Structural steel to support the precipitator from grade.

8. Access facilities to scope shown on the drawing.
9. Hopper conveyor and dust valve.
10. High dust level alarm system for the precipitator hoppers.
11. Hopper heaters including thermostats and controls.
12. Motor control center/Power distribution panel.
13. Main breaker.
14. Insulation specifications.
15. A resident Construction Advisor/Superintendent.(Monthly rate)
16. Engineering personnel for mechanical and electrical inspections, precipitator start-up, and training of plant personnel.
17. Six (6) copies of operations and maintenance manuals.

E. SCOPE - BUYER

Under this proposal, it shall be the responsibility of the Buyer to provide and/or complete the following:

1. Required foundations and anchor bolts.
2. All ductwork to and from precipitator, except inlet and outlet nozzles.
3. Inlet test ports with access thereto.
4. Stack with test ports and access thereto.
5. Dust removal system from the screw conveyor dust valve exit.
6. Performance tests.
7. Ventilated control room for rectifier controls.
8. Annunciator panel as required.
9. All interconnecting low voltage wiring.
10. Permanent area lighting.
11. Grounding of all precipitator equipment to mill grounding system.
12. Precipitator and nozzle insulation, insulation supports and lagging.

13. Erection of all materials furnished by Seller.

F. GENERAL ARRANGEMENT

1. Kiln/Mill Precipitator - Proposal Drawing 15290-21110-D-1

ENELCO ESP Model SC 23-16-4x9x36T will be single chamber with 23 gas passages on 16 inch centers. The precipitator will have four mechanical and electrical fields in direction of gas flow. Each mechanical field will contain 24 collecting surfaces, 36 feet high by 9.125 feet long. This provides a total field length of 36.5 feet. Each of the four fields is independently powered.

2. Clinker Cooler - Proposal Drawing 15290-21110-D-2

ENELCO ESP Model SC-19-16-4x9x36T will be single chamber with 19 gas passages on 16 inch centers. The precipitator will have four mechanical and electrical fields in direction of gas flow. Each mechanical field will contain 20 collecting surfaces, 36 feet high by 9.125 feet long. This provides a total field length of 36.5 feet. Each of the four fields is independently powered.

G. DESIGN FEATURES

1. The ENELCO electrostatic precipitator utilizes the RIGITRODE discharge electrode. This is a virtually indestructible rigid mast electrode system.
2. Patented MODULOK collecting surfaces are included providing a factory assembled, rigid, baffled, one piece collecting electrode. Field assembly of collecting electrodes is not required.
3. DIGICON OPTIPULSE microprocessor automatic power controllers provide the latest state-of-the-art precipitator control. These user-friendly controllers are among the most intelligent and responsive voltage controllers available today, and include programmable intermittent energization. In-house construction and testing before shipment insures trouble-free field installations.
4. Top mounted electronic impulse rappers, complete with microprocessor controllers, provides an adjustable, essentially maintenance free, rapper system mounted outside of the gas stream.
5. Rigid frame casing construction with no internal struts or bracing to support dust build-ups or disrupt uniform gas flow. Minimal number of support points to grade for ease of site maintenance.
6. Nozzle and hopper designs incorporate minimum 55° sloped sides and no ledges to impede the flow of collected materials.

H. SCHEDULE

1. Delivery of materials may begin seven to eight months from issuance of purchase order.
2. Erection period will normally extend over a three to four month period dependent on scope of work, weather and labor conditions.
3. For the purposes of this project, delivery of materials will begin on or about April 1996 based on an award of contract or notice to proceed by September 1995.

SECTION 2
DESCRIPTION OF EQUIPMENT

SECTION 2

2. DESCRIPTION OF EQUIPMENT

A. CASING

The precipitator casing is fabricated from 3/16 inch ASTM A-36 steel plate with external columns and stiffeners. The design utilizes rigid frame construction with no internal struts or bracing thus avoiding ledges for dust buildup and disturbance to uniform gas flow. The roof and all internal loads are supported by fabricated plate girders. The design utilizes a "floating bottom" system where the precipitator is anchored at only one point on the support steel. Lubrite sliding plates are provided for the other support points to allow for thermal expansion in all directions.

Seller's shell design allows 4'-5" head room above the top of the dust plates for interior access to perform maintenance or inspection.

Interlocked single wall doors are provided for penthouse roof access. Access to the area above the collecting plates is gained through non-interlocked double wall doors in the precipitator hot roof.

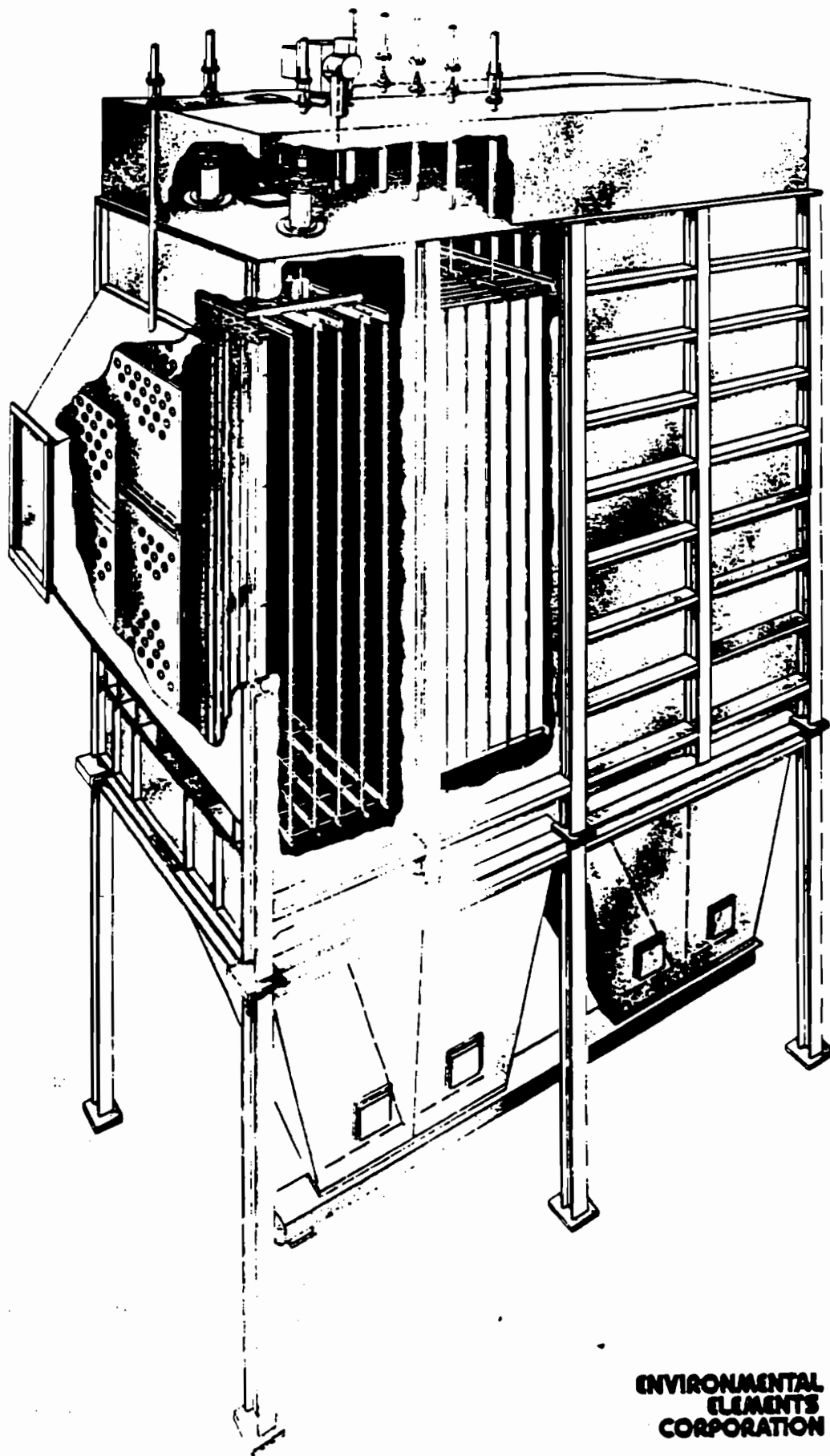
B. NOZZLES

Inlet and outlet nozzles are fabricated from 3/16 inch ASTM A-36 steel with external structural stiffeners of uniform depth to provide full support for insulation and siding. The bottom of the nozzles are sloped 55° with no horizontal ledges to impede free flow of dust fallout inherent with reduction in gas velocity.

The inlet nozzle is complete with three perforated plates to distribute the gas across the face of the treatment zone. The lower 4 inches of the perforated plates are open to allow any dust that falls out in the nozzle to be carried into the inlet field hopper. A double wall, quick-opening, interlocked door is provided in each nozzle for internal inspection and maintenance. Bolted panels are incorporated into the perforated plates for through access.

C. HOPPERS

Trough type hoppers are provided fabricated from 3/16 inch ASTM A-36 steel with external stiffeners of uniform depth to provide support for thermal insulation and siding. The hoppers are designed to support a full dust load. The sides and ends are sloped 60° and 75°, respectively, from the horizontal. The valley angle resulting from this design is 57-1/2°. The between field baffles are extended to the hopper outlet to eliminate gas bypassing in the hoppers. A double wall interlocked door is provided as shown to permit access into each baffled section of each hopper. Each hopper is provided with high level alarms, strike plates for manual hopper rapping, and dust removal system. Hoppers should not be used for storage.



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CORPORATION**

D. HOPPER LEVEL DETECTORS

A Indicator or equal high level switch is provided for each section of each hopper. This system operates by radio frequency oscillation, which is dampened by a high ash level, producing a proportionate A/C signal. The detector operates a DPDT relay for alarm actuation. The probe is mounted in the side wall of the hopper with the electronics mounted in the hopper area away from high temperatures.

E. DUST REMOVAL SYSTEM

The dust removal system consists of hopper screw conveyor sized to operate at 28 rpm maximum to reduce wear. The hopper conveyor is designed to operate at 30% loading at rated conditions and powered for flooded operation in the event of hopper dust buildup. The conveyor is equipped with a motion detector to initiate a conveyor failure alarm.

To insure positive dust removal a Sprout Bauer, or equal, motor operated rotary dust valve with Type 2 rotor with ni-hard adjustable tips is furnished at the outlet of the hopper conveyor. The dust valve is equipped with a motion detector to initiate a valve failure alarm.

F. PRECIPITATOR SUPPORTING STEEL

Structural steel is provided to support the precipitator as shown on the proposal drawings. All columns, beams, wind bracing and other structural members supplied by Seller for support of the precipitator will be rolled or fabricated from ASTM A-36 steel. Connections will be bolted and the overall structural design will be in accordance with the latest applicable AISC Standard except as noted under Design Conditions. The support steel and bracing is arranged to provide maximum access for maintenance and cleanup.

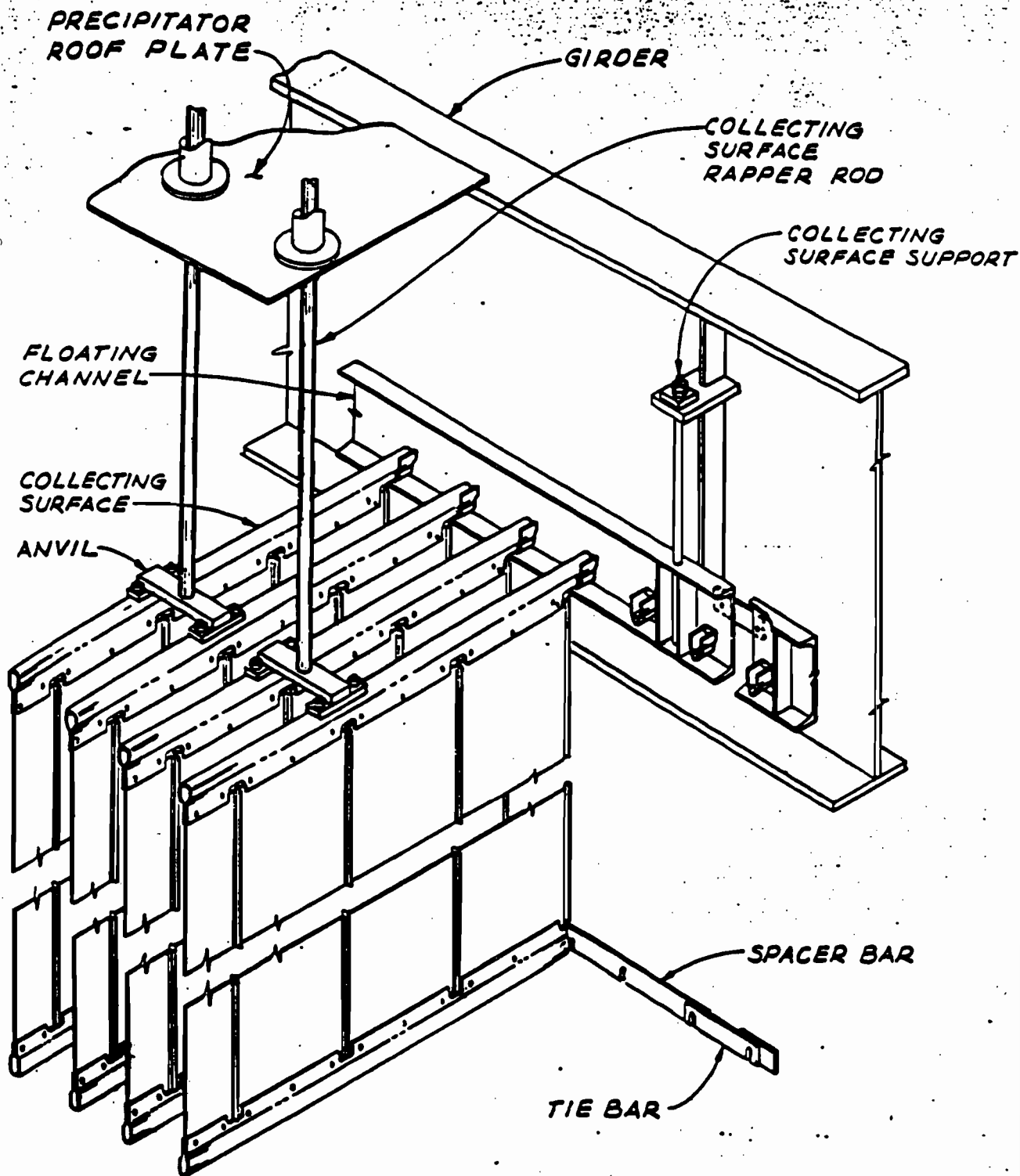
G. ACCESS FACILITIES

Access facilities are provided to the scope as shown on the proposal drawings. Structural steel is ASTM A-36 designed for 100 psf loading. Stairtreads and grating are galvanized. The handrail will be dual rail using 1-1/4 standard pipe rail and post. Platforms will be provided with 4 inch x 1/4 inch toe plates. Walkways are 36 inch minimum width. Stairways are 30" width.

H. COLLECTING ELECTRODE SYSTEM – Drawing No. 1120

Seller's C1010 steel MODULOK collecting surfaces (U.S. Patent # 3,418,792) are roll formed into 18 inch modules having tightly interlocked edges which when factory assembled form a rigid one piece baffled structure, which provides maximum stiffness, optimum gas exposure and minimum field assembly.

The top and bottom edges of each collecting surface are reinforced and stiffened by 7 gauge and 11 gauge respectively tubular structural members which are factory welded to the roll formed collecting surfaces. These members prevent edge effect arc-over where the discharge electrodes enter and leave the collecting field. This horizontal welding at the top and bottom is the only heat applied to the plate during manufacture. This procedure



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CORPORATION**

**COLLECTING SURFACE
RAPPER ARRANGEMENT**

DWG. No 1120

prevents the deformation and "oil-canning" which can easily result when individual modules are welded together. The collecting surfaces are rapped by electric impact type rappers located on the penthouse roof. Full provision is made in the collecting system suspension for uniform thermal movement up to the maximum design temperature without disturbance to internal alignment.

These collecting surfaces are shipped and lifted into the precipitator shell in nested, upright packages thereby affording maximum protection against handling damage for optimum straightness and uniformity in operation.

I. DISCHARGE ELECTRODE SYSTEM – Drawing No. 1121

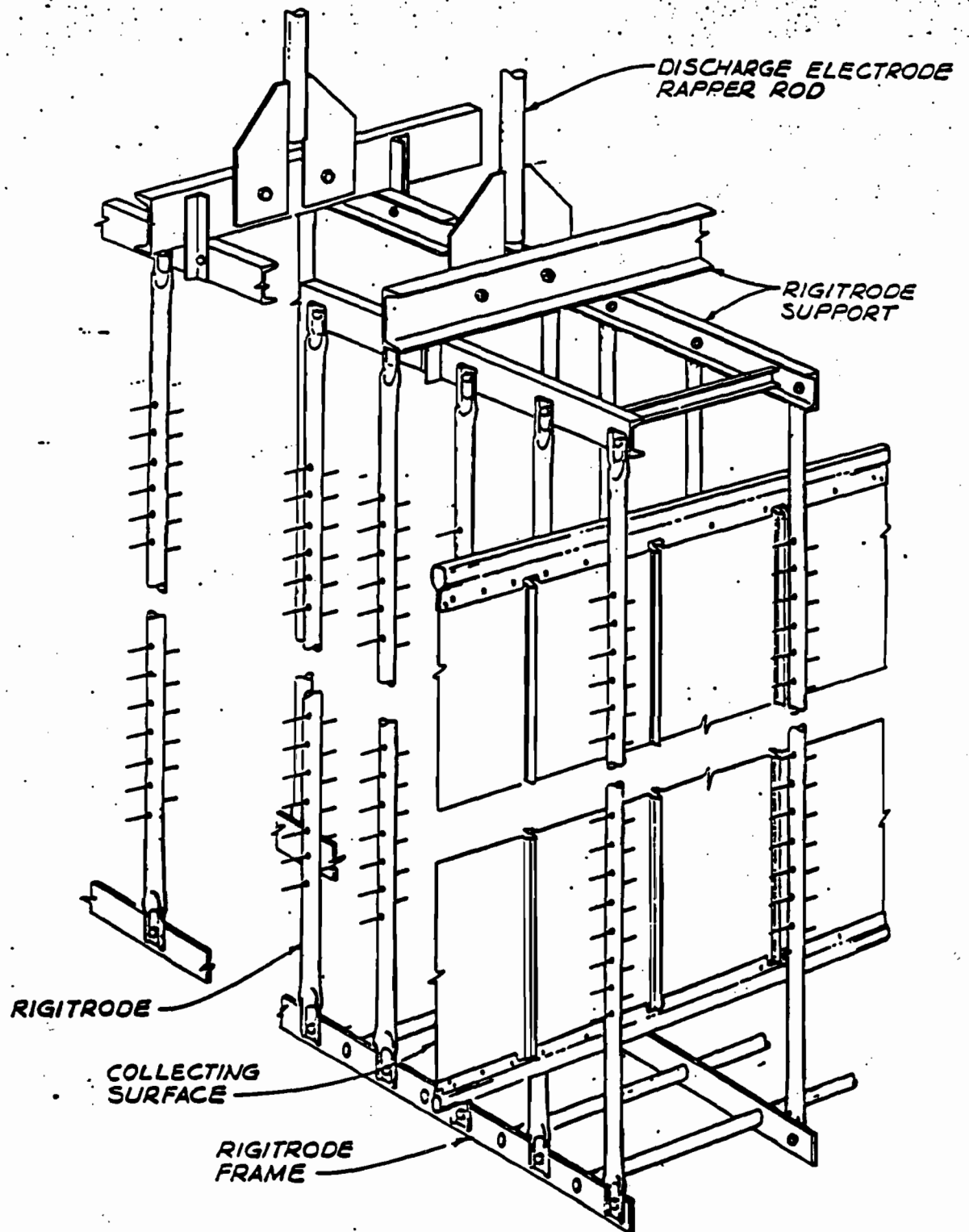
Seller's RIGITRODE electrode is a true unbreakable rigid discharge electrode. The RIGITRODE electrode is a 1-1/2 inch diameter 16 gauge mild steel tube with corona-generating studs welded to it. The studs are 12 gauge and are fully annealed to eliminate fatigue cracking. The RIGITRODE electrode exhibits a low corona onset voltage typical of a pointed discharge electrode. This feature makes it appropriate in inlet fields where dust loadings are high. As voltage is increased, the V-I relationship approaches that of a smooth electrode. This feature allows the same RIGITRODE electrode to be used effectively in outlet fields. Laboratory tests and commercial operation has shown this design to have a unique combination of several characteristics: high sparkover voltage, high field strength and an even current distribution from discrete emission points.

The restoring forces of this system are substantial; therefore, an overfull hopper will not cause permanent misalignment. The system will return to correct alignment when the hopper is emptied, thus avoiding unscheduled outages. Further, the computerized power control (discussed in detail later in this proposal) will protect the power supply and prevent the formation of fused ash in a full hopper.

J. HIGH VOLTAGE SUPPORT – PENTHOUSE DESIGN – Drawing No. 1217

Each bus section is supported by two (2) suspension insulators located on the precipitator roof. An epoxy filled glass filament rod connects an externally located rapper to the high voltage support rod to transmit energy while at the same time providing the necessary electrical insulation.

The insulators are housed in a gas-tight 6 foot high penthouse covering the entire roof area. The sides are fabricated from 10 gauge steel. The roof is fabricated from 1/4 inch checker plate to provide a firm walk surface. All rappers, transformer-rectifiers and rapper panels are located on the penthouse roof allowing inspection and maintenance with the precipitator in operation. The penthouse construction reduces the radiator effect of the many projections through the precipitator and eliminates the roof corrosion inherent with the use of individual insulator compartments. The insulators are totally accessible for cleaning and inspection. The penthouse roof is sloped 1/4 inch in 12 inches for drainage. The penthouse is pressurized by a forced air system, sized to supply 100 cfm per insulator, to prevent the entrance of dust into the penthouse and to keep the inside surface of the support insulators clean.



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RIGITRODE
DISCHARGE ELECTRODE
ARRANGEMENT

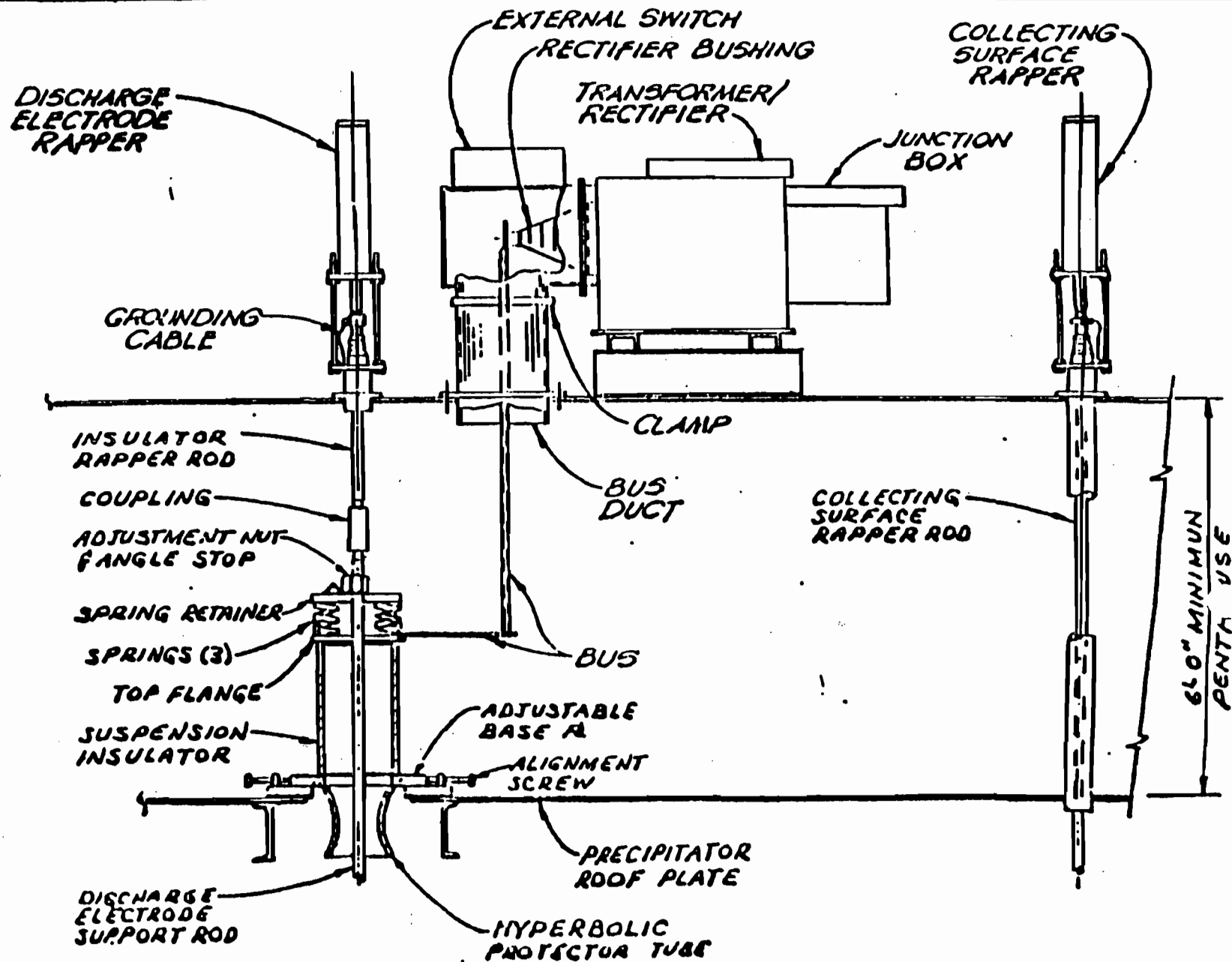
REV.
ELK 10-18-60

DWG. No. 1121

A.I.W. 2-24

ENVIRONMENTAL
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CORPORATION

HIGH VOLTAGE SYSTEM
PENTHOUSE ARREST
CHG. NO. 1217



K. INSULATOR HEATERS

A 0.4 KW contact heater is provided around each support insulator. Insulator heaters are not essential to operation of the precipitator since the precipitator is normally heated prior to energization. The insulator heaters are included, however, as insurance in the event that the precipitator is energized cold.

L. ELECTRIC IMPULSE RAPPER MODEL ESI-I - Drawing No. 1076

The electric impulse rapper has been specifically designed for rapping the collecting surfaces, discharge electrodes and perforated distribution plates of electrostatic precipitators. The ESI-I is a single impulse gravity impact type rapper consisting of an integral DC coil and steel housing assembly, a 20 pound piston and mounting hardware. Its features include:

Accurate Control. Rapper impact is precisely repeatable. Intensity of impact and frequency of operation are controlled by a microprocessor based controller. With the optional Data Management System, the operating characteristics can be controlled from a remote control room through the CRT.

One Piece Construction. The coil is permanently bonded to the inside of the housing and is totally encapsulated in epoxy to seal out the environment. Long life is assured with this uncomplicated construction.

Lubrication. None is required.

Maintenance Free. The ESI-I requires absolutely no periodic adjustment or maintenance over its entire service life.

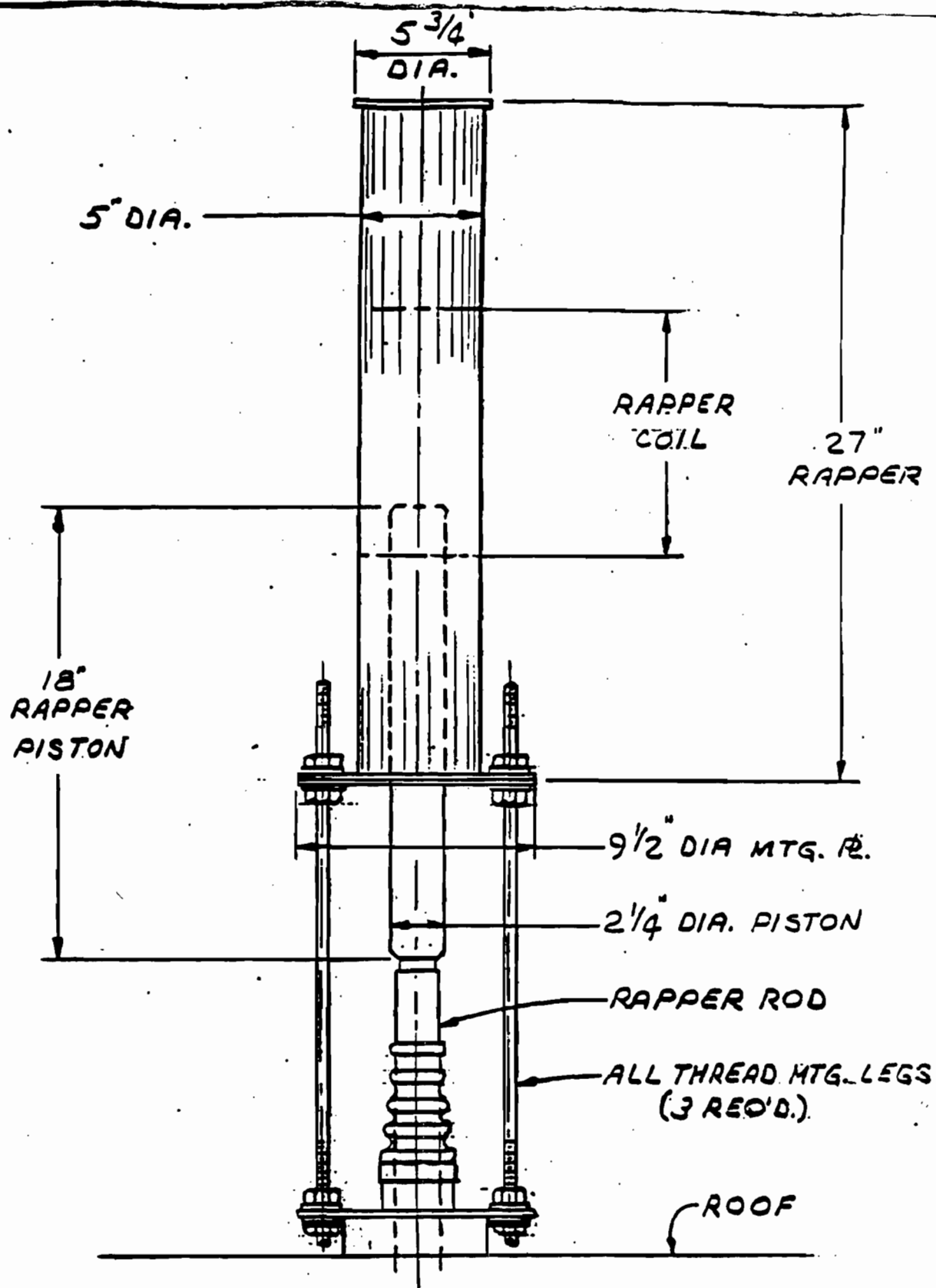
Roof Mounting. The rapper is mounted on the roof by means of three (3) support rods. The piston moves freely in and out of the rapper body when striking the rapper rod. The impact does not impart a shock to the housing which eliminates any chance of material fatigue. The rapper is weatherproof for outdoor operation.

Power Supply. The rapper operates from a 240 volt supply and draws an instantaneous current of 22 amperes maximum. The three (3) wire conductor cable supplied with the rapper is used to make the electrical connections. An additional grounding strap is provided for connecting the housing to the precipitator roof.

Energy Output. Microprocessor controlled output levels are provided.

M. RAPPER CONTROLS

The microprocessor based rapper controls are housed in a NEMA 4 weathertight enclosure. The rapper control system is designed to operate within ambient temperature limitations of -25°C to 85°C. The rappers for the discharge electrodes and each collecting surface field are individually controlled to permit adjustment of rapper impact intensity and cycle time for each section. Impact is variable up to 10 foot pounds. On time is 1 to 8 half line cycles



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CORPORATION

ESI RAPPER

DWG. NO 1076

and off time is variable from 1 to 999 seconds. Control, rapper status indication and fault detection can be transferred to a remote location by multiplex signals from the optional Data Management System. For further details, see Attachments.

N. TRANSFORMER-RECTIFIER – Drawing No. 1221, 1222

Each field is energized by a high voltage, coolant filled, silicon diode transformer-rectifier. Power is conducted to the precipitator through 3/4 inch A-36 steel bus bar enclosed in a 16 inch round 10 gauge A-36 steel water-tight housing.

The transformer is single phase, liquid cooled with the silicon diode rectifiers immersed in the same tank. Line voltage is regulated by a full range thyristor controller (SCR) which provides automatic power control. The current linear reactor is located in the junction box.

The transformer-rectifiers are furnished with a magnetic liquid level gauge, dial thermometer, drain, low voltage junction box and liquid filled bushings. The units are designed for a 55°C rise, at rated load, based on operation in an average ambient temperature of 40°C providing the maximum daily ambient shall not exceed 50°C. An alarm contact is provided on the temperature gauge.

The high voltage ground switch is integrated into the key interlock system to insure that the transformer-rectifier bushing is grounded before entry can be gained to the precipitator.

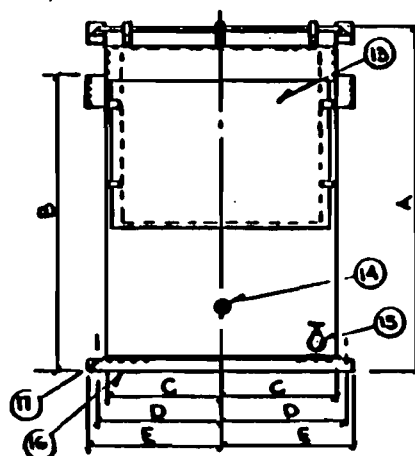
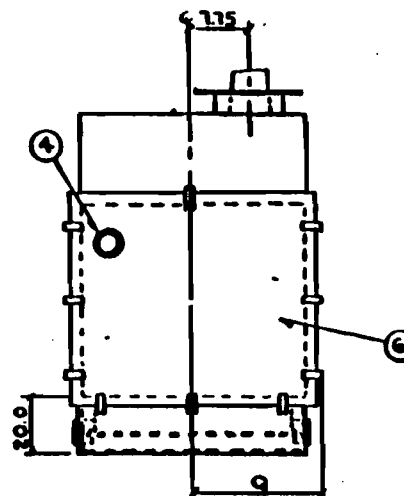
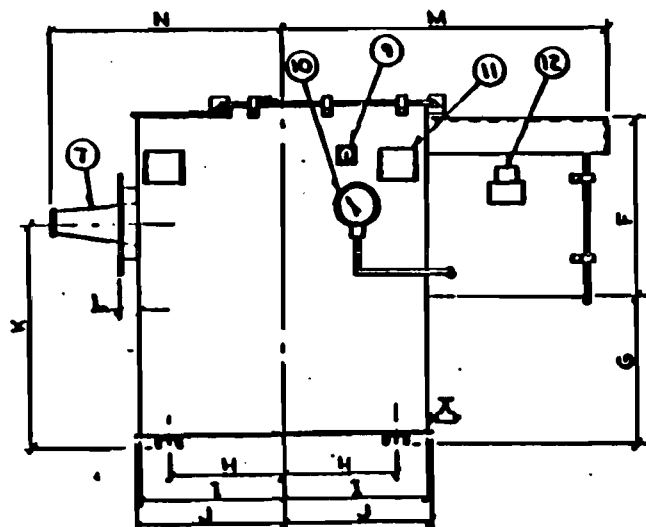
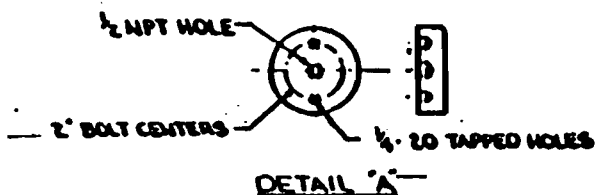
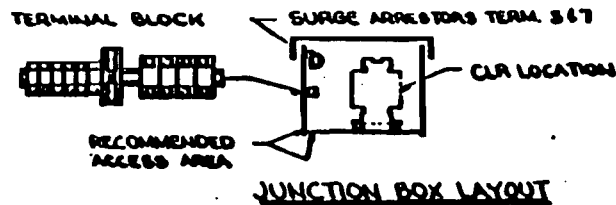
O. AUTOMATIC GROUNDING SYSTEM

The automatic grounding switch is located in the bus duct between the transformer-rectifier and penthouse insulator compartment. The automatic grounding of the high voltage system is solenoid activated when the transformer-rectifiers are deenergized on CO gas detection signal.

P. RECTIFIER CONTROL CABINETS – Drawing No. 1224, 1225

Environmental Elements rectifier control cabinets are fabricated as attractive two section (2-PAC) dead front, NEMA 12 enclosures. The cabinets are independent of one another, each containing separate assemblies to apply voltage to the primary of an associated transformer-rectifier at levels determined by a dedicated automatic power controller. Access to all equipment is through the front door allowing easy access for maintenance. Components include the circuit breaker, contactor, control transformer, monitoring circuits, relays, firing circuit and Silicon Controlled Rectifiers (SCR's). The SCR assembly utilizes two (2) SCR's fitted to electrically isolated heat sinks of an appropriate size. The electronic components of the firing circuit are mounted on a printed circuit board attached to the heat sink. The firing circuitry determines the conduction angle (0° to 180°) of the SCR's as a function of the signal from the automatic power control or manual control.

A separately enclosed high impedance linear reactor (CLR) with an iron core and air chimneys in the windings is connected in series with the SCR's to limit primary current surges during sparking.



- ④ 0.5" FULL CPLG (PLUG WITH PRESSURE RELIEF VALVE INSTALLED)
- ⑥ HANDHOLE FOR INTERNAL ACCESS WITH REMOVABLE COVER
- ⑦ HIGH VOLTAGE SEMI OUTDOOR BURNING. SEE DETAIL A FOR CORONA RING.
- ⑨ MAGNETIC LIQUID LEVEL INDICATOR
- ⑩ TEMP. IND. MOUNTED IN WELL TO FACILITATE REMOVAL WITH OVERTEMP CONTACTS
- ⑪ LIFTING CHANNEL 4"x4"x2" 4 PROVIDED
- ⑫ NAMEPLATE LOCATION
- ⑬ LOW VOLTAGE JUNCTION BOX WITH REMOVABLE COVER
- ⑭ 0.5" 13 GND BOLTS WITH TND PROTECTIVE PLUG
- ⑮ 0.5" GATE VALVE (PLUG FOR SAMPLING
- ⑯ 0.25" FLAT RATE BOTTOM WITH (2) 5'-5" STEEL CHANNELS
- ⑰ 0.687" DIA MTG. HOLES 4- REQ'D

DIM	100-500MA	750MA
A	21.88	21.88
B	24.75	24.75
C	12.75	12.75
D	14.25	14.25
E	15.75	15.75
F	10.00	10.00
G	8.5	8.5
H	17.0	17.0
I	14.5	14.5
J	14.75	14.75
K	18.75	18.75
L	3.12	3.12
M	24.5	24.5
N	10.0	10.0
O	23.0	23.0
P	18.25	18.25
Q	14.75	14.75

SPECIFICATIONS		
KV.D.C.	MAQC	APPROX. WEIGHT
55	100	1700
55	250	1800
55	500	1900
55	750	2200

SHIPPING NUMBER	PROD OR MARK NO.	DRAWING NUMBER	TO SHIP	PER ASSY	TOTAL PLN QUANTITY REQ'D	CODE IDENT.	DESCRIPTION	MAINT. REMARKS	PAGE	LINE
										SOURCE

PARTS LIST

ACCUMULATION OF TOLERANCES NOT ALLOWED

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

TOLERANCES:

FRACTIONS: 3 PLACE DECIMALS & 2 PLACE DECIMALS

ANGLES: 3 PLACE DECIMALS & 2 PLACE DECIMALS

DO NOT SCALE DRAWINGS

MATERIAL SPECIFICATIONS, UNLESS OTHERWISE INDICATED:

SHAPES: ASTM-A30

WRS BAR: MERCHANT QUALITY ASTM-A30

PLATE: ASTM-A30

SHEET OR GIMP:

M.B. NO.	
CONTRACT NO.	
DRAWN	BY
CHECKED	BY
APPROVED	BY
APPROVAL	
APPROVAL	

ENVIRONMENTAL ELEMENTS CORPORATION

P.O. Box 1210
Columbus, Ohio 43003 USA

TRANSFORMER RECTIFIER GENERAL ARRANGEMENT

DATE: 9-24-84

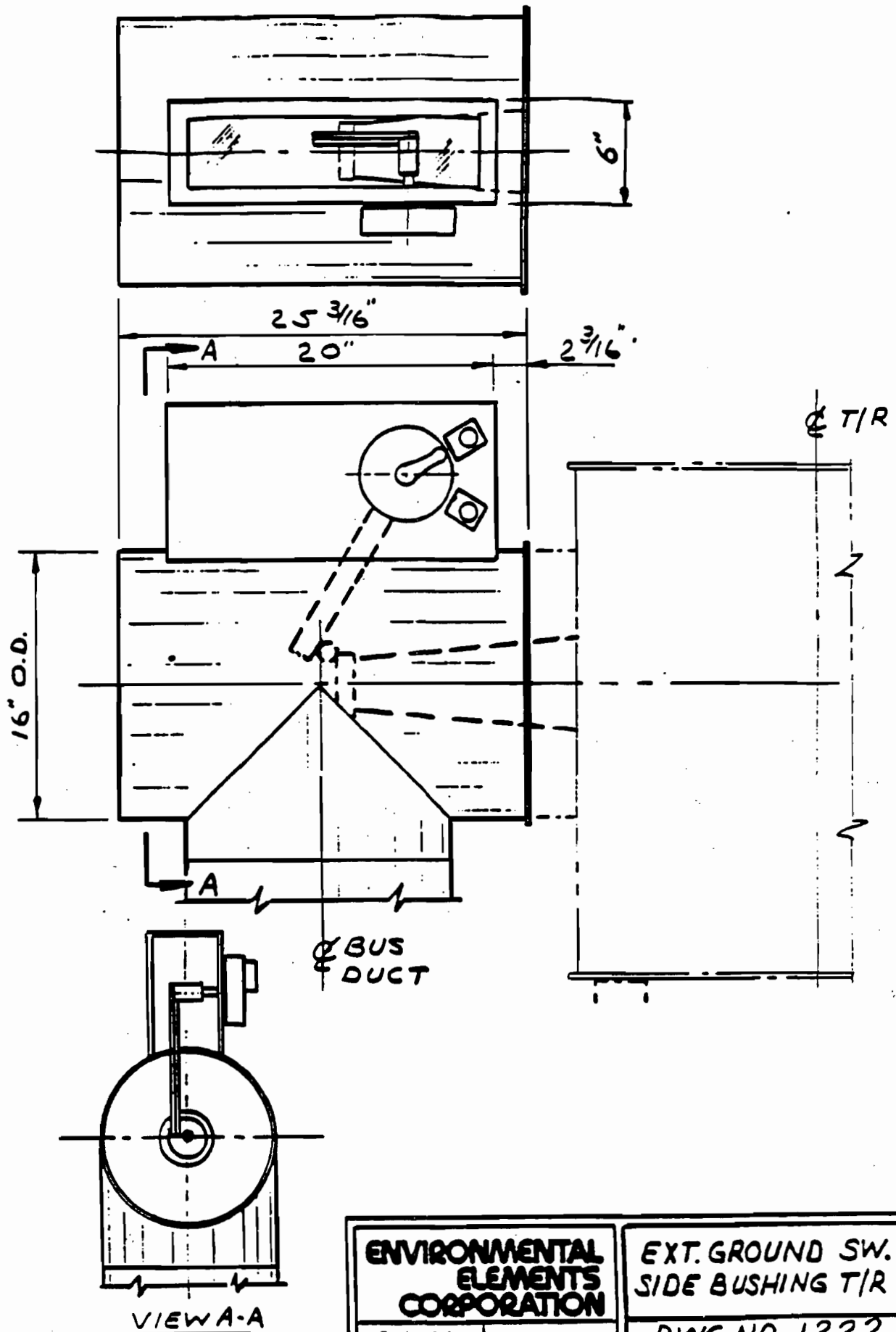
SCALE: 1/2" = 1'-0"

DRAWING NO. 1221

SHEET 1 OF 1

9-24-84

NEXT ASSY	USED ON
APPLICATION	

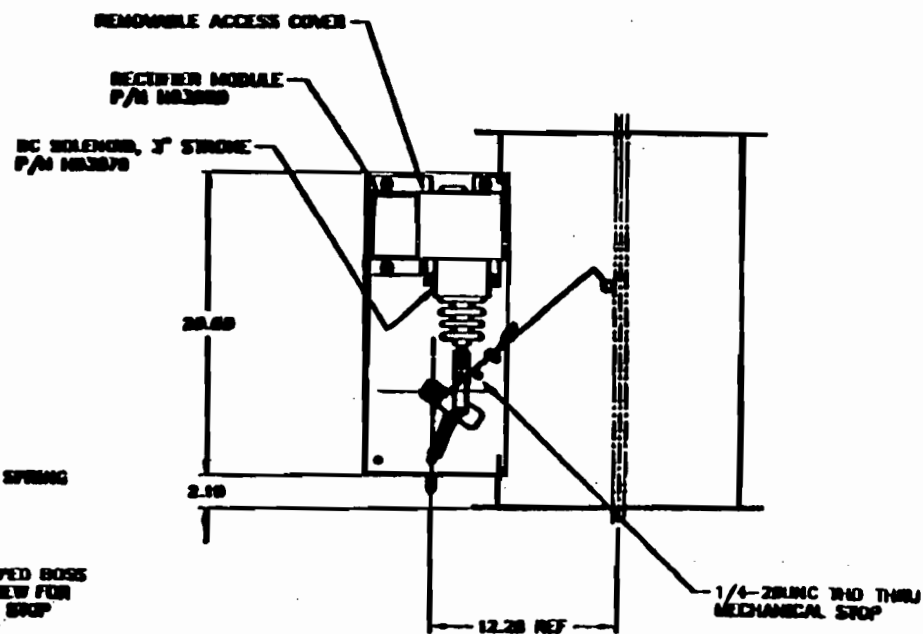
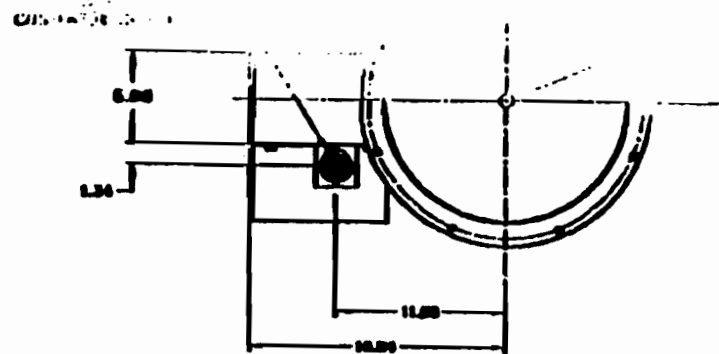


ENVIRONMENTAL
 ELEMENTS
 CORPORATION

10-1-84

EXT. GROUND SW.
 SIDE BUSHING T/R

DWG. NO. 1222



1. BUS DUCT IS TO BE SELF SUPPORTING.

[illegible]

		 TRANSFORMERS NORTH OIL ROAD, WILMINGTON, D.E. 19804	
THE PHYSICAL OUTLINE NWJ # 37136			
DATE 1-26	NAME TH	DATE 02/15/93	
NAME RK	NAME TH	NAME C29652	
FOR FURTHER INFORMATION, INCLUDING AN ORDER, AND FOR TO BE GIVEN OR RECEIVED ABOUT THESE ARTICLES.			

The control cabinets also contains a number of features that protect the precipitator and other components. Associated fuses and surge arresters protect the SCR's and metering circuits against external circuit failure and transient current sparks. An electronic overcurrent relay provides additional protection.

To eliminate the manual monitoring of the units, each cabinet contains a DIGICON OPTIPULSE automatic power controller to maintain optimum power input to the precipitator.

Each controller has a two line 32 character alphanumeric Liquid Crystal Display (LCD) located on the front panel which presents a user-friendly interface to the plant operator. Controller faults, operating status and other information are presented in plain English.

Six standard alarms are annunciated through the controller:

- Overcurrent
- Undervoltage
- Overspark
- SCR Phase Imbalance
- High Ambient Temperature
- T-R High Temperature

In the event that power is interrupted due to one of the above mentioned faults, the fault is indicated on the LCD display. An additional three (3) alarm points are available for customized alarming (e.g. SCR high temperature, T-R low liquid level, ...etc.). Process related alarms may also be incorporated into the controller to trip the precipitator field due to such conditions as incomplete combustion in the boiler.

The DIGICON OPTIPULSE controller is described in more detail on the following pages.

Each cabinet is provided with the following meters:

- Primary Current
- Primary Voltage
- Secondary Current
- Secondary Voltage
- Spark Rate (Digital)

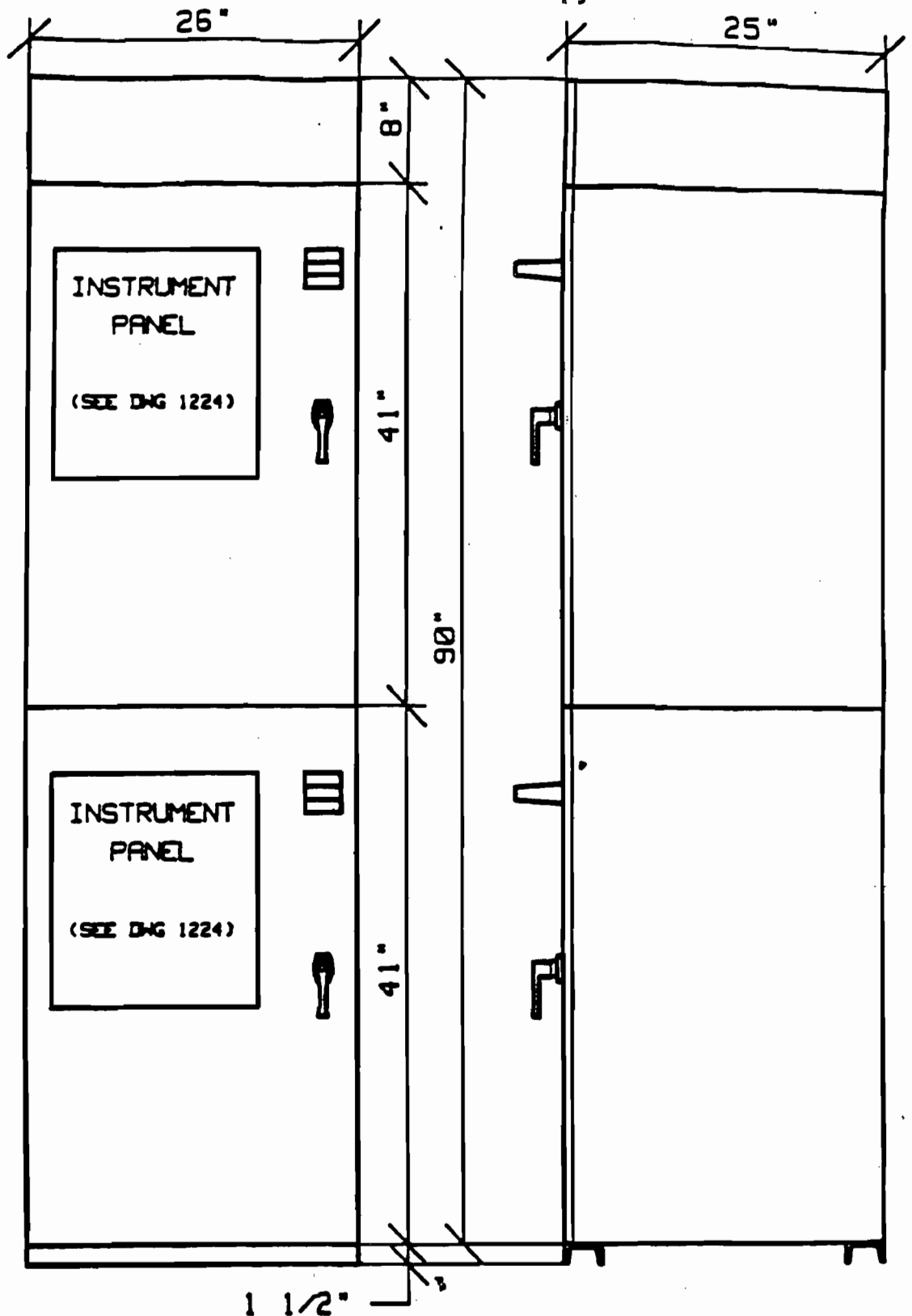
The control cabinets are equipped with face mounted breakers. The circuit breaker interrupting capacity is greater than or equal to 50,000 amperes symmetrical. As a safety feature, each cabinet is integrated into the key interlock system.

Where space is limited, the 2-PAC arrangement offers an attractive alternative to conventional rectifier control cabinets which house the automatic power controller, power components and current limiting reactor all in one enclosure.

Q. DIGICON OPTIPULSE AUTOMATIC POWER CONTROLLER

The DIGICON OPTIPULSE Automatic Power Controller is a microprocessor based controller using the latest state-of-the-art components. The controller is equipped with dual

Best Available Copy



**ENVIRONMENTAL
ELEMENTS
CORPORATION**

M.O. NO.

**DUAL CONTROL CONSOLE
WITH CIRCUIT BREAKER**

DRAWN ASD 2-2-67

SIZE
A

FILE NO. 1225
FILE NAME 1225

DRAWING NO.

1225

REV

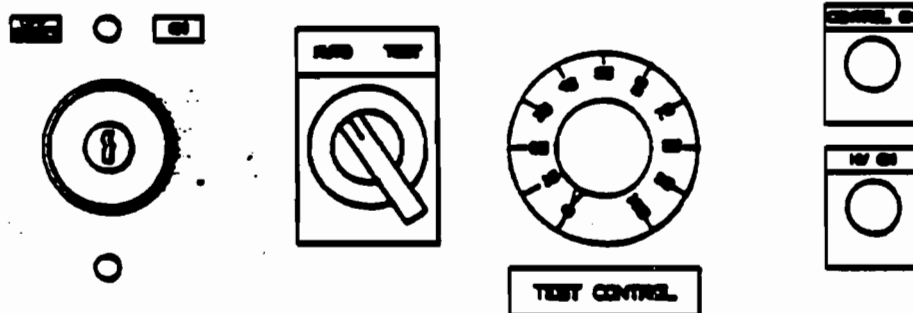
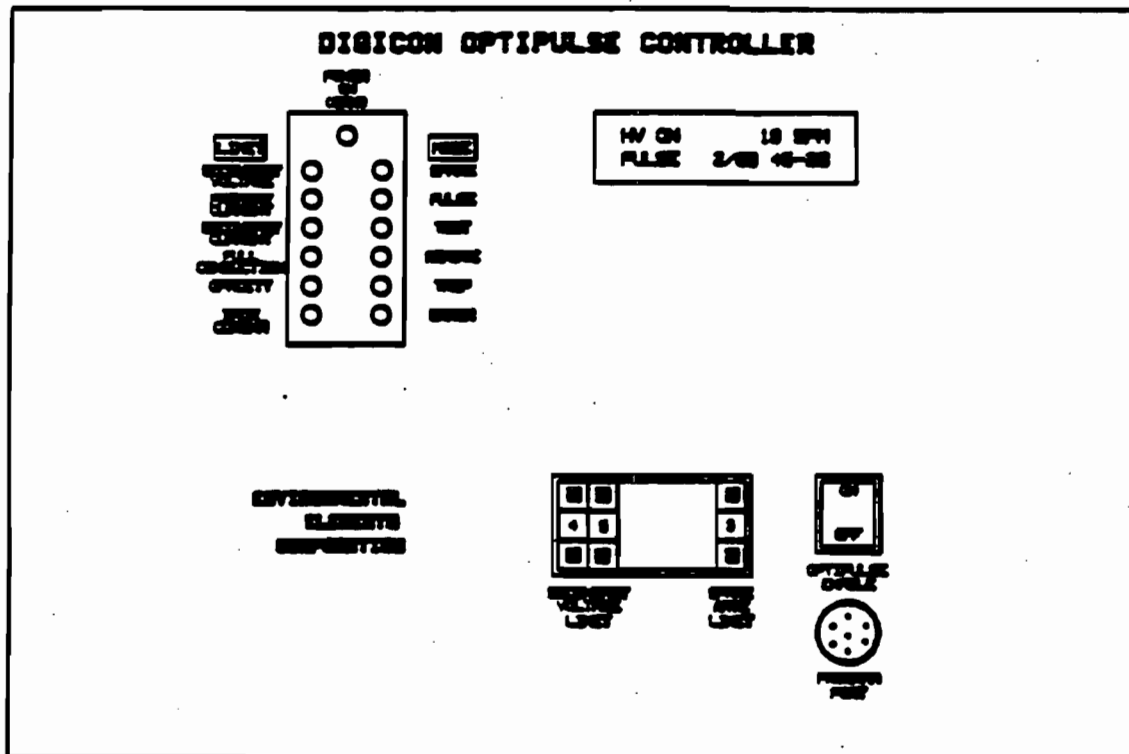
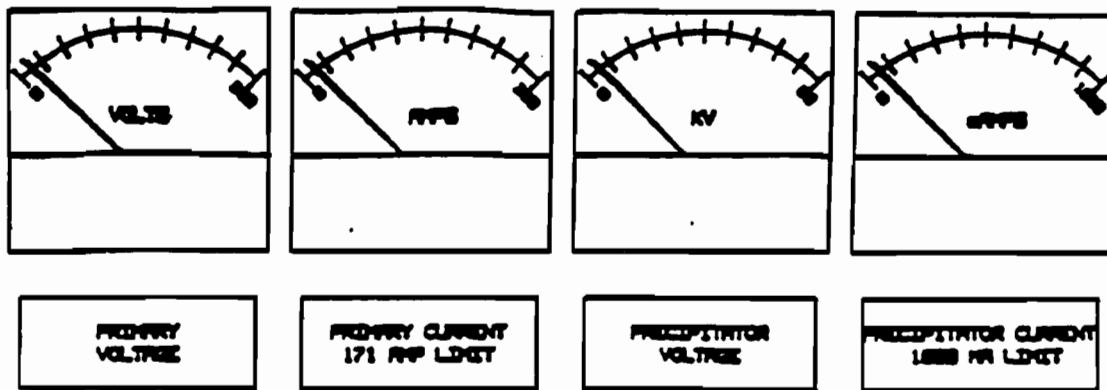
DATE

SCALE

SHEET

AS E INC. - BALT.

FORM 7304-A



A153

ENVIRONMENTAL ELEMENTS CORPORATION		M.O. NO.		INSTRUMENT PANEL	
		SIZE	FSCM NO.		
DRAWN J. HAMLIN				1224	
DATE 2-16-87		SCALE		SHEET	

specialized microprocessors for extremely fast processing of operational functions, and a 16K EEPROM for storage of all program parameters. The controller enclosure is NEMA 12, dust tight, and mounted inside the transformer-rectifier control cabinet. The ambient conditions can range from -10°C to +50°C and 0% to 95% humidity. On the front of the controller are two (2) digital selector switches: secondary voltage and spark rate. The controller uses this information to regulate the power level supplied to the precipitator. An additional selector switch is provided to enable the intermittent energization mode of operation. For further details regarding other features including host computer interfacing, user friendly displays and on line program modification capabilities, see Attachments.

R. UNDERVOLTAGE RELAY PROTECTION

Dust build-up into the electrostatic field is a possibility with failure of the dust removal system. The result is high heat generated due to the resistive ground formed by the dust bridging the space between the discharge and collecting electrodes. This leads to distortion of the discharge and collecting systems. To guard against this, undervoltage protection is built into the controllers to trip the power and sound an alarm in the event of a dead short or ground.

S. ALARM SYSTEM

Alarm contacts are provided in the following circuits for incorporation into Buyer's annunciator system. These contacts may also be integrated into Seller's optional Data Management System.

1. Transformer-rectifier control cabinet trip.
2. Penthouse blower failure.
3. Rapper failure.
4. High dust level in hoppers.
5. Dust conveying system failure.
6. Dust valve failure.
7. Hopper low temperature.

T. GROUNDING DEVICES

Grounding devices, permanently located within the penthouse, are provided for attachment to the high voltage frame whenever work is being performed on the system.

U. ELECTRICAL - GENERAL

All electrical equipment furnished is in accordance with current accepted engineering practices including the National Electrical Code, NEMA standards and the AIEEE standards, wherever they apply. Controls for the high voltage are assembled into self-contained units of standard dead-front switchboard construction.

All control circuits will operate on 120V unless otherwise specified. All pushbutton and indicating lights will be combination type. Terminal boards are furnished in each control panel to which customer's signal circuit or safety circuits may be connected.

V. POWER DISTRIBUTION CENTER/MOTOR CONTROL CENTER

A power distribution center of NEMA 1 construction will be provided for installation in the precipitator electrical equipment room. The panel will contain a main breaker and branch breakers for all electrical equipment supplied. Since the control cabinets have circuit breakers mounted on the front, branch breakers are not required.

The motor control center is of dead-front construction incorporating vertical buses connected to the horizontal bus. The horizontal bus is located at the center of each vertical section. The motor starters are plug-in type with molded case circuit breakers. The control center will consist of one or more vertical sections bolted together to form a rigid, free-standing assembly designed to permit future additions by Buyer.

W. INTERLOCK SYSTEM

Seller's offering is complete with key-interlock system for the portions of the precipitator where high voltage may be a hazard. Access may not be gained to these danger zones without first turning off the power and grounding the appropriate high voltage elements.

Interlocks are provided for the following:

1. Transformer-rectifier control cabinets.
2. Transformer-rectifier grounding switches.
3. Penthouse roof access doors.
4. Hopper access doors.
5. Inlet and outlet nozzle doors.

X. ACCESS DOORS

Seller's standard quick-opening 22 inch x 28 inch access doors are provided. Each opening through thermal insulation will be of double-door construction consisting of a hinged, dogged outer door of ductile iron and a clamped steel inner doorplate, fabricated of 11 gauge carbon steel. Dogs and lugs on the outer door are made of stainless steel to assure free operation in all environments. This dual construction reduces or eliminates the need for insulation at the door area, and the inner plate provides an additional safety feature not found in competitive designs. The hopper inner door plate is provided with a 1-1/2 inch diameter inspection port which allows the operator to determine if the ash level is above the door level. A Viton coated aramid blend fiber gasket with a stainless steel mesh core is provided on the outer door to maintain a gas-tight seal, and positive interlocking is provided to prevent accidental entry. Each door bears a highly visible "Warning" sign made of enameled aluminum.

Y. SHOP PAINT

External uninsulated surfaces will be cleaned per Specification SSPC-SP-6 and given one (1) coat of zinc rich primer.

Z. THERMAL INSULATION

Seller will provide thermal insulation specifications for the electrostatic precipitator system. Three inch thick, 8 pcf, 1000°F mineral wool and 0.032 inch ribbed unpainted aluminum lagging (exterior surfaces) is recommended to insulate the hoppers, inlet nozzle, outlet nozzle precipitator casing and penthouse sides. The penthouse floor should be covered with 3 inches of calcium silicate block insulation. The transformer-rectifier bus duct and the penthouse blower system need not be insulated.

AA. VENDOR'S LIST

The items not manufactured in fabrication shops are furnished by the following suppliers or equal.

Transformer-rectifiers:	NWL
Control Cabinets:	Electronic Power and Control
Rapper Panels:	Forry Incorporated
Hopper Alarms:	Drexelbrook, Bindicator,
Penthouse Blowers:	ACME
Screw Conveyors:	Jervis B. Webb Co., Summelot or Equal
Dust Valves:	Sprout Bauer or equal

AB. GAS DISTRIBUTION MEDIA AND BAEFLING (WITHOUT MODEL STUDY)

Uniform gas distribution to the precipitator is essential if performance guarantees are to be achieved for the specified service. Included in this proposal are the perforated distribution plates as shown on the proposal drawing. Other vanes, splitters, turning devices and grids as required for uniform gas distribution are to be included in the ductwork contract.

Seller has extensive experience with ductwork configurations and will provide an aerodynamic (not structural) design without additional charge or a model study.

AC. FIRE PROTECTION

The potential for fires exists in all equipment cleaning the exhaust gases from a pyro process where a combustible gas mixture or burning char carryover can occur through improper firing or loss of process control. Risk of fire is minimal where process monitors are installed and maintained to alarm and control a developing hazardous condition. In the rare instance where the process cannot be controlled, the precipitator must be de-energized until conditions are safe for restart.

AD. QUALITY ASSURANCE PLAN

Our Corporate Quality Assurance Section is staffed, trained and equipped to maintain effective quality management of a contract from the time it is awarded until final customer acceptance has been made.

This group routinely provides the following for all contracts:

- 1. Review of the customer's procurement and technical documents to determine that the requisite requirements have been defined and documented as well as to assure that Seller's resources and capabilities are adequate to meet the requirements.**
- 2. Assist Seller's Purchasing Section in the selection and development of quality fabricators including judgments relative to potential fabricator's abilities to conform to those requisite requirements.**
- 3. Review and assess, for approval, designated fabricator's quality systems including their organizational structure, responsibilities, procedures, processes and resources for implementing quality management to conform to contractual requirements.**
- 4. Schedule source inspection visits by Seller's Quality Assurance Representatives (QAR's) to monitor in-process activities and/or to provide shipping releases.**
- 5. Assure qualifications of all welders to AWS D1.1 for arc welding and AWS C1.1 for spot welding or equivalent as required.**
- 6. Perform system, product and process audits as required to assure conformance and implementation to contractual requirements including the pertinent documentation.**

SECTION 3
TECHNICAL TABULATION

SECTION 33. TECHNICAL TABULATIONA. KILN MILL PRECIPITATOR1. Structural Design Parameters

a. Structural Design	AISC Code throughout
b. Wind Load	90 mph
c. Live Load	50 psf on precipitator roof 100 psf on all access
d. Seismic Zone	1
e. Dust Bulk Density - Structural Volumetric	85 pcf 35 pcf
f. Snow Load	Nil
g. Temperature	750°F
h. Pressure	±25 inches H ₂ O

2. Mechanical Design Data

a. Number of Precipitators	1
b. Number of Chambers	1
c. Fields	4
d. Bus Sections Per Field	1
e. Total Number Bus Sections	4
f. Gas Passages	23
g. Spacing of Gas Passages	16 inches
h. Precipitator Casing Dimensions	See Drawing 15290-2110-D-1
i. Number & Type Hoppers	2 trough
j. Hopper Material	3/16 inch A-36 steel

- k. Casing Material 3/16 inch A-36 steel
- l. Distribution Plates 12 gauge mild steel
- 3. Collection Surface Systems
 - a. Type of Material Modular Roll Form
18 gauge Mild Steel
 - b. Baffle Stiffeners Integrally formed on
18 inch centerlines
 - c. Number and Size of Surfaces 96@9.125'x36'
 - d. Total Active Collecting Surface 60,444 sq. ft.
 - e. Floating Channel Support System Leading and trailing edges of
each mechanical field
- 4. Discharge Electrode System
 - a. Type 1.5 inch diameter Rigid Tube with
emitting studs
 - b. Effective Length Per Electrode 36 feet
 - c. Number of Electrodes Per Gas Passage 24
 - d. Total Number Electrodes 552
 - e. Total Effective Length 19,872 feet
 - f. Suspension Insulators
 - (1) Number and Material 8 Alumina
 - (2) Manufacturer Coors
 - (3) Dry Arc-Over K.V. RMS 99.1 KV, 60 Cycle
 - (4) Wet Arc-Over K.V. RMS 97.0 KV, 60 Cycle
 - (5) Leakage Distance 19 3/4 inch
- 5. Rapping System
 - a. Quantity and Type of Rappers Electrical impulse

(1) Collecting Surfaces	48 Model ESI-I
(2) Discharge Electrodes	8 Model ESI-I
(3) Perforated Distribution Plates	1 Model ESI-I

b. Weather-Proof Rapper Panels

(1) Material	Steel - NEMA 4
(2) Quantity	1
(3) Type	Solid State
(4) Power Transformer	15 KVA 480/240 volt

6. Electrical

a. Transformer-Rectifiers

(1) Type	Silicon
(2) Voltage Rating	70kv (DC Avg.) 83kv (AC) RMS 118 kv (DC) Peak
(3) Output Wave Form	Full Wave

	Quantity	KVA	MA
1st Field	1	75.1	750
2nd Field	1	75.1	750
3rd Field	1	75.1	750
4th Field	1	75.1	750

b. T-R Insulation Fluid

Mineral Oil

c. High Voltage Switch Type

One per T-R unit, interlocked grounding switch with observation window

d. T-R Control Cabinet

One per pair of T-R's
NEMA 12 Construction

e. Type of Control

Thyristor (SCR)

f. Maximum Ambient Temperature for Electrical Supply and Control Equipment

40°C

g. Electrical Supply

480 Volt, 60 Hertz, 3 Phase

h. Maximum Expected Power Consumption

(1) Precipitator (T-R's)	153.2 KW

(2) Rappers	2.0 KW
(3) Insulator Heaters	3.2 KW
(4) Penthouse Blowers	1 1/2 HP
(5) Conveyor	25 HP
(6) Dust Valve	3 HP

- i. Total Connected Load
(Transformer-Rectifier
Units)

300.4 KVA

- j. Type of High Voltage
Conductor

3/4 inch pipe in 16 inch round or square
duct

7. Access Doors

Penthouse Roof
Precipitator Roof
Nozzles
Hoppers

2, single door, interlocked
4, double door, non-interlocked
2, double door, interlocked
4, double door, interlocked

8. Thermal Insulation - By Erector

Precipitator Roof

3 inch calcium-silicate block
AREA = 1361 sq. ft.

Nozzles, Precipitator Sides
Penthouse Sides and Hoppers

3 inch 8 PCF mineral wool
AREA = 1614 sq. ft.

All lagging will be 0.032 inch ribbed aluminum on exterior surfaces.

9. Dust Removal

a. Hopper Conveyors

(1) Quantity and Size	One 18"
(2) Type - Trough Screw	1/4" A-36 Box Full Flight
(3) Speed	25 rpm
(4) Capacity @ 36% load @ 100% load	1225 cfm 3,408 cfm
(5) Dust Density Volumetric Compacted	35 pcf 85 pcf
(6) Drive	25 Hp end mounted reducer
(7) Motion Sensor	Shaft mounted

b. Dust Valves

(1) Type	Sprout Bauer Rotary Valve w/Type 2 Rotar and Ni-Hard Adjustable Tips

(2) Quantity and Size	One Size 2422
(3) Capacity @ 20% Load	4,250 cfm
(4) Speed	18 rpm
(5) Drive	3 Hp
(6) Motion Sensor	Shaft mounted

B. CLINKER COOLER PRECIPITATOR

1. Structural Design Parameters

a. Structural Design	AISC Code throughout
b. Wind Load	90 mph
c. Live Load	50 psf on precipitator roof 100 psf on all access
d. Seismic Zone	1
e. Dust Bulk Density - Structural Volumetric	85 pcf 35 pcf
f. Snow Load	Nil
g. Temperature	750°F
h. Pressure	±20 inches H ₂ O

2. Mechanical Design Data

a. Number of Precipitators	1
b. Number of Chambers	1
c. Fields	4
d. Bus Sections Per Field	1
e. Total Number Bus Sections	4
f. Gas Passages	19
g. Spacing of Gas Passages	16 inches

h. Precipitator Casing Dimensions	See Drawing 15290-2110-D-2
i. Number & Type Hoppers	2 trough
j. Hopper Material	3/16 inch A-36 steel
k. Casing Material	3/16 inch A-36 steel
l. Distribution Plates	12 gauge mild steel
 3. <u>Collection Surface Systems</u>	
a. Type of Material	Modular Roll Form 18 gauge Mild Steel
b. Baffle Stiffeners	Integrally formed on 18 inch centerlines
c. Number and Size of Surfaces	80 @ 9.125'x 36'
d. Total Active Collecting Surface	49,932 sq. ft.
e. Floating Channel Support System	Leading and trailing edges of each mechanical field
 4. <u>Discharge Electrode System</u>	
a. Type	1.5 inch diameter Rigid Tube with emitting studs
b. Effective Length Per Electrode	36 feet
c. Number of Electrodes Per Gas Passage	24
d. Total Number Electrodes	456
e. Total Effective Length	16,416 feet
f. Suspension Insulators	
(1) Number and Material	8 Alumina
(2) Manufacturer	Coors

- (3) Dry Arc-Over K.V. RMS
- (4) Wet Arc-Over K.V. RMS
- (5) Leakage Distance

99.1 KV, 60 Cycle
97.0 KV, 60 Cycle
19 3/4 inch

5. Rapping System

a. Quantity and Type of Rappers

Electrical impulse

- (1) Collecting Surfaces
- (2) Discharge Electrodes
- (3) Perforated Distribution Plates

40 Model ESI-I
8 Model ESI-I
1 Model ESI-I

b. Weather-Proof Rapper Panels

- (1) Material
- (2) Quantity
- (3) Type
- (4) Power Transformer

Steel - NEMA 4
1
Solid State
15 KVA 480/240 volt

6. Electrical

a. Transformer-Rectifiers

- (1) Type
- (2) Voltage Rating
- (3) Output Wave Form

Silicon
70kv (DC Avg.)
83kv (AC) RMS
118 kv (DC) Peak
Full Wave

	<u>Quantity</u>	<u>KVA</u>	<u>MA</u>
1st Field	1	75.1	750
2nd Field	1	75.1	750
3rd Field	1	75.1	750
4th Field	1	75.1	750

b. T-R Insulation Fluid

Mineral Oil

c. High Voltage Switch Type

One per T-R unit, interlocked grounding switch with observation window

d. T-R Control Cabinet

One per pair of T-R's
NEMA 12 Construction

e. Type of Control

Thyristor (SCR)

- f. Maximum Ambient Temperature for Electrical Supply and Control Equipment 40°C
- g. Electrical Supply 480 Volt, 60 Hertz, 3 Phase
- h. Maximum Expected Power Consumption
 - (1) Precipitator (T-R's) 128.1 KW
 - (2) Rappers 2.0 KW
 - (3) Insulator Heaters 3.2 KW
 - (4) Penthouse Blowers 1 1/2 HP
 - (5) Conveyor 20 HP
 - (6) Dust Valve 2 HP
- i. Total Connected Load (Transformer-Rectifier Units) 300.4 KVA
- j. Type of High Voltage Conductor 3/4 inch pipe in 16 inch round or square duct

7. Access Doors

- Penthouse Roof 2, single door, interlocked
- Precipitator Roof 4, double door, non-interlocked
- Nozzles 2, double door, interlocked
- Hoppers 4, double door, interlocked

8. Thermal Insulation - By Erector

- Precipitator Roof 3 inch calcium-silicate block
AREA = 1,140 sq. ft.
- Precipitator Sides, Nozzles, Penthouse Sides, Underside Penthouse Roof and Hoppers 3 inch 8 PCF mineral wool
AREA = 10,321 sq. ft.

All lagging will be 0.032 inch ribbed aluminum on exterior surfaces.

9. Dust Removal

a. Hopper Conveyors

- (1) Quantity and Size One 14"
- (2) Type - Trough 1/4" A-36 Box
Screw Full Flight
- (3) Speed 25 rpm
- (4) Capacity @ 30% load 500 cfm

- ② 100% load
- | | | |
|-----|---------------|------------|
| (5) | Dust Density | Volumetric |
| | | Compacted |
| (6) | Drive | |
| (7) | Motion Sensor | |

1593 cfm
85 pcf
35 pcf
20 Hp end mounted reducer
Shaft mounted

b. Dust Valves

- (1) Type
- (2) Quantity and Size
- (3) Capacity @ 80% Load
- (4) Speed
- (5) Drive
- (6) Motion Sensor

**Sprout Bauer Rotary Valve
w/Type 2 Rotar and Ni-Hard
Adjustable Tip
One Size 2018
2,500 cfm
18 rpm
2 Hp
Shaft mounted**

Andritz Sprout-Bauer MST Modular Rotary Valve

Rugged construction —
cast iron, stainless steel, or
cast iron lined with chrome
— permits service to 15 psi.

Plew distributor at inlet
minimizes torque required.

Outboard bearings prevent
contamination of product.

Full-length inspection panel
allows easy cleaning and
tip adjustment.

Integral stuffing boxes with
four packing rings and air
purge inlets in the end
plates increase packing
life and reduce mainte-
nance costs.

Approximately 1/4-inch
clearance between closed-
end rotor and casing end
plate minimizes packing of
product.

Precision machining with
normal radial clearance ro-
tor-to-tip of 0.002" to 0.004"
minimizes leakage.

Split packing glands allow
easy access to stuffing
boxes and reduce mainte-
nance time.

Andritz Sprout-Bauer's modular rotary valves offer a wide range of sizes, models and materials of construction for versatile use in most pneumatic conveying and feeding systems. Andritz Sprout-Bauer valves provide rugged, trouble-free performance as feeders and air locks in both vacuum and low-pressure positive systems.

Andritz Sprout-Bauer's modular concept lets you stock fewer parts, reducing inventory costs. And Andritz Sprout-Bauer backs its valves with experienced service technicians and fast, dependable delivery of valves, systems and replacement parts.

Abrasive and Corrosive Systems

For abrasive applications, the rotor shrouds and the bore of the housing can be hard-surfaced with a variety of abrasive resistant coatings and inlays, including an 1/4-inch stellite-lined housing for extremely abrasive conditions. Highly corrosive-resistant alloys are also available.

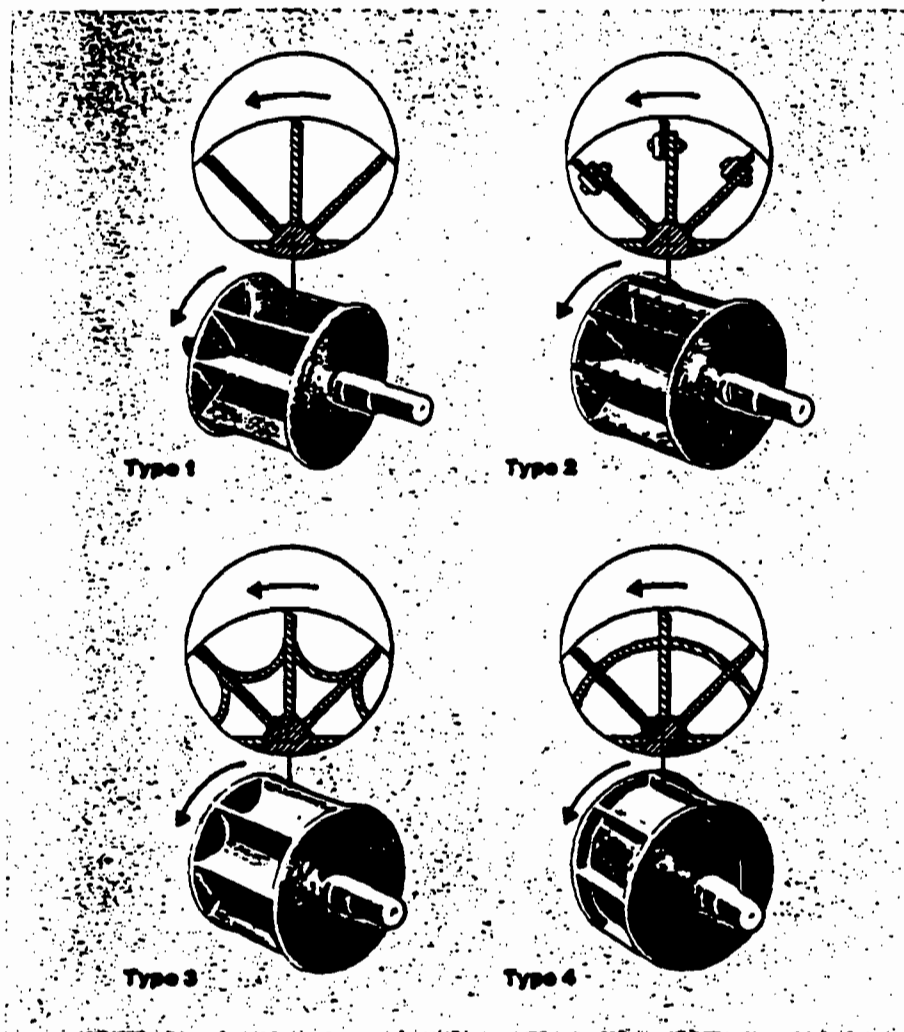
The split packing gland allows easy access to the stuffing boxes, where a minimum of three to four rings of packing maintains a proper seal. When the product is abrasive or difficult to seal, a lantern ring is available. Compressed air is piped into the lantern ring at a pressure one to two pounds above the valve's internal pressure.

Options

Modular rotary valves are usually equipped with enclosed roller chain drives, parallel shaft motor and reducer or gear-motor drive packages. Other options include:

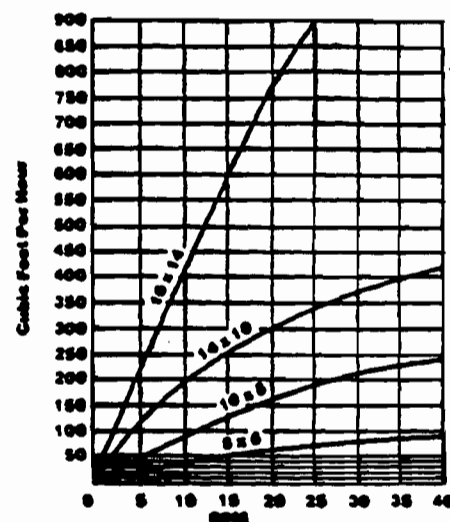
- right-angle gear motors
- variable speed drives
- weather-tight or oil-tight drives
- motion switches
- shearpin sprockets
- lantern rings

Andritz Sprout-Bauer Rotors



- Eight pockets per rotor
- Type 2 features adjustable tips for close rotor-to-housing clearances, peak valve efficiency and maximum life. Tips are manufactured in abrasion-resistant steel, stainless steel and Ni-hard. Tips are also available in brass, neoprene, teflon and polyurethane.
- Shroud (end plate) periphery, vane edges and adjustable tips may be hard-surfaced to minimize the effects of abrasive materials on the rotor.

Side Inlet Valve Curve



Rotor Displacement (dimensions in inches)									
ROTOR SIZE (DIA. X LENGTH IN INCHES)	Rotor displacement in cu. ft./rev.				NORMAL AIRLOCK RPM*	MAXIMUM RECOMMENDED FEEDER RPM*	NORMAL REQUIRED HP*	APPROXIMATE WEIGHTS (lbs.)	
	Type 1	Type 2	Type 3	Type 4				VALVES	DRIVES
0806	.122	.116	.063	.032	45	25	1/4	173	100
1008	.29	.27	.130	.070	45	25	1/4	245	125
1410	.70	.65	.310	.155	45	25	1	443	185
1614	1.3	1.225	.650	.325	45	25	1 1/4	640	250
2018	3.02	2.9	1.150	.575	35	25	2	1205	280
2422	4.95	4.92	2.30	1.15	31	25	3	2285	300

*Dependent upon characteristics of material handled.

SECTION 4

OPERATING CONDITIONS AND GUARANTEES

SECTION 4**4. OPERATING CONDITIONS AND GUARANTEES****A. OPERATING CONDITIONS - KILN/MILL PRECIPITATOR**

Process - Type	Preheater Cement Kiln with Roller Mill Circuit	
Mode of Operation	<u>Direct</u>	<u>Compound</u>
Gas Volume ACFM	173,000	200,000
Gas Temperature °F	350	220
Inlet Particulate Loading gr/ACF	18	25
Dew Point°F	138	115
Collection Efficiency (percent removal)	99.96	99.97
Outlet Particulate Residual gr/ACF	0.007	0.007
Precipitator Gas Velocity (f.p.s.)	2.6	3.0
Time of Treatment (Sec.)	14.0	12.2
SCA (Ft ² collecting surface per 1,000 ACFM)	349.4	302.2
Aspect Ratio	1.0	1.0
Pressure Loss (in. H ₂ O)	1.0	1.0

B. PERFORMANCE GUARANTEE**1. Direct Operation**

With all electrical fields energized under normal conditions of operation with kiln only, as stipulated under "Operating Conditions", when passing 173,000 ACFM of gas through the precipitator, with an inlet loading of 18 gr/ACF or more, the efficiency is guaranteed to 99.96% removal.

Under identical conditions of operation, with an inlet particulate loading of 18 gr/ACF or less, the outlet particulate residual is guaranteed not to exceed 0.007 gr/ACF.

2. Compound Operation

With all electrical fields energized under normal conditions of operation with kiln only, as stipulated under "Operating Conditions", when passing 200,000 ACFM of gas through the precipitator, with an inlet loading of 25 gr/ACF or more, the efficiency is guaranteed to 99.97% removal.

Under identical conditions of operation, with an inlet particulate loading of 25 gr/ACF or less, the outlet particulate residual is guaranteed not to exceed 0.007 gr/ACF.

C. OPERATING CONDITIONS - Clinker Cooler

Process - Type	Clinker Cooler Exhaust	
	<u>Upset</u>	<u>Normal</u>
Mode of Operation		
Gas Volume ACFM	148,000	123,500
Gas Temperature °F	500	330
Inlet Particulate Loading gr/ACF	13	13
Moisture Content (% by volume)*	2 to 3	2 to 3
Collection Efficiency (percent removal)	99.95	99.95
Outlet Particulate Residual gr/ACF	0.007	0.007
Precipitator Gas Velocity (f.p.s.)	2.7	2.0
Time of Treatment (Sec.)	13.5	18.2
SCA (Ft ² collecting surface per 1,000 ACFM)	337.4	404.3
Aspect Ratio	1.0	1.0
Pressure Loss (in. H ₂ O)	1.0	1.0

*Note: Additional moisture may be required.

D. PERFORMANCE GUARANTEE

With all electrical fields energized under normal conditions of operation with kiln only, as stipulated under "Operating Conditions", when passing 148,000 ACFM of gas through the precipitator, with an inlet loading of 13 gr/ACF or more, the efficiency is guaranteed to 99.95% removal.

Under identical conditions of operation, with an inlet particulate loading of 13 gr/ACF or less, the outlet particulate residual is guaranteed not to exceed 0.007 gr/ACF.

Attention is drawn to the fact that the material, workmanship and performance guarantee clauses are contingent upon the Buyer's assuring that the equipment is erected according to plans and specifications.

E. PERFORMANCE TEST

All particulate emission tests will be conducted in accordance with the methods set down by the Environmental Protection Agency in 40 CFR Part 60, Appendix A (Reference Methods), and any subsequent revision to these methods in effect on the date of this proposal. The EPA Method 17 will be used for inlet sampling and the dry, front half of the EPA Method 5 will be used for outlet sampling. Test ports with suitable access are to be furnished with inlet duct and outlet duct or stack to meet EPA and OSHA standards.

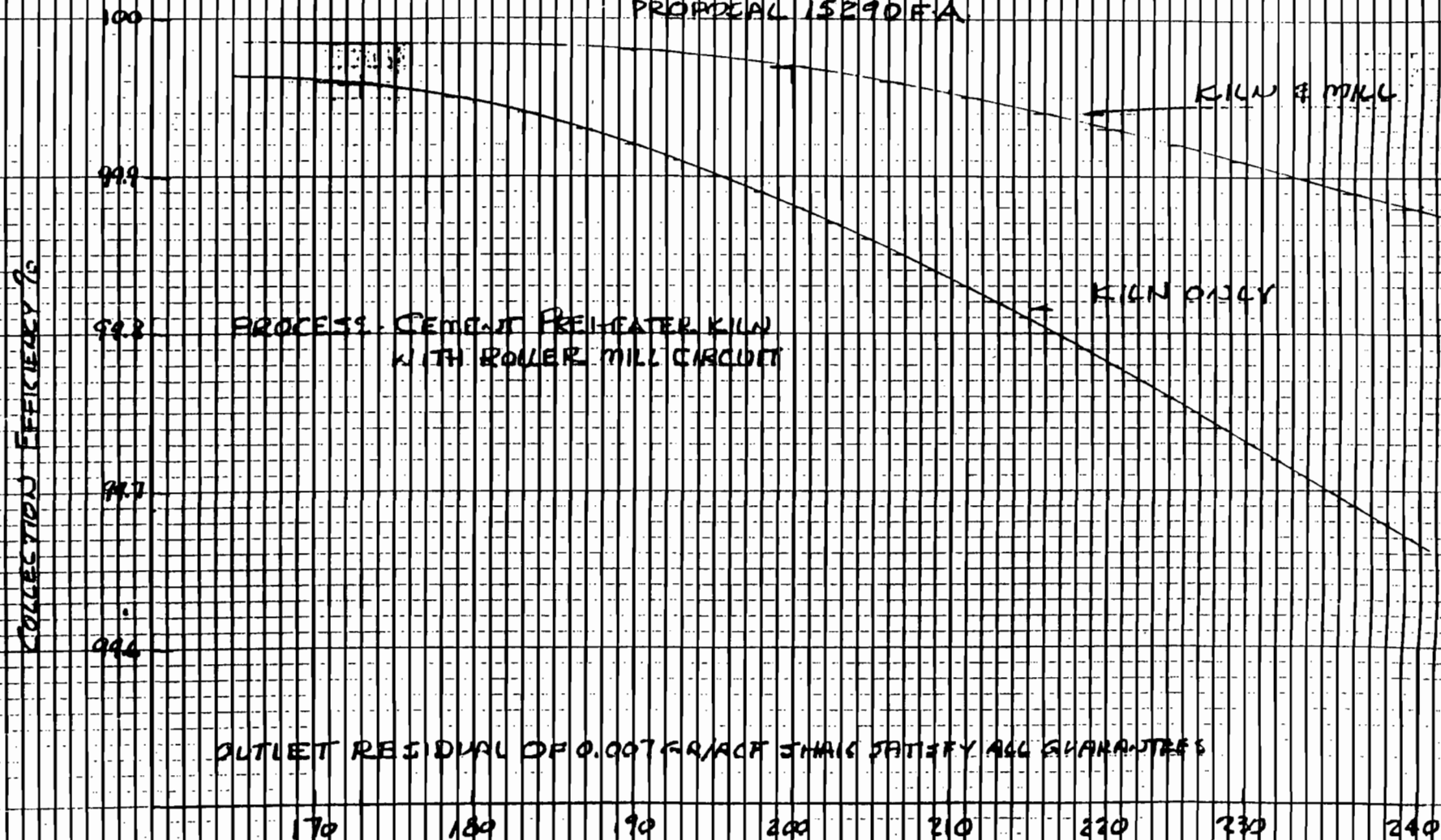
Performance tests will be conducted within ninety (90) days after the equipment is first commercially operated, but no later than (Later). Performance testing will be done by an independent testing company mutually acceptable to both Buyer and Seller. The cost of testing will be borne by Buyer. If, through no fault of Seller, performance test cannot be run within the time periods given above, the equipment will be treated as though the performance tests were run and the performance guarantees met.

The performance test shall be deemed "passed" when the Buyer and Seller have analyzed the test results and determined that equipment guarantee has been met. The test results will be available to the Buyer and Seller for said analysis within three (3) weeks after completion of testing. Whatever security Buyer has retained to secure compliance with the performance guarantee shall be due and payable to Seller immediately upon the determination that the performance test has been "passed".

Seller shall have the right to witness testing and to have access to all information acquired by said third party which is relevant to determining whether the equipment has passed the performance test. Seller does not assume the risk that the performance test will be improperly performed, or that tests results will be improperly computed. If, as a result of the fault of either Buyer and/or the third party responsible for conducting the performance test, the determination that the equipment has passed the performance test is delayed, the amount outstanding on the contract price, if any, shall be subject to a per diem interest charge at the maximum rate allowed by law, chargeable from the time the equipment would have passed the performance test but for said fault.

Compliance with the performance criteria on a majority of the tests performed shall constitute fulfillment of the performance guarantee. Seller shall have the right to make, at its own expense, any adjustments, changes, or additions to the equipment in an endeavor to obtain performance in accordance with the guarantee. If Seller in good faith determines that compliance with the performance guarantee is unobtainable, Seller shall forfeit its right to the funds or security retained by Buyer to secure equipment compliance with the guarantee, unless Buyer has not suffered actual damages which are recoverable hereunder.

GAS VELOCITY VS COLLECTION EFFICIENCY
FLORIDA ROCK, NEWBERRY, FLORIDA
PROPOSAL 15290 FA



3/1/75

GAS VOLUME VS. COLLECTION EFFICIENCY
FLORIDA ROCK, NEWBERRY, FLORIDA
PROPOSAL 15290 F-B.

100

99.9

99.8

PROCESS - CEMENT KILN CLINKER COOLER.
- MOISTURE $2\frac{1}{2}$ TO 3% BY VOLUME

NOTE: OUTLET EMISSION OF DUST/ACF SHALL SATISFY ALL GUARANTEES

100

110

120

130

140

150

SECTION 6

**GENERAL CONDITIONS OF SALE
FOR MATERIAL AND EQUIPMENT**

SECTION 6

T&C Rev. 3/94

ENVIRONMENTAL ELEMENTS CORPORATION

COMMERCIAL REQUIREMENTS

1. Seller's Proposal	8. Backcharges
2. Mutuality	9. Compliance with Laws
3. Termination and Suspension	10. Confidential Information
4. Indemnification	11. Site Conditions
5. Warranties and Guarantees	12. Price and Payment
6. Limitation and Liquidation of Damages	13. Inspections
7. Schedule and Changes	14. Miscellaneous

1. Seller's Proposal

Seller is willing to negotiate with Buyer mutually acceptable terms. In the absence of such negotiations prior to issuance of a purchase order however, neither Seller's proposal nor Seller's commencement of performance hereunder is or shall be construed to be an acceptance in whole or in part of any terms proposed by Buyer. Seller's proposal is an offer conditioned upon acceptance by Buyer of all, and only, those commercial terms set forth in Seller's proposal and the technical specifications set forth in Buyer's request for proposal as modified by Seller's proposal. Seller objects to any different or additional terms.

2. Mutuality

Whenever any provision of this contract provides that Buyer or a delegate of Buyer may unilaterally interpret the contract, resolve contractual disputes, or modify the scope of supply or time of delivery, the contract interpretation, dispute resolution, or modification can only be accomplished by written agreement between Buyer and Seller. Seller shall be entitled to all costs, both direct and indirect, incurred in performing any modification to the scope of supply or time of delivery together with reasonable allowances for overhead and profit.

Buyer and Seller promise to act in good faith and with reasonable care in performing their respective obligations under this contract including the obligations set forth above, to mitigate any damages which may be incurred, and to not unreasonably withhold any consent or approval which must be obtained by the other. Acting in bad faith or unreasonably shall constitute a material breach of this contract.

3. Termination and Suspension

Neither party may terminate this contract for cause on grounds less substantial than the other's material breach of this contract. Nor may either party terminate unless and until the other party has failed and refused to cure or commence curing said breach within a reasonable time of receipt of written notice specifying said breach.

If this contract permits the suspension of Seller's work by Buyer, Seller shall be entitled to all reasonable costs, direct and indirect, incurred as a result of the suspension, in addition to whatever compensation Seller would otherwise be entitled to, plus the reasonable cost associated with Seller's remobilization at the end of a suspension period.

4. Indemnification

All of Seller's indemnification obligations are contingent upon Seller's receipt of prompt written notice of any suit to which Buyer asserts a right to indemnification under this contract, Buyer's relinquishment of control of said suit, including the settlement thereof, to Seller, and Buyer's assistance in preparing Seller's defense thereto.

Seller's obligation to indemnify for personal injury or property damage, and for costs of suit and attorney's fees is conditioned upon its negligence being the cause of the injury which forms the basis of the Buyer's liability and only then to the extent of such causation. Buyer shall indemnify Seller for all costs and attorneys' fees incurred by Seller if Seller is brought into any action by Buyer and it is determined that Seller's negligence was not the cause of the injury which forms the basis of the Buyer's liability.

5. Warranty and Guarantees

Seller warrants that the equipment shall be free from defects in materials and workmanship. Seller's warranty obligations are conditioned upon payment for the work; receipt of prompt written notice within the warranty period specifying the breach; maintenance and operation of the equipment in strict accordance with Seller's written advice and instructions, generally accepted industry practices, and specified operating conditions. **ANY WARRANTY WHICH OTHERWISE MIGHT BE IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR INTENDED OR PARTICULAR PURPOSE, IS DISCLAIMED.** Any statement by Seller, including any statement in Seller's proposal, with respect to estimated equipment life is for informational purposes only and is not to be relied upon or construed by Buyer as a warranty. Seller's equipment is not warranted against the consequences of abrasion, corrosion, or erosion and is not warranted to comply with any air pollution control code, regulation, ordinance, or order of court. Replacement parts shall be warranted for the unexpired portion of the original warranty period. In the event of a breach of warranty, Seller's sole obligation shall be to repair or replace, at its option, (F.O.B. destination point if installation is by others, in place if installation is by Seller) the nonconforming equipment or work. Seller's warranties shall expire not later than twelve months from installation. In the event that Seller's scope hereunder is limited to the provision of engineering services, Seller's sole obligation in the event of defect in its engineering service shall be to provide corrected engineering drawings.

Seller guarantees that the equipment, when tested at the times and as specified in Seller's proposal, will meet or exceed the performance criteria set forth in the technical portion of this contract. This guarantee is expressly conditioned upon: proper fabrication, storage and installation of the equipment to the extent that fabrication of any component or installation is by others, which includes compliance with all advice given by Seller's construction representative; provision to Seller and its construction representative of a reasonable opportunity to inspect the equipment throughout its delivery, storage, installation, maintenance and operation; maintenance and operation of the equipment, at all times prior to and during testing and during the warranty period, in strict accordance with Seller's written advice and instructions, Seller's operation and maintenance manual, conditions set forth by Seller in its proposal, generally accepted industry practices, and Buyer's specified operating parameters; and good and satisfactory operating condition of existing structures and, if Seller's contract is for repair or replacement, of existing components not replaced hereunder by Seller. The failure of any condition stated above or elsewhere in this contract to the performance guarantee shall cause the rights and duties of both parties to enure to each under this contract as if Seller has demonstrated compliance with the guarantee; and the purchase price including retention shall be immediately due and payable.

Buyer shall schedule performance tests as soon as possible after the equipment is installed, whether or not the equipment is to be put into immediate service. Testing of the equipment shall be done simultaneously and in conjunction with any process equipment tests if possible. Conducting the performance test within ninety (90) days after the equipment is installed shall be a condition to the guarantee. Seller and Buyer shall mutually select a qualified third party to conduct the performance tests. The performance test shall be conducted in compliance with the test methods set forth in Seller's proposal and shall be deemed "passed" when the third party responsible for conducting the test has issued a statement to the Buyer indicating the fact that the equipment has met guarantee, but no later than five (5) calendar days after said third party is in possession of information, indicating the fact that the equipment has met guarantee. Whatever security Buyer has retained to secure compliance with the performance guarantee shall be due and payable to Seller immediately upon the determination that the performance test has been "passed". Seller shall have the right to witness testing and to have access to all information acquired by said third party which is relevant to determining whether the equipment has passed the performance test. Seller shall have the right to make, at its own expense, any adjustments, changes, or additions to the equipment in an endeavor to obtain performance in accordance with the guarantee. If Seller in good faith determines that compliance with the performance guarantee is unobtainable, Seller may, at its option, forfeit its right to the funds or security retained by Buyer to secure equipment compliance with the guarantee, and Seller shall have no further liability or obligation hereunder with regard to warranty or performance guarantee.

6. ~~Limitation and Liquidation of Damages~~

Under no circumstances shall Seller's liability in the aggregate to Buyer on any grounds including breach of contract, or warranty, or commission of any tort, including negligence and strict liability, or repair, replacement, or other corrective work, exceed fifty percent (50%) of the price of this contract.

Seller will not be liable for liquidated damages unless the amount is specifically stated on the face of any Purchase Order, and will furthermore not be liable for special, consequential, indirect or incidental damages, and Buyer hereby assumes the risk thereof, regardless of whether said damages

are based upon Seller's breach of contract, or warranty, or commission of any tort including negligence or strict liability. Seller's liability shall be reduced to the extent of any insurance proceeds Buyer has received on account of Seller's breach of contract or warranty, or commission of any tort.

In the event that this contract requires that liquidated damages be paid by Seller for late delivery, such liquidated damages shall be Buyer's sole and exclusive remedy for Seller's failure to timely deliver and such liquidated damages shall not be due and payable unless Buyer has incurred actual damages, in excess of nominal damages, solely as a result of Seller's delay.

7. Schedule and Changes

All prices are predicated on the assumption that Seller may conduct work on any schedule that will result in drawings submitted, equipment deliveries, and installation if applicable, as given in Seller's specification. Seller shall conduct the work on any other feasible schedule which the Buyer desires, provided Buyer reimburses Seller for all extra costs resulting from such schedule. Seller's contract schedule is conditioned upon Buyer timely meeting its obligations under the Contract Documents and upon the conditions, if any, set forth by Seller in its proposal.

Buyer shall have responsibility to properly coordinate the work of Seller with that of other subcontractors and shall be responsible to Seller for delays and damages occasioned by its failure to so properly coordinate the work.

Seller is excused from performing this contract for the period of time required to overcome the effects of any Act of God, war, riot, fire, explosion, flood, strike, lock-out, injunction, delay or unavailability of a common carrier, inability to obtain raw material, delay or breach by any entity to which any part of Seller's performance has been delegated (provided that such occurs without the fault of and despite the due diligence of Seller), or any cause reasonably beyond the control of Seller. Seller shall be entitled to reimbursement for its costs associated with overcoming the effects of any said cause to the extent that said costs are allocable to this contract.

Seller shall be entitled to an equitable adjustment in the contract price and time occasioned by any change order; by any act, omission, or delay by Buyer, Owner, Engineer, or any representative thereof in, among other things, providing site access, reviewing and approving submittals, providing any power, water, equipment or other materials or services required to be provided, or ordering that work stop for any cause not the fault of the Seller, in issuing interpretations of the contract, or in failure to make payments; or occasioned by any changed site conditions, or by any site conditions not discoverable by the exercise of Seller's reasonable engineering diligence at the time of submission of its proposal. The Seller shall be under no obligation to carry out any change order unless and until any equitable adjustment to the contract price and time has been agreed upon between the parties.

8. Backcharges

Buyer may withhold from any payment then due Seller an amount reasonably necessary to correct any of Seller's defective work, provided that it is a condition to said right to withhold payment that Buyer gives Seller prompt notice of the defect and reasonable opportunity to cure the defect.

Buyer shall thereafter make prompt payment of the amount withheld to Seller immediately upon Seller's correction of the defect.

In the event extra field work is being performed by Buyer or by others with the consent of Seller or as set forth above, Seller shall reimburse Buyer's reasonable and necessary costs as follows: (i) actual cost of hourly paid field labor, plus ten percent, for labor hours for which time sheets have been signed by Seller, together with applicable insurance and taxes only, with no reimbursement for salaried personnel; (ii) actual cost of materials or supplies, plus ten percent, for material charges supported by a material receipt or invoice; (iii) seventy percent of the unit rates published in the A.E.D. publication or local equivalent for welding machines and similar equipment, two percent of labor cost for small tools, with no reimbursement for crane or crane operator charges.

9. Compliance with Laws

Seller agrees to furnish the goods and services purchased under this contract in accordance with applicable federal and with contract-specified state and local law as it exists at the time of this contract's formation. To the extent that Seller incurs costs in furnishing the goods and services hereunder as a result of complying with laws, regulations, or ordinances enacted subsequent to the formation of this contract, and such costs would not otherwise have been incurred, Buyer agrees to reimburse such costs to Seller.

10. Confidential Information

Buyer shall treat as confidential all information which may be furnished to it, either directly or indirectly, by Seller and may use such information only for the purpose of enabling Buyer to determine whether it is desirous of purchasing the equipment from Seller and enabling Buyer to operate and maintain the equipment. Buyer shall not disclose such confidential information to any third party, including any affiliate of Buyer, except to those of its employees who require knowledge of the same and who have agreed with Buyer and, if required by Seller, with Seller to safeguard the confidential nature of such information to the same extent as Buyer is obligated hereunder. Buyer shall employ restrictive legends on all documentation and further take all other reasonable measures to avoid wrongful disclosure by its employees. Buyer shall use the same degree of care with respect to such documentation and confidential information as it would normally use in protection of its own confidential and proprietary information.

11. Site Conditions

Buyer acknowledges that Seller is relying upon the accuracy of Buyer's specifications and design information, and that Seller has not endeavored to independently verify the accuracy of either.

Seller does not assume the risk of any latent site conditions which were undiscoverable prior to this contract's formation by Seller's exercise of reasonable diligence.

12. Price and Payment

Buyer shall make payments to Seller promptly per Seller's payment terms set forth in its proposal. If no payment terms are set forth in Seller's proposal, Buyer shall make payments to Seller

monthly, commencing with the date of receipt of order or notice to proceed, within thirty (30) days after receipt of Seller's invoice reflecting estimated value of the work performed to date.

If for any reason not the fault of Seller, Seller does not receive a progress payment from Buyer within seven (7) days after the date such payment is due, then Seller, upon giving an additional seven (7) days' written notice to Buyer, and without prejudice to and in addition to any of his other legal remedies, may stop work. The Contract Price shall be increased by the amount of the Seller's reasonable costs of shut-down, delay, and start-up, which shall be effected by appropriate change order. If Seller's work has been stopped for thirty (30) days because Seller has not received progress payments as required hereunder, the Seller may terminate this Contract upon seven (7) days' written notice to Buyer, and recover from Buyer payment for all costs to date of termination, plus reasonable overhead, profit, damages, and attorneys fees.

The portion of any payment due to Seller not paid when required to be paid shall be deemed delinquent, and shall bear interest from the date payment should have been made until paid at the rate of 1.2 percent per month or portion thereof. In the event that acceptance is delayed for any reason not the fault of Seller, the retain shall accrue interest at the rate of 1.2 percent per month or portion thereof for the time acceptance would have occurred but for such delay until paid.

13. Inspections

Seller shall afford Buyer, at all reasonable places and times, and upon seven (7) days written notice, opportunity to inspect all equipment and work manufactured, fabricated, or procured hereunder. After such inspection, whether prior to or upon tender, Buyer's failure to advise of any nonconformity which would have been discoverable by a reasonable inspection shall constitute a waiver of such nonconformity for all purposes. Otherwise, Buyer's acceptance of or right to reject the equipment, and the rights and obligations of Buyer and Seller upon acceptance or rejection, shall be determined by application of the Uniform Commercial Code.

14. Miscellaneous

The Seller may subcontract portions of the work covered under this contract, provided that Seller shall remain liable to Buyer for any work so subcontracted.

In the event Seller should employ an attorney to enforce any of the provisions hereof, to protect its interest in any matter arising under this contract, or to collect damages for the breach by Buyer of this contract, Buyer shall reimburse Seller for all attorneys' fees, expert fees, and other litigation or arbitration costs paid or incurred by the Seller, to the extent that Seller prevails in whole or in part.

Seller shall not be required to commence or to proceed with work, or the affected area of the work, if there is present asbestos, polychlorinated biphenyls (PCB's), or other hazardous material, or any material containing any of them ("Hazardous Material"), and Buyer shall indemnify and hold harmless Seller from and against any loss, damage, liability or expense arising out of or in connection with the presence of Hazardous Materials, or in connection with any testing, or requirement of testing to determine the presence or absence of Hazardous Materials.

The contract between the parties shall consist of the following documents, listed in order of priority, and in the event of inconsistency among any of them the terms of the first listed document shall prevail: (i) Seller's proposal, including these commercial exceptions; (ii) Seller's drawings prepared pursuant to this contract, to the extent such drawings are not more stringent than Buyer's request for proposal; and (iii) Buyer's request for proposal (collectively, the "Contract"). The Contract constitutes the entire agreement between the parties and there are no representations, warranties, covenants or obligations except as set forth therein.

SECTION 7

**BUYER'S SPECIFICATION
EXCEPTIONS AND CLARIFICATIONS**

SECTION 7**7. BUYER'S SPECIFICATION
EXCEPTIONS AND CLARIFICATIONS**

This equipment is being offered in compliance with Specification Inquiry No. 6823-OG-004 dated April 13, 1995 which hereby is made a part of this proposal subject to the exceptions and clarifications listed below.

Item 3.3 Specification allows conveyor speed up to 50 rpm which provides a very high wear rate and excessive precipitator outage for repair. Seller has restricted conveyor speed to 25 rpm to provide reasonable service life since the precipitator must be taken out of service for conveyor repairs.

SECTION 8
INSTALLATION LIST

AIR CLEANING SYSTEMS

**Recent Rock Product Precipitator Installations
Dry and Wet Process Rotary
Cement Kilns and Mills**

INSTALLATION LIST

Air Cleaning Systems Group
P.O. Box 1318; 3700 Koppers Street
Baltimore, Maryland 21203
Telephone: 301-368-7222

<u>COMPANY</u>	<u>PROCESS/PLANT</u>	<u>EQUIPMENT</u>
Ash Grove Cement Company Kansas City, Missouri	Dry, Louisville, Nebraska	1 Precipitator on Grate- Preheater Kiln (1975)
Climent Quebec, Inc. St. Basil Cte Portneuf Province of Quebec, Canada	Dry St. Basil Cte Portneuf Province of Quebec, Canada	4 Precipitators on 4 stage Suspension Preheater in Circuit with Roller Mill (1981)
Dundee Cement Company Dundee, Michigan	Wet Dundee, Michigan	2 Precipitators on Kilns #1 and #2 (1972)
Empresa Industrias Guapan, S.A. Ecuador	Dry Azogues, Ecuador	1 Precipitator on 4 stage Suspension Preheater in Circuit with Roller Mill (1980)
General Portland, Inc. Dallas, Texas	Wet Paulding, Ohio	2 Precipitators on Kilns #1 and #2 (1967)
	Wet Fredonia, Kansas	2 Precipitators on Kilns #1 and #2 (1974)
	Dry New Braunfels, Texas	1 Precipitator on 4 stage Suspension Preheater with Flash calciner, in Circuit with Roller Mill (1980)
	Alkali Bypass New Braunfels, Texas	1 Precipitator (1980)

**ENVIRONMENTAL
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<u>COMPANY</u>	<u>PROCESS/PLANT</u>	<u>EQUIPMENT</u>
Lehigh Portland Cement Co. Allentown, Pennsylvania	Dry Mason City, Iowa	2 Precipitators on kiln #7 (1957)
	Dry Union Bridge, Maryland	2 Precipitators each on Kilns #1, #2, and #3 (1956) 1 Precipitator following above 6 units (1974)
	Dry Mitchell, Indiana	1 Precipitator on #3 single stage Suspension Preheater Kiln (1976)
Lehigh Portland Cement Co. Allentown, Pennsylvania	Dry Leeds, Alabama	1 Precipitator on 4 stage Suspension Preheater in circuit with Roller Mill, high suction (1975)
	Calcium Aluminate Buffington, Indiana	1 Precipitator on Rotary Kiln (1970)
Lone Star Industries Greenwich, Connecticut	Wet Bonner Springs, Kansas	1 Precipitator on Kiln #4 (1969) 2 Precipitators on Kilns #1, #2, and #3 (1970)
	Dry Roanoke, Virginia	1 Precipitator each on Kilns #1 and #2 (1951) 1 Precipitator each on Kilns #3 and #4 (1953 & 1956) 1 Precipitator on Grate- Preheater Kiln #5 (1975)
	Raw Mills Roanoke, Virginia	2 Precipitators on 2 Roller mills, high suction (1975)
	Wet Pennsuco, Florida	1 Precipitator each on Kilns #1 and #2 (1969) 1 Precipitator each on kilns #3 and #4 (1975)
	Clinker Cooler Pennsuco, Florida	1 Precipitator each on Kilns #1 and #2 (1969)

<u>COMPANY</u>	<u>PROCESS/PLANE</u>	<u>EQUIPMENT</u>
Lone Star Industries Greenwich, Connecticut	Dry Davenport, California	1 Precipitator on 4 stage Suspension Preheater with Flash Calciner, in circuit with Roller Mill high suction (1980)
	Alkali Bypass Davenport, California	1 Precipitator (1980)
	Wet Neville Island, Pennsylvania	1 Precipitator on Kiln #1 (1963)
Louisville Cement Company Louisville, Kentucky	Dry Speed, Indiana	1 Precipitator on 4 stage Suspension Preheater in circuit with Roller Mill Circuit, high suction (1977)
Louisville Cement Company Louisville, Kentucky	Alkali Bypass Speed, Indiana	1 Precipitator (1977)
Medusa Cement Cleveland, Ohio	Dry Wampum, Pennsylvania	2 Precipitators on Kilns #1 and #2 (1979) Follows existing precipitators
National Cement Company Birmingham, Alabama	Dry Ragland, Alabama	1 Precipitator on Kiln #1 4 stage Suspension Preheater with flash Calciner, in circuit with Roller Mill (1977)
	Alkali Bypass Ragland, Alabama	1 Precipitator (1977)
River Cement Company St. Louis, Missouri	Dry Festus, Missouri	1 Precipitator on Kiln #2 (1968)
	Dry Festus, Missouri	2 Precipitators on Kilns #1 and #2 (1981) Follows existing precipitators

<u>COMPANY</u>	<u>PROCESS/PLANE</u>	<u>EQUIPMENT</u>
Signal Mountain Cement Co. Chattanooga, Tennessee	Wet Chattanooga, Tennessee	1 Precipitator on Kiln #5 (1964)
		1 Precipitator on Kiln #3 (1971)
SME Cement Inc. Middle Branch, Ohio	Dry Middle Branch, Ohio	1 Precipitator on Grate- Preheater Kiln
SME Cement Inc. Bessemer, Pennsylvania	Wet Bessemer, Pennsylvania	1 Precipitator each on #4 (1968) and #5 (1966) kilns.
South Dakota Cement Rapid City, South Dakota	Wet Rapid City, South Dakota	3 Precipitators on Kilns #1 #2, and #3 (1968)
Southern Province Cement Company Gizan, Saudi Arabia	Dry Gizsan, Saudi Arabia	2 Precipitators on 2-4 stage Suspension Preheaters with Flash Calciners, in circuit with Roller Mill (1980)
Southern Province Cement Company Gizan, Saudi Arabia	Alkali Bypass Gizan, Saudi Arabia	2 Precipitators on 2 Kilns (1980)
State Cement Corp. Pakistan	Dry Javedan, Pakistan	1 Precipitator on 4 stage Suspension preheater in circuit with Raw Mill (1977)
	Alkali Bypass Javedan, Pakistan	1 Precipitator (1977)
	Cement Finish Mill Javedan, Pakistan	1 Precipitator (1977)

SECTION 9
ATTACHMENTS

ESIRAPPERS - IMPACT TYPE

The collecting surfaces and the discharge electrodes are both subject to dust buildup during normal precipitator operation. When such buildups occur, reduced electrical clearances develop inside the precipitation zone and decreased precipitator performance could result. Seller's ESI-I electric impulse rapper is provided to rap and dislodge the collected particulate from the collecting and discharge electrodes, as well as all perforated distribution plates. The ESI-I is a single impulse, gravity impact type rapper. It consists of an integral DC coil and housing assembly, a 20 pound piston and the associated mounting hardware. The rapper is mounted on 3 lengths of all-thread and is designed as a completely weatherproof unit. The rapper, as installed, weighs 37 pounds (20# piston and 17# barrel and coil).

Rapping impact occurs when the piston falls and strikes a steel rapper rod. The rapper rod rest on an anvil which transmits the rapping energy directly into the dust plates. The discharge electrodes are rapped in the same way. Rapping energy is transferred from the falling piston to the discharge electrodes through epoxy filled glass filament insulator rods. The entire discharge electrode matrix need only be rapped at the support points, typically two per field. These rappers are automatically set to operate together as a pair. The intensity of impact is dependent on two (2) factors: (1) The rest position of the piston with respect to the rapper coil, and (2) the number of half line cycles applied to the rapper. The amount of piston insertion in the coil is simply adjusted by varying the height of the rapper on the all-thread. This is an adjustment that is made once for the particular precipitator application. Once the height adjustment is set the intensity of the impact can then be set on the rapper controller. The controller has programmable selections for each field that can be adjusted to apply the appropriate number of half line cycles to the rappers in that field. This adjustment is the only adjustment that would normally be required and can be duplicated and varied quite easily. Maximum output is limited to prevent excessive impacts.

RAPPER CONTROL SYSTEM

Introduction

The rapper control system is very important for efficient operation of an electrostatic precipitator. Since all electro-mechanical timers have inherent weaknesses, Seller offers a microprocessor based solid state rapper control system to control and monitor accurately the ESI-I rappers.

The solid state rapper control system is designed for maximum service life, minimum size and easy maintenance. It is ruggedly built to provide years of trouble-free service under the most severe conditions.

Control Cabinet

The rapper control system is contained in a single, pre-wired NEMA 4 weather-tight enclosure. The dimensions of the enclosure are 48 inches long by 36 inches wide by 16 inches deep.

The control system is a microprocessor-based programmable controller using plug-in industrial grade cards. All inputs and outputs are optically isolated, all connectors are pin and socket, and all IC's are socketed. The cards insert into a 19 inch card rack mounted in the control cabinet. Input system wiring to the circuit boards is done on the back plane of the card rack. Output wiring from the printed circuit boards is done through 20 amp, 500 volt DIN standard connectors. Control power for the programmable controller is through a 200 VA control transformer, and supply power for the rappers is through a 2 KVA step down transformer.

The card rack consists of the following plug-in printed circuit boards:

- A. CPU Board: Contains the central processing unit, the logic power supply and the programmable memory chips. Each CPU board has a user selective unit address switch and operating mode switch.
- B. Auxiliary Board: Contains the failed rapper detection, remote program selection, alarm output and a real time of day clock.
- C. DC Output Board: Contains sixteen (16) solid state outputs that convert 208 VAC line voltage into pulsed DC output for operating magnetic impulse rappers or magnetic vibrating rappers.
- D. CCU Board - (Optional): Contains the ROM program that allows two (2) CPU cards to share a common fiber optic data link. Each CCU board has a user selective switch that permits switching between RS-232 and RS-422 interface.
- E. RS Board - (Optional): Is a communications interface between the rapper panel and Data Management System/distributed control system.

Crystals are provided for independent, custom baud rates for RS-232 and RS-422 interfaces.

- F. Terminal with Keyboard and Flat Display: (Note: The terminal is a stand alone unit connected to the CPU card.) There may be more than one (1) local terminal per system.

Control System Location and Reliability

The control panel may be mounted in any convenient location. For most installations it is located on top of the precipitator to minimize the wiring between the panel and the rappers. It is recommended that dusty or extremely humid areas be avoided. The rapper control system is designed to operate with operating temperatures between -25°C (-13°F) to 85°C (185°F). High reliability is achieved by the following:

- A. 100% solid state components.
- B. Microprocessor speed of one megahertz.
- C. All parts are commercially available.

- D. All IC's use sockets that are tin plated.
- E. All printed circuit boards connectors are gold on gold, pin sockets.

Control System Operation

Separate timers are employed for the perforated plates, collecting surfaces and discharge electrode rappers. This permits the rapping on collecting surfaces and discharge electrode fields to be adjusted independently. Independent adjustment is absolutely essential since the rate of dust deposition on the collecting surfaces varies greatly from the inlet to outlet, and the rapping required to clean the discharge electrodes is significantly different from that required to clean the collecting surfaces.

The rappers for each collecting surface field are evenly spaced along the field perpendicular to the direction of gas flow. They are activated in sequence, one (1) collecting plate group at a time from one end of the field to the other. The sequence is a continuous cycle; as soon as a rapping sweep of a field is completed, the control returns to the first rapper and sweeps the field again. The discharge electrode rappers are activated in sequence from the inlet to the outlet fields. The collecting surfaces and discharge electrodes on the inlet portions of the precipitator are rapped more often than those on the outlet portion.

Other features of the microprocessor based rapper control system are:

- A. The installation and operating programs are stored in static RAM while the main operating program is stored in ROM. This feature eliminates the need for an auxiliary D.C. power supply.
- B. Selection of interweave: This feature prevents the simultaneous energizing of rappers that are marked for interweave regardless of rapping group or anti-coincidence group.
- C. Fault Detection: This feature is a tremendous aid in troubleshooting the rapper system. It will detect the following:
 - 1. Rapper ground faults which draw 100% or more of normal full-load current (short).
 - 2. Rapper coil open circuit.
 - 3. Intermittent faults which are neither open or shorted.
 - 4. Disconnected wires.
 - 5. SCR not turning on.

When any of the above faults occurs, the display will show "failed rapper", the failed rapper will be added to the failed rapper list and listed as open or shorted, and the fault relay will be energized. The fault relay has contacts which may be wired to a distributed control system and/or a remote annunciator panel.

Program

The rapper control has 100% memory retention of the field set variables without battery backup. The installer sets the installation parameters that customizes the control to each customer's specific system requirements. This password protected program can be modified at any time using the standard keyboard/display terminal. Typical installation program parameters are:

- A. Address of auxiliary card.
- B. Four digit operator access password.
- C. Enable/disable failed rapper detection.
- D. Specify failed rapper threshold.
- E. Name of each field or group of rappers.
- F. Number of rappers in each field.
- G. First number of display in each field.
- H. Type of rapper in each field.
- I. Maximum lift or "on" time of the rapper.
- J. Output wiring address for each field.
- K. Enable/disable power off rapping.
- L. Output wiring of power off rapping.
- M. Interweaving rappers in different anti-coincidence groups.
- N. Individual adjustment of each magnetic impact rapper lift.

The operating variables that are regulated by the rapper control system are:

- A. Option to copy programs.
- B. Program starting method (restart/blend/continue).
- C. Rest time.
- D. Name of each field or group of rappers.
- E. Repeat or cycle time for each rapper field.

- F. Power off rapping lead time (if applicable).
- G. Rapper lift/on time for each field.
- H. Rapper intensity (if applicable).
- I. Number of impacts (if applicable).
- J. Impact frequency (if applicable).
- K. Rapper sequence ascending/descending.
- L. Number of first rapper in each field.
- M. Rest mode (min/max: rap field together or spread out over repeat time).
- N. Rapper anti-coincidence with other rapper fields.
- O. View field/anti-coincidence group duty.

The operator may also use the maintenance program. Typical parameters used are:

- A. List of all the failed rappers and whether they are open, shorted or intermittent.
- B. List of all rappers deliberately removed from the rapping sequence (bypass).
- C. Manually test an individual rapper.
- D. Manually or continuously cycle a rapper field.

These variables are easily adjustable using standard keyboard/display terminal. The terminal is readily accessible when the control cabinet door is opened. The rapper control system is adjusted for optimum performance by the Seller's field engineer during precipitator start-up. Any further adjustments will only require selecting an appropriate program.

Fiber Optic Link

Two (2) or more rapper controls may be linked together via fiber optic cable and connectors (CPU board to CPU board to CCU board). Each connected CPU is assigned an identifying number. When the controls are linked, they function together as one system. All the units terminal screens show the same information, and a key pressed at any terminal is relayed to the other units. In the "run" mode, anti-coincidence groups which include fields from more than one unit will operate normally (rappers will not be energized simultaneously).

DIGICON
AUTOMATIC POWER CONTROL FOR
ELECTROSTATIC PRECIPITATORS

Introduction

Thyristors (SCR's) have superseded saturable core reactors as control elements for the electrical energization of modern electrostatic precipitators. This change was a result of the inherent advantages of the SCR.

Basically, a saturable core reactor is an electromagnetic or transformer-like device wherein the voltage available for precipitation is controlled by change in the reactor impedance, achieved by a change in reactor core saturation responding to a feedback signal from the precipitator. By its very nature, a saturable core reactor is of considerable size and weight, has measurable power (heat) loss and, most important, has considerable electrical inertia (i.e., impedance change as a result of control signal change is slow).

The SCR is a semiconductor or transistor-like device, and is basically a very fast off-on switch operating sixty (60) times a second in response to firing or gate pulses controlled from precipitator feedback signals. The SCR is inherently small in size and weight, consumes little power and most important, has little electrical inertia (i.e., change of state from off to on is almost instantaneous).

It is a basic tenet of precipitation that the highest collection efficiency results when the precipitator is energized at the highest usable voltage. Even on steady state industrial processes, conditions inside the precipitator are constantly changing as dust is precipitated and then rapped off into the hoppers for disposal. Therefore, the fast reacting SCR controller has the potential to produce improved collection efficiency over that attainable through the use of the slower saturable core reactor.

The ability of the SCR to fulfill its potential and actually raise collection efficiency, or conversely allow the use of smaller precipitators for a given efficiency, is totally dependent upon the quality and ingenuity of the design of the "brain" or sensor-controller system which provides the operating instructions or gate pulses to the SCR slave. Thus, an important conclusion: **ALL SILICON CONTROLLED RECTIFIER AUTOMATIC POWER CONTROLS ARE NOT ALIKE.** The mere substitution of an SCR controller for a saturable core reactor offers only the potential for improved performance if it is properly driven. This driver, or brain, of the system is usually a proprietary, and sometimes patented, package which will differ considerably in function and sophistication among the different equipment manufacturers. The fact that this difference exists is an important concept to be remembered by the potential Buyer when evaluating competitive equipment offerings.

DIGICON® OPTIPULSE™ AUTOMATIC POWER CONTROL SYSTEM

The DIGICON OPTIPULSE controller is a microcomputer based control used to regulate the power applied to a single T-R set. The control function integrates precipitator operating parameters (primary and secondary voltage and current) and precipitator sparking to operate the T-R set in the most efficient manner. The principal output of the controller is a selectable current or voltage signal. This signal feeds the firing circuit, which in turn gates the SCR's with a corresponding conduction angle and ultimately determines the level of secondary voltage inside the precipitator.

In the absence of precipitator sparking, the DIGICON OPTIPULSE controller will attempt to increase precipitator power until one of the following limits is reached:

- Primary Current Rating of T-R
- Secondary Current Rating of T-R
- Full Conduction of SCR's
- Secondary Voltage Limit

The secondary voltage limit is operator selectable using one of the two manual thumbwheel switches. Upon reaching any of the above limits, an LED indicator light on the front panel of the controller will illuminate.

In addition to the front panel LED indicators, the controller has a two (2) line 32 character alphanumeric Liquid Crystal Display (LCD) which presents a user-friendly interface to the plant operator. Controller faults, operating status and other information are presented in plain English.

In the presence of precipitator sparking, the DIGICON OPTIPULSE controller responds by quickly quenching the spark, then ramping the power back to automatically maintain the most efficient level of operation coincident with a selected spark rate limit. A thumbwheel setting on the front of the panel allows the operator to select the desired spark rate limit. The switch setting selected is a sparks per minute rate at which the controller will attempt to limit precipitator sparking. When a spark occurs, the controller will record the spark-over voltage and calculate the return slope and kickdown values required to achieve a spark rate as selected on the spark rate limit thumbwheel. Selecting a high spark rate limit will result in a correspondingly steeper slope and smaller kickdown after a spark occurs. High and low limits are programmed into the controller to prevent unrealistic response parameters.

The controller incorporates a number of features that protect the precipitator and transformer-rectifier. An undervoltage algorithm monitors the transformer-rectifier primary voltage. When the primary voltage drops below a predetermined setpoint, accompanied by primary or secondary current above a predetermined value for longer than 30 seconds, the T-R will be tripped off and the fault annunciated on the alphanumeric display. Trip points and set times are changeable within the program.

A spark counter, which updates every 6 seconds, displays an actual count of sparks per minute as opposed to an average spark rate. Should the T-R trip due to a high spark count, an overspark condition will be displayed along with the spark count that caused the trip.

To prevent possible damage to the T-R, the controller will also interrupt power and annunciate fault in the event an SCR phase imbalance is detected. Up to six (6) other alarms can also be annunciated through the controller.

The DIGICON OPTIPULSE controller has a supervised test or manual mode, allowing an operator to run the power up manually, while monitoring for overcurrent (exclusive of the Overcurrent relay), undervoltage, overvoltage and overspark. The controller will trip the cabinet if one (1) of these conditions occurs in the manual or test mode.

Some of the other important standard features of the DIGICON OPTIPULSE controller can be summarized as follows:

1. Secondary Voltage Control: With its advanced program, the DIGICON OPTIPULSE controller senses and adjusts secondary voltage, which is the most accurate indicator of precipitator operation.
2. Rugged Construction: The controller is housed in a dust-tight, NEMA 12 enclosure and is specifically designed for rigorous, industrial duty at electrostatic precipitator installations.
3. Custom Design: The DIGICON OPTIPULSE controller, including software and specialized input/output circuitry, are proprietary developments of Environmental Elements Corporation. It is a custom design, not an adaptation of an off the shelf item.
4. Non-Volatile Memory: The operating program is contained in EPROM and EEPROM type memory, as opposed to RAM type. The program in use is always retained on power loss, which eliminates the need for battery backups or auxiliary power sources.
5. Pre-Programmed: Complete programming is done prior to shipment at Seller's Technical Development and Services facility in Baltimore, Maryland. Should reprogramming be required in the event of a significant process or fuel change, it can be accomplished in the field by knowledgeable personnel.

Although not required in normal application, a hand-held terminal is available to change any of the internal program parameters such as spark setback limits, power ramp rates and so forth. Access is through a hierarchal password system designed to give various levels of personnel different types of access. The inherent intelligence of the DIGICON OPTIPULSE controller will probably not require these parameters to be changed; however, the capability is still there. Any changes can be made on-line. A special command reloads the factory default parameters, if desired or required.

6. Self-Check: Upon energization, the controller automatically performs a self-check routine. Any problems found are annunciated on the alphanumeric display located on the front panel.
7. Ease of Maintenance: The controller utilizes plug-in circuit boards for ease of troubleshooting and repair. Neither Environmental Elements design philosophy nor the operation and maintenance manual assumes the requisite of computer expertise on the part

of plant maintenance personnel.

8. **OPTIPULSE Intermittent Energization:** For energy savings or for improved performance with high resistivity particulate, the DIGICON OPTIPULSE has an intermittent energization feature. This feature can be enabled by a front panel switch or remotely, if the proper software permissive is present. The number of cycles on and off can be varied via the hand held terminal. The amplitude of the pulses are automatically monitored and controlled by measuring the actual peak KV, the peak and average secondary current and the peak and RMS primary current. This is very important for T-R protection.
9. **Expandable to the Data Management System:** The controller is fully compatible with and becomes an integral part of Environmental Elements' modular Data Management System.

In lieu of connecting to the Data Management System, the DIGICON OPTIPULSE controllers have a serial port which may be accessed directly by plant computers through a Buyer supplied gateway device thereby becoming part of a data highway.

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NOTE: ALL DIMENSIONS ARE APPROXIMATE

**ENVIRONMENTAL
ELEMENTS
CORPORATION**

PRELIMINARY ARRANGEMENT
POLYSIUS CORP. FOR FLORIDA ROCK
NEWBERRY, FLORIDA

DRAWN: TBT

SIZE

D

DRAWING NUMBER:

15290-2110-D2

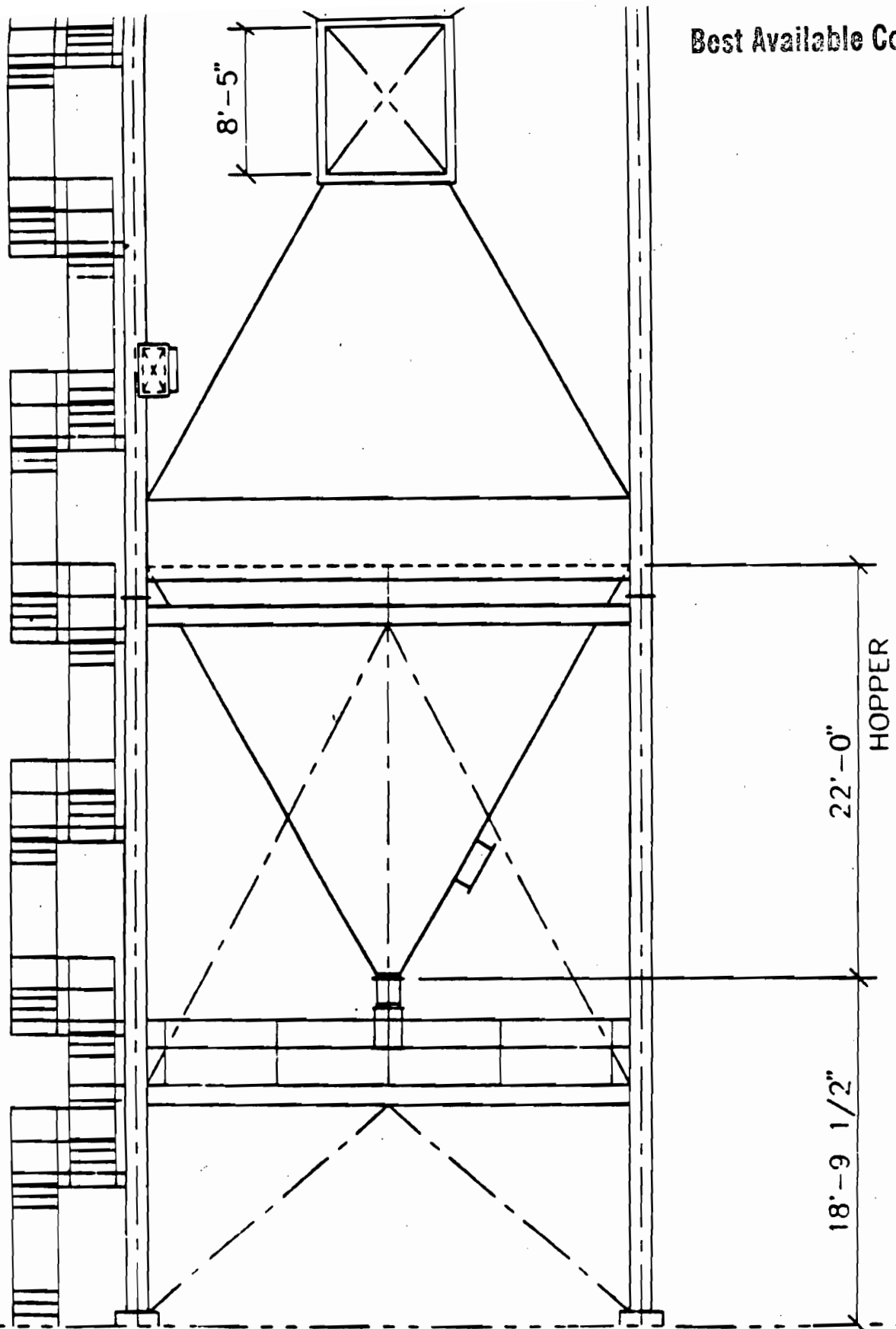
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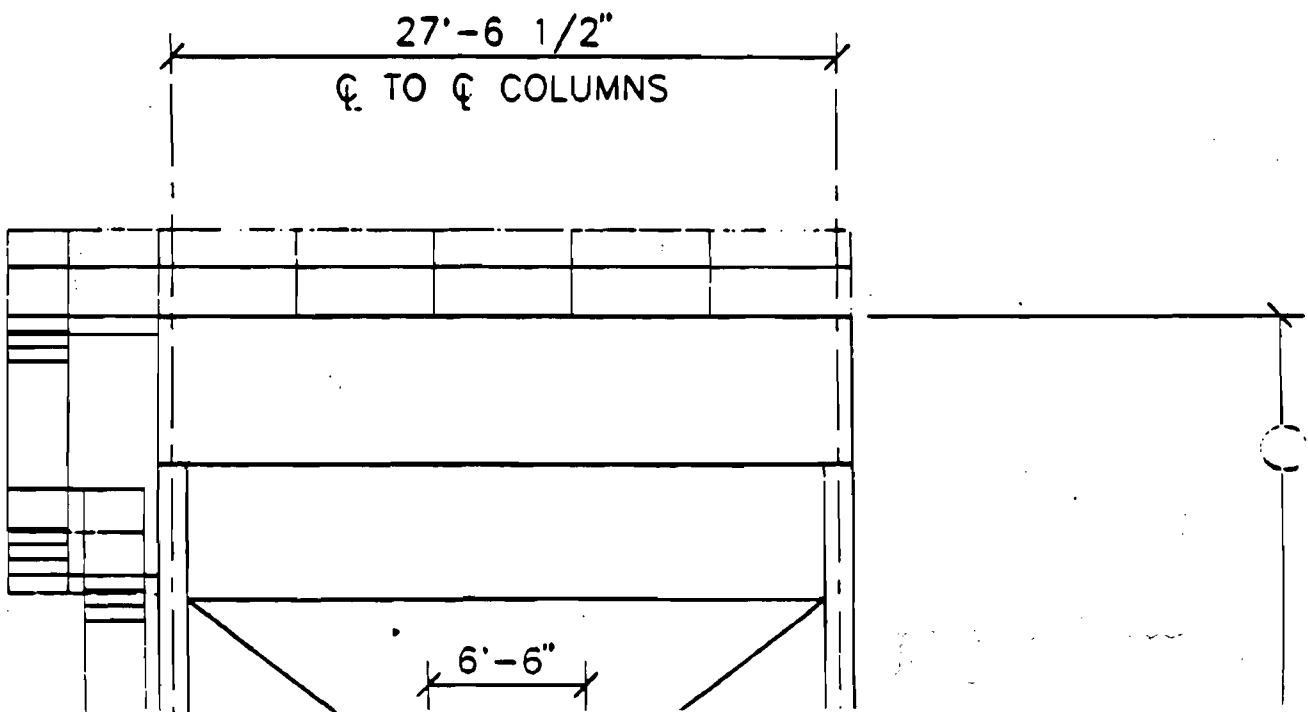
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LTR	DESCRIPTION	BY	



OUTLET ELEVATION



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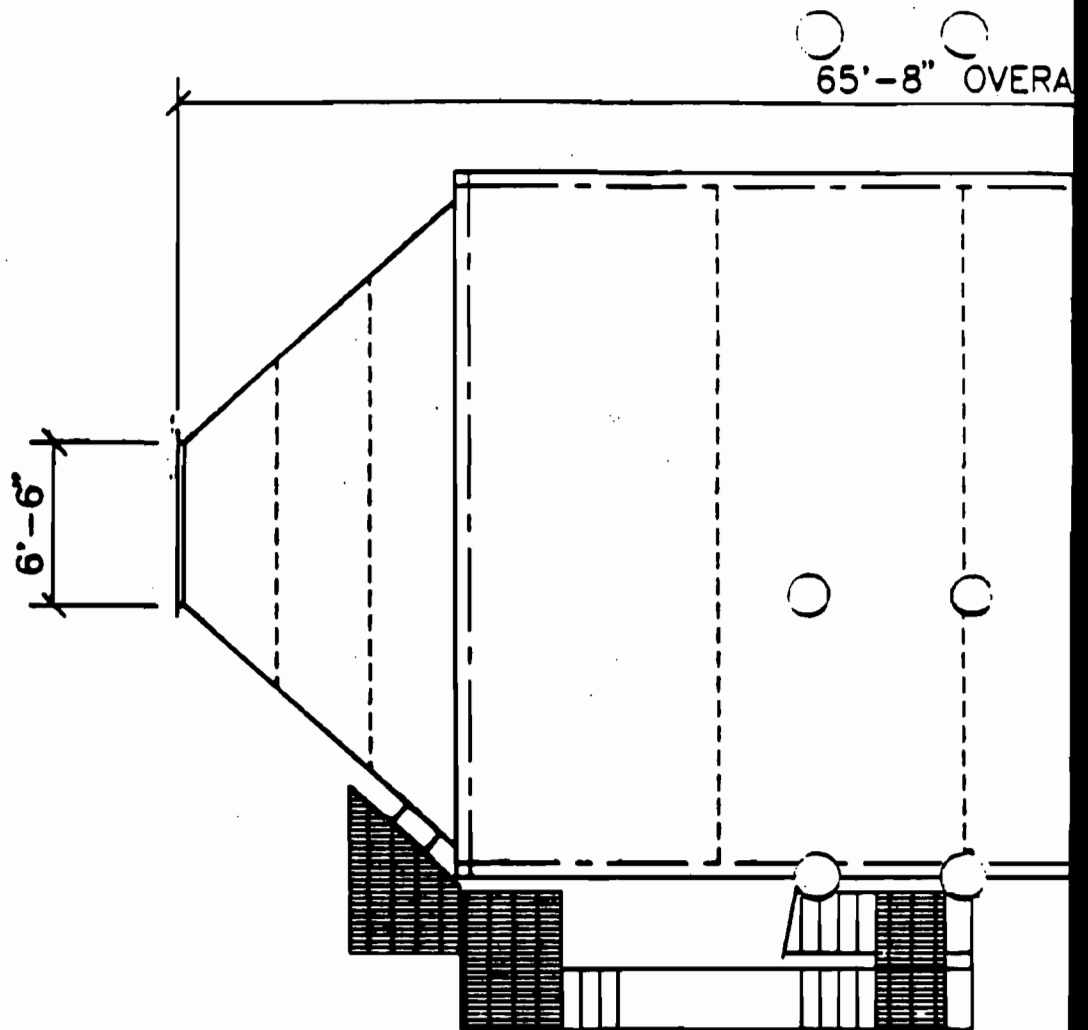
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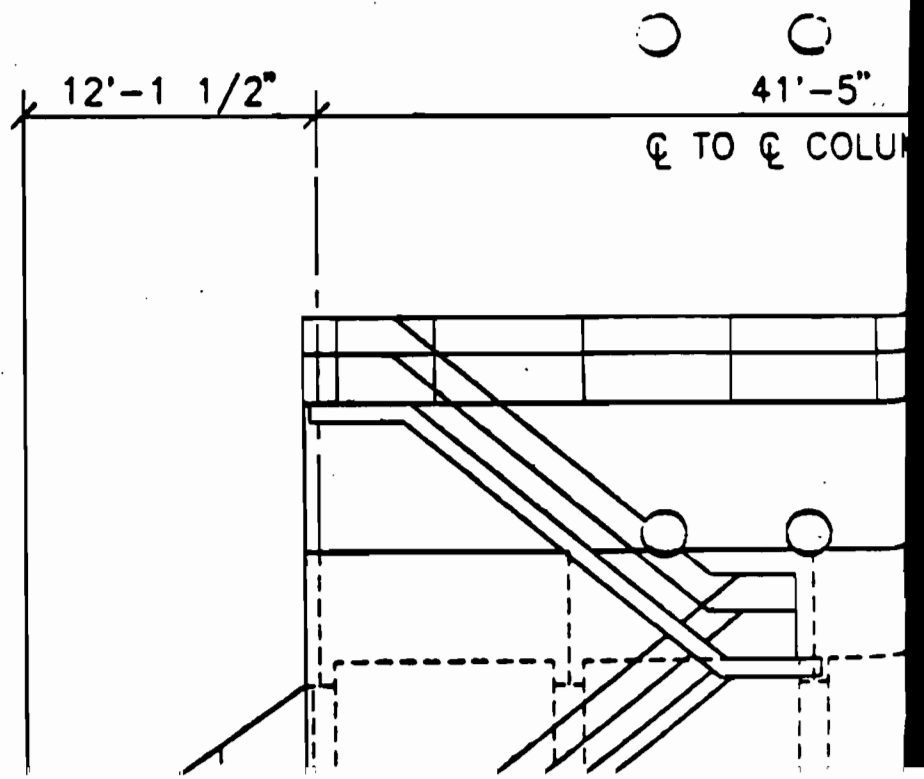
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15'-0"
BOTT. OF VALVE
FLANGE

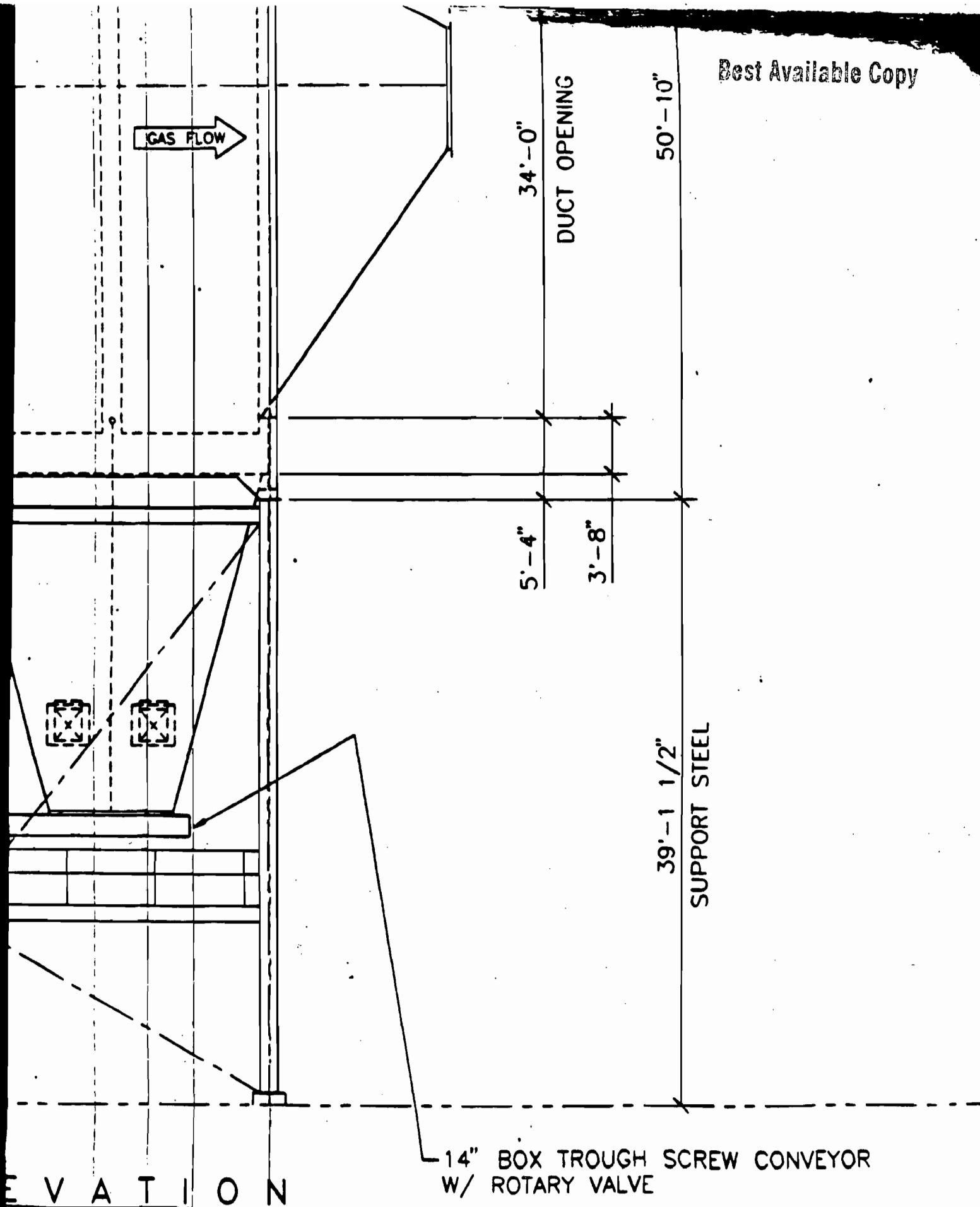
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P L A N



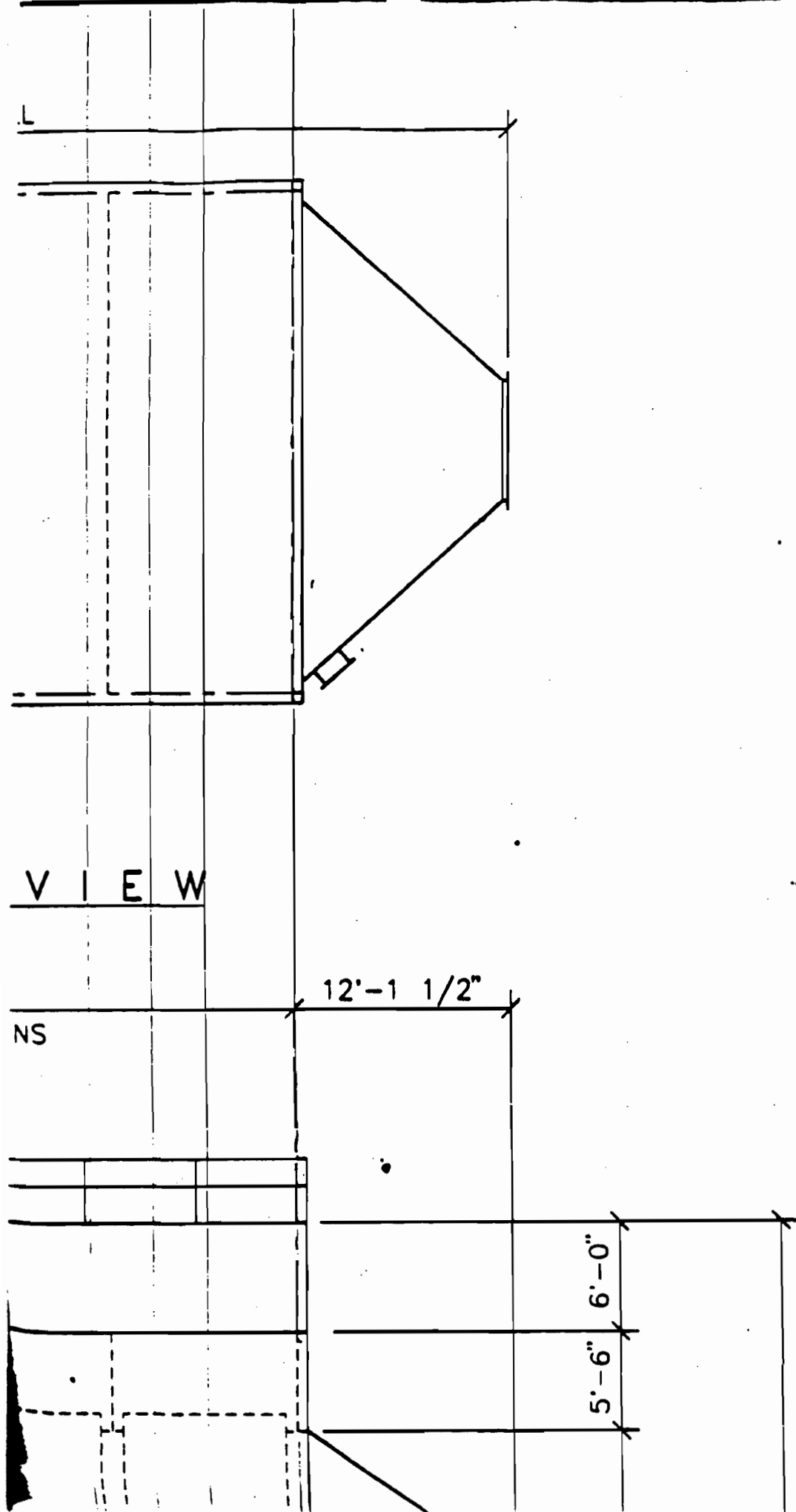
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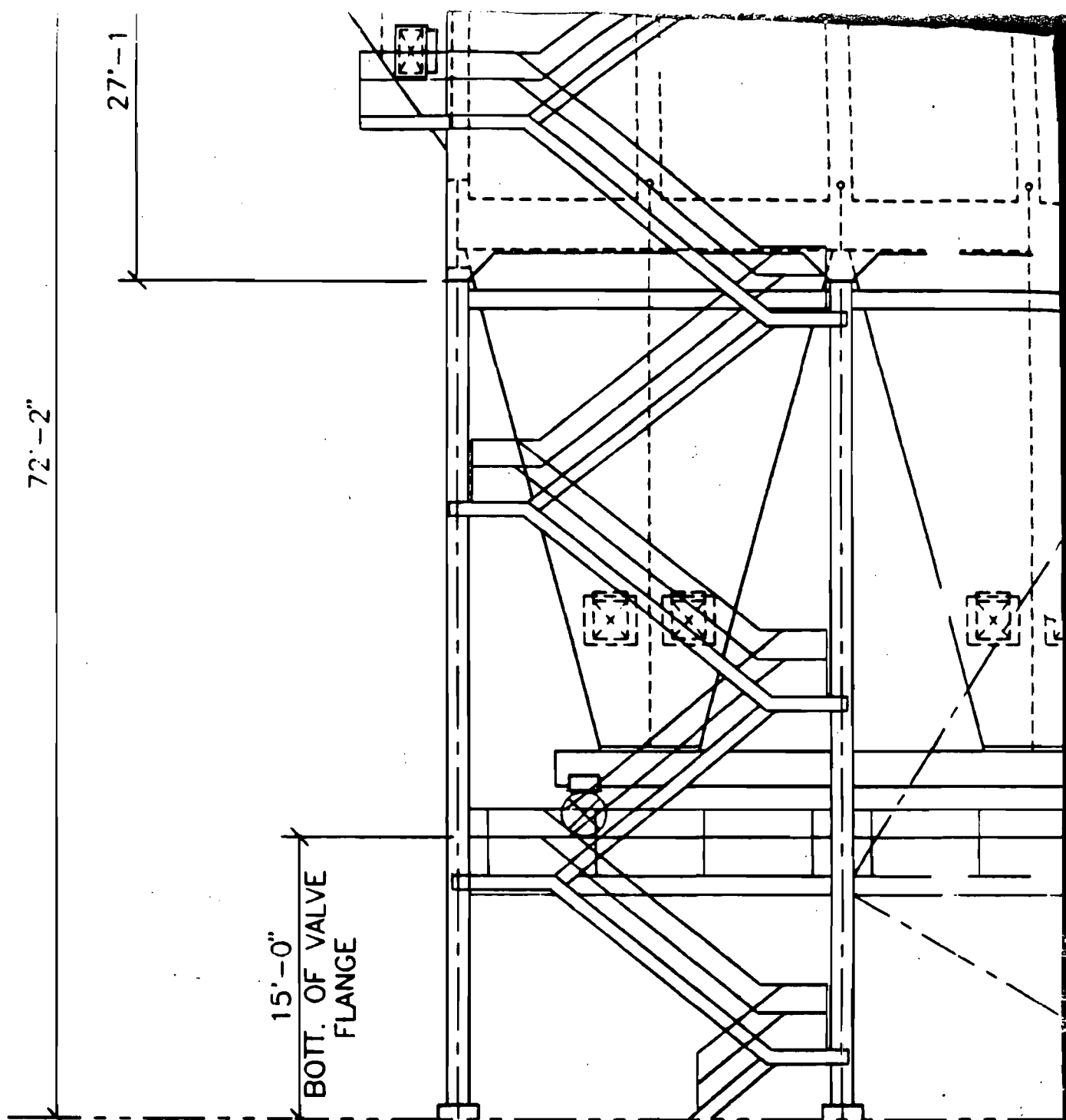


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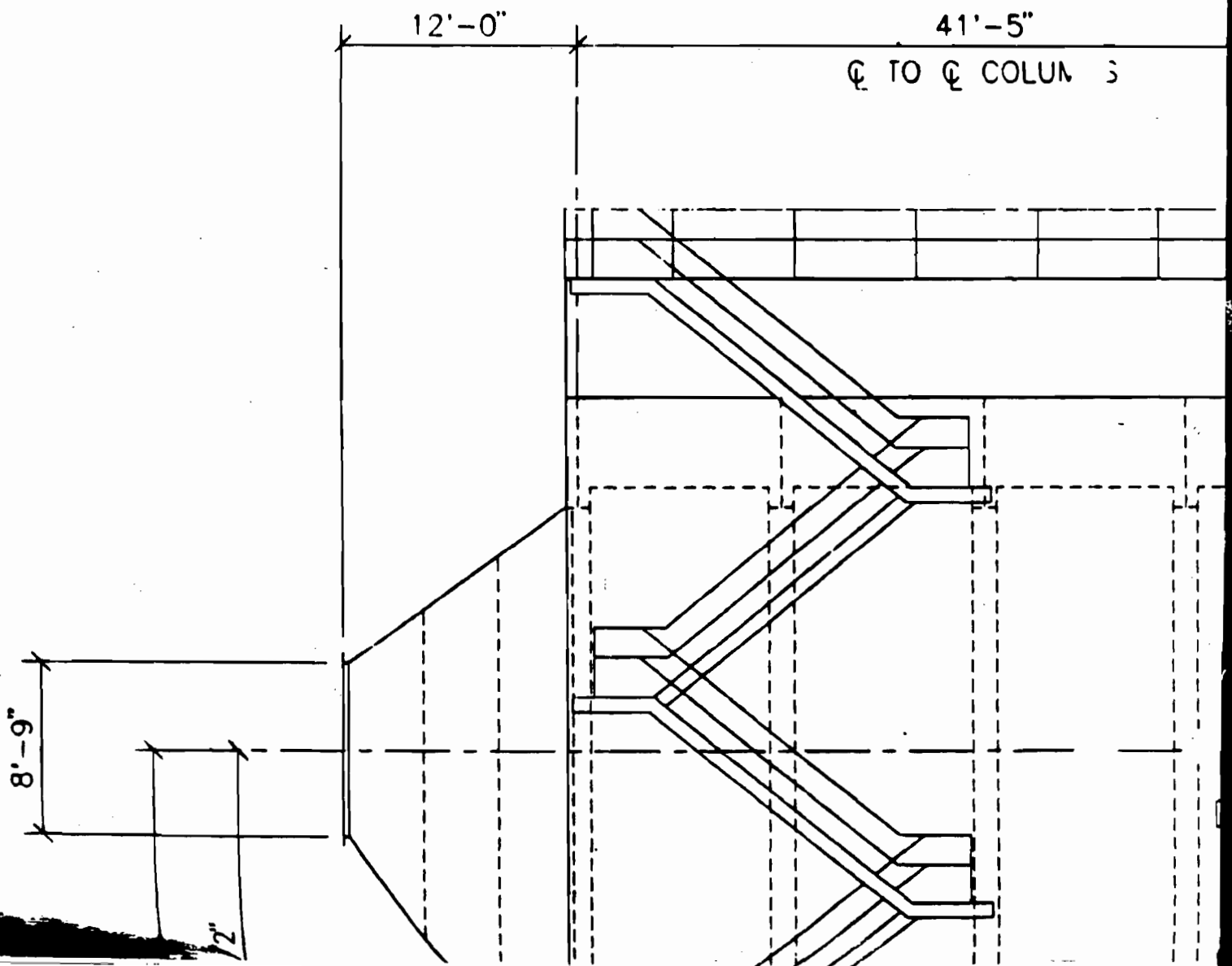
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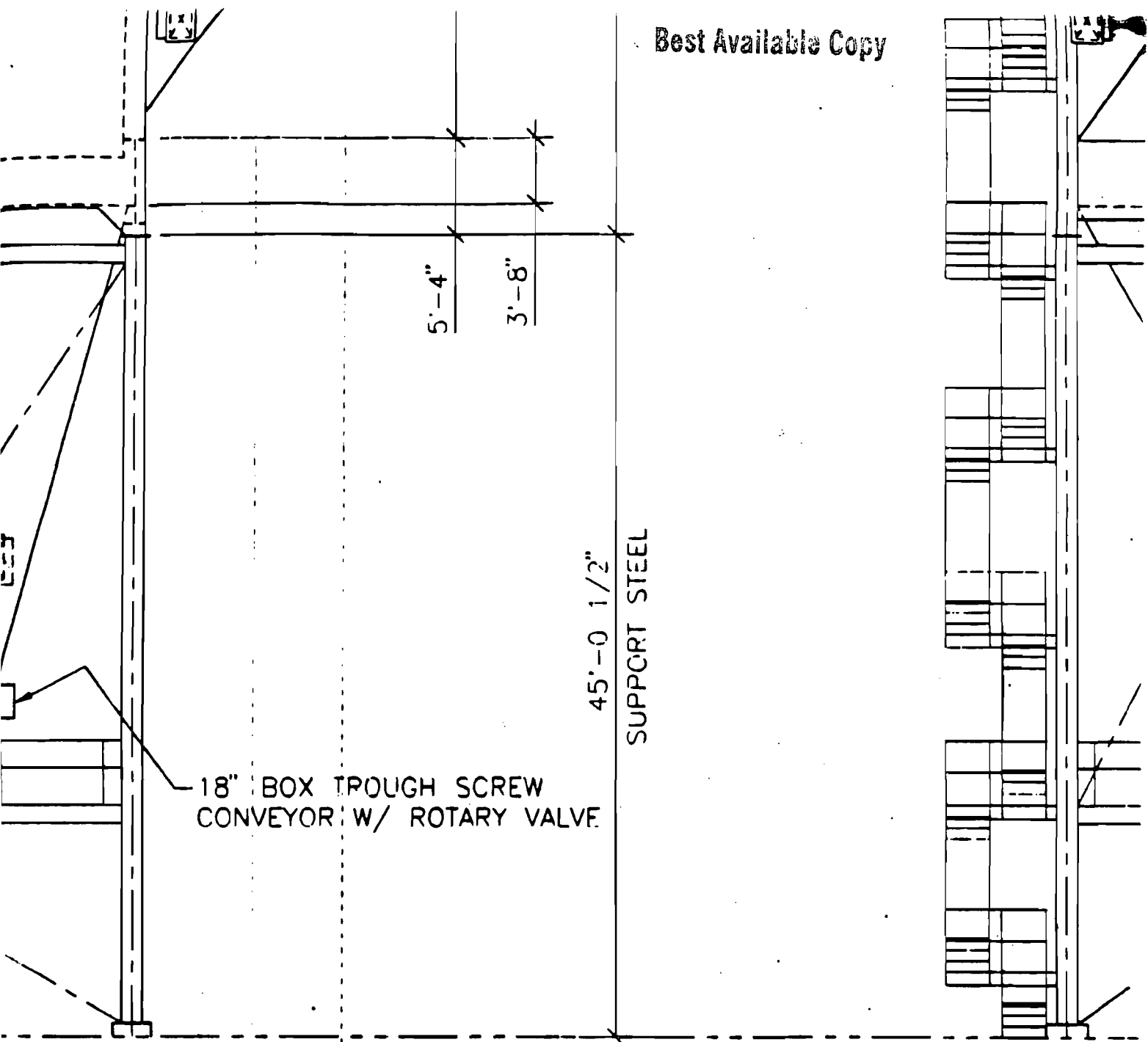






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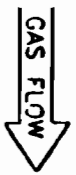




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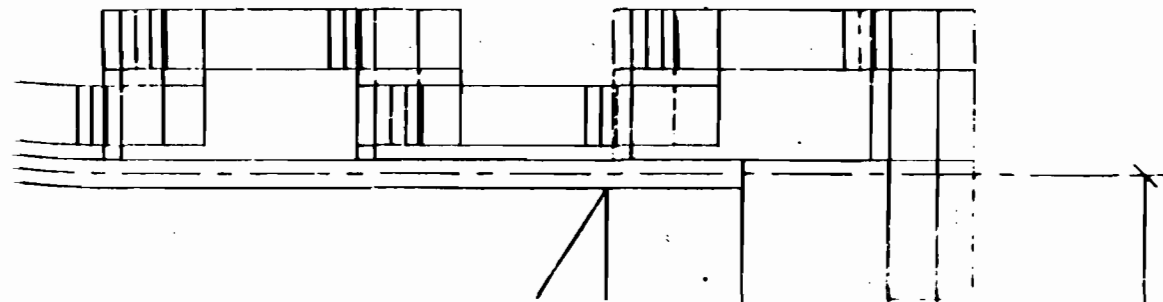
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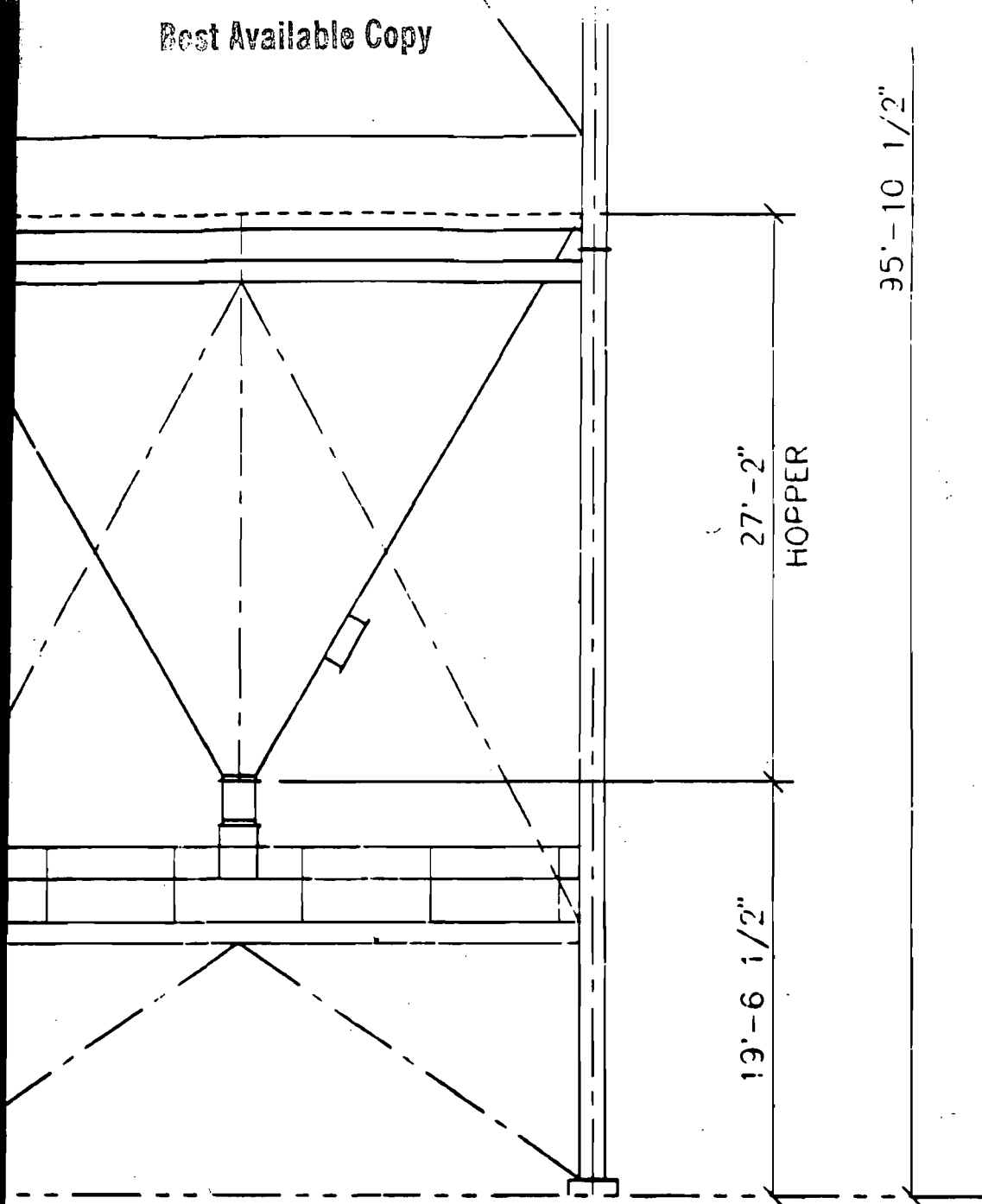
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DUCT OPENING

50'-10"

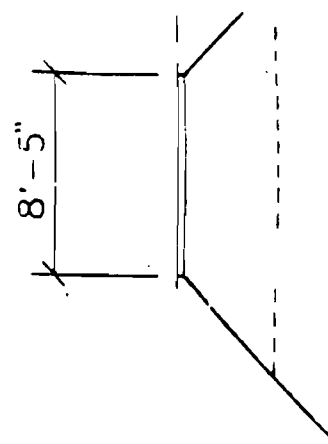


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35'-10 1/2"

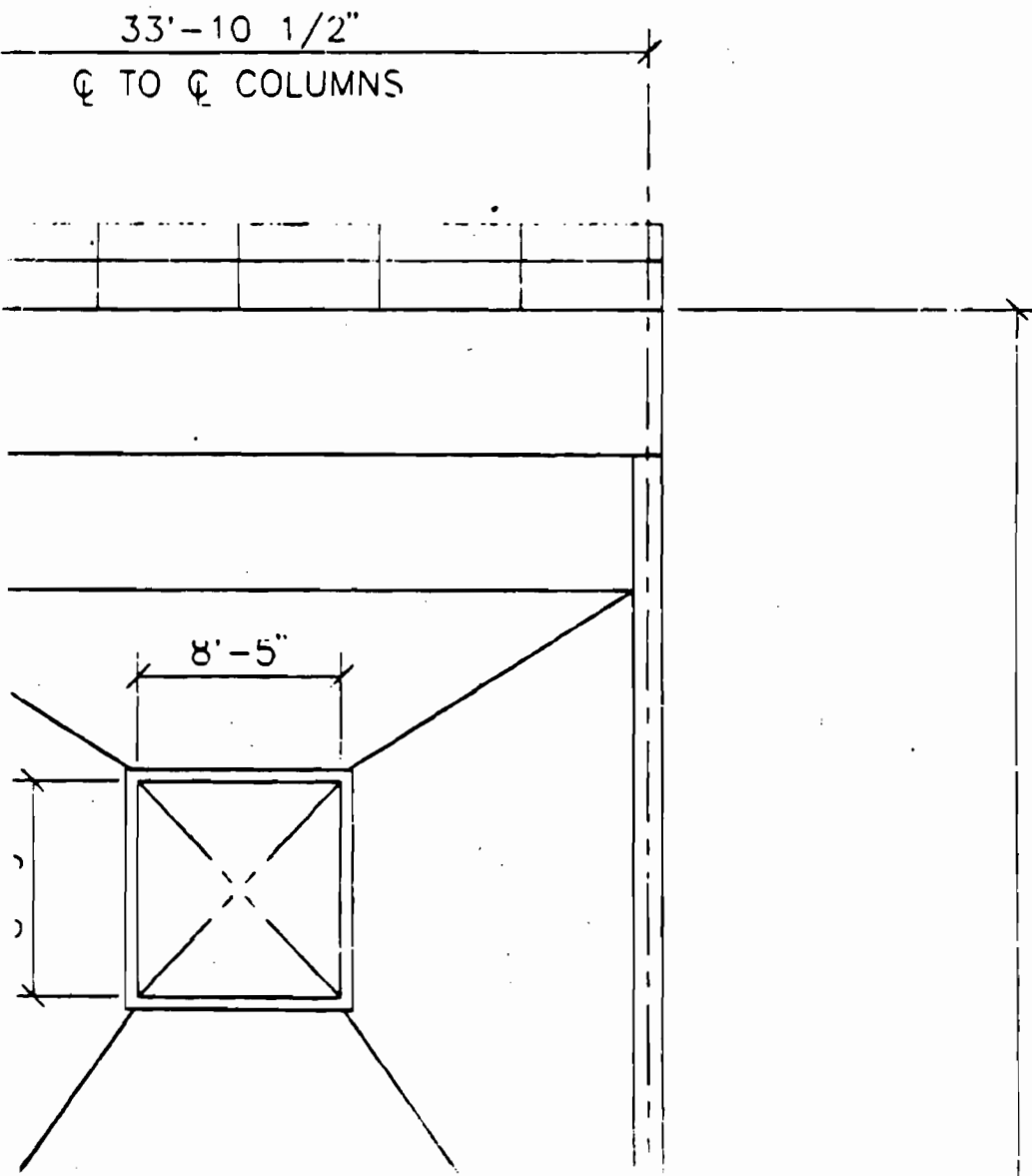
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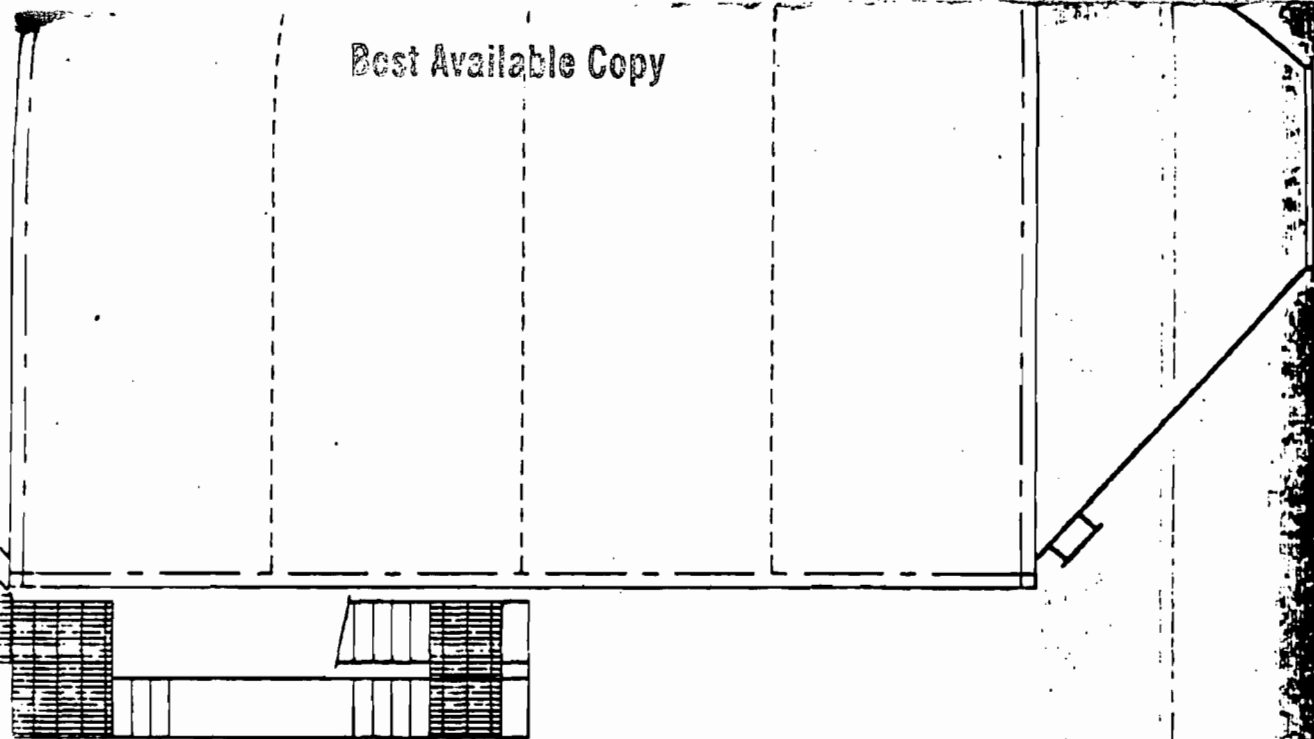
E T E L E V A T I O N

33'-10 1/2"
C TO C COLUMNS

8'-5"



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P L A N V I E W

SC-23-16-4x9

NOTE: ALL DIMENSIONS ARE APPROXIMATE

**ENVIRONMENTAL
ELEMENTS
CORPORATION**

PRELIMINARY ARRANGEMENT
POLYSIUS CORP. FOR FLORIDA ROCK
NEWBERRY, FLORIDA

DRAWN: TBT

SIZE

D

DRAWING NUMBER:

15290-2110-D1

DATE: 04-25-95

SCALE: 1/8" = 1'-0"

SHEET: 1 OF 1



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 9, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Richard Selwach, President
Earth Action Recyclers
507 Northwest 5th Avenue
Gainesville, Florida 32601

Re: Your Letter of July 1, 1997

Dear Mr. Selwach:

Thank you for your referenced letter. Mr. Rhodes referred it to me since I have the technical files related to the Florida Rock Air Construction permit.

All of the documents you requested including the written description of the project from the very lengthy application, are enclosed. In addition, I have included an update of EPA's letter dated June 18, 1995. The subsequent letter dated November 3, 1995 was submitted in response to the public notice package which we distributed September 28, 1995.

Thank you for pointing out the error in the reference to the nearest city given in the Draft Permit. The Public Notice, Intent to Issue, and Technical Evaluation distributed with the draft permit correctly referenced Newberry. Apparently the spellcheck feature in our word processor replaced "Newberry" with "Newborn" in one instance and I failed to detect the mistake.

Please note that there is a complete file with all relevant correspondence in our Gainesville Northeast District Branch office located at 5700 Southwest 34 Street, Suite 1204. Their phone number is (352)955-2095. This will make it possible for you to review and determine which additional documents you want. The normal charge for copying lengthy documents is 15¢ single sided and 20¢ double-sided.

If you have any further questions regarding this matter, please call the at (904)488-1344.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

• AAL/kt

• enclosures

cc: Howard Rhodes, DARM
Clair Fancy, BAR

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

P 265 659 240

US Postal Service
Receipt for Certified Mail
 No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

Sent to Richard Selwach	
Street & Number 507 NW 5th Ave	
Post Office, State, & ZIP Code Gainesville, FL 32601	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date 7-10-97 FLA. ROCK Materials	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Richard Selwach, Pres.
Earth Action Recyclers
507 NW 5th Ave
Gainesville, FL

32601

4a. Article Number

P 265 659 240

4b. Service Type

☐ Registered	☒ Certified
☐ Express Mail	☐ Insured
☐ Return Receipt for Merchandise	☐ COD

7. Date of Delivery

7-16-97

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

X Richard Selwach

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.



EARTH ACTION RECYCLERS

To Promote the Environmental Awareness of the Public

Richard Selwach,
President

I would be happy to assist the council on scoping significant issues to be analyzed in depth by the EIS.

At this point in time, there may be possible violations of national environmental standards and policies. I believe that the proposed cement plant incinerator is unsatisfactory from the standpoint of public health, welfare, and the upkeep of environmental quality.

This issue is of National Importance because the poisonous emissions and particulate matter are going to be mixed up and diluted into the planets biosphere. The public is entitled to know the effects of this project on human life, wildlife, and the area. I personally recommend abandoning this Florida Rock project.

Please provide notice of NEPA related hearings, public meetings, and environmental documents relating to Florida Rock and notify me by mail and include listing in the 102 Monitor and Federal Register on this Florida Rock project and other actions that have effect of National Concern.

Please provide me with status reports on the NEPA process involving Florida Rocks EIS's. I request that Earth Action Recyclers be placed on the list of organizations that receive public notice of NEPA related hearings, public meetings, and be given the availability of pertinent environmental documents available to the public pursuant to the provisions of the Freedom of Information Act.

I await your written correspondence concerning the issues. If you have any questions or need assistance, please contact me in writing at our address. I can be reached personally at (352)376-0892.

I look forward to working with you to help the planet.

Sincerely.

Richard Selwach

507 NW 5th Ave. • Gainesville, FL 32601 • 1-800-EARTH ACTION • 904-376-6969

printed on recycled paper





EARTH ACTION RECYCLERS

To Promote the Environmental Awareness of the Public

Sunday, June 15th, 1997.

Richard Selwach,
President

General Council
Council on Environmental Quality
Executive Office of the President
722 Jackson Pl. N.W.
Washington, D.C. 20503
(202)3955754

Re: Environmental Impact Statements (EIS) as required by Federal Law (NEPA) and Florida Rock Industries proposed tire burning facility near Newberry, FL.

Dear Sirs,

As an interested and affected person who is a member of the public, I hereby request the Council on Environmental Quality to initiate the regulations for Implementing the procedural provisions of the National Environmental Policy Act of 1969 to Florida Rock Industries proposed cement plant near Newberry, FL. I have contacted the various departments of environmental protection as well as departments of Agriculture (both state and federal). There seems to be a problem with who the lead agency will be supervising the preparation of an EIS for Florida Rock's proposed plant.

EIS's are required by local Industrial Code and the EPA has ultimate jurisdiction when a project is going to burn over 4 million tires a year plus the possibility of toxic wastes and dispose of its poisonous emissions and particulate matter into the biosphere (i.e. our collective air).

Is the USDA or State Department of Agriculture going to be the lead agency because we are experiencing a 100% loss of wild honeybees^{Nationwide} and an ensuing pollination crisis? Or, Is the Center for Disease Control and Prevention going to be the lead agency because many people suffer from asthma and other respiratory diseases? Will they make a statement on how this project will affect human life? Or, Is the EPA going to be the lead agency and make statements on how this project is going to effect the area, human life, and wildlife including endangered species such as bald eagles, red caucaded woodpeckers, honeybees, etc. Will the EPA make statements on this projects effects on wetlands, the Santa Fe River, the Ichetucknee River, the Suwannee River, and other ecologically critical areas?

Statements need to be made concerning this projects cumulative impacts on the environment.

Please initiate the NEPA process and designate lead and cooperative agencies. I am requesting that a lead agency be designated to supervise the preparation of an EIS. Please notify me within 45 days agreeing on a lead agency designation.

507 NW 5th Ave. • Gainesville, FL 32601 • 1-800-EARTH ACTION • 904-376-6969

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JUL 07 1997



Residents doubt motives behind cement plant's air permit

By AMY BURKDOLL

Alligator Writer

The Department of Environmental Protection may have granted Florida Rock its air permit for the Newberry Cement Plant based on personal liabilities and agendas.

Haile Community Association, a group of Alachua County residents opposed to the plant, filed a motion Tuesday with the state appellate court for the DEP to re-examine their decision to grant the permit and to voluntarily revoke it.

The motion is based on DEP internal memos apparently proving that the department based its approval of the permit on personal liability in legal fees to Florida Rock, explained Ed Sherwood, HCA president pro-tempore.

For example, in a memo dated Nov. 19, 1996, J. Terrell Williams, assistant general counsel within the DEP, stated that the "potential liability of DEP for costs and attorney's fees ... may need to be weighed."

The memos also prove that the HCA was denied due process, or the opportunity to properly represent their concerns on the issue, Sherwood said.

He said that DEP officials with the quasi-judicial responsibility of granting the permit consulted with other DEP employees, who supported the cement plant, before they made their decision.

That would be like a judge considering only one side of a case before making a decision, and that is denial of due process, Sherwood said.

But Perry Odom, general counsel for the DEP, said the HCA has had more than adequate opportunities of due process, and they are taking those memos out of context.

He said that the HCA had a week to present witnesses and to cross-examine Florida Rock testimony at a DEP hearing.

In fact, this motion is an example of due process for the HCA, Odom

Handwritten notes:
Clark
Howard
1/8
FR I
files

said.

"They're just unhappy because they didn't get their way," Odom said.

Florida Rock President John Baker said the motion is another attempt to delay the cement plant's construction.

Odom said the DEP plans to file a motion in response that asks that the HCA motion be denied.

But Sherwood said that if the DEP refuses to revoke its permit, they will continue their fight.

"Everyone thinks it's a done deal, and that the cement plant is going to go in," Sherwood said.

"We're not so sure it's going to go in."

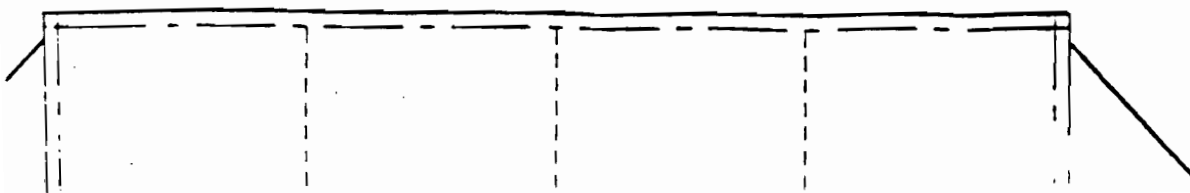
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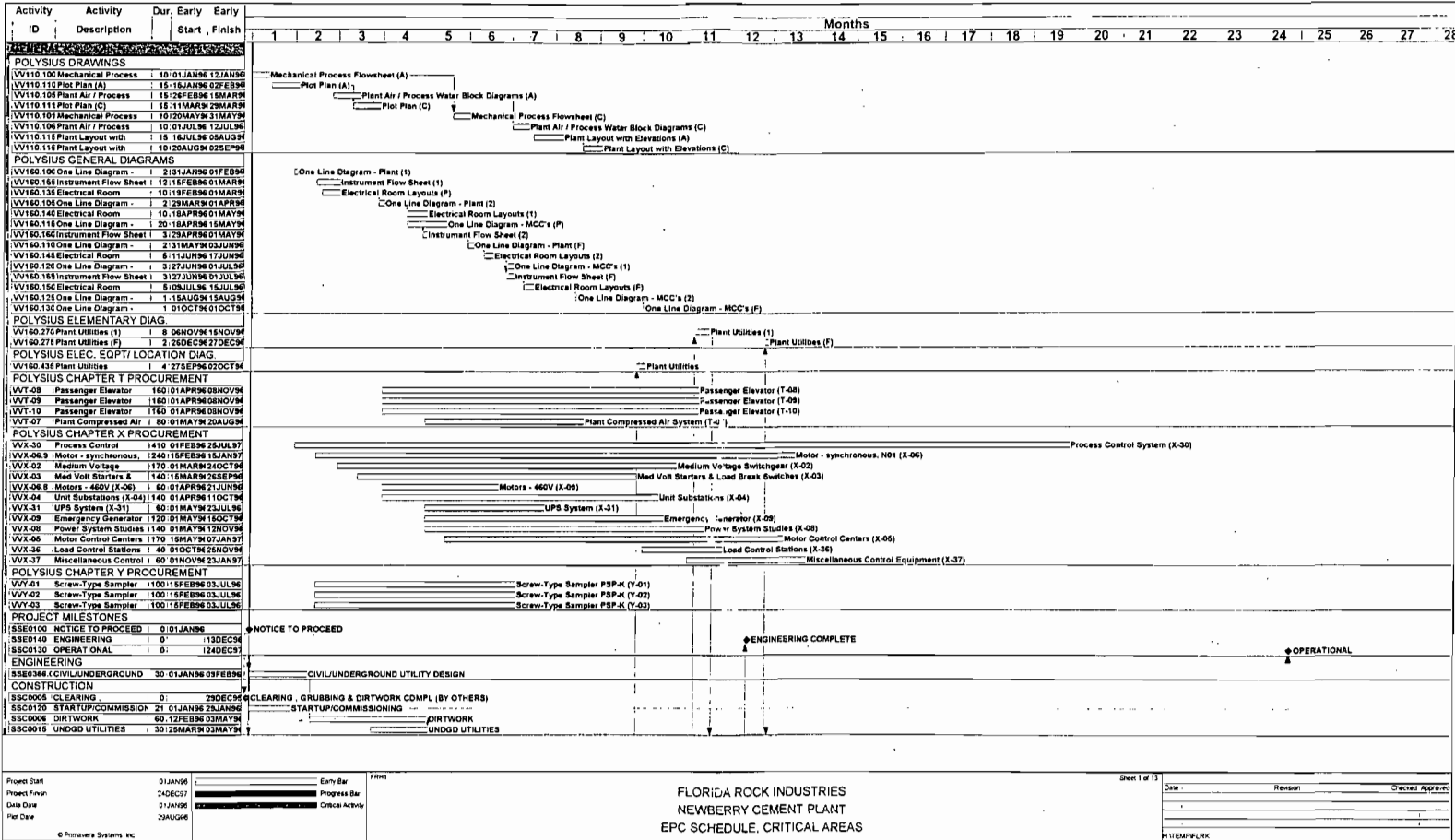
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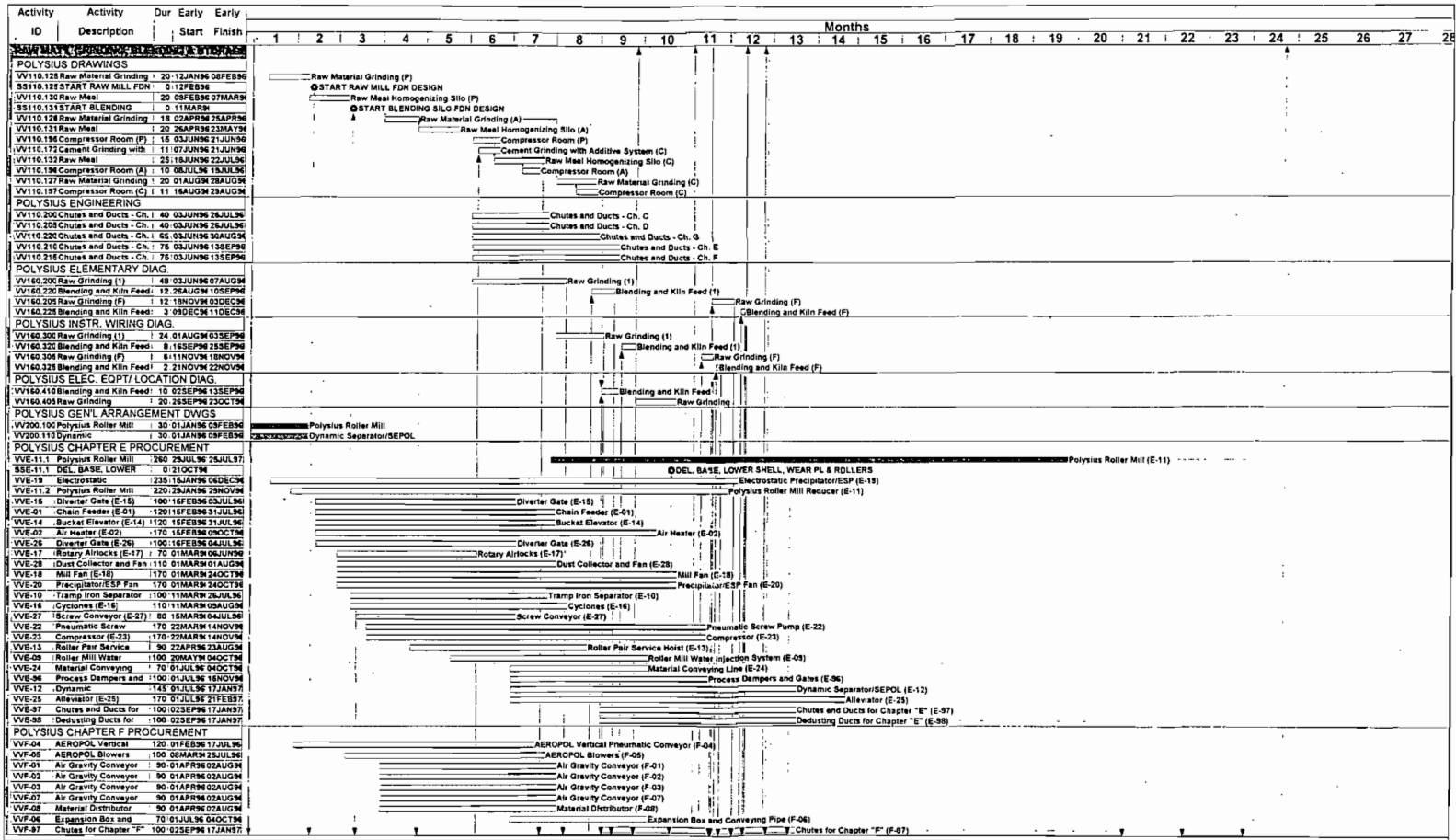
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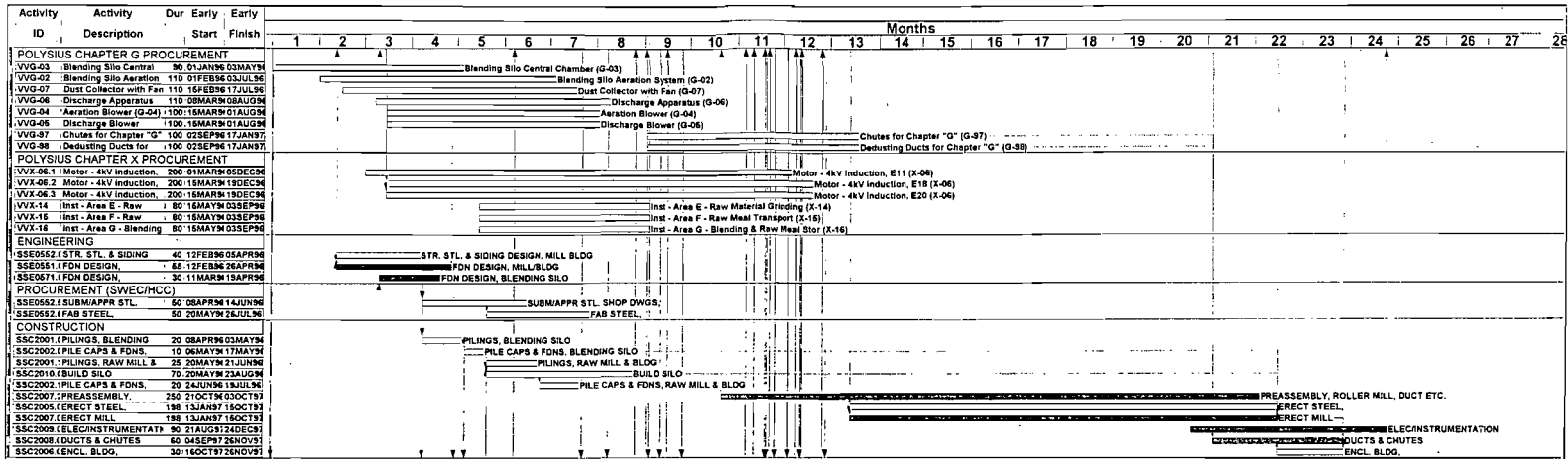
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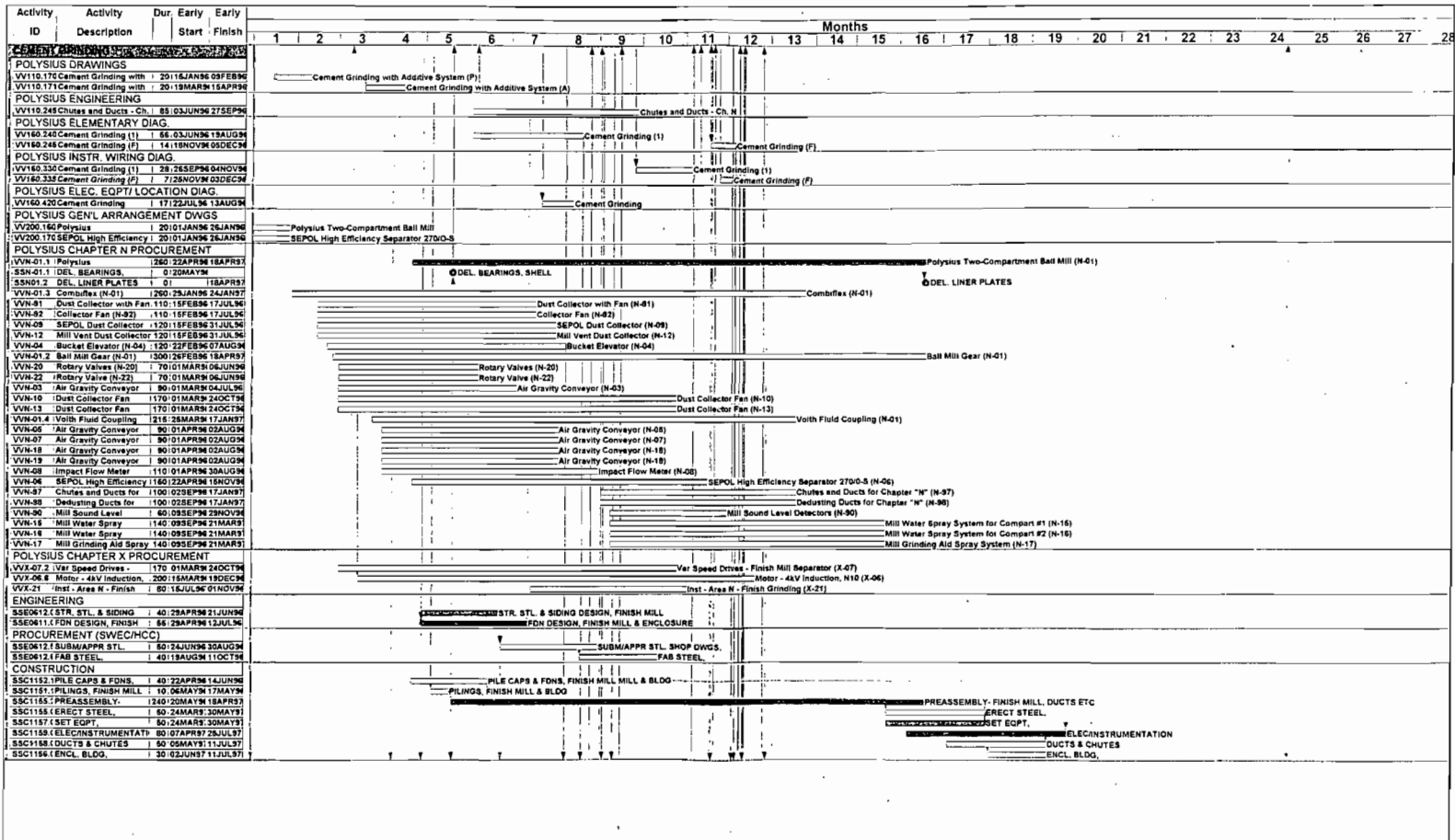
65'-5" OVERALL

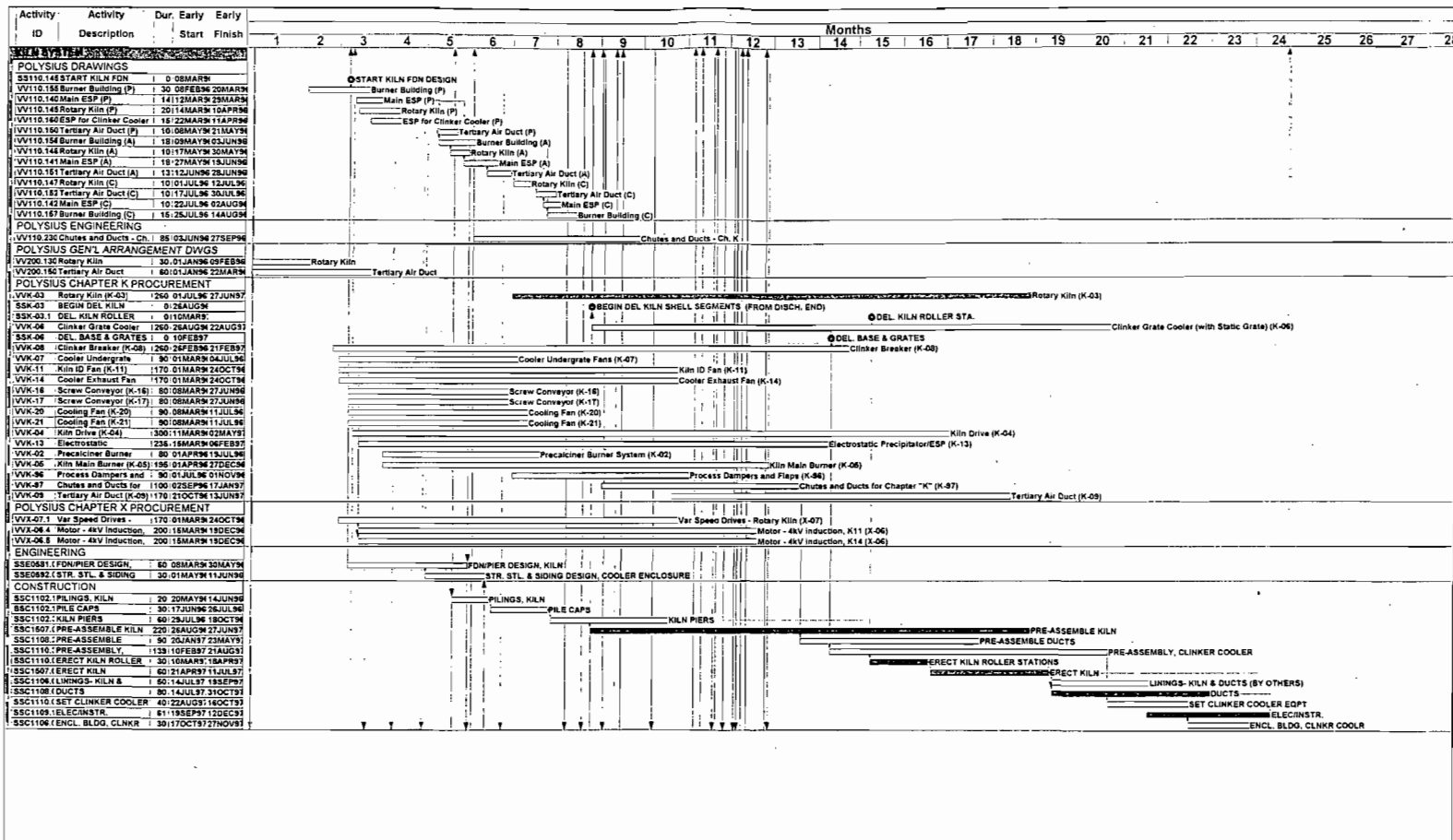


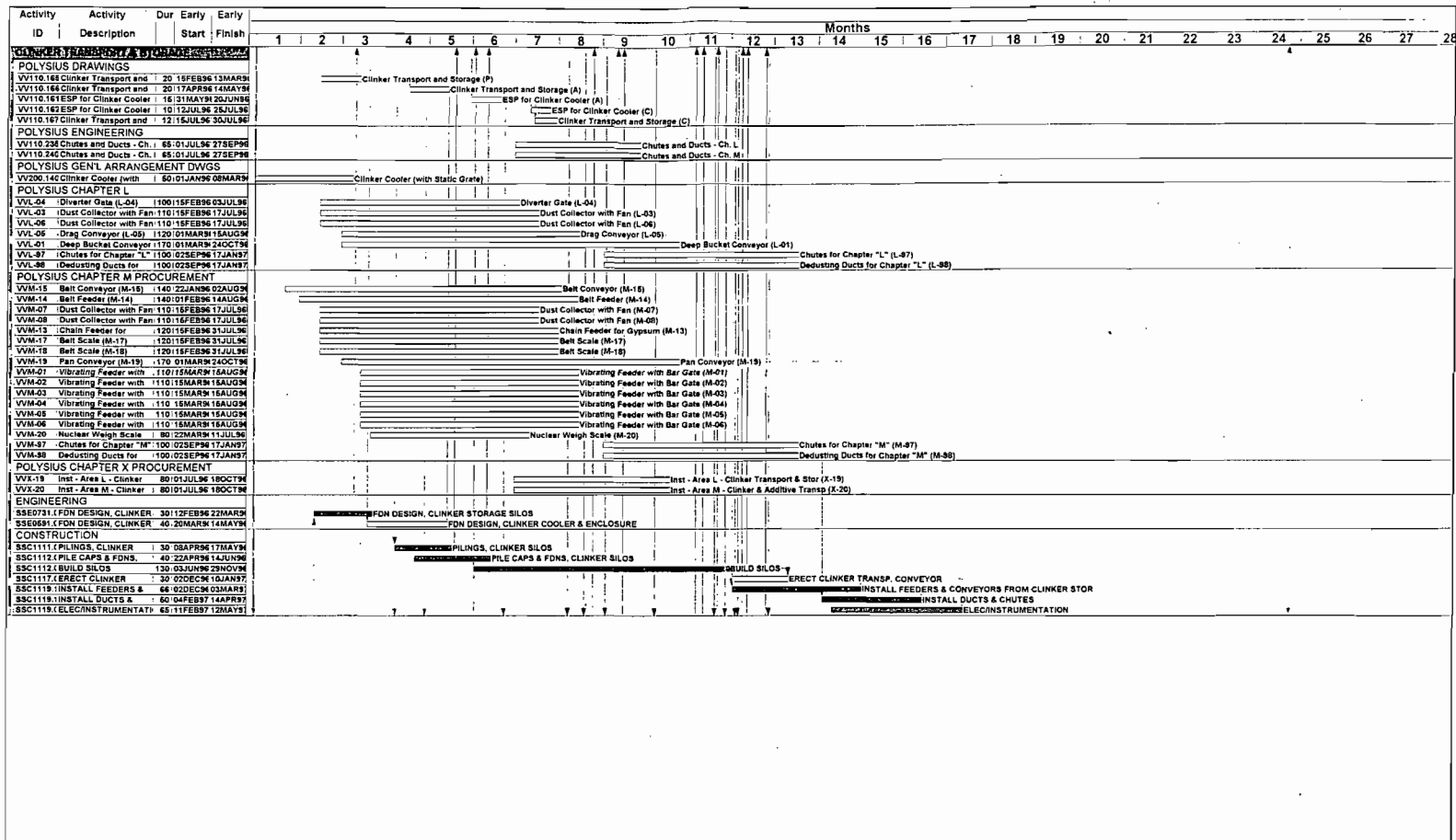


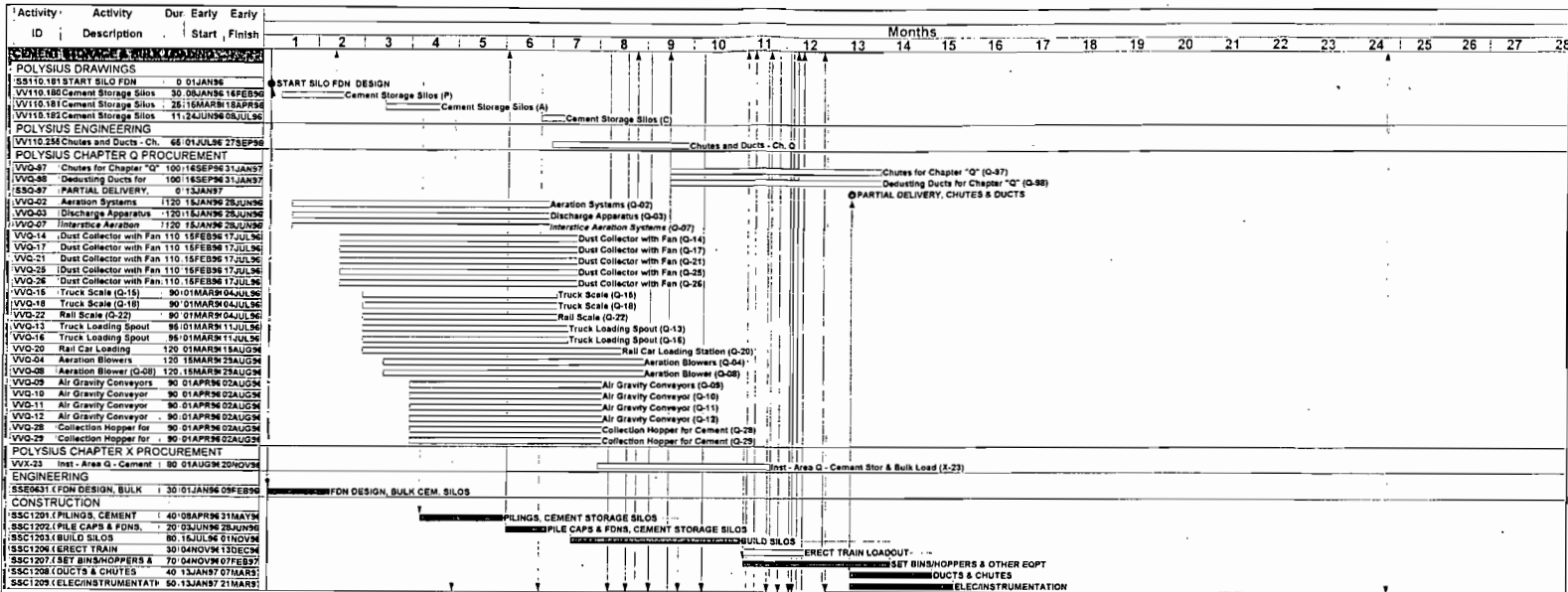


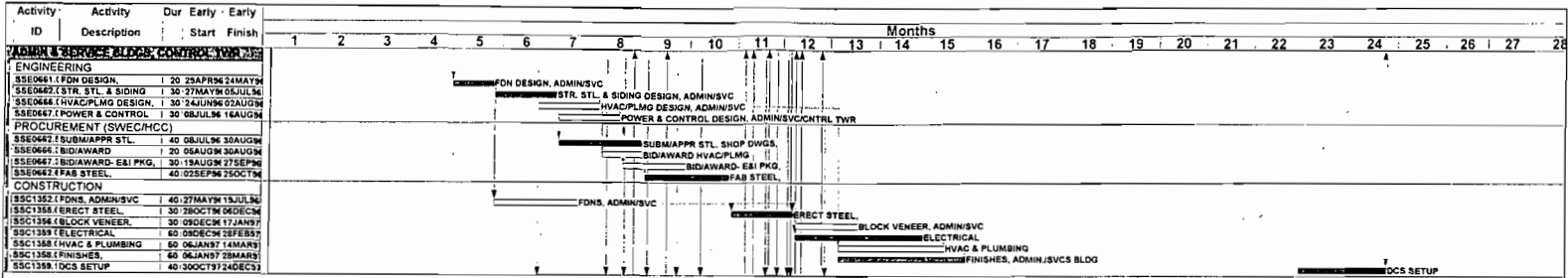


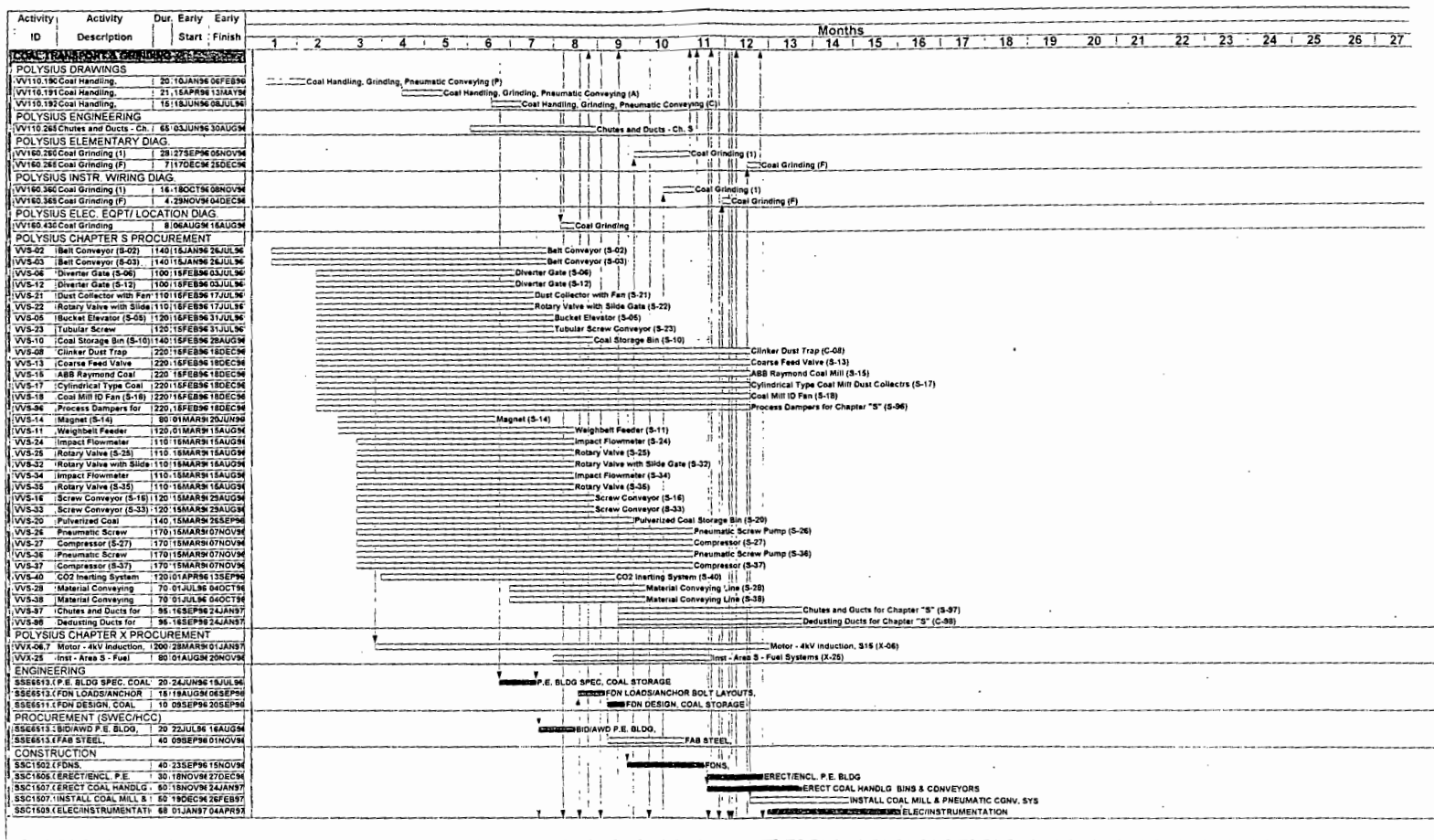


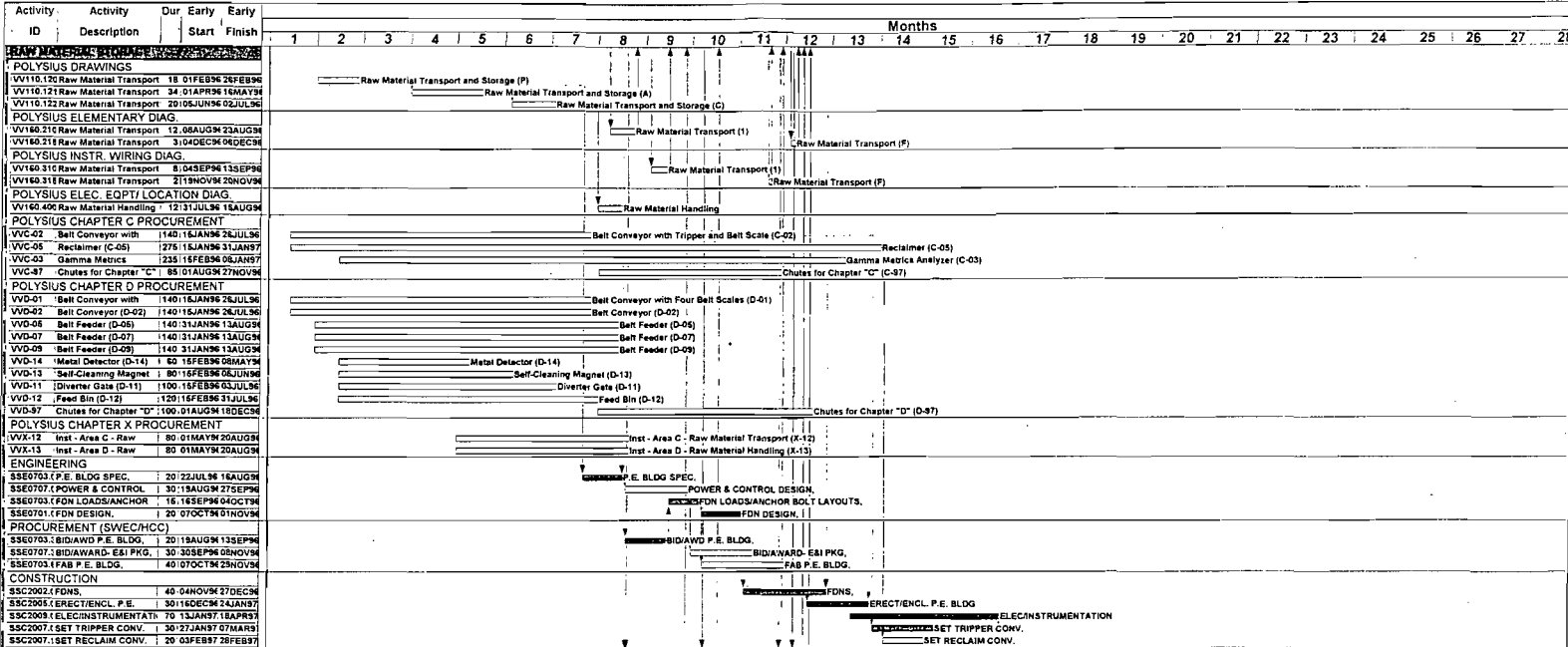


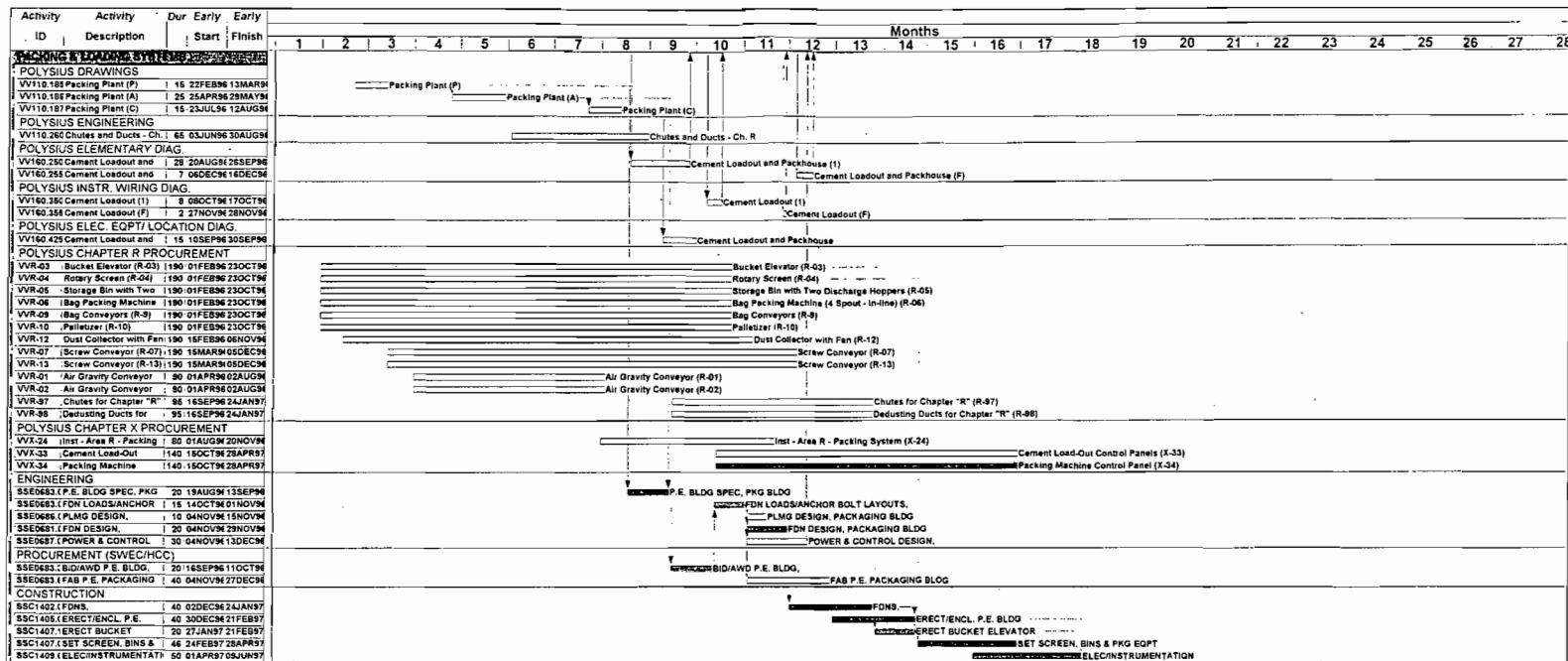


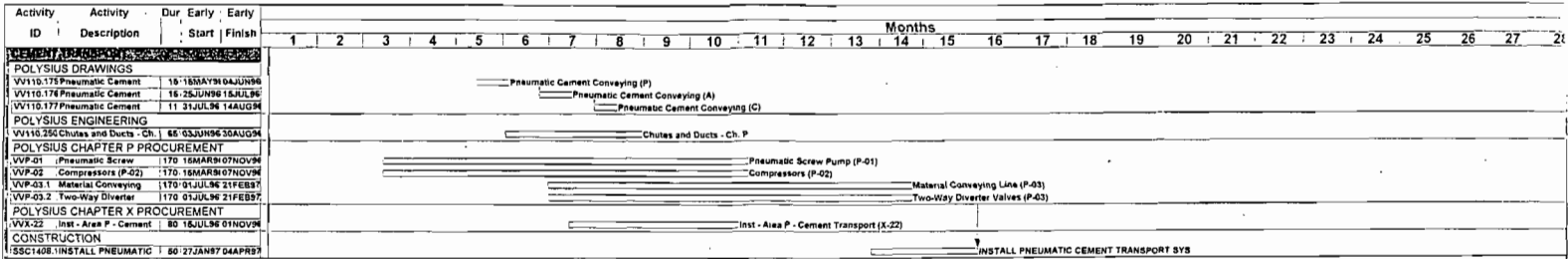












BOB GRAHAM
FLORIDA

United States Senate

WASHINGTON, DC 20510-0903

March 24, 1997

Mr. Richard Selwach
Earth Action Recycles
507 Northwest Fifth Avenue
Gainesville, Florida 32601

Dear Richard:

Thank you for sending me a copy of your letter to the appropriate state and federal agencies, and public officials regarding the wild honeybee population. I trust the response you receive will satisfactorily address your concerns.

Please know that my staff and I stand ready to assist you with other issues in which federal guidelines or policies apply.

With kind regards,

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Graham", written in a cursive style.

United States Senator

BG/jbb

NATIONAL ENVIRONMENTAL POLICY

NATIONAL ENVIRONMENTAL POLICY

ACT OF 1969 [NEPA § —]

(42 U.S.C.A. §§ 4321 to 4370d)

CHAPTER 55—NATIONAL ENVIRONMENTAL POLICY

→ Sec. 4321. Congressional declaration of purpose.

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- (a) Creation and maintenance of conditions under which man and nature can exist in productive harmony.
 - (b) Continuing responsibility of Federal Government to use all practicable means to improve and coordinate Federal plans, functions, programs, and resources.
 - (c) Responsibility of each person to contribute to preservation and enhancement of environment.
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4333. Conformity of administrative procedures to national environmental policy.
4334. Other statutory obligations of agencies.
4335. Efforts supplemental to existing authorizations.

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- 4370d. Availability of funding for economically and socially disadvantaged individuals.

WESTLAW ELECTRONIC RESEARCH

See WESTLAW guide following the Explanation pages of this pamphlet.

§ 4321. Congressional declaration of purpose [NEPA § 2]

The purposes of this chapter are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

(Jan. 1, 1970. Pub.L. 91-190, § 2, 83 Stat. 852.)

Short Title

Section 1 of Pub.L. 91-190 Jan. 1, 1970, 83 Stat. 852, provided: "That this Act [enacting this chapter] may be cited as the 'National Environmental Policy Act of 1969'."

Environmental Enforcement

Pub.L. 101-593, Title II, Nov. 16, 1990, 104 Stat. 2962, provided that:

"Sec. 201. Short Title.

"This title may be cited as the 'Pollution Prosecution Act of 1990'.

"Sec. 202. EPA Office of Criminal Investigation.

"(a) The Administrator of the Environmental Protection Agency (hereinafter referred to as the 'Administrator') shall increase the number of criminal investigators assigned to the Office of Criminal Investigations by such numbers as may be necessary to assure that the number of criminal investigators assigned to the office—

"(1) for the period October 1, 1991, through September 30, 1992, is not less than 72;

"(2) for the period October 1, 1992, through September 30, 1993, is not less than 110;

"(3) for the period October 1, 1993, through September 30, 1994, is not less than 123;

"(4) for the period October 1, 1994, through September 30, 1995, is not less than 160;

"(5) beginning October 1, 1995, is not less than 200.

"(b) For fiscal year 1991 and in each of the following 4 fiscal years, the Administrator shall, during each such fiscal year, provide increasing numbers of additional support staff to the Office of Criminal Investigations.

"(c) The head of the Office of Criminal Investigations shall be a position in the competitive service as defined in 2102 of title 5 U.S.C. [section 2102 of Title 5, Government Organization and Employees] or a career reserve position as defined in 3132(A) of title 5 U.S.C. [section 3132(A) of Title 5] and the head of such office shall report directly, without intervening review or approval, to the Assistant Administrator for Enforcement.

"Sec. 203. Civil investigators.

"The Administrator, as soon as practicable following the date of the enactment of this Act [Nov. 16, 1990], but no later than September 30, 1991, shall increase by fifty the number of civil investigators assigned to assist the Office of Enforcement in developing and prosecuting civil and administrative actions and carrying out its other functions.

"Sec. 204. National Training Institute.

"The Administrator shall, as soon as practicable but no later than September 30, 1991 establish within the Office of Enforcement the National Enforcement Training Institute. It shall be the function of

the Institute, among others, to train Federal, State, and local lawyers, inspectors, civil and criminal investigators, and technical experts in the enforcement of the Nation's environmental laws.

"Sec. 205. Authorization.

"For the purposes of carrying out the provisions of this Act [probably means this note], there is authorized to be appropriated to the Environmental Protection Agency \$13,000,000 for fiscal year 1991, \$18,000,000 for fiscal year 1992, \$20,000,000 for fiscal year 1993, \$26,000,000 for fiscal year 1994, and \$33,000,000 for fiscal year 1995."

CROSS REFERENCES

Pacific Salmon Fishing, regulations of Secretary of Commerce under treaty not subject to this chapter, see section 3636 of Title 16, Conservation.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil § 1782.

West's Federal Practice Manual

Federal environmental law, see § 4381 et seq.

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Criminal enforcement of environmental regulations. Daniel J. Gibby and Daniel L. Eide, 67 *Fla.B.J.* 72 (May 1993).

DEC's proposed new SEQRA regulations. Stephen L. Kass and Michael B. Gerrard, 211 *N.Y.L.J.* 3 (March 25, 1994).

Grazing management on the public lands: Opening the process to public participation. Joseph M. Feller, 26 *Land and Water L.Rev.* 571 (1991).

Judicial review of the administrative record in NEPA litigation. Susannah T. French, 81 *Cal.L.Rev.* 929 (1993).

Long-range planning in environmental and health regulatory agencies. Richard N.L. Andrews, 20 *Ecology L.Q.* 515 (1993).

Parallel universes: NEPA lessons for the new property. Michael Herz, 93 *Colum.L.Rev.* 1668 (1993).

Regulation of bature pollution and ecology. Stan Millan, 33 *Loyola (La.) L.Rev.* 921 (1988).

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Health and Environment C-25.5.

C.J.S. Health and Environment § 61 et seq.

United States Supreme Court

Other statutes, not repealed by implication by this chapter, *Aberdeen & Rockfish R. Co. v. Students Challenging Regulatory Agency Procedures*, 1975, 95 S.Ct. 2336, 422 U.S. 239, 45 L.Ed.2d 191.

SUBCHAPTER I—POLICIES AND GOALS

§ 4331. Congressional declaration of national environmental policy [NEPA § 101]

- (a) Creation and maintenance of conditions under which man and nature can exist in productive harmony

The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and

maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

- (b) Continuing responsibility of Federal Government to use all practicable means to improve and coordinate Federal plans, functions, programs, and resources

In order to carry out the policy set forth in this chapter, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may—

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- ★ (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
- (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
- (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
- (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

- (c) Responsibility of each person to contribute to preservation and enhancement of environment

The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

(Jan. 1, 1970, Pub. L. 91-190, Title I, § 101, 83 Stat. 852.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1732.

Long-range planning
des. Richard N.L.
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§ 4332. Code

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LAW REVIEW COMMENTARIES

Long-range planning in environmental and health regulatory agencies. Richard N.L. Andrews. 20 Ecology L.Q. 515 (1993).
Parallel universes: NEPA lessons for the new property. Michael Herz. 93 Colum.L.Rev. 1668 (1993).

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United States Supreme Court

Environmental effect and environmental impact, terms defined. Metropolitan Edison Co. v. People Against Nuclear Energy, 1983. 103 S.Ct. 1556. 460 U.S. 766. 75 L.Ed.2d 534.

§ 4332. Cooperation of agencies; reports; availability of information; recommendations; international and national coordination of efforts [NEPA § 102]

The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter, and (2) all agencies of the Federal Government shall—

- (A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment;
- (B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by subchapter II of this chapter, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;
- (C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on—
 - (i) the environmental impact of the proposed action,
 - (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
 - (iii) alternatives to the proposed action,
 - (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
 - (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of Title 5, and shall accompany the proposal through the existing agency review processes;

(D) Any detailed statement required under subparagraph (C) after January 1, 1970, for any major Federal action funded under a program of grants to States shall not be deemed to be legally insufficient solely by reason of having been prepared by a State agency or official, if:

(i) the State agency or official has statewide jurisdiction and has the responsibility for such action.

(ii) the responsible Federal official furnishes guidance and participates in such preparation.

(iii) the responsible Federal official independently evaluates such statement prior to its approval and adoption, and

(iv) after January 1, 1976, the responsible Federal official provides early notification to, and solicits the views of, any other State or any Federal land management entity of any action or any alternative thereto which may have significant impacts upon such State or affected Federal land management entity and, if there is any disagreement on such impacts, prepares a written assessment of such impacts and views for incorporation into such detailed statement.

The procedures in this subparagraph shall not relieve the Federal official of his responsibilities for the scope, objectivity, and content of the entire statement or of any other responsibility under this chapter; and further, this subparagraph does not affect the legal sufficiency of statements prepared by State agencies with less than statewide jurisdiction.¹

(E) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(F) recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions,

and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment;

(G) make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment;

(H) initiate and utilize ecological information in the planning and development of resource-oriented projects; and

(I) assist the Council on Environmental Quality established by subchapter II of this chapter.

(Jan. 1, 1970, Pub.L. 91-190, Title I, § 102, 83 Stat. 853; Aug. 9, 1975, Pub.L. 94-83, 89 Stat. 424.)

¹ So in original. The period probably should be a semicolon.

Certain Commercial Space Launch Activities

Pub.L. 104-88, Title IV, § 401, Dec. 29, 1995, 109 Stat. 955, provided that: "The licensing of a launch vehicle or launch site operator (including any amendment, extension, or renewal of the license) under chapter 701 of title 49, United States Code (section 70101 et seq. of Title 49, Transportation), shall not be considered a major Federal action for purposes of section 102(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(C)) if—

"(1) the Department of the Army has issued a permit for the activity; and

"(2) the Army Corps of Engineers has found that the activity has no significant impact."

[Section 401 of Pub.L. 104-88 effective Jan. 1, 1996, see section 2 of Pub.L. 104-88, set out as a note under section 701 of Title 49, Transportation.]

CROSS REFERENCES

National marine sanctuaries, procedures for designation, preparation of draft environmental impact statement by Secretary of Commerce, see section 1434 of Title 16, Conservation.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

West's Federal Practice Manual

Environmentally concerned departments and agencies, see § 4381.10 et seq.

Mineral leases, see § 5301 et seq.

Relation to energy policy, see § 4342.5.

Relation to government contracts, see § 1530.

WEST'S FEDERAL PRACTICE MANUAL

Environmental common law background, see § 4382 et seq.

National environmental policy overview, see § 4383 et seq.

CODE OF FEDERAL REGULATIONS

Requirements, standards, etc..

Agency for International Development, see 22 CFR 216.1 et seq.
Agricultural Stabilization and Conservation Service, see 7 CFR 799.1 et seq.

Bureau of Land Management, see 43 CFR 3040 et seq., 6290.0-2 et seq.

Civil Aeronautics Board, see 14 CFR 201.1 et seq., 261.1 et seq., 312.1 et seq., 399.1 et seq.

Coast Guard, see 46 CFR 12.01 et seq., 71.01-1 et seq., 91.01-1 et seq., 105.01-1 et seq., 176.01-1 et seq., 189.01-1 et seq.

Committee for Purchase from the Blind and Other Severely Handicapped, see 41 CFR 51-6.1 et seq.

Requirements, standards, etc.. Cont'd

Consumer Products Safety Commission, review, see 16 CFR 1021.1 et seq.

Council on Environmental Quality, see 40 CFR 1500.1 et seq., 1510.1 et seq.

Defense Department, see 32 CFR 214.1 et seq.

Energy Research and Development Administration, see 10 CFR 711.1 et seq.

Environmental Protection Agency, see 40 CFR Ch. 1.

Federal Aviation Administration, see 14 CFR 21.1 et seq., 36.1 et seq., 91.1 et seq.

Federal Highway Administration, see 23 CFR 420.101 et seq., 712.101 et seq., 751.1 et seq., 770.200 et seq., 771.1 et seq., 772.1 et seq.

Federal Maritime Commission, see 46 CFR 547.1 et seq.

Federal Trade Commission, see 16 CFR 1.1 et seq.

Food and Drug Administration, see 21 CFR 25.1 et seq.

Housing and Urban Development, see 24 CFR 58.1 et seq.

Interstate Commerce Commission, see 49 CFR 1105.1 et seq.

Law Enforcement Assistance Administration, see 28 CFR 19.1 et seq.

National Aeronautics and Space Administration, see 14 CFR 1204.200 et seq.

National Highway Traffic Safety Administration, see 49 CFR 520.1 et seq.

National Marine Fisheries Service, see 50 CFR 251.1 et seq.

Navy Department, see 32 CFR 775.1 et seq.

Nuclear Regulatory Commission, see 10 CFR 2.1 et seq., 51.1 et seq.

Occupational Safety and Health Administration, see 29 CFR 1999.1 et seq.

Office of Education, see 45 CFR 100a.185, 100b.185.

Soil Conservation Service, see 7 CFR 650.1 et seq.

Tennessee Valley Authority, see 18 CFR 305.1 et seq.

Urban Mass Transportation Administration, see 49 CFR 613.100 et seq.

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Comment, on shore oil and gas leasing on public lands: At what point does NEPA require the preparation of an environmental impact statement? 25 San Diego L.Rev. 161 (1988).

Environmental review of recombinant DNA experiments under NEPA: *Foundation on Economic Trends v. Heckler*. Note, 21 U.S.F.L.Rev. 501 (1987).

Grazing management on the public lands: Opening the process to public participation. Joseph M. Feller, 26 Land and Water L.Rev. 571 (1991).

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Parallel universes: NEPA lessons for the new property. Michael Herz, 93 Colum.L.Rev. 1663 (1993).

RCRA immunity from NEPA: The EPA has exceeded the scope of its authority. Comment, 24 San Diego L.Rev. 1249 (1987).

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Agency decisions, review, see *Strycker's Bay Neighborhood Council, Inc. v. Karlen*, N.Y., 1980, 100 S.Ct. 497, 444 U.S. 223, 62 L.Ed.2d 433.

Construction with other laws, see *Weinberger v. Catholic Action of Hawaii/Peace Ed. Project*, 1981, 102 S.Ct. 197, 434 U.S. 139, 70 L.Ed.2d 295.

Important ingredient of environmental impact statement is discussion of steps that could be taken to mitigate adverse environmental consequences, see *Robertson v. Methow Valley Citizens Council*, 1989, 109 S.Ct. 1835.

Judicial review of agency actions, duties and functions of court, see *Aberdeen & Rockfish Ry. Co. v. Students Challenging Regulatory Agency Procedures*, 1972, 93 S.Ct. 1, 409 U.S. 1207, 34 L.Ed.2d 21.

§ 4333. Con: ce t:

All agencies of their present stat: lations, and curr: purpose of deter: ciencies or incon: compliance with: chapter and shal: than July 1, 1971: to bring their at: with the intent, : this chapter.

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§ 4333. Conformity of administrative procedures to national environmental policy [NEPA § 103]

All agencies of the Federal Government shall review their present statutory authority, administrative regulations, and current policies and procedures for the purpose of determining whether there are any deficiencies or inconsistencies therein which prohibit full compliance with the purposes and provisions of this chapter and shall propose to the President not later than July 1, 1971, such measures as may be necessary to bring their authority and policies into conformity with the intent, purposes, and procedures set forth in this chapter.

(Jan. 1, 1970, Pub.L. 91-190, Title I, § 103, 83 Stat. 554.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4334. Other statutory obligations of agencies [NEPA § 104]

Nothing in section 4332 or 4333 of this title shall in any way affect the specific statutory obligations of any Federal agency (1) to comply with criteria or standards of environmental quality, (2) to coordinate or consult with any other Federal or State agency, or (3) to act, or refrain from acting contingent upon the recommendations or certification of any other Federal or State agency.

(Jan. 1, 1970, Pub.L. 91-190, Title I, § 104, 83 Stat. 554.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

West's Federal Practice Manual

Quotas for minority businesses, see § 16555.

CODE OF FEDERAL REGULATIONS

Department of Defense, environmental effects, see 32 CFR 214.1 et seq.

§ 4335. Efforts supplemental to existing authorizations [NEPA § 105]

The policies and goals set forth in this chapter are supplementary to those set forth in existing authorizations of Federal agencies.

(Jan. 1, 1970, Pub.L. 91-190, Title I, § 105, 83 Stat. 554.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

SUBCHAPTER II—COUNCIL ON ENVIRONMENTAL QUALITY

§ 4341. Reports to Congress; recommendations for legislation [NEPA § 201]

The President shall transmit to the Congress annually beginning July 1, 1970, an Environmental Quality Report (hereinafter referred to as the "report") which shall set forth (1) the status and condition of the major natural, manmade, or altered environmental classes of the Nation, including, but not limited to, the air, the aquatic, including marine, estuarine, and fresh water, and the terrestrial environment, including, but not limited to, the forest, dryland, wetland, range, urban, suburban, and rural environment; (2) current and foreseeable trends in the quality, management and utilization of such environments and the effects of those trends on the social, economic, and other requirements of the Nation; (3) the adequacy of available natural resources for fulfilling human and economic requirements of the Nation in the light of expected population pressures; (4) a review of the programs and activities (including regulatory activities) of the Federal Government, the State and local governments, and nongovernmental entities or individuals, with particular reference to their effect on the environment and on the conservation, development and utilization of natural resources; and (5) a program for remedying the deficiencies of existing programs and activities, together with recommendations for legislation.

(Jan. 1, 1970, Pub.L. 91-190, Title II, § 201, 83 Stat. 554.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

LIBRARY REFERENCES

Health and Environment ¶ 1, 25.5.
C.J.S. Health and Environment §§ 4 et seq., 61 et seq.

§ 4342. Establishment; membership; Chairman; appointments [NEPA § 202]

There is created in the Executive Office of the President a Council on Environmental Quality (hereinafter referred to as the "Council"). The Council shall be composed of three members who shall be appointed by the President to serve at his pleasure, by and with the advice and consent of the Senate. The President shall designate one of the members of the Council to serve as Chairman. Each member shall be a person who, as a result of his training, experience, and attain-

ments. is exceptionally well qualified to analyze and interpret environmental trends and information of all kinds; to appraise programs and activities of the Federal Government in the light of the policy set forth in subchapter I of this chapter; to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs and interests of the Nation; and to formulate and recommend national policies to promote the improvement of the quality of the environment. (Jan. 1, 1970, Pub.L. 91-190, Title II, § 202, 83 Stat. 854.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

West's Federal Practice Manual

Council on Environmental Quality, see § 4382.5.

LAW REVIEW COMMENTARIES

Long-range planning in environmental and health regulatory agencies. Richard N.L. Andrews. 20 Ecology L.Q. 515 (1993).

§ 4343. Employment of personnel, experts and consultants [NEPA § 203]

(a) The Council may employ such officers and employees as may be necessary to carry out its functions under this chapter. In addition, the Council may employ and fix the compensation of such experts and consultants as may be necessary for the carrying out of its functions under this chapter, in accordance with section 3109 of title 5 (but without regard to the last sentence thereof).

(b) Notwithstanding section 1342 of title 31, the Council may accept and employ voluntary and uncompensated services in furtherance of the purposes of the Council.

(Jan. 1, 1970, Pub.L. 91-190, Title II, § 203, 83 Stat. 855; July 3, 1975, Pub.L. 94-52, § 2, 89 Stat. 258; as amended Sept. 13, 1982, Pub.L. 97-258, § 4(b), 96 Stat. 1067.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4344. Duties and functions [NEPA § 204]

It shall be the duty and function of the Council—

(1) to assist and advise the President in the preparation of the Environmental Quality Report required by section 4341 of this title;

(2) to gather timely and authoritative information concerning the conditions and trends in the quality of the environment both current and prospective, to analyze and interpret such information for the purpose of determining whether such conditions and trends are interfering, or are likely to interfere, with the achievement of the policy set forth in subchapter I of this chapter; and to compile and

submit to the President studies relating to such conditions and trends;

(3) to review and appraise the various programs and activities of the Federal Government in the light of the policy set forth in subchapter I of this chapter for the purpose of determining the extent to which such programs and activities are contributing to the achievement of such policy, and to make recommendations to the President with respect thereto;

(4) to develop and recommend to the President national policies to foster and promote the improvement of environmental quality to meet the conservation, social, economic, health, and other requirements and goals of the Nation;

(5) to conduct investigations, studies, surveys, research, and analyses relating to ecological systems and environmental quality;

(6) to document and define changes in the natural environment, including the plant and animal systems, and to accumulate necessary data and other information for a continuing analysis of these changes or trends and an interpretation of their underlying causes;

(7) to report at least once each year to the President on the state and condition of the environment; and

(8) to make and furnish such studies, reports thereon, and recommendations with respect to matters of policy and legislation as the President may request.

(Jan. 1, 1970, Pub.L. 91-190, Title II, § 204, 83 Stat. 855.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

West's Federal Practice Manual

Council on Environmental Quality, see § 4382.5.

LAW REVIEW COMMENTARIES

Long-range planning in environmental and health regulatory agencies. Richard N.L. Andrews. 20 Ecology L.Q. 515 (1993).

§ 4345. Consultation with Citizens' Advisory Committee on Environmental Quality and other representatives [NEPA § 205]

In exercising its powers, functions, and duties under this chapter, the Council shall—

(1) consult with the Citizens' Advisory Committee on Environmental Quality established by Executive Order numbered 11472, dated May 29, 1969, and with such representatives of science, industry, agriculture, labor, conservation organizations, State and

local government, as may be deemed advisable; and

(2) utilize the services, facilities, and information of such organizations, and the cooperation of efforts in assuring that such actions are necessarily over the authorized agencies.

(Jan. 1, 1970, Pub.L. 91-190, Title II, § 205, 83 Stat. 856.)

Federal Practice

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4346. Terms and conditions of employment

Members of the Council shall be appointed by the Chairman of the Council, and shall receive the rate provided in the General Schedule of Pay Rates for Level IV of the United States Civil Service (5 U.S.C. 5315).

(Jan. 1, 1970, Pub.L. 91-190, Title II, § 206, 83 Stat. 857.)

1 So in original.

§ 4346a. Terms and conditions of employment

The Council shall employ such personnel as may be necessary to carry out its functions under this chapter, and may accept and employ voluntary and uncompensated services in furtherance of the purposes of the Council. The Council may employ and fix the compensation of such experts and consultants as may be necessary for the carrying out of its functions under this chapter, in accordance with section 3109 of title 5 (but without regard to the last sentence thereof).

§ 4346b. Employment of personnel

The Council shall employ such personnel as may be necessary to carry out its international functions, and may accept and employ voluntary and uncompensated services in furtherance of the purposes of the Council. The Council may employ and fix the compensation of such experts and consultants as may be necessary for the carrying out of its international functions, in accordance with section 3109 of title 5 (but without regard to the last sentence thereof).

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Miller & Kane: Civil 2d

4382.5.

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local governments and other groups, as it deems
advisable; and

(2) utilize, to the fullest extent possible, the ser-
vices, facilities, and information (including statistical
information) of public and private agencies and or-
ganizations, and individuals, in order that duplica-
tion of effort and expense may be avoided, thus
assuring that the Council's activities will not unnec-
essarily overlap or conflict with similar activities
authorized by law and performed by established
agencies.

(Jan. 1, 1970, Pub.L. 91-190, Title II, § 205, 83 Stat. 855.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d
§ 1782.

§ 4346. Tenure and compensation of mem- bers [NEPA § 206]

Members of the Council shall serve full time and
the Chairman of the Council shall be compensated at
the rate provided for Level II of the Executive Sched-
ule Pay Rates (5 U.S.C. 5313). The other members of
the Council shall be compensated at the rate provided
for Level IV or¹ the Executive Schedule Pay Rates (5
U.S.C. 5315).

(Jan. 1, 1970, Pub.L. 91-190, Title II, § 206, 83 Stat. 856.)

¹ So in original. Probably should read "or".

§ 4346a. Travel reimbursement by private organizations and Federal, State, and local governments [NEPA § 207]

The Council may accept reimbursements from any
private nonprofit organization or from any depart-
ment, agency, or instrumentality of the Federal Gov-
ernment, any State, or local government, for the rea-
sonable travel expenses incurred by an officer or
employee of the Council in connection with his attend-
ance at any conference, seminar, or similar meeting
conducted for the benefit of the Council.

(Pub.L. 91-190, Title II, § 207, as added July 3, 1975, Pub.L.
94-52, § 3, 89 Stat. 258.)

§ 4346b. Expenditures in support of inter- national activities [NEPA § 208]

The Council may make expenditures in support of
its international activities, including expenditures for:
(1) international travel; (2) activities in implementa-
tion of international agreements; and (3) the support
of international exchange programs in the United
States and in foreign countries.

(Pub.L. 91-190, Title II, § 208, as added July 3, 1975, Pub.L.
94-52, § 3, 89 Stat. 258.)

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d
§ 1782.

§ 4347. Authorization of appropriations [NEPA § 209]

There are authorized to be appropriated to carry
out the provisions of this chapter not to exceed
\$300,000 for fiscal year 1970, \$700,000 for fiscal year
1971, and \$1,000,000 for each fiscal year thereafter.
(Jan. 1, 1970, Pub.L. 91-190, Title II, § 209, formerly § 207,
83 Stat. 856, renumbered July 3, 1975, Pub.L. 94-52, § 3, 89
Stat. 258.)

SUBCHAPTER III—MISCELLANEOUS PROVISIONS

§ 4361. Repealed. Pub.L. 104-66, Title II, § 2021(k)(1), Dec. 21, 1995, 109 Stat. 728

Section, Pub.L. 94-475, § 5, Oct. 11, 1976, 90 Stat. 2071, related to a
plan for research, development, and demonstration.

§ 4361a. Repealed. Pub.L. 104-66, Title II, § 2021(k)(2), Dec. 21, 1995, 109 Stat. 728

Section, Pub.L. 95-155, § 4, Nov. 8, 1977, 91 Stat. 1258, related to
budget projections in annual revisions of the plan for research,
development, and demonstration.

§ 4361b. Implementation by Administrator of Environmental Protection Agency of recommendations of "CHESS" Investigative Report; waiver; inclusion of status of implementation requirements in annual revisions of plan for re- search, development, and dem- onstration

The Administrator of the Environmental Protection
Agency shall implement the recommendations of the
report prepared for the House Committee on Science
and Technology entitled "The Environmental Protec-
tion Agency Research Program with primary empha-
sis on the Community Health and Environmental Sur-
veillance System (CHESS): An Investigative Report",
unless for any specific recommendation he determines
(1) that such recommendation has been implemented,
(2) that implementation of such recommendation
would not enhance the quality of the research, or (3)
that implementation of such recommendation will re-
quire funding which is not available. Where such
funding is not available, the Administrator shall re-
quest the required authorization or appropriation for
such implementation. The Administrator shall report

the status of such implementation in each annual revision of the five-year plan transmitted to the Congress under section 4361 of this title.

(Nov. 8, 1977, Pub.L. 95-155, § 10, 91 Stat. 1262.)

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1978, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

§ 4361c. Staff management

(a) Appointments for educational programs

(1) The Administrator is authorized to select and appoint up to 75 full-time permanent staff members in the Office of Research and Development to pursue full-time educational programs for the purpose of (A) securing an advanced degree or (B) securing academic training, for the purpose of making a career change in order to better carry out the Agency's research mission.

(2) The Administrator shall select and appoint staff members for these assignments according to rules and criteria promulgated by him. The Agency may continue to pay the salary and benefits of the appointees as well as reasonable and appropriate relocation expenses and tuition.

(3) The term of each appointment shall be for up to one year, with a single renewal of up to one year in appropriate cases at the discretion of the Administrator.

(4) Staff members appointed to this program shall not count against any Agency personnel ceiling during the term of their appointment.

(b) Post-doctoral research fellows

(1) The Administrator is authorized to appoint up to 25 Post-doctoral Research Fellows in accordance with the provisions of section 213.5102(aa) of title 5 of the Code of Federal Regulations.

(2) Persons holding these appointments shall not count against any personnel ceiling of the Agency.

(c) Non-government research associates

(1) The Administrator is authorized and encouraged to utilize research associates from outside the Federal Government in conducting the research, development, and demonstration programs of the Agency.

(2) These persons shall be selected and shall serve according to rules and criteria promulgated by the Administrator.

(d) Women and minority groups

For all programs in this section, the Administrator shall place special emphasis on providing opportunities

for education and training of women and minority groups.

(Oct. 18, 1978, Pub.L. 95-477, § 6, 92 Stat. 1510.)

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1978, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4362. Interagency cooperation on prevention of environmental cancer and heart and lung disease

(a) Not later than three months after August 7, 1977, there shall be established a Task Force on Environmental Cancer and Heart and Lung Disease (hereinafter referred to as the "Task Force"). The Task Force shall include representatives of the Environmental Protection Agency, the National Cancer Institute, the National Heart, Lung, and Blood Institute, the National Institute of Occupational Safety and Health, and the National Institute on Environmental Health Sciences, and shall be chaired by the Administrator (or his delegate).

(b) The Task Force shall—

(1) recommend a comprehensive research program to determine and quantify the relationship between environmental pollution and human cancer and heart and lung disease;

(2) recommend comprehensive strategies to reduce or eliminate the risks of cancer or such other diseases associated with environmental pollution;

(3) recommend research and such other measures as may be appropriate to prevent or reduce the incidence of environmentally related cancer and heart and lung diseases;

(4) coordinate research by, and stimulate cooperation between, the Environmental Protection Agency, the Department of Health and Human Services, and such other agencies as may be appropriate to prevent environmentally related cancer and heart and lung diseases; and

(5) report to Congress, not later than one year after August 7, 1977, and annually thereafter, on the problems and progress in carrying out this section. (Aug. 7, 1977, Pub.L. 95-95, Title IV, § 402, 91 Stat. 791, 793; Oct. 17, 1979, Pub.L. 96-88, Title V, § 509(b), 93 Stat. 695.)

Codification

Section was enacted as part of the Clean Air Act Amendments of 1977, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure
Environmental § 1782.

§ 4362a.

The Director of the National Center for Environmental Statistics and Control (or his delegate) shall serve as member of the Task Force on Environmental Cancer and Heart and Lung Disease under section 4362 (a) (5).

Codification

Section was enacted as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Change of Name

The name of the National Center for Environmental Statistics and Control was amended to "National Center for Environmental Statistics and Control" by House Conference Report No. 1065, 96th Congress, 1st Session, page 30.

Federal Practice and Procedure
Environmental § 1782.

§ 4363.

The Administrator shall ensure that the Agency shall have a continuing program of development and demonstration of this Act. The Administrator shall ensure that 15 per centum of the Agency's budget for each activity shall be obligated for the development and demonstration of this Act. (Dec. 22, 1980.)

References in Title

Section 2(a) of the Act, as amended, Dec. 22, 1980, Code.

Codification

Section was enacted as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4362a. Task Force on Environmental Cancer and Heart and Lung Disease; membership of Director of National Center for Health Statistics and of head of Center for Disease Control

The Director of the National Center for Health Statistics and the head of the Center for Disease Control (or the successor to such entity) shall each serve as members of the Task Force on Environmental Cancer and Heart and Lung Disease established under section 4362 of this title.

(Nov. 9, 1978, Pub.L. 95-623, § 9, 92 Stat. 3455.)

Codification

Section was enacted as part of the Health Services Research, Health Statistics, and Health Care Technology Act of 1978, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Change of Name

The name of the Centers for Disease Control was changed to the Centers for Disease Control and Prevention without a conforming amendment to this section. See Pub.L. 102-531, Title III, § 312, Oct. 27, 1992, 106 Stat. 3504, enacting extensive conforming amendments and House Conference Report No. 102-1019, page 47 (1992 U.S.C.C. & A.N. page 3038) indicating the intent of Congress.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4363. Continuing and long-term environmental research and development

The Administrator of the Environmental Protection Agency shall establish a separately identified program of continuing, long-term environmental research and development for each activity listed in section 2(a) of this Act. Unless otherwise specified by law, at least 15 per centum of funds appropriated to the Administrator for environmental research and development for each activity listed in section 2(a) of this Act shall be obligated and expended for such long-term environmental research and development under this section.

(Dec. 22, 1980, Pub.L. 96-569, § 2(f), 94 Stat. 3337.)

References in Text

Section 2(a) of this Act, referred to in text, is section 2(a) of Pub.L. 96-569, Dec. 22, 1980, 94 Stat. 3335, which is not classified to the Code.

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1981, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4363a. Pollution control technologies demonstrations

(1) The Administrator shall continue to be responsible for conducting and shall continue to conduct full-scale demonstrations of energy-related pollution control technologies as necessary in his judgment to fulfill the provisions of the Clean Air Act as amended [42 U.S.C.A. § 7401 et seq.] the Federal Water Pollution Control Act as amended [33 U.S.C.A. § 1251 et seq.] and other pertinent pollution control statutes.

(2) Energy-related environmental protection projects authorized to be administered by the Environmental Protection Agency under this Act, shall not be transferred administratively to the Department of Energy or reduced through budget amendment. No action shall be taken through administrative or budgetary means to diminish the ability of the Environmental Protection Agency to initiate such projects. (April 7, 1980, Pub.L. 96-229, § 2(d), 94 Stat. 325, 327.)

References in Text

This Act, referred to in par. (2), is Pub.L. 96-229, Apr. 7, 1980, 94 Stat. 325, known as the Environmental Research, Development, and Demonstration Authorization Act of 1980, which enacted sections 4363, 4363a, 4369a, and 4370 of this title.

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1980, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

§ 4364. Expenditure of funds for research and development related to regulatory program activities

(a) Coordination, etc., with research needs and priorities of program offices and Environmental Protection Agency

The Administrator of the Environmental Protection Agency shall assure that the expenditure of any funds appropriated pursuant to this Act or any other provision of law for environmental research and development related to regulatory program activities shall be coordinated with and reflect the research needs and priorities of the program offices, as well as the overall research needs and priorities of the Agency, including those defined in the five-year research plan.

(b) Program offices subject to coverage

For purposes of subsection (a) of this section, the appropriate program offices are—

(1) the Office of Air and Waste Management, for air quality activities;

(2) the Office of Water and Hazardous Materials, for water quality activities and water supply activities;

(3) the Office of Pesticides, for environmental effects of pesticides;

(4) the Office of Solid Waste, for solid waste activities;

(5) the Office of Toxic Substances, for toxic substance activities;

(6) the Office of Radiation Programs, for radiation activities; and

(7) the Office of Noise Abatement and Control, for noise activities.

(c) Report to Congress; contents

The Administrator shall submit to the President and the Congress a report concerning the most appropriate means of assuring, on a continuing basis, that the research efforts of the Agency reflect the needs and priorities of the regulatory program offices, while maintaining a high level of scientific quality. Such report shall be submitted on or before March 31, 1978. (Nov. 8, 1977, Pub.L. 95-155, § 7, 91 Stat. 1259.)

References in Text

This Act, referred to in subsec. (a), is Pub.L. 95-155, Nov. 8, 1977, 91 Stat. 1257, as amended, known as the Environmental Research, Development, and Demonstration Authorization Act of 1975, which, to the extent classified to the Code, enacted sections 300j-3a, 4361a, 4361b, and 4363 to 4367 of this title.

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1978, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

§ 4365. Science Advisory Board

(a) Establishment; requests for advice by Administrator of Environmental Protection Agency and Congressional committees

The Administrator of the Environmental Protection Agency shall establish a Science Advisory Board which shall provide such scientific advice as may be requested by the Administrator, the Committee on Environment and Public Works of the United States Senate, or the Committee on Science, Space, and Technology, on Energy and Commerce, or on Public Works and Transportation of the House of Representatives.

(b) Membership; Chairman; meetings; qualifications of members

Such Board shall be composed of at least nine members, one of whom shall be designated Chairman, and shall meet at such times and places as may be

designated by the Chairman of the Board in consultation with the Administrator. Each member of the Board shall be qualified by education, training, and experience to evaluate scientific and technical information on matters referred to the Board under this section.

(c) Proposed environmental criteria document, standard, limitation, or regulation: functions respecting in conjunction with Administrator

(1) The Administrator, at the time any proposed criteria document, standard, limitation, or regulation under the Clean Air Act [42 U.S.C.A. § 7401 et seq.], the Federal Water Pollution Control Act [33 U.S.C.A. § 1251 et seq.], the Resource Conservation and Recovery Act of 1976 [42 U.S.C.A. § 6901 et seq.], the Noise Control Act [42 U.S.C.A. § 4901 et seq.], the Toxic Substances Control Act [15 U.S.C.A. § 2601 et seq.], or the Safe Drinking Water Act [42 U.S.C.A. § 300f et seq.], or under any other authority of the Administrator, is provided to any other Federal agency for formal review and comment, shall make available to the Board such proposed criteria document, standard, limitation, or regulation, together with relevant scientific and technical information in the possession of the Environmental Protection Agency on which the proposed action is based.

(2) The Board may make available to the Administrator, within the time specified by the Administrator, its advice and comments on the adequacy of the scientific and technical basis of the proposed criteria document, standard, limitation, or regulation, together with any pertinent information in the Board's possession.

(d) Utilization of technical and scientific capabilities of Federal agencies and national environmental laboratories for determining adequacy of scientific and technical basis of proposed criteria document, etc.

In preparing such advice and comments, the Board shall avail itself of the technical and scientific capabilities of any Federal agency, including the Environmental Protection Agency and any national environmental laboratories.

(e) Member committees and investigative panels; establishment; chairmanship

The Board is authorized to constitute such member committees and investigative panels as the Administrator and the Board find necessary to carry out this section. Each such member committee or investigative panel shall be chaired by a member of the Board.

(f) Appointment and compensation of secretary and other personnel; compensation of members

(1) Upon the recommendation of the Board, the Administrator shall appoint a secretary, and such other employees as deemed necessary to exercise and

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§ 4366.

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any proposed rule, or regulation [§ 7401 et seq.], Act [33 U.S.C.A. 101 et seq.], the [§ 7401 et seq.], the [§ 2601 et seq.], [42 U.S.C.A. 101 et seq.], the authority of the Administrator shall make available to the Administrator, together with relevant information in the possession of the Agency on which

to the Administrator, the adequacy of the proposed criteria for the Board's possession

the capabilities of the environmental laboratory of scientific and technical information, etc.

the Board's scientific capabilities, the Environmental Protection Agency

five panels; establish

such member as the Administrator may deem necessary to carry out this section or investigate the Board, the Secretary and other members

of the Board, the Secretary, and such other persons as may be necessary to exercise and

fulfill the Board's powers and responsibilities. The compensation of all employees appointed under this paragraph shall be fixed in accordance with chapter 51 and subchapter III of chapter 53 of Title 5.

(2) Members of the Board may be compensated at a rate to be fixed by the President but not in excess of the maximum rate of pay for grade GS-18, as provided in the General Schedule under section 5332 of Title 5.

(g) Consultation and coordination with Scientific Advisory Panel

In carrying out the functions assigned by this section, the Board shall consult and coordinate its activities with the Scientific Advisory Panel established by the Administrator pursuant to section 136w(d) of Title 7.

(Nov. 8, 1977, Pub.L. 95-155, § 3, 91 Stat. 1260, H.Res. 549, Mar. 25, 1980, Dec. 22, 1980, Pub.L. 96-569, § 3, 94 Stat. 3337; Nov. 2, 1994, Pub.L. 103-437, § 15(o), 108 Stat. 4593; Dec. 21, 1995, Pub.L. 104-66, Title II, § 2021(k)(3), 109 Stat. 728.)

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1978, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Change of Name

Any reference in any provision of law enacted before Jan. 4, 1995, to the Committee on Energy and Commerce of the House of Representatives treated as referring to the Committee on Commerce of the House of Representatives, except that any reference in any provision of law enacted before Jan. 4, 1995, to the Committee on Energy and Commerce of the House of Representatives treated as referring to the Committee on Agriculture of the House of Representatives, in the case of a provision of law relating to inspection of seafood or seafood products, the Committee on Banking and Financial Services of the House of Representatives, in the case of a provision of law relating to bank capital markets activities generally or to depository institution securities activities generally, and the Committee on Transportation and Infrastructure of the House of Representatives, in the case of a provision of law relating to railroads, railway labor, or railroad retirement and unemployment (except revenue measures related thereto), see section 1(a)(4) and (c)(1) of Pub.L. 104-14, set out as a note preceding section 21 of Title 2, The Congress.

Any reference in any provision of law enacted before Jan. 4, 1995, to the Committee on Science, Space, and Technology of the House of Representatives treated as referring to the Committee on Science of the House of Representatives, see section 1(a)(10) of Pub.L. 104-14, set out as a note preceding section 21 of Title 2, The Congress.

Any reference in any provision of law enacted before Jan. 4, 1995, to the Committee on Public Works and Transportation of the House of Representatives treated as referring to the Committee on Transportation and Infrastructure of the House of Representatives, see section 1(a)(9) of Pub.L. 104-14, set out as a note preceding section 21 of Title 2, The Congress.

§ 4366. Identification and coordination of research, development, and demonstration activities

(a) Consultation and cooperation of Administrator of Environmental Protection Agency with heads of Federal agencies; inclusion of activities in annual revisions of plan for research, etc.

The Administrator of the Environmental Protection Agency, in consultation and cooperation with the

heads of other Federal agencies, shall take such actions on a continuing basis as may be necessary or appropriate—

(1) to identify environmental research, development, and demonstration activities, within and outside the Federal Government, which may need to be more effectively coordinated in order to minimize unnecessary duplication of programs, projects, and research facilities;

(2) to determine the steps which might be taken under existing law, by him and by the heads of such other agencies, to accomplish or promote such coordination, and to provide for or encourage the taking of such steps; and

(3) to determine the additional legislative actions which would be needed to assure such coordination to the maximum extent possible.

The Administrator shall include in each annual revision of the five-year plan provided for by section 4361 of this title a full and complete report on the actions taken and determinations made during the preceding year under this subsection, and may submit interim reports on such actions and determinations at such other times as he deems appropriate.

(b) Coordination of programs by Administrator

The Administrator of the Environmental Protection Agency shall coordinate environmental research, development, and demonstration programs of such Agency with the heads of other Federal agencies in order to minimize unnecessary duplication of programs, projects, and research facilities.

(c) Joint study by Council on Environmental Quality in consultation with Office of Science and Technology Policy for coordination of activities; report to President and Congress; report by President to Congress on implementation of joint study and report

(1) In order to promote the coordination of environmental research and development activities, and to assure that the action taken and methods used (under subsection (a) of this section and otherwise) to bring about such coordination will be as effective as possible for that purpose, the Council on Environmental Quality in consultation with the Office of Science and Technology Policy shall promptly undertake and carry out a joint study of all aspects of the coordination of environmental research and development. The Chairman of the Council shall prepare a report on the results of such study, together with such recommendations (including legislative recommendations) as he deems appropriate, and shall submit such report to the President and the Congress not later than May 31, 1978.

(2) Not later than September 30, 1978, the President shall report to the Congress on steps he has taken to implement the recommendations included in the report under paragraph (1), including any recommendations he may have for legislation.

(Nov. 8, 1977, Pub.L. 95-155, § 9, 91 Stat. 1261.)

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1978, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1782.

LIBRARY REFERENCES

United States Code 29, 31, 40, 41.

C.J.S. United States §§ 31, 34 et seq., 35 et seq.

§ 4366a. Development of data base of environmental research articles indexed by geographic location

(a) Research journals

Within 6 months following November 16, 1990, and from time to time thereafter, the Environmental Protection Agency shall identify not less than 35 important environmental research journals, conference proceedings or other reference sources in which scientific research or engineering studies related to air, water, or soil quality or pollution or other environmental issues are routinely published. In carrying out the requirements of this subsection, at least 50 journals or proceedings shall be reviewed.

(b) Index

(1) Within 12 months following November 16, 1990, and annually thereafter, the Environmental Protection Agency shall review the journals and other materials identified in subsection (a) of this section and compile, maintain and publish an index of the articles contained therein during the preceding calendar year by geographic location. A copy of such index shall be made available to the Service for distribution to the public, and a copy shall be submitted to the Congress not less than 30 days prior to the date on which it is made available to the Service.

(2) Beginning 12 months after November 16, 1990, the Agency shall identify not less than 20 materials identified in subsection (a) of this section which were published during the time period from 1970 to the year preceding enactment, and shall compile and publish a series of indices of articles contained therein by geographic location. The time frame which each index contains should not exceed 5 years.

(c) Purchase of information

The Environmental Protection Agency is authorized to enter into contracts or other arrangements for the acquisition of data and other information necessary for purposes of this Act.

(d) Revising list

The Environmental Protection Agency shall review the list of references developed under this section at least biennially and shall revise the list of sources as appropriate.

(e) Specific location of research projects

Unless exempted by the Administrator of the Environmental Protection Agency, all reports resulting from research projects sponsored by the Environmental Protection Agency and initiated after the expiration of the 36-month period following November 16, 1990 shall indicate the specific location to which the research pertains.

(Nov. 16, 1990, Pub.L. 101-617, § 4, 104 Stat. 3287.)

Termination of Section

Section expires 10 years after Nov. 16, 1990, pursuant to section 6 of Pub.L. 101-617, set out as a note under this section.

References in Text

This Act, referred to in subsec. (c), is Pub.L. 101-617, Nov. 16, 1990, 104 Stat. 3287, which is classified to this section. For complete classification of this Act to the Code, see Short Title note set out under this section and Tables.

Short Title; Congressional Findings; Purpose

Sections 1 to 3 of Pub.L. 101-617 provided that:

"Section 1. Short Title.

"This Act [enacting this section and provisions set out as notes under this section] may be cited as the 'Environmental Research Geographic Location Information Act'.

"Sec. 2. Findings.

"The Congress finds that—

"(1) at present, there is no reliable method of locating private or Government research on environmental issues by geographic location; and

"(2) a means of identifying environmental research conducted at specific geographic locations is needed for purposes such as detecting trends in environmental quality, assisting the public in learning about the quality and issues of their local environment, and providing a data base for identifying areas of critical environmental concern.

"Sec. 3. Purpose.

"The purpose of this Act [enacting this section and provisions set out as notes under this section] is to develop a data base of environmental research articles indexed by geographic location."

Authorization of Appropriations; Expiration of Section

Sections 5 and 6 of Pub.L. 101-617 provided that:

"Sec. 5. Authorizations.

"There are authorized to be appropriated such sums as may be necessary to carry out this Act [enacting this section and provisions set out as notes under this section].

"Sec. 6. Expiration of Act.

"This Act [enacting this section and provisions set out as notes under this section] shall expire 10 years after the date of its enactment [Nov. 16, 1990]."

§ 4367. R

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References in Text

This Act, referred to
1977, 91 Stat. 1257, a

§ 4367. Reporting requirements of financial interests of officers and employees of Environmental Protection Agency

(a) Covered officers and employees

Each officer or employee of the Environmental Protection Agency who—

(1) performs any function or duty under this Act; and

(2) has any known financial interest in any person who applies for or receives grants, contracts, or other forms of financial assistance under this Act, shall, beginning on February 1, 1978, annually file with the Administrator a written statement concerning all such interests held by such officer or employee during the preceding calendar year. Such statement shall be available to the public.

(b) Implementation of requirements by Administrator

The Administrator shall—

(1) act within ninety days after November 8, 1977—

(A) to define the term "known financial interest" for purposes of subsection (a) of this section; and

(B) to establish the methods by which the requirement to file written statements specified in subsection (a) of this section will be monitored and enforced, including appropriate provision for the filing by such officers and employees of such statements and the review by the Administrator of such statements; and

(2) report to the Congress on June 1 of each calendar year with respect to such disclosures and the actions taken in regard thereto during the preceding calendar year.

(c) Exemption of positions by Administrator

In the rules prescribed under subsection (b) of this section, the Administrator may identify specific positions of a nonpolicymaking nature within the Administration and provide that officers or employees occupying such positions shall be exempt from the requirements of this section.

(d) Violations; penalties

Any officer or employee who is subject to, and knowingly violates, this section, shall be fined not more than \$2,500 or imprisoned not more than one year, or both.

(Nov. 8, 1977, Pub.L. 95-155, § 12, 91 Stat. 1263.)

References in Text

This Act, referred to in subsec. (a)(1), (2), is Pub.L. 95-155, Nov. 8, 1977, 91 Stat. 1257, as amended, known as the Environmental Re-

search, Development, and Demonstration Authorization Act of 1978, which, to the extent classified to the Code, enacted sections 300j-3a, 4361a, 4361b, and 4363 to 4367 of this title.

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1978, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d § 1752.

§ 4368. Grants to qualified citizens groups

(1) There is authorized to be appropriated to the Environmental Protection Agency, for grants to qualified citizens groups in States and regions, \$3,000,000.

(2) Grants under this section may be made for the purpose of supporting and encouraging participation by qualified citizens groups in determining how scientific, technological, and social trends and changes affect the future environment and quality of life of an area, and for setting goals and identifying measures for improvement.

(3) The term "qualified citizens group" shall mean a nonprofit organization of citizens having an area based focus, which is not single-issue oriented and which can demonstrate a prior record of interest and involvement in goal-setting and research concerned with improving the quality of life, including plans to identify, protect and enhance significant natural and cultural resources and the environment.

(4) A citizens group shall be eligible for assistance only if certified by the Governor in consultation with the State legislature as a bona fide organization entitled to receive Federal assistance to pursue the aims of this program. The group shall further demonstrate its capacity to employ usefully the funds for the purposes of this program and its broad-based representative nature.

(5) After an initial application for assistance under this section has been approved, the Administrator may make grants on an annual basis, on condition that the Governor recertify the group and that the applicant submits to the Administrator annually—

(A) an evaluation of the progress made during the previous year in meeting the objectives for which the grant was made;

(B) a description of any changes in the objectives of the activities; and

(C) a description of the proposed activities for the succeeding one year period.

(6) A grant made under this program shall not exceed 75 per centum of the estimated cost of the project or program for which the grant is made, and

no group shall receive more than \$50,000 in any one year.

(7) No financial assistance provided under this section shall be used to support lobbying or litigation by any recipient group.

(Oct. 18, 1978, Pub.L. 95-477, § 3(d), 92 Stat. 1509.)

References in Text

This section, referred to in par. (5), means section 3 of Pub.L. 95-477, in its entirety, subsec. (d) of which enacted this section, subsecs. (a) and (b) of which were not classified to the Code, and subsec. (c) of which authorized funds for a study and report to be submitted by Oct. 18, 1980.

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1979, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane, Civil 2d § 1782.

LIBRARY REFERENCES

United States ⇐§2(2).
C.J.S. United States § 122.

§ 4368a. Utilization of talents of older Americans in projects of pollution prevention, abatement, and control

(a) Technical assistance to environmental agencies

Notwithstanding any other provision of law relating to Federal grants and cooperative agreements, the Administrator of the Environmental Protection Agency is authorized to make grants to, or enter into cooperative agreements with, private nonprofit organizations designated by the Secretary of Labor under title V of the Older Americans Act of 1965 [42 U.S.C.A. § 3056 et seq.] to utilize the talents of older Americans in programs authorized by other provisions of law administered by the Administrator (and consistent with such provisions of law) in providing technical assistance to Federal, State, and local environmental agencies for projects of pollution prevention, abatement, and control. Funding for such grants or agreements may be made available from such programs or through title V of the Older Americans Act of 1965 [42 U.S.C.A. § 3056 et seq.] and title IV of the Job Training Partnership Act [29 U.S.C.A. § 1671 et seq.].

(b) Pre-award certifications

Prior to awarding any grant or agreement under subsection (a) of this section, the applicable Federal, State, or local environmental agency shall certify to the Administrator that such grants or agreements will not—

(1) result in the displacement of individuals currently employed by the environmental agency concerned (including partial displacement through reduction of nonovertime hours, wages, or employment benefits);

(2) result in the employment of any individual when any other person is in a layoff status from the same or substantially equivalent job within the jurisdiction of the environmental agency concerned; or

(3) affect existing contracts for services.

(c) Prior appropriations Acts

Grants or agreements awarded under this section shall be subject to prior appropriation Acts. (June 12, 1984, Pub.L. 98-313, § 2, 98 Stat. 235.)

Codification

Section was not enacted as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Short Title

Section 1 of Pub.L. 98-313, June 12, 1984, 98 Stat. 235, provided that: "This Act [enacting this section] may be cited as the 'Environmental Programs Assistance Act of 1984'."

§ 4368b. General assistance program

(a) Short title

This section may be cited as the "Indian Environmental General Assistance Program Act of 1992".

(b) Purposes

The purposes of this section are to—

(1) provide general assistance grants to Indian tribal governments and intertribal consortia to build capacity to administer environmental regulatory programs that may be delegated by the Environmental Protection Agency on Indian lands; and

(2) provide technical assistance from the Environmental Protection Agency to Indian tribal governments and intertribal consortia in the development of multimedia programs to address environmental issues on Indian lands.

(c) Definitions

For purposes of this section:

(1) The term "Indian tribal government" means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation (as defined in, or established pursuant to, the Alaska Native Claims Settlement Act (43 U.S.C.A. § 1601, et seq.)), which is recognized as eligible for the special services provided by the United States to Indians because of their status as Indians.

(2) The term "intertribal consortia" or "intertribal consortium" means a partnership between two

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or more Indian tribal governments authorized by
the governing bodies of those tribes to apply for and
receive assistance pursuant to this section.

(3) The term "Administrator" means the Admin-
istrator of the Environmental Protection Agency.

(d) General assistance program

(1) The Administrator of the Environmental Pro-
tection Agency shall establish an Indian Environmen-
tal General Assistance Program that provides grants
to eligible Indian tribal governments or intertribal
consortia to cover the costs of planning, developing,
and establishing environmental protection programs
consistent with other applicable provisions of law pro-
viding for enforcement of such laws by Indian tribes
on Indian lands.

(2) Each grant awarded for general assistance un-
der this subsection for a fiscal year shall be no less
than \$75,000, and no single grant may be awarded to
an Indian tribal government or intertribal consortium
for more than 10 percent of the funds appropriated
under subsection (h) of this section.

(3) The term of any general assistance award made
under this subsection may exceed one year. Any
awards made pursuant to this section shall remain
available until expended. An Indian tribal govern-
ment or intertribal consortium may receive a general
assistance grant for a period of up to four years in
each specific media area.

(e) No reduction in amounts

In no case shall the award of a general assistance
grant to an Indian tribal government or intertribal
consortium under this section result in a reduction of
Environmental Protection Agency grants for environ-
mental programs to that tribal government or consor-
tium. Nothing in this section shall preclude an Indi-
an tribal government or intertribal consortium from
receiving individual media grants or cooperative
agreements. Funds provided by the Environmental
Protection Agency through the general assistance
program shall be used by an Indian tribal government
or intertribal consortium to supplement other funds
provided by the Environmental Protection Agency
through individual media grants or cooperative agree-
ments.

(f) Expenditure of general assistance

Any general assistance under this section shall be
expended for the purpose of planning, developing, and
establishing the capability to implement programs ad-
ministered by the Environmental Protection Agency
and specified in the assistance agreement. Purposes
and programs authorized under this section shall in-
clude the development and implementation of solid

and hazardous waste programs for Indian lands. An
Indian tribal government or intertribal consortium
receiving general assistance pursuant to this section
shall utilize such funds for programs and purposes to
be carried out in accordance with the terms of the
assistance agreement. Such programs and general
assistance shall be carried out in accordance with the
purposes and requirements of applicable provisions of
law, including the Solid Waste Disposal Act (42 U.S.C.
6901 et seq.).

(g) Procedures

(1) Within 12 months following October 24, 1992,
the Administrator shall promulgate regulations estab-
lishing procedures under which an Indian tribal gov-
ernment or intertribal consortium may apply for gen-
eral assistance grants under this section.

(2) The Administrator shall publish regulations is-
sued pursuant to this section in the Federal Register.

(3) The Administrator shall establish procedures
for accounting, auditing, evaluating, and reviewing any
programs or activities funded in whole or in part for a
general assistance grant under this section.

(h) Authorization

There are authorized to be appropriated to carry
out the provisions of this section, \$15,000,000 for each
of the fiscal years 1993, 1994, 1995, 1996, 1997, and
1998.

(i) Report to Congress

The Administrator shall transmit an annual report
to the appropriate Committees of the Congress with
jurisdiction over the applicable environmental laws
and Indian tribes describing which Indian tribes or
intertribal consortia have been granted approval by
the Administrator pursuant to law to enforce certain
environmental laws and the effectiveness of any such
enforcement.

(Pub.L. 102-497, § 11, Oct. 24, 1992, 106 Stat. 3258; Pub.L.
103-155, Nov. 24, 1993, 107 Stat. 1523.)

References in Text

The Alaska Native Claims Settlement Act, referred to in subsec.
(c)(1), is Pub.L. 92-203, Dec. 15, 1971, 85 Stat. 688, as amended, which
is classified generally to chapter 33 (section 1601 et seq.) of Title 43,
Public Lands. For complete classification of this Act to the Code, see
Short Title note set out under section 1601 of this title and Tables.

The Solid Waste Disposal Act, referred to in subsec. (f), is Title II
of Pub.L. 89-272, Oct. 20, 1965, 79 Stat. 997, as amended generally by
Pub.L. 94-580, § 2, Oct. 21, 1976, 90 Stat. 2795, which is classified
generally to chapter 82 (section 6901 et seq.) of this title. For
complete classification of this Act to the Code, see Short Title note set
out under section 6901 of this title and Tables.

Codification

Section was enacted as part of the Indian Environmental General
Assistance Program Act of 1992 and not as part of the National
Environmental Policy Act of 1969, which comprises this chapter.

§ 4369. Miscellaneous reports

(a) Availability to Congressional committees

All reports to or by the Administrator relevant to the Agency's program of research, development, and demonstration shall promptly be made available to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Environment and Public Works of the Senate, unless otherwise prohibited by law.

(b) Transmittal of jurisdictional information

The Administrator shall keep the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Environment and Public Works of the Senate fully and currently informed with respect to matters falling within or related to the jurisdiction of the committees.

(c) Comment by Government agencies and the public

The reports provided for in section 5910 of this title shall be made available to the public for comment, and to the heads of affected agencies for comment and, in the case of recommendations for action, for response.

(d) Transmittal of research information to the Department of Energy

For the purpose of assisting the Department of Energy in planning and assigning priorities in research development and demonstration activities related to environmental control technologies, the Administrator shall actively make available to the Department all information on research activities and results of research programs of the Environmental Protection Agency.

(Oct. 18, 1978, Pub.L. 95-477, § 5, 92 Stat. 1510; Nov. 2, 1994, Pub.L. 103-437 § 15(c)(6), 108 Stat. 4592.)

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1979, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Change of Name

Any reference in any provision of law enacted before Jan. 4, 1995, to the Committee on Science, Space, and Technology of the House of Representatives treated as referring to the Committee on Science of the House of Representatives, see section 1(a)(10) of Pub.L. 104-14, set out as a note preceding section 21 of Title 2, The Congress.

§ 4369a. Reports on environmental research and development activities of the Agency

(a) Reports to keep Congressional committees fully and currently informed

The Administrator shall keep the appropriate committees of the House and the Senate fully and currently informed about all aspects of the environmental

research and development activities of the Environmental Protection Agency.

(b) Annual reports relating requested funds to activities to be carried out with those funds

Each year, at the time of the submission of the President's annual budget request, the Administrator shall make available to the appropriate committees of Congress sufficient copies of a report fully describing funds requested and the environmental research and development activities to be carried out with these funds.

(April 7, 1980, Pub.L. 96-229, § 4, 94 Stat. 328.)

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1980, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

§ 4370. Reimbursement for use of facilities

(a) Authority to allow outside groups or individuals to use research and test facilities; reimbursement

The Administrator is authorized to allow appropriate use of special Environmental Protection Agency research and test facilities by outside groups or individuals and to receive reimbursement or fees for costs incurred thereby when he finds this to be in the public interest. Such reimbursement or fees are to be used by the Agency to defray the costs of use by outside groups or individuals.

(b) Rules and regulations

The Administrator may promulgate regulations to cover such use of Agency facilities in accordance with generally accepted accounting, safety, and laboratory practices.

(c) Waiver of reimbursement by Administrator

When he finds it is in the public interest the Administrator may waive reimbursement or fees for outside use of Agency facilities by nonprofit private or public entities.

(April 7, 1980, Pub.L. 96-229, § 5, 94 Stat. 328.)

Codification

Section was enacted as part of the Environmental Research, Development, and Demonstration Authorization Act of 1980, and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Federal Practice and Procedure

Environmental class actions, see Wright, Miller & Kane: Civil 2d 1782.

§ 4370a. Assistant Administrators of Environmental Protection Agency; appointment; duties

(a) The President, by and with the advice and consent of the Senate, may appoint three Assistant

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Administrators of the Environmental Protection Agency in addition to—

(1) the five Assistant Administrators provided for in section 1(d) of Reorganization Plan Numbered 3 of 1970;

(2) the Assistant Administrator provided by section 2625(g) of Title 15; and

(3) the Assistant Administrator provided by section 6911a of this title.

(b) Each Assistant Administrator appointed under subsection (a) of this section shall perform such duties as the Administrator of the Environmental Protection Agency may prescribe.

(Aug. 23, 1983, Pub.L. 98-80, § 1, 97 Stat. 485.)

Codification

Section was not enacted as part of the National Environmental Policy Act of 1969 which comprises this chapter.

§ 4370b. Availability of fees and charges to carry out Agency programs

Notwithstanding any other provision of law, after September 30, 1990, amounts deposited in the Licensing and Other Services Fund from fees and charges assessed and collected by the Administrator for services and activities carried out pursuant to the statutes administered by the Environmental Protection Agency shall thereafter be available to carry out the Agency's activities in the programs for which the fees or charges are made.

(Pub.L. 101-144, Title III, Nov. 9, 1989, 103 Stat. 858.)

Codification

Section was enacted as part of the Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1990, and not as part of the National Environmental Policy Act of 1969, which comprises this chapter.

§ 4370c. Environmental Protection Agency fees

(a) Assessment and collection

The Administrator of the Environmental Protection Agency shall, by regulation, assess and collect fees and charges for services and activities carried out pursuant to laws administered by the Environmental Protection Agency.

(b) Amount of fees and charges

Fees and charges assessed pursuant to this section shall be in such amounts as may be necessary to ensure that the aggregate amount of fees and charges collected pursuant to this section, in excess of the amount of fees and charges collected under current law—

(1) in fiscal year 1991, is not less than \$28,000,000; and

(2) in each of fiscal years 1992, 1993, 1994, and 1995, is not less than \$38,000,000.

(c) Limitation on fees and charges

(1) The maximum aggregate amount of fees and charges in excess of the amounts being collected under current law which may be assessed and collected pursuant to this section in a fiscal year—

(A) for services and activities carried out pursuant to the Federal Water Pollution Control Act (33 U.S.C.A. § 1251 et seq.) is \$10,000,000; and

(B) for services and activities in programs within the jurisdiction of the House Committee on Energy and Commerce and administered by the Environmental Protection Agency through the Administrator, shall be limited to such sums collected as of November 5, 1990, pursuant to sections 2625(b) and 2665(e)(2) of Title 15, and such sums specifically authorized by the Clean Air Act Amendments of 1990.

(2) Any remaining amounts required to be collected under this section shall be collected from services and programs administered by the Environmental Protection Agency other than those specified in subparagraphs (A) and (B) of paragraph (1).

(d) Rule of construction

Nothing in this section increases or diminishes the authority of the Administrator to promulgate regulations pursuant to the Independent Office Appropriations Act (31 U.S.C. 9701).

(e) Uses of fees

Fees and charges collected pursuant to this section shall be deposited into a special account for environmental services in the Treasury of the United States. Subject to appropriation Acts, such funds shall be available to the Environmental Protection Agency to carry out the activities for which such fees and charges are collected. Such funds shall remain available until expended.

(Nov. 5, 1990, Pub.L. 101-508, Title VI, § 6501, 104 Stat. 1388-320).

¹ So in original. Probably should be "to".

References in Text

The Federal Water Pollution Control Act, referred to in subsec. (c)(1)(A), is Act June 30, 1948 c. 758, as amended generally by Pub.L. 92-500, § 2, Oct. 18, 1972, 86 Stat. 815, which is classified generally to chapter 26 (section 1251 et seq.) of Title 33, Navigation and Navigable Waters. For complete classification of this Act to the Code, see Short Title note set out under section 1251 of Title 33, and Tables.

The Clean Air Act Amendments of 1990, referred to in subsec. (c)(1)(B), is Pub.L. 101-549, Nov. 15, 1990, 104 Stat. 3399. For complete classification of this Act to the Code, see Tables.

The Independent Office Appropriations Act (31 U.S.C. 9701), referred to in subsec. (d), is Act Aug. 31, 1951, c. 376, Title V, § 501, 65 Stat. 290, as extensively revised Pub.L. 97-258, Sept. 13, 1982, 96 Stat. 1051, which is classified to section 5701 of Title 31, Money and Finance. For complete classification of these Acts to the Code, see Tables.

Codification

Section was enacted as part of the Omnibus Budget Reconciliation Act of 1990 and not as part of the National Environmental Policy Act of 1969 which comprises this chapter.

Change of Name

Any reference in any provision of law enacted before Jan. 4, 1995, to the Committee on Energy and Commerce of the House of Representatives treated as referring to the Committee on Commerce of the House of Representatives, except that any reference in any provision of law enacted before Jan. 4, 1995, to the Committee on Energy and Commerce of the House of Representatives treated as referring to the Committee on Agriculture of the House of Representatives, in the case of a provision of law relating to inspection of seafood or seafood products, the Committee on Banking and Financial Services of the House of Representatives, in the case of a provision of law relating to bank capital markets activities generally or to depository institution securities activities generally, and the Committee on Transportation and Infrastructure of the House of Representatives, in the case of a provision of law relating to railroads, railway labor, or railroad retirement and unemployment (except revenue measures related thereto), see section 1(a)(4) and (c)(1) of Pub.L. 104-14, set out as a note preceding section 21 of Title 2, The Congress.

§ 4370d. Availability of funding for economically and socially disadvantaged individuals

The Administrator of the Environmental Protection Agency shall, hereafter, to the fullest extent possible, ensure that at least 8 per centum of Federal funding for prime and subcontracts awarded in support of authorized programs, including grants, loans, and contracts for wastewater treatment and leaking underground storage tanks grants, be made available to business concerns or other organizations owned or controlled by socially and economically disadvantaged individuals (within the meaning of section 637(a)(5) and (6) of Title 15), including historically black colleges and universities. For purposes of this section, economically and socially disadvantaged individuals shall be deemed to include women.

(Pub.L. 102-389, Title III, Oct. 6, 1992, 106 Stat. 1602.)

Codification

Section was enacted as part of the Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 1993, and not as part of the National Environmental Policy Act of 1969, which comprises this chapter.

Officials urge EPA to review cement plant

■ A former congressman gives advice to citizens on stopping Florida Rock.

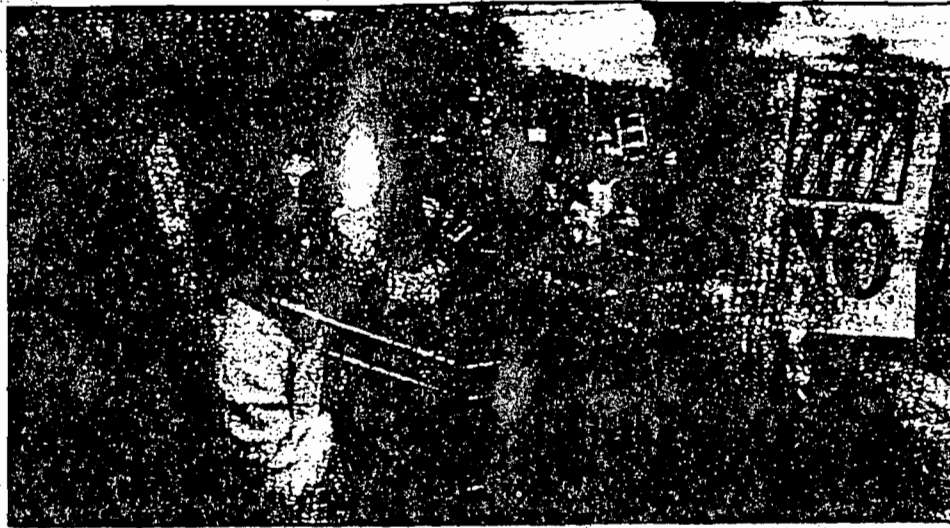
By BRUCE RITCHIE
Sun staff writer

A new voice lent new direction Thursday to opponents of the proposed Florida Rock cement plant near Newberry.

Former Congressman Peter Kostmayer urged residents to ask federal officials to get involved in the controversy. He predicted the plant will be stopped somehow.

The federal government needs to get involved "to see if there are violations of federal law and federal standards," Kostmayer, a former Environmental Protection Agency official and Pennsylvania Democrat, told the about 60 residents at the rally.

During the rally, Alachua County



JOHN MORAN/The Gainesville Sun

Peter Kostmayer, left, executive director of Zero Population Growth, and County Commissioner Penny Wheat address a rally on the steps of the county administrative building Thursday in opposition to Florida Rock's proposed cement plant.

Commissioner Penny Wheat said she will contact federal officials.

Kostmayer, executive director of Zero Population Growth, urged residents to contact congressional representatives, the EPA and the federal Centers for Disease Control and Prevention.

An EPA official in Atlanta said the agency

usually responds to such requests for review.

But the federal agency also tries to "honor its delegation of authority to the states," John Hankinson, the EPA regional administrator in Atlanta.

Please see CEMENT, 4B

Friday, March 7, 1997

CEMENT

continued from 1B

Kostmayer was a U.S. representative 14 years, chaired a House subcommittee that helped write the Clean Air Act and served as an EPA regional director in the mid-Atlantic states from 1992-94.

In response to the Gainesville visit, a Florida Rock official questioned Kostmayer's opposition to the proposed plant given his own role at the EPA concerning a cement plant in Virginia.

Fred Cohrs, project manager of the proposed plant, said the Roanoke Cement Co. in 1993 and 1994 received approval from Virginia to produce more pollution than will be emitted by the Newberry plant. Cohrs said he was with Roanoke Cement at the time.

Like Florida, Virginia has authority from the EPA to issue air pollution permits. So Kostmayer had oversight of the Roanoke Cement Co. permit, Cohrs said.

"I'm not sure where he is coming from," Cohrs said.

"On the one hand, he approves a cement plant with emissions even higher. Then he comes out saying they're bad," Cohrs said. "In a couple of years, he must have changed his whole way of thinking."

Kostmayer told The Sun he's not against cement plants. He said Cohrs' remarks don't "change the facts" that the Florida Rock plant remains a health concern.

"Florida Rock has found one plant in one city in states which got a permit," he said. "It's a little like going to President Clinton and saying, 'I got bad service at the Post Office in Gainesville, what are you going to do about it?'"

The cement plant is an issue for Zero Population Growth because the group "works a lot on environmental issues," Kostmayer said.

The rally was organized by the group as part of a tour of U.S. cities by Kostmayer.

Area residents held anti-cement plant signs and chanted slogans before the rally.

The Haile Community Association, which opposes the cement plant, will meet Saturday at 11 a.m. at the Tower Road branch of the Alachua County Library.

Wheat told those present that environmental and health impacts had not been considered in issuing permits for the plant and that it is "past time, perhaps to contact federal officials."

"As I begin contacting our federal officials, those of you who wish to join me in that pursuit, please let me know," she said.

Kostmayer raised concerns about the plant's emission of particulate matter given proposed new federal air-quality standards for the pollutant.

"What may be allowed now may not be allowed next year," Kostmayer said. "This is not the time, this is the place."

The Gainesville Sun
Friday, March 7, 1997

Power takes a back seat at Turbo Expo



ANGELA PETERSON

Turbo talk. Emil Avram of Turbo Power and Marine System explains an exhibit to Francisco Saldarriaga (left) and Dutta Prashanta on Tuesday at the Turbo Expo '97 at the Orange County Convention Center.

Gas turbine technology cleans up

By Seth Borenstein

OF THE SENTINEL STAFF

In the multibillion-dollar world of massive gas turbine engines, the latest buzz isn't about more power; it's about less smog and greater efficiency.

Two changes in federal government regulations have placed pollution and efficiency at the forefront of gas turbine technology showcased at Turbo Expo '97 at the Orange County Convention Center this week.

Tighter air-quality regulations are forcing power companies to produce less nitrogen oxide, a key element in smog and acid rain, experts say. At the same time, deregulation in the power-generating industry has companies looking to sell power in new markets, so they are trying to cut costs.

Catalytica Combustion Systems Inc. of California on Tuesday announced that it had created and tested a new engine component that could reduce nitrogen oxide emissions to 3 parts per million. Older power plants can produce at least 33 times that amount.

Also Tuesday, European Gas Turbines of England unveiled its latest engine, The Cyclone, which guaran-

tees nitrogen oxide emissions of no more than 25 parts per million.

Federal standards vary on allowable levels of nitrogen oxide emissions by new plants. In the smog-troubled areas of Los Angeles and San Francisco, for example, the emissions cannot exceed 3 parts per million.

Westinghouse's Orlando power-generation unit was using the convention to sell its latest turbine engine, the 501G, touting its low nitrogen oxide emission and increased efficiency, spokesman Michael Asquino said.

"All of the improvements have been dramatic over the last 10 years," University of Washington mechanical engineering Professor Philip Malte said. "If you just look at this generically, they are one of the cleanest ways of converting chemical engines into electricity."

The cleanliness is not at the expense of efficiency.

Catalytica spokesman Lloyd Baylis said his company's new combustion device reduces efficiency by about 1 percent.

Westinghouse's Asquino said his company is developing an engine that converts 60 percent of the energy in the fuel to electricity. Older power plants have efficiency rates of 25 percent, and newer ones are in the 50 percent range, Malte said.

BOBBY COULDN'T
HELP SHOWING
OFF HIS NEW
DOPPLER RADAR



The Gainesville Sun, Wednesday, June 4, 1997

Fla. Rock rejects gas proposal

■ The company turns down GRU's offer to provide gas to the cement plant, saying it would cost \$3 million more than coal.

By JUD MAGRIN
Sun staff writer

Florida Rock Industries has rejected the idea of burning natural gas at its Newberry cement plant because it would cost \$3 million a year more than burning coal, according to President John D. Baker II.

Gainesville Regional Utilities offered recently to build a natural gas pipeline to Newberry and sell gas to Florida Rock to fire the new plant. It could have meant an extra \$7 million in revenue for GRU. Baker and other company officials say it is not feasible.

The \$3 million additional cost "would put the plant at a serious disadvantage with our competitors, particularly foreign producers," Baker wrote in a May 27 letter to GRU General Manager Mike Kurtz.

GRU, Mayor-Commissioner Bruce Delaney and Commissioner Pegen Hanrahan had been hopeful that technology called Gyro-Therm could be used at the plant in which natural gas could be burned more cleanly than coal.

"Let me assure you," Baker wrote, "we have followed the research and developments of this technology which have been largely funded by the Gas Research Institute to promote gas sales to industrial customers."

Baker said the same technology applies equally to coal and oil, thus erasing any benefit to switching to coal even if Gyro-Therm burners were installed.

"Gas is about the same as coal (when burned) in a cement plant... while that may not be true in other uses," Baker said Tuesday. "It is about the same environmentally, so it becomes pure economics."

Kurtz said he was pleased that Florida Rock is aware of the Gyro-Therm technology and looked at the environmental aspects of it compared to coal.

"Clearly he (Baker) said, 'thanks for a good proposal... but because of the economic hurdle we will stay with coal.' You have to appreciate the economics," Kurtz said.

Florida Rock entered into contracts on April 4 with two contractors to do the planning and engineering

Please see GAS, 3B

low-sulphur coal.

Baker said a gas pipeline would be convenient, but he feared an "inherent high risk of interruption. By contrast, coal can be (stored) to provide uniform supplies. Further, the price of gas is as unpredictable as the stock market."

Finally, coal gives cement plants a supply of ash in cement production. Switching to natural gas would require the company to buy ash from an outside source.

Baker said Florida Rock will start using the Newberry plant in about two years.

United States and Canada use coal, and only a small amount of cement is produced by burning natural gas.

"This occurs mostly Oklahoma, Texas and areas near the Canadian border on a seasonal basis where gas transmission companies occasionally sell gas at prices which are competitive with coal to plants with multi-fuel burning equipment," Baker wrote.

Further, Baker stated, coal burns hotter than other fossil fuels and because coal burns much faster, it ultimately means less emissions into the atmosphere. Florida Rock is being required to burn

GAS

continued from 1B
for the plant, and most commitments for machinery have been made, he said in his letter, "including a complete coal receiving, grinding and burning system. Substantial non-refundable down payments were made on April 4."

Baker said Tuesday that Florida Rock has already invested millions of dollars in the development of the Newberry plant.

Baker stated that plants in the



Cement plant law faces likely challenge in court

■ The act limits the ability of local governments to toughen pollution laws.

By PAULA RAUSCH

Sun staff writer

An amendment bill designed to protect a proposed cement plant near Newberry is probably on its way to court.

The amendment, which automatically became law Thursday when Gov. Lawton

Chiles took no action on it, has generated controversy because it limits local authority to toughen pollution laws.

Questions have been raised about the constitutionality of that section of House Bill 1073, a complicated, 23-page bill that relates to several environmental issues, including heavy mineral mining operations. The amendment, filed in the last minutes of the Legislature by state Sen. George Kirkpatrick, D-Gainesville, applies only to areas of the state north of the Cross Florida Greenway in North Florida.

"I'm fairly sure that (constitutionality) issue will be litigated," said Joe Little, a University of Florida law professor considered an expert on Florida constitutional law. Little has been approached about taking the case to court, he said Friday, but he declined to name the prospective client.

Little said the state Legislature is restricted from enacting special laws that apply only to restricted parts of the state unless certain procedures are followed. Those require advance notice of the bill so that people can speak on it, or making the law conditional on

a local vote, he said.

Little said he doesn't think either of the procedures were followed for House Bill 1073.

"It is very clear that this is not a constitutional law," said Stewart Harris, an attorney representing the Haile Community Association in an appeal of Florida Rock's state-issued air construction permit.

Harris said the law denies people of North Florida the right to pass stricter pollution laws, but it doesn't apply to South Florida.

Please see CEMENT, 5A

CEMENT

continued from 1A

Kirkpatrick could not be reached for comment. The state Attorney General's Office would not comment Friday because it would defend any challenges to the law, said Assistant Attorney General Gerry Hammond.

City of Gainesville officials, who asked Chiles to veto the bill because they felt it was "a serious erosion of home rule power of local governments," have not discussed whether to challenge it in court, Mayor-Commissioner Bruce Delaney said Friday.

Some of the language in Kirkpatrick's amendment also is under scrutiny.

The amendment prohibits local governments from enforcing stricter pollution laws against polluters "permitted and under construction as of May 1, 1997."

People on both sides of the Florida Rock Industries' cement plant proposal disagree about what that means.

An appeal of Florida Rock's state-issued air construction permit is pending in the 1st District Court of Appeals, said Patrice Boyes, an attorney representing a couple who also are suing the company. Permits, she argues, are not final until the appeal process is completed.

Alachua County's approval of the site plan also has been appealed to the circuit court by her clients, said Boyes, who argues that that means the cement plant is not permitted or under construction.

Although Florida Rock has a county construction permit to do preliminary work, it does not have any county building permits, Boyes said. A county construction permit authorizes the company to construct paving and drainage facilities on the site. Florida Rock officials say the company doesn't have building permits because it hasn't applied for them yet. The way the process works, the company applies for building permits as the designs for each part of the plant become final.

Florida Rock officials have said there is no question that the company started construction before May 1.

The company has spent a great deal of money on clearing the land, engineering, geotechnical and design services that are a part of the construction process, officials said.

Florida Rock spokesman Fred Cohrs said Friday that Florida Rock is acting in accordance with the dictates of its permits and the law. He declined to comment further.

For now, the law remains in effect, but lawmakers have no rules with which to interpret it, Boyes said. "So right now we don't know what it means."

Stopping the damage to Nigeria's environment

An American group is helping Nigerians make that country's poorly enforced environmental laws better known.

By Robert J. Goldstein
BRIDGE NEWS

The eyes of the world have recently focused on the crisis in Congo, but similar rumblings have long been felt in nearby Nigeria, the backbone of West Africa.

Nine environmentalists were executed there in November 1995, including the playwright Ken Saro-Wiwa. And democratic ideas are being suppressed from the city of Lagos to outlying regions, where seeds of tribal unrest are sprouting.

Meanwhile, profits from Nigerian oil, worth approximately \$10 billion a year, create a lucrative business climate — but one in which human-rights violations and destructive environmental practices continue.

Big oil in Nigeria has often been accused of environmental abuses. The accusations are all but ignored by the military government of Gen. Sani Abacha.

Ignoring outcry, government went ahead with executions

Ken Saro-Wiwa was a member of the Ogoni tribe, whose lands in the oil-rich Niger River delta were coveted by Royal Dutch/Shell. For merely protesting the pollution caused by oil drilling, he was arrested and tried on allegations of murder, along with eight other Ogoni activists.

Protests from around the world fell on the deaf ears of the Nigerian leadership. On Nov. 10, 1995, the nine were executed.

In late March of this year, using the oil company as a surrogate for the unpopular Nigerian government, members of the Ijaw tribe took 127 Shell Oil employees hostage in Delta state in southern Nigeria.

The Ijaw demanded political autonomy and a larger share of oil revenues before releasing their hostages to negotiators.

A foreign corporation can claim ignorance of Nigeria's environmental laws. Such laws do exist but are obscured from public view by a bureaucratic morass. Civil servants are more likely to respond to a bribe

than to a legitimate request for information.

To those in a democratic country, the idea of essentially secret laws is incomprehensible, but in Nigeria they are a reality. The beneficiaries of this secrecy, besides the Nigerian government, include the many corporations doing business in Nigeria — guided by the dictates of profit alone.

This leads to the kind of exploitation that filled the Swiss bank accounts of Congo's former president, Mobutu Sese Seko, while impoverishing its people.

This also leads to the corporate hegemony that was in part responsible for the death of Saro-Wiwa and for alleged human-rights violations by the Nigerian government.

Using the Internet to get through to Nigeria's leaders

An effort is currently under way to provide access to the environmental laws of Nigeria through the Internet.

After obtaining reliable copies of the laws from members of the Nigerian Bar, the Pace Global Environmental Law Network at Pace University School of Law in White Plains, N.Y., is launching a site on the World Wide Web (<http://www.law.pace.edu/env/nigerian.html>).

The site makes public, for the first time, the environmental laws of Nigeria.

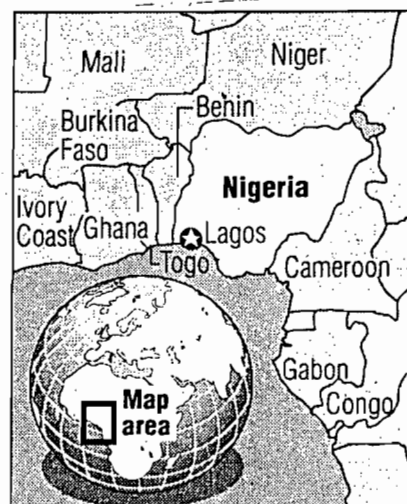
This is not the first time an attempt has been made to penetrate the Nigerian government by use of

the Internet. In 1995, when *The News of Nigeria* attempted to publish online, a gasoline bomb destroyed the computers in its production center.

Knowledge of existing environmental laws is certainly not the only answer to the many problems that confront Nigeria.

But it does put the corporations that have so much influence on the country, its resources and its people on notice that the world will hold them to standards the Nigerian people have set for themselves.

Awareness of these laws, and of their violation by multinational corporations, should prompt action to curtail illegal activities. It should motivate both shareholders and the governments of the countries



in which these corporations are domiciled to take actions that force accountability.

Moreover, the sort of pressure that was used to defeat apartheid should be brought to bear on these corporations in order to end this exploitation.

Shell has recently announced a set of business principles calling for the respect of human rights.

It's our responsibility to watch the oil companies

One way to gauge whether this policy was promulgated in earnest is to monitor the company's future adherence to the environmental laws of Nigeria. If Shell is willing to reverse its record on human rights, it can demonstrate this by complying with the laws that Nigeria has enacted to protect its environment.

Shell's compliance can be monitored only in conjunction with the full and open publication of Nigeria's environmental laws. In this way, Shell and others can be held fully accountable.

It is claimed by some that the fax machine brought down the Soviet Union.

Certainly, the Internet holds equal, or greater, promise of being used effectively as a tool for political change. In Nigeria, ironically, political change can be fostered by the same multinational corporations that facilitated the military government's ascent to power.

It is the responsibility of the rest of us to watch these companies closely to make sure that they don't act as the de facto government in Nigeria, but rather subject themselves to the will and law of the Nigerian people.

Robert J. Goldstein is a senior fellow at Pace Law School.

Lennar to fill pit behind development, pay homeowners

By ANNE MARTINEZ
Herald Staff Writer

Workers can clear it, fill it and even plant shady trees on it, but they won't be able to remove the stigma surrounding the infamous burial pit at Miramar's Hampshire Homes.

Once developer Lennar Homes restores the community at Palm Avenue and Miramar Parkway, real estate agents will be required to disclose the community's trou-

bled past to potential buyers, several Broward real estate professionals said Tuesday.

"I'd have to point it out to the buyers and put something in writing," said David Rose, manager of Century 21 Miramar Realty. "You can't take a chance. You never know what could happen again."

After a yearlong battle, homeowners have agreed to allow Lennar to clear remaining

debris and fill in the half-acre pit created last March when more than 250 truckloads of tires, appliances and other debris were hauled from behind 20 homes.

Under the plan, approved by the Broward County Department of Natural Resource Protection, Lennar will pay for restoring areas where debris was found. The company did not admit to violating any laws.

The Gainesville Sun, Thursday, June 5, 1997

\$1 million offered for Lake Alice 'meditation center'

By BRUCE RITCHIE
Sun staff writer

A former University of Florida official has donated \$1 million toward construction of a "meditation center" on the shores of Lake Alice.

George F. Baughman of Gainesville and his wife, Hazel, donated \$750,000 for construction of the multi-purpose facility, with the state providing an equal match. Another \$250,000 will go to an endowment to support the facility.

Attention will be paid to the architecture and other details of construction because of its

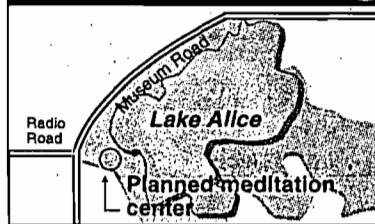
location on the lake, said UF planner John Maruniak.

"There is no place on the campus, really, where students can find some peace and quiet sometime or have a place for weddings or memorial services," he said. "Most schools have something like that."

The facility will be named The Baughman Center.

George Baughman was a member of UF's business faculty and became vice president for business affairs before taking a similar post at New York University in 1955. He is founding president of New College in Sarasota.

Planned lake building



The facility, to be in a parking area near Radio and Museum roads, could be either enclosed or open-air, Maruniak said.

Many details of the facility are unknown and will be proposed by architect John Zona III, Maruniak

said. Construction will begin in early 1998.

Concerns already have surfaced among some critics of campus development about the building's impact on Lake Alice, a popular wildlife viewing spot on campus. The group Alice's Friends is concerned about the intensity of development near Lake Alice, said Ary Lamme III, the group's co-chairman Wednesday.

The meditation center represents "a man-made structure right in the heart of a natural setting," he said. "That certainly has people concerned."

Plans for the facility have been

discussed publicly in the past, registering some concerns. Retired UF botany professor Dan Ward, who has criticized campus development, said several weeks ago that "you wouldn't have a Central Park if you let people build like that."

University officials say the 2,500-square-foot building will enhance enjoyment of Lake Alice, especially during bad weather.

Maruniak said UF officials agree Lake Alice is an important spot for visitors.

"We want to protect and enhance that experience," he said. "We believe this pavilion will enhance that."

Suit disputes pollution law

By PAULA RAUSCH

Sun staff writer

A lawsuit was filed Wednesday against a new law that was designed, in part, to protect a proposed cement plant near Newberry from stricter local air pollution regulations.

The lawsuit, which was filed in Tallahassee Circuit Court by a group of Alachua County residents, relates to House Bill 1073, which became law automatically last week

when Gov. Lawton Chiles took no action on it.

The law, which relates to several environmental issues, contained a controversial portion that prohibited local governments north of the Cross Florida Greenway in North Florida from enforcing stricter pollution laws against polluters already permitted and under construction by May 1, 1997.

Critics said that part of the bill — which started as an amendment — Please see **SUIT, 2B**

SUIT

continued from 1B

filed in the last hours of the legislative session by Sen. George Kirkpatrick, D-Gainesville, — prevents Alachua County residents from voting on whether to apply stricter air standards under a citizen-proposed clean air initiative that could go to voters in 1998.

The lawsuit asks that the law be removed from state statutes, said

Some area leaders want the pollution law removed from state statutes.

University of Florida law professor Joe Little, who drafted the suit.

The list of plaintiffs in the lawsuit are Alachua County Commissioner Penny Wheat; the Haile Community Association; its president, John

McCall; president pro-tem Ed Sherwood; board member Mike Garson; and Dave Newport, a former county Environmental Protection Advisory Committee member, who recently announced his candidacy for county commission.

The Legislature adopted a bill that was "clearly unconstitutional," Wheat said, and abridges the home-rule authority of local governments in North Florida as well as the rights of citizens to initiate ordinances.

Activists back new EPA standards

■ The Environmental Protection Agency has proposed establishing standards for the tiniest of air particles.

By BRUCE RITCHIE

Sun staff writer

Local air pollution activists Wednesday criticized U.S. Rep. Karen Thurman for questioning proposed new federal regulations and called for public support on the issue.

The U.S. Environmental Protection Agency has proposed new standards for the smallest of tiny particles, called particulate matter.

"The proposed EPA standards are based on the best science available," said Holly Jensen of Gainesville, representing a group called Clean Air and Water for Alachua County. "They will save the lives of tens of thousands who die prematurely each year from breathing dirty air."

Industry disagrees that the proposed standards are based on good science and EPA's estimates on the number of lives that will be saved with stricter regulations.

About 15 people, representing the Sierra Club and other local and national environmental groups, highlighted the issue in a news conference outside the Florida



RICH GLICKSTEIN/Special to The Sun

Holly Jensen, of Clean Air and Water for Alachua County, spoke at a gathering for the clean air debate at The Florida Farm Bureau Wednesday. The travel of the tombstone is organized by Clean Air and Water, the Environmental Information Center and the U.S. Public Interest Research Group.

Farm Bureau building, where Thurman has a local office.

Organizers had a 10-foot-high tombstone replica dedicated to the 15,000 people the EPA estimates will die prematurely from air pollution. The replica is one of two on tour for similar events nationwide.

Thurman was among 18 members of the state's Congressional delegation that signed a letter to President Clinton raising concerns about the proposed new standards.

They raised concern about the lack of consensus on the issue within EPA's Clean Air Act Scientific Advisory Committee and the White House Cabinet.

Responding to criticism at the event, a Thurman aide said the questions raised in the letter are simply "all part of the (democratic) process."

During the event, speakers criticized the planned Florida Rock Industries cement plant near Newberry.

Cement plant law targeted

By PAULA RAUSCH

Sun staff writer

A lawsuit filed by a group of local residents says a new law meant to protect a proposed cement plant near Newberry should be thrown out because the way it was passed and what it says make it unconstitutional.

The lawsuit, filed Wednesday in Tallahassee circuit court against Secretary of State Sandra Mortham, says that House Bill 1073 violates requirements of the Florida Constitution that enable it to become law.

The state Constitution requires published notification of an intent to enact a special law like HB 1073 or that the law become effective only by a vote of approval of the residents of the affected area, the lawsuit said.

In this case, there was neither, said

Local group files suit to challenge recent act

University of Florida law professor Joe Little, who drafted the complaint.

The bill, set to go into effect Oct. 1, became law automatically last week when Gov. Lawton Chiles took no action on it.

Though the suit targets the entire bill, the point of contention is an amendment sponsored by Sen. George Kirkpatrick, D-Gainesville, which forbids local governments from enacting stricter pollution rules on polluters that were permitted and under construction as of May 1, 1997. The section applies only to areas north of the Cross Florida Greenway in North Florida and exempts electric generating plants.

The amendment, filed in the last hours of the legislative session, is a very small part of a complicated, 23-page bill that relates to several other environmental issues.

The suit was filed on behalf of the Haile Community Association; its president, John McCall; president pro-tem, Ed Sherwood; and board member, Mike Garson. Also filing suit are Penny Wheat, in her capacity as resident and not in her official capacity as Alachua County commissioner, and Dave Newport, a former member of the county's Environmental Protection Advisory Committee, who recently announced his candidacy for county commission.

The Legislature adopted a bill that is
Please see CEMENT, 3B

CEMENT

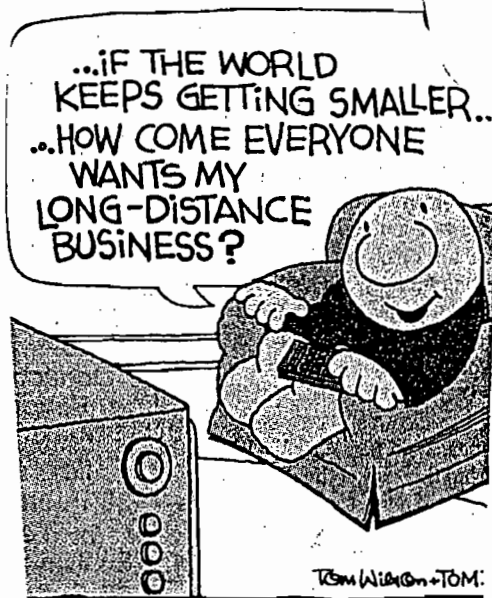
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"clearly unconstitutional," because it did not follow the procedures specified in Florida's Constitution, Wheat said.

The bill "clearly abridges the home rule authority of governments throughout North Florida" and the rights of citizens to initiate ordinances, she said.

The suit says the bill "contains no rational basis" to have the section imposed only on areas in North Florida and exclude those in South Florida.

Critics of the amendment say it prevents Alachua County residents from voting on an ordinance that would require the cement plant to meet stricter pollution requirements than those issued by the state. Kirkpatrick could not be reached for comment.



The Tampa Tribune,

Friday, June 6, 1997

Storm could make 'inland' a nightmare

SUMMARY: Inland counties say they don't have enough room to provide a safe haven for coastal residents fleeing the fury of a big storm.

By ROB SHAW
of The Tampa Tribune

TAMPA — Polk County could do a stellar job in a hurricane, if it had to worry only about its own evacuees.

But throw in an extra million or two million residents trying to flee coastal areas of the state, and the situation

goes downhill rapidly.

Roads become clogged. Shelter spaces disappear. There's nowhere for all the coastal residents to go, let alone Polk people trying to seek safe cover.

"It's going to be a nightmare," David Cash, director of Polk County emergency management, said Thursday at the Governor's Hurricane Conference at the Tampa Convention Center. "We have quite a few people already."

At best, Polk has room for 40,000 evacuees — which could be about the number of in-county mobile home resi-

dents who will decide to seek public shelter.

In a worst-case scenario, Pinellas may end up seeing 500,000 people evacuate. Hillsborough could add another 300,000. And if it's a Gulf of Mexico hurricane that threatens areas south of the Tampa Bay area, those numbers easily could swell as Charlotte, Lee, Sarasota and Manatee counties empty.

In a major hurricane, it seems coastal residents all want to go north.

See HURRICANE, Page 3 ▶

HURRICANE/Inland evacuation areas face logistical nightmare

have any sea water lapping at us. But 35 or 40 miles is not a great deal of land. In a major storm, we're not far enough inland to do any good."

That was the case with Hurricane Hugo in South Carolina in 1989. Its fury stretched some 200 miles inland, shredding houses and

leaving a long path of destruction. Polk is not alone in its popularity as an inland safe haven. A lot of people who live in south Florida think Orlando is the place to ride out a storm.

But Osmon Aloyo, assistant director of Orange County Emergency Management, cautioned that 80

percent of the county's 85,707 hotel rooms usually are booked. And what hotel space is left can go quickly as coastal hotels make arrangements with others inland.

The Orlando area also has the unique problem of having lots of visitors — some 36 million annually, 3 million of those from overseas.

◀ From Page 1

Or inland.

But Cash cautioned that Polk's proximity to the coast doesn't mean people will be safe.

"How far inland is inland?" he asked. "Yes, we're inland. We don't

Riviera may buy back beachfront land rights

By IAN TRONTZ
Palm Beach Post Staff Writer

RIVIERA BEACH — For a mere \$5 million, the city can buy the rights to its own beach-front property.

Some are calling it a bargain. The company that now owns the rights, Brock Associates, will pay the city only \$23,100 this year and is making several times that by subleasing it to 25 shops and restaurants.

"It was actually given away," Mayor Clara Williams said at Wednesday's council meeting. "It was utterly ridiculous. I'm sure that one store pays more than \$23,000 a year."

The company wants to sell the city back the last 25 years of its 50-year lease for \$5 million. The council voted 4-0 to study the offer.

The 1972 council gave Herbert Brock, now dead, the lease to the

2-acre Ocean Mall property fronting the city beach at a cost of \$20,000 a year with an increase of about 1 percent a year.

The contract says the city must maintain the adjacent parking lot and beach and cannot allow anyone else to sell food or clothes on the beach. The Brocks built 60,000 square feet of retail space, which will become city property when the lease ends.

"It took five years and a lot of hard work to get the project off the ground," Brock's son, Andrew Brock, said earlier. "Now it looks like we stole the property. Far from it."

Andrew Brock said he wants to sell the lease back to the city for trust-related tax savings. But some became suspicious when another developer, Brian Wiita, said Brock had offered him the same 25-year term for \$4 million.

Jupiter urges action on dangerous beach

By JOE BROGAN
Palm Beach Post Staff Writer

JUPITER — What do Tequesta resident Richard Nucci and Bigmon, the 18-pound Jack Russell terrier, have in common?

They both received severe cuts from rusting, spike-like structures called groins, that jut up from the beach east of the ocean-front Jupiter Reef Club, according to town records.

The town council approved a resolution Tuesday night asking state intervention to correct what it said is a dangerous situation for beachgoers in the area south of Carlin Park.

In an April 9 letter to the town, Nucci said a cut to his left thigh required 17 stitches and another cut to his left calf took seven stitches to close.

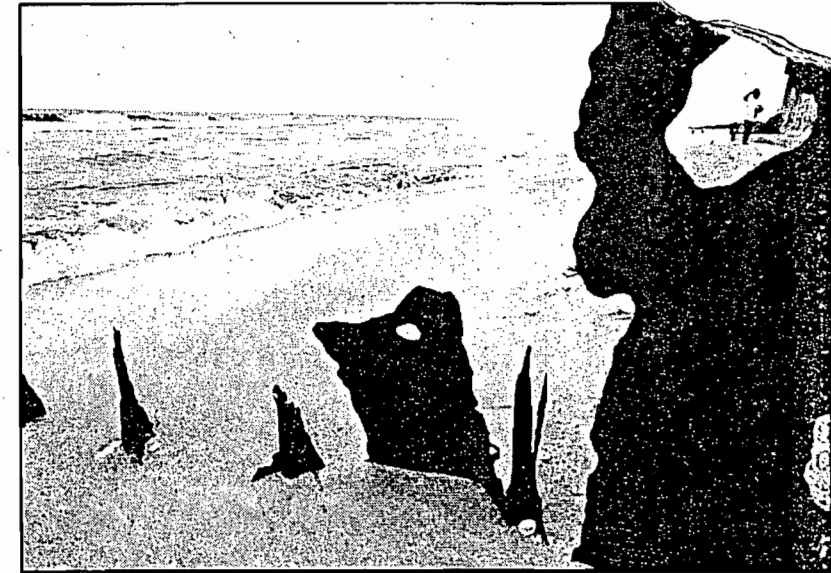
"My grave concern is that someone will be injured more seri-

ously than I," he wrote. "I could envision a young child or adolescent playing in that area and being seriously injured. The metal that sticks up is razor sharp."

Bigmon's owner, Lance Scholl of 111 Windsor Road West, said it cost him \$260 last year when the dog jumped over a groin at Jupiter Reef Club and was seriously cut on its underside by a spike.

"If this would have been a sea turtle, the whole state would have been here and made someone fix it," Scholl wrote. "Since this is a popular area for beachgoers, especially on the weekends, it's only a matter of time before someone else gets injured."

The town has been trying to get the club to either remove or repair the structures for more than a year, and continues to get numerous complaints from bathers, said town recreation director



STEPHANIE WELSH/Staff Photographer

These spike-like structures, called groins, jut up from the beach near the Jupiter Reef Club. Several people have been injured on them. Jupiter is requesting state action to remedy the problem.

Russ Ruskay.

"We're saying they need to do whatever is necessary to make them safe," Ruskay said. "They're like bayonets sticking up out of the water."

But Jupiter Reef Club manager Barbara Bradburn wrote the town last year that an engineer felt removal of the anti-erosion structures could weaken the club's concrete seawall.

86 need rescue in surf 1 boy in hospital; rip currents blamed

By Blake Fontenay

OF THE SENTINEL STAFF

Volusia County lifeguards rescued 86 swimmers at local beaches Thursday, including a 17-year-old Knoxville, Tenn., boy who had to be transported to a hospital.

One of the day's largest rescues involved about 20 members of a church group who got caught in a rip current in Daytona Beach Shores around 3:30 p.m. Thursday, lifeguard supervisor Rich Gardner said.

A total of 14 lifeguards swam out to help rescue the church members. The Knoxville boy, whose name was not released because he is a juvenile, was part of that group.

Although the boy was hospitalized after the rescue, his condition wasn't considered life-threatening, Gardner said.

None of the other rescued swimmers required hospitalization.

The name of the church group wasn't available.

Rip currents are caused when waves tear holes in underwater sand bars. Water gets sucked through those holes, creating strong outgoing currents that can trap swimmers.

Gardner said strong winds this week have churned up big waves that have knocked more holes in sandbars.

Lifeguards advise anyone caught in a rip current to remain calm and swim parallel to shore until the current breaks.

The Orlando Sentinel, Friday, June 6, 1997.

UNISYS

continued from 1A

turned out that Unisys was just being slow," said Barnes, public information specialist for District 3 Children and Family Services.

"I've been a state employee for 20 years, but I've never had these types of problems with claims before. I certainly can understand about bugs in the system, but they represented that they could do the job. If the governor has decided to terminate the contract, I have to believe that it can only be terminated with cause," said Barnes.

About 7,800 employees at the University of Florida are participants in the plan, according to Peter Marin, assistant director for the Division of University Personnel Services and director of the benefits office.

"There have been problems with this contract since it started — employees having problems with

their claims — and they never really ended," said Marin.

The new Division of State Group Insurance, created by the 1997 Legislature to oversee group health insurance for state employees, is moving rapidly to find a new administrator. The division is reviewing proposals from Aetna, Cigna, Humana, First Health and Blue Cross/Blue Shield of Florida. Blue Cross/Blue Shield was administrator of the contract for 17 years until Unisys took over.

"We had a difficult time in terms of trying to get the contract administered, and with the employees not feeling content with the process. The one thing we all arrived at is a conclusion that we were probably best served by someone whose core business is insurance, and Unisys' core business is computers," said Gale Sittig, deputy budget director for Chiles.

The contract with the next administrator will have a provision that is likely to be well-received by employees.

"We'll have a new provision called 'balance billing,' which means that in the future, if there is ever a problem with payments being made by the contractor, the provider could not come back against the employee for payment," Settig said.

With the loss of the state employees contract, Unisys is exiting the health insurance business, with the exception of its continued processing of state Medicaid claims, according to Peter Hynes, a spokesman at the Unisys headquarters in Blue Bell, Pa.

"We have spent a lot of time and money trying to get back to the contract specifications, and have made progress. We will work through the transition period to keep the level of service at its highest level. We will expedite transition to whomever is picked. Afterward we will exit the health insurance market," said Hynes.

The company will continue in Florida in the computer and computer maintenance business, Hynes said.

THURSDAY, MAY 29, 1997
THE HERALD

Chiles cuts millions from budget

Scholarships, beach renourishment among items killed

By TYLER BRIDGES

Herald Capital Bureau

TALLAHASSEE — Gov. Lawton Chiles on Wednesday signed into law a \$42.4 billion 1997-98 budget, but not before trimming \$35.8 million through line-item vetoes.

Chiles sliced several Dade County projects from the budget, but Rep. Rudy Garcia, R-Hialeah, the House's chief budget writer, said Wednesday he was pleased that Chiles did not veto more. Broward projects appeared to make it through unscathed.

Garcia lost a \$250,000 scholarship fund for St. Thomas University. Chiles said he vetoed the scholarships because they would not be available to students at other universities.

But Chiles did not touch money Garcia steered to the Hialeah Chamber of Commerce, the Latin American Chamber of Commerce and numerous other Hialeah-area groups.

A big Broward project escaped the veto ax: a \$4 million grant to keep the New World Aquarium afloat.

The biggest item Chiles vetoed Wednesday was \$12.5 million for two academies for at-risk youths. One of the academies, which were the pet projects of Rep. Alex Villalobos, R-West Dade, was to go in Dade.

Ironically, Villalobos said he supported the veto because while the Legislature provided money for the juvenile academies, legislators defeated the bill that would have created them. "There's nothing else the governor could have done," Villalobos said.

Lawmakers must complete work on the budget at least 72 hours before the session ends, so they included financing for the academies without knowing whether they would win approval.

Another Dade project cut from the budget would have provided

\$150,000 for the Simon Bolivar Institute to teach the principles of nonviolence to youths. Chiles said the institute would have duplicated the work of another Dade nonprofit group, the Martin Luther King Institute for Nonviolence.

In other Dade vetoes, Miami Shores Village will not get \$180,000 for the development of a community park, the Homestead Research and Education Center will not get \$50,000 for ornamental research projects, the Troy Academy Diversion Program of Dade County will not get \$369,000, and the West Miami Police Department will not get \$102,000 for equipment.

Chiles in another veto supported Rep. John Cosgrove, D-South Dade, who had railed against taking money from the Hurricane Catastrophe Fund for beach restoration. Chiles vetoed \$2.8 million of the beach projects.



Chiles fails to halt cement plant law

■ The governor takes no action on the bill that protects Florida Rock Industries.

By PAULA RAUSCH
and MARK HOLLIS
Sun staff writers

A bill designed to protect a proposed Florida Rock Industries cement plant from stricter local air pollution regulations automatically become law Thursday when Gov. Lawton Chiles' took no action on it.

House Bill 1073, a complicated 23-page bill that relates to several environmental issues including heavy mineral mining operations, contains a controversial amendment introduced by Sen. George Kirkpatrick of Gainesville that would limit local efforts to toughen pollution laws. Chiles had until Thursday to approve or veto the bill, but he did nothing and the bill became law by default.

Chiles' lack of action is not surprising.

The bill, and especially Kirkpatrick's amendment, has generated much controversy.

Recommendations that Chiles veto the bill overwhelmed those asking that he support it.



Kirkpatrick

Those calling for Chiles to veto it included the cities of Gainesville, Ocala, Jacksonville and Tallahassee, Alachua County Commissioner Penny Wheat, the Escambia County Commission and Gainesville Rep. Bob Casey. The Alachua County Commission refused to take a position on the bill, despite a request from the governor.

Florida Rock Industries and other companies asked Chiles to sign the bill into law.

In total, the governor's office received 682 calls and letters opposed to the bill and 172 in favor of it by 5 p.m. Wednesday.

Please see CEMENT, 7A

CEMENT

continued from 1A

Kirkpatrick's amendment prohibits local governments north of the Cross Florida Greenway in North Florida from enforcing stricter pollution laws against polluters "permitted and under construction as of May 1, 1997."

Critics say the amendment circumvents Alachua County residents — Kirkpatrick's constituents — from voting on whether to apply stricter air standards under a citizen-proposed clean air initiative that will go to local voters in November 1998 if it is determined to be constitutional.

But during a brief interview in Tallahassee Thursday, Kirkpatrick suggested a different interpretation.

"You can hold a referendum anytime you want," Kirkpatrick said. "It doesn't change local government rights or its ability to set policy...There's already provisions in law that allows (local governments) to have more stringent laws. I've just been trying to save the taxpayers millions of dollars."

Kirkpatrick, who has not returned phone calls from The Sun about the bill for more than a week, said he is mystified by criticism of

the bill. And he defended his efforts during the legislative session to protect Florida Rock.

Kirkpatrick described his legislative maneuvers on Florida Rock's behalf as an attempt "to save the taxpayers millions of dollars" by reducing the threat of lawsuits and other roadblocks to controversial business endeavors.

He said his actions are consistent with those of business and political leaders who "claim to promote economic development and encourage industry to participate with the government."

Others say the new law could wind up in court over its questionable constitutionality and apparent discrepancies in what "permitted and under construction" means.

University of Florida law professor Joe Little said recently that the law is unconstitutional because it applies only to a part of the state.

Florida Rock Industries officials say the company began construction before the May 1 date and that definitions in the Florida Administrative Code support their position. The company received a state environmental construction permit and a county construction permit for paving and drainage facilities on the site and began construction of those before then, officials say.

The company does not have county building permits.

Companies vie for state health plan

■ Unisys Corp. no longer will administer Florida's health self-insurance plan covering state employees.

By DORIS CHANDLER
Sun staff writer

Unisys Corp. is out as administrator of the state health self-insurance plan, and a new contractor is expected to be hired by July 1 to take over on Jan. 1, 1998.

Five companies are vying for the multi-million dollar job of administering the plan that insures nearly 215,000 state employees, their dependents and retirees, including about 25,000 in Alachua County. A change in plan administrators will have no effect on employees' coverage.

In his announcement Thursday, Gov. Lawton Chiles said the state and Unisys had mutually agreed to terminate the contract.

This action follows a year in which thousands of complaints have been received from state employees about Unisys' delays in payment of claims, denial of covered claims and other processing problems.

Tom Barnes was among those who became frustrated by the company's delays in paying claims for medical care provided to his daughter.

"We got nasty letters from providers saying, in other words, why aren't you paying your bill. I looked into it and it

Please see UNISYS, 10A

Heather - To Florida Rock Inc

See article on
the proposed
clean air
law, which
Kirkpatrick
amended

1. The bill
2. The bill
3. The bill
4. The bill
5. The bill

Some worried about aftermath of pollution law

By Randolph Pendleton
Times-Union senior writer

TALLAHASSEE — Some lawyers say a bill that Gov. Lawton Chiles allowed to become law yesterday could poke a big hole in Jacksonville's air-quality regulations.

Other lawyers say not to worry.

At worst, city officials said, all businesses north of the St. Johns River will be exempted from future changes in pollution regulations.

At best, they said, existing businesses will not be affected but those under construction north of the river will be exempt from any changes while they are being built.

It may be up to the courts to decide the correct interpretation of the new law.

"We're going to proceed the way we always have unless we are challenged," said Ginny

See NEW, Page B-4

The Top Ten Reasons for Avoiding Snooty Restaurants, Nos. 5, 4, 3, 2, and 1



The bill, the bill, the bill, the bill, and the bill.



New pollution law has many worried

From Page B-1

Myrick, the city's director of legislative affairs.

Rep. Steve Wise, R-Jacksonville, said the confusion was an example of what happens when a one-page bill designed to apply to one Clay County mine is enlarged to 22 pages through a series of unrelated amendments.

"I have no clue what it does," Wise said. "It was originally designed as a real short little bill and became a monster."

The threat to pollution control rules came in an amendment that was attached to a bill originally designed to exempt RGC Mineral Mines in southern Clay and northern Putnam counties from the necessity of having an expensive development of regional impact study done.

Sen. George Kirkpatrick, D-Gainesville, sponsored an amendment that would protect a Florida Rock Industries cement plant in Alachua County from the changes in local pollution rules while it was under construction.

The \$100 million plant has been politically controversial, and county officials have considered creating new air pollution laws that would affect the plant's operation.

Rule snares Duval

Duval and other North Florida counties were caught up in the legislation when Kirkpatrick made the exemption apply to businesses north of the Cross-Florida Greenway, which follows the route of the defunct Cross-Florida Barge Canal.

Businesses north of the Greenway that were permitted and under construction on May 1 are exempted from changes in the local pollution regulations under the new law.

In Jacksonville, the Greenway route follows the St. Johns River, so businesses north of the river would be exempt while those south of it would not.

The Jacksonville Environmental Protection Board wrote Chiles urging a veto.

"We find that HB 1073 will seriously abridge our ability to address local problems locally," board Chairman M.F. Mass wrote.

Assistant General Counsel Gregory Radlinski said in a memo that the wording could be interpreted to say that rules could not be changed for any existing business.

Estus Whitfield, the governor's environmental aide, said many North Florida communities raised concerns about the legislation but Chiles was convinced that it would not have the widespread effect that was feared.

"The governor is under the impression that this is not going to wreak havoc on home rule," Whitfield said.

Whitfield said existing businesses must comply with new pollution regulations every few years when their permits are renewed and the law was not intended to change that.

Whitfield conceded, however, that it was unusual to apply the law to businesses under construction north of the Greenway and not south of it.

Rep. John Thrasher, R-Orange Park, another co-sponsor, said the law is not intended to affect existing businesses and if necessary it can be clarified next year to ensure that it does not.

Chiles rebuffs bill

In another action yesterday, Chiles vetoed a bill sponsored by Rep. Joe Arnall, R-Jacksonville Beach, that would strip bad check-writers of their driving privileges.

State and national business groups and the Jacksonville Chamber of Commerce backed the measure, which would have yanked driving privileges for up to 1 million Floridians by the year 2003. Those with outstanding warrants for bad checks could not get a drivers license issued or renewed until they paid up.

In Jacksonville alone, the State Attorney's Office has 100,000 outstanding warrants for bad checks on file and handled more than half that many last year worth \$3.2 million.

In a statement explaining his veto, the governor acknowledged that losses due to bad checks are "staggering" but said the bill would elevate bad checks over warrants for violent offenders. He also said it would make the state a collection agency for victims of only one kind of crime and would result in more unlicensed motorists on Florida roads.

Arnall said longtime Democrat Chiles was "enabling" hot-check artists to rip off small businesses and vowed to rally the GOP-dominated Legislature to overturn the veto, something that hasn't been done in a decade.

Times-Union staff writer Sig Christenson contributed to this report.

Storm shelters fail Red Cross specs

From Page A-1

in storms, said Ted Williams, director of emergency services for the Red Cross in Central Florida.

"What the Red Cross is saying is we will not staff those centers," he said. "We feel it is a safety consideration."

Williams said evacuees might look at the Red Cross presence as a stamp of approval.

A shelter that can withstand a less powerful hurricane could become unsafe, for example, if the storm increased in ferocity. Then, evacuees would have to be moved again, he said.

"We're not going to staff those shelters because of the potential for re-evacuation," Williams said. He said counties need to look at alternatives.

Schools inadequate

Shelter worthiness depends on a number of factors, not the least important being its susceptibility to flooding.

Most shelters are schools, which tend to be built on less expensive, low-lying land, Williams said.

School shelters tend to be in gymnasiums, which may be fine after a hurricane passes but usually are poor places to ride out a storm. The long roofs of most gyms are vulnerable to wind damage and can collapse under heavy rain. Other problems are windows and un-reinforced masonry.

Ray Ashton, director of emergency management for St. Johns County, said the county has 11 shelters, all in schools west of U.S. 1.

"We're shelter deficient. Everybody is," he said. "If you take their criteria then that just puts you farther behind the 8-ball."

Ashton said the Red Cross has not told the county it wouldn't staff centers. But he said the county, as part of the Florida Emergency Preparedness Association, is working on an arrangement to call other volunteer organizations like the Salvation Army for help.

Lt. Gary Spearin of St. Johns' Salvation Army office said an arrangement is possible.

The Red Cross operates most of the facilities statewide. Without their workers, the Salvation Army or the National Guard could provide staffing, said state emergency management director Joe Meyers.

As is, St. Johns County would have to find assistance for 18,980 evacuees under the worst conditions, according to the state list.

Not enough space

Hurricane season begins Sunday.

In Northeast Florida, Duval, Nassau, Clay and Putnam counties have shelters the Red Cross will staff, though they don't have enough room for projected needs. Baker County has a surplus of 2,238 spaces.

Bob Collins, deputy hurricane program director for the state Emergency Management Division, said the standards were set using Red Cross criteria and evaluations of flood zones and hurricane models.

"It appears to me that most of the schools available in St. Johns County for sheltering ... are susceptible to storm surge," he said. "And given the Red Cross policy relative to not staffing or managing shelters ... their hands are pretty much tied."

The effect will be the worst in Southwest Florida, but other areas are effected. Forty-one of Florida's 67 counties have shelter deficits.

The deficiencies do not count shelters built recently. The state list points to a need to shelter about 1.5 million people by the year 2000 in a Category 5 hurricane, the worst-case scenario. By that measure, the state falls 500,000 spaces short.

Using the state data in Duval County, there would be a need for space for 46,004 evacuees in the year 2000. Without adding any shelters between now and then, the county would fall 16,438 spaces short.

Chip Patterson, chief of emergency preparedness for Jacksonville, said shelter space is at a deficit but that most shelters are in the west and outside the severe storm surge zones.

In Nassau County, where the state study projected 3,712 more shelter spaces will be needed by 2000, there is a problem finding structures to meet

the need, said Bill Pachler, Nassau County's emergency preparedness planner.

Seeking more shelters

Improving schools to make them adequate shelters would be expensive, and school systems are reluctant to use more education dollars for sturdier construction.

"The Legislature, as of last session, hasn't identified a funding source," Pachler added.

Neighboring Baker County projects a surplus of 2,238 spaces in 2000.

West of St. Johns, Putnam County has a deficit of 2,955 spaces and Clay County has a shortage of 3,437, according to projections.

But those inland counties may be called on to help absorb evacuees from the coast.

Ashton said St. Johns County residents will be encouraged to seek shelter inland, out of the county if necessary.

And, he said, the county is always looking for new shelter facilities. A new convention center to be built at the World Golf Village could be a candidate, he said.

Collins, of the state Emergency Management Division, said the state has identified road networks to take evacuees away from the coast.

But he said roads also are inadequate, especially if all residents of a county or region try to flee the day before a storm hits. The combination of inadequate shelters and roads creates another problem, he said.

"It's kind of like riding a razor blade," he said. "It'll certainly be a challenge to get everyone off."

Times-Union staff writer Stephanie Jones contributed to this report, which also contains material from The Associated Press.

The Orlando Sentinel, Friday, May 30, 1997

Pet school gets owners out of judge's doghouse

SAN MATEO, Calif. — Run a red light, you could go to traffic school. Run with rover without a leash and you could end up in pet school. A judge who grew tired of seeing the same people for pet offenses — in particular, for violating the leash law — suggested the class. Instructor Laure Krisch said more than 80 people have attended the 2½-hour class since it began 18 months ago.

Locusts eating up fields of corn, mango, coconuts

TEGUCIGALPA, Honduras — Swarms of locusts attacking farms in the north and west of Honduras have prompted an investigation into whether the crisis has reached plague proportions, officials here said Thursday. Farmers on the border of Guatemala and in the northern region of Cortes say millions of the 3-inch-long insects destroyed fields of corn, mango and cashew nuts as well as coconut trees.

The Orlando Sentinel, Friday, May 30, 1997

EDITORIALS

Before a storm threatens

It's time to prepare for hurricane season. Critical decisions that could save your life should be made now, not after warnings of an approaching storm.

Tampa Bay residents who intend to ignore the start of hurricane season Sunday and rely on good luck rather than advance planning to weather a storm should take another look at Dade County. That should be more than enough to convince anyone to gather supplies, pin down evacuation alternatives and prepare for the kinds of hurricanes that have fortunately spared this area for so many years.

Nearly five years after Hurricane Andrew ripped through South Dade and left behind damage estimated at \$30-billion, some families are still living in government trailers. The Homestead area still has not recovered economically; 20 percent of the businesses damaged by the hurricane never reopened. Even now, the Federal Emergency Management Agency's numbers are staggering. Andrew forced the evacuation of a half-million residents and left 160,000 people temporarily homeless.

The National Oceanographic and Atmospheric Administration is counting on a new \$41-million high-altitude jet to improve the ability of forecasters to project where and when hurricanes will come ashore. Anything that helps pinpoint a storm's direction is obviously welcome, but the new jet is no substitute for preparation.

The special challenges facing Pinellas residents during hurricane season are well-known. Water borders the county on three sides, offering breathtaking views in

good weather and the potential for disaster in bad. The evacuation routes are limited, and temporary shelters will not come close to holding everyone who will have to leave their homes if a hurricane approaches. The county has space for about 85,000 people in shelters, but even a low-level evacuation would require 300,000 people to leave their homes.

Now a new challenge has cropped up. The expansion of home health care has increased the number of residents who depend on nurses, medicine and electricity to survive. They will need special attention, and there are not enough volunteers to help. David Bilodeau, director of emergency management for Pinellas County, prudently has called attention to the problem before a storm appears on the horizon and is working with home health care agencies on a hurricane plan.

Bilodeau's advice to residents with health care needs is sound: Find friends or relatives now with whom you can stay if an evacuation is necessary; find a way to take care of medical needs for several days; or call the nearest fire department and explain your situation if you have no alternative.

All Tampa Bay residents should make similar preparations. Now is the time to plan, not when a hurricane warning is issued. Taking for granted that Ana or Bill or Fabian or Mindy or any of the other names selected for '97 hurricanes will not pay a visit here could be a fatal mistake.

4-Florida/Metro

The Tampa Tribune, Friday, May 30, 1997

Lightning KO's radar at TIA

SUMMARY: Controllers quickly sent 10 planes to different altitudes and passed them to other air traffic control centers in the state.

By STEVE HUETTEL
of the Tampa Tribune

TAMPA — Air traffic controllers scrambled to track aircraft over the Tampa Bay area after lightning knocked out radar at Tampa International Airport for 45 minutes Wednesday afternoon.

An electrical surge shot through an underground cable and shut down the ASR-9 Surveillance Radar around 3:45 p.m., said Richard Allen, assistant air traffic manager at the airport.

Radar scopes in the tower's approach control room went blank. Controllers moved 10 planes in the Tampa airspace to different altitudes and handed them off to other air traffic control centers in the state.

"It doesn't get any worse than

that," said Pat McCormick, spokesman for the local chapter of the National Air Traffic Controllers Association. "It's a scary situation when you lose aircraft and have thunderstorms everywhere."

There were no close calls or near misses, Allen said.

Thunderstorms started rolling toward the airport about 3:15 p.m., he said. Traffic was lighter than usual when the radar went down because the tower had stopped incoming flights and pilots on the ground postponed takeoffs.

"If not, it could have been extremely different," McCormick said.

Within three minutes, controllers could track some aircraft with radar images from Sarasota.

But that radar reaches just 10 miles north of Tampa International, compared with the 40-mile-plus range of Tampa's ASR-9.

Because a remote maintenance system crashed at the same time, technicians had to go out to the

radar site on the west side of the airport instead of trying to fix it from the tower.

Just before it became the primary radar at Tampa International May 7, 1996, controllers complained the ASR-9 was unreliable and prone to shut down during lightning storms.

The radar went down two weeks later for 90 minutes in Tampa. Controllers blamed lightning. But the Federal Aviation Administration said a technician mistakenly closed a valve on a pipe feeding signals to the radar tower.

Wednesday's outage prompted controllers to renew calls for a continuous power supply that would feed electricity to the tower until a generator kicks in.

But Allen said the generators were turned on when the storms approached, and the radar tower never lost power Wednesday. The surge kicked off a circuit breaker that stopped the radar antenna from rotating, he said.

Disaster planners look to home health agencies

By CURTIS KRUEGER

Times Staff Writer

Because of the boom in the home health care industry, thousands of Pinellas County residents now get their medical attention at home instead of in the hospital.

But what happens when a hurricane hits?

Thousands of people who need medical attention could be sitting at home — or cramming themselves into ill-equipped temporary shelters — far away from their nurses and their medicine, not to mention electricity.

David Bildeau, director of emergency management for Pinellas County, worries about that scenario, because he needs so many volunteers to help provide special care for those people.

"I would like to have 3,000," Bildeau said.

But after searching extensively, he has just

100.

That is why Bildeau plans to meet with representatives of home health care agencies today who might be interested in bidding on a contract to provide that care at shelters after a hurricane.

Many people use home health care agencies because it is cheaper and more pleasant than staying in a hospital or nursing home. Nurses or aides visit regularly to check up.

But those aides may not be able to make their visits in the chaos of a hurricane, with light poles and trees blocking off streets, and hospitals possibly filled with new patients.

What if you can't find someone to help you? In that case, call the nearest fire department, and tell them you need help being evacuated from your home in case of a hurricane and explain your medical condition. Don't wait for a hurricane to make this call.

The Gainesville Sun, Friday, May 30, 1997

Delaney: Air monitoring needs boost

By JUD MAGRIN

Sun staff writer

Gainesville Mayor-Commissioner Bruce Delaney wants Alachua County's help in obtaining more air testing equipment.

In a May 27 letter to County Commissioner Leveda Brown, Delaney said one of two air-monitoring stations in the county is being closed, which will "significantly reduce the amount of data that will be available to us in making important decisions about our community."

Delaney and other city officials feel that if better data were available, better decisions can be made in cases such as Florida Rock Industries' proposed plant in Newberry and about future commercial and industrial expansion.

Air quality and the extent of pollution from the cement plant has dominated discussion surrounding the plant.

Delaney said in his letter that the city will ask the state to expand air monitoring.

Brown had written to the city after reading of an offer by Gainesville Regional Utilities to sell natural gas to fire the proposed cement plant.

Brown suggested that GRU look at reducing pollution at its own plants while negotiating a gas deal with Florida Rock. Delaney said the city does use natural gas at all three power plants. Coal is the dominant fuel at its Deerhaven plant, however.

"Some of the current controversy over the cement plant is political, of course, but most people of whatever persuasion are truly worried about air quality at all its pollution sources," Brown wrote.



Delaney

Jackson plans boycott of Chevron over suit

■ The action comes as a trial begins in Houston over pollution charges.

Bloomberg News

CHICAGO — Chevron Corp. gas stations in 10 cities will be picketed as part of a national boycott called by the Rev. Jesse Jackson to protest Chevron's refusal to settle litigation over a 1920s-era oil dump in Houston.

Jackson called for the picket lines at 1 p.m. Eastern time today as jury selection begins in a Houston courtroom for a class-action suit over alleged contamination of the Kennedy Heights subdivision.

Residents of the mostly black subdivision on Houston's south side allege that leaking oil has caused a variety of diseases and birth defects. Jackson met with Chevron officials in Houston this month in an unsuccessful effort to convince them to settle the case.

"Chevron has turned its back on the pleas of the residents of Kennedy Heights," Jackson said in a statement Wednesday. "Therefore, we must turn our backs on Chevron."

Jackson said supporters of his

Rainbow/PUSH group, a minority rights movement, would back the boycott.

Chevron spokeswoman Alison Jones said the company has spent more than \$3.5-million on tests of Kennedy Heights and found no evidence of contamination.

"We feel we have a very strong case and we are not going to be intimidated into settling," Jones said. "We regret Rev. Jackson's call for a boycott because the facts of the case don't warrant it."

Jones said Gulf Oil Co. used the site to store oil in open pits from 1922 to 1927. It was then used to graze cattle until 1968, when Gulf sold the property to developers. Chevron acquired Gulf in 1985.

Kennedy Heights residents allege Gulf withheld information about the oil dump from home purchasers. Plaintiffs' lawyers also uncovered a memorandum by a former Gulf executive, summarizing the opinion of appraisers that the site was appropriate for low-income minority housing.

Jackson called for pickets of Chevron stations in Atlanta, Dallas, Houston, Los Angeles, New Orleans, Phoenix, San Diego, San Francisco, and Jackson, Miss.

Questions surround bill protecting plant

■ A last-minute amendment may not cover Florida Rock's cement plant.

By PAULA RAUSCH
AND JUD MAGRIN
Sun staff writers

Sen. George Kirkpatrick's last-ditch amendment to protect a Florida Rock Industries' cement plant may have been obsolete even before state lawmakers approved it.



Kirkpatrick

On May 2, in the waning hours of the Legislature's last day, Kirkpatrick added an amendment to House Bill 1073 that would protect the plant from stricter pollution laws proposed by a local citizens' initiative. If determined to be constitutional, the clean-air initiative — which aims to make Florida Rock emit lower pol-

Please see CEMENT, 7A

Friday.

The cities of Jacksonville and Gainesville have urged Chiles to veto the bill. The Alachua County Commission declined to take a position on it despite a request from Chiles' office, but individually, Commissioner Penny Wheat has also asked that he veto it.

The bill "creates special rights for a single corporation in a single geographic area of the state — and disenfranchises citizens who reside there," Wheat wrote in a letter to Chiles.

Other state lawmakers say the original bill was a good one before

Kirkpatrick's amendment was added.

Rep. Janegale Boyd, D-Monticello, who voted for the bill, said it would assist four areas of the state, including Polk County, where it would help with the purchase of the Green Swamp.

When she voted for the bill, Boyd said she thought it sought to protect permitted businesses from rules passed after they met existing regulations. Now she said she can't support the entire bill because she's realized the amendment was aimed at helping Florida Rock.

Rep. Doug Wiles, D-St. Augustine, who sponsored the bill, said its original intent was to help save a mining company that employs 200 people in Clay and Putnam counties.

Kirkpatrick sponsored the bill in the Senate.

As it made its way through the committee process it picked up three amendments before Kirkpatrick's 11th-hour amendment protecting Florida Rock's proposed cement plant.

"That (Kirkpatrick's) amendment, when added, appeared to be

very reasonable," Wiles said Friday. He agreed with the notion that once a company met all existing permit requirements, got funding and started construction, "it doesn't make much sense after all that's done for some entity to come back and undo it again."

Wiles was surprised that Kirkpatrick's amendment may be moot.

He said he still supports the bill, but added, "It's unfortunate there are concerns about a piece of the bill . . . which has caused the storm clouds to gather."

CEMENT

continued from 1A

lution levels than the state approved — will go to voters in November 1998.

Kirkpatrick's amendment prohibits local governments north of the Cross Florida Greenway in North Florida from enforcing stricter pollution laws against polluters "permitted and under construction as of May 1, 1997."

But Florida Rock had not begun construction by that date.

Florida Rock held its groundbreaking, but has not received county approval to begin construction, said county Code Enforcement Director Rick Wolf.

The company has discussed with county staff the process of filing a construction application, but it has not submitted any, Wolf said Friday. Before issuing a permit to begin construction, the county must review and approve the application, he said.

Florida Rock officials disagree and say the company has begun construction.

"Absolutely," the company has started, said Florida Rock Industries spokesman Fred Cohrs.

The company has not yet applied for local building permits or done any physical construction of buildings, Cohrs said. "(But) we have spent a great deal of money" on clearing the land, engineering, geotechnical and design services that are part of the construction process, he said.

Kirkpatrick has not returned repeated calls this week about the bill.

It appears likely a court fight will ensue if Gov. Lawton Chiles signs the bill into law.

County Attorney Mary Marshall said it appears there are questions left open to interpretation about what "permitted" and "under construction" mean.

"Without any more, I guess you could have questions about what it means or how it would impact them

Kirkpatrick's amendment

Text of Sen. George Kirkpatrick's amendment to House Bill 1073:

If any local program changes any rule, regulation, or order, whether or not of a stricter or more stringent nature, such change shall not apply to any installation or source located north of the Cross Florida Greenway, permitted and under construction as of May 1, 1997. Provisions of this subsection shall not apply to any facility which primarily generates electric power.

(Florida Rock)," Marshall said. She said she had not reviewed the bill in-depth or looked at the section of state law that the amendment amends.

Other aspects of the amendment also have been challenged, including its constitutionality.

The amendment is unconstitutional because it applies only to part of the state, University of Florida law professor and former Mayor-Commissioner Joe Little said at a recent Gainesville City Commission meeting.

House Bill 1073, which passed with only Gainesville Republican Rep. Bob Casey voting against it, is now in the hands of Chiles, who has until May 29 to sign it into law or veto it. If he does nothing, the bill becomes law automatically. It is a complicated, 23-page bill that also relates to several other pollution control issues, including heavy metal mining operations, limerock mining and a freshwater lake plan, among others.

Chiles' office has received 608 letters, telephone calls, faxes and e-mail messages asking him to veto the bill and 54 requests to support it, spokeswoman Edie Ousley said

Bob Testen spends his days trying to keep his 41 aging trailers in reasonable shape to offer as affordable housing in Key West. Testen leases the park from St. Mary's Catholic Church, but the church has said it will not renew the lease that expires June 30. The loss of less-expensive housing may be best represented by the disappearance of a dozen or so trailer parks in Key West over the last two decades.

The Associated Press



Cheap housing vanishes in Key West

Changes put rich, poor at odds

The Associated Press

KEY WEST — When "Fast Eddy" isn't toiling at a waterfront deli, he's usually contemplating life from a sagging lawn chair outside a rickety trailer home, the only place he can afford to rent.

Fast Eddy, known to his parents as Keith D. Bahnemann, is about to become history, in a manner of speaking, as the park prepares to fade away in one of the hottest real estate markets in America.

Key West, the last stop in an archipelago of dozens of little islands, is changing rapidly — a significant footnote in Florida's history for the millions of American tourists who have been here and for the many sailors who served at the nearby Naval Air Station.

The loss of available housing for the middle class may be best represented by the disappearance of a

"I can't afford to live here on \$6 an hour."

"FAST EDDY," LONGTIME RESIDENT

dozen or so trailer parks in Key West over the last two decades.

"Wealthy people want to live here, and they don't want to live in trailer homes. It's as simple as that," said Joseph Pais of the Key West Art and Historical Society. "Real estate is increasing in value at a rate of 30 percent a year."

Fast Eddy, who takes home about \$200 a week from his \$6-an-hour job at the deli, is unable to afford the entire rent for the trailer at the Key West Trailer Park. He shares the two-bedroom wreck with a buddy who works at a Circle K convenience

store.

Fast Eddy and others at the park pay an average \$160 a week for the rent-a-wreck mobile homes that are 30 to 40 years old. The tenants are taxi drivers, plumbers, electricians, restaurant workers and clerks.

The property owner will not renew the park's lease when it expires June 30.

"We've all been out looking for places to live," Fast Eddy said. "You can't find a cheap place. They all want \$2,000, \$3,000 a month."

Once an earthy — some may even say seedy — enclave for mercenaries, adventurers, pirates, whisky priests, Prohibition rumrunners, smugglers and Cuban revolutionaries, Key West is becoming a squeaky-clean tourist haven, promoted by wealthy developers. The coral island's bountiful greenery has been replaced greatly by asphalt and concrete.

Please see KEYS, 2B

KEYS

continued from 1B

But what makes Key West special and that is in danger of being lost is the easy mixture of rich and poor people and blacks and whites, says Pais. A millionaire would have his home right next to a ramshackle house with junk in the yard, and the owners would likely go fishing together, he said.

"Sadly, we're seeing that change now," said Pais, who is a member of the Key West Planning Commission. "Newcomers are very, very wealthy. They fly in here, look at homes for eight hours, buy one and they're out of here."

Pais has fought, unsuccessfully, against the big, seaside hotel developments — "they block our ocean breezes" — and the steady

elimination of available housing for the working class.

Trailer park manager Bob Testen, who has the lease on the Key West trailer park where Fast Eddy lives, spends his days trying to keep the aging trailers liveable.

Testen owns 41 trailers and leases the property from St. Mary's Catholic Church, which is next door. The church has said it will not renew the lease that expires June 30. It isn't saying what it will do with the land.

Ed Knight, a Key West real estate man and member of St. Mary's who is on a church commission dealing with the trailer park, said: "The church wants to keep it private."

Other trailer parks that began cropping up after the end of World War II and that have been swept away by a wave of developers have been replaced by restaurants, hotels and stores.

Eddy is what some would call an old hippie. He doesn't mind. At 53, he likes sandals and cutoffs and a blue bandana around his forehead to keep his grey, wiry hair under control.

"I'm just a working class jerk," he says. "I'll work for anyone. I don't care if it's Walt Disney himself. But I can't afford to live here on \$6 an hour. About half of us here in the trailer park will be leaving the island when the lease is up."

Pais said a proposal before the City Council for approving construction of dormitory-style apartment houses where several rooms would share a bathroom has not been well-received.

Meanwhile, as availability of affordable housing shrinks, Pais wonders "who will keep our tourist industry running when people can't afford to live here any longer?"

Opposition against cement plant is warranted

A new Gainesville resident, Diana Lyles, wrote (April 26) to describe her frustration with her perception of the regulatory and technical ignorance of cement plant opponents.

A former air-permit compliance officer with the U.S. Department of Energy, Lyles relied on her opinions on information published for the casual, non-technical reader by three politically active groups.

If Lyles had observed this controversy over its 2½ years and had done a bit more homework with documents such as the state air permit and Florida Rock's application, the air-permit administrative hearing transcript, the county land-use permit application and trial transcript, the February 1997 report of the county Environmental Protection Advisory Committee or at least spoken with some of the principals of the opposition, I suspect she would have a much different opinion on the matter.

It is not knee-jerk opposition to industry that has spawned the intense opposition to the plant, but rather the deficiencies in the political and regulatory review process in which Lyles expresses such great confidence.

Those who are elected as county commissioners to protect the well-being of the residents of the county have clearly not fulfilled their responsibility. They have put a major air pollution source at our doorstep without discussion or negotiation of potentially significant public health and negative economic impacts.

There are many other regulatory deficiencies: First, as reported by EPAC, the application submitted by Florida Rock for a county land-use permit is corrupted by blatantly and substantially under-represented air emissions from the proposed plant.

Second, the state air permit is clouded by Florida Rock's failure to provide requested engineering information on the primary pollution control devices proposed and the state DEP's failure to require more than nominal "best available control technology" for emissions control (based in this permit on outdated 1971 EPA performance criteria).

Lyles seems unaware that Florida Rock will burn whole tires as fuel because the state will pay them to do so, not because it is an environmentally good thing to do (which is itself very questionable).

Third, as Lyles might have learned had she looked more closely in its site plan approval, the county has refused to apply its own industrial emissions

performance criteria.

These deficiencies in regulatory processes intended to protect public health and safety and the refusal of most of the county commissioners to engage in meaningful discussion of the issues have generated intense public opposition to this plant.

I believe that most of us active in the opposition would have welcomed Florida Rock's sincere effort "to do the right thing" by involving area residents in their early planning.

There are presently two lawsuits against the plant, one appealing the state air permit and the other seeking to quash the site plan approval because the county has not appropriately applied its industrial performance ordinance.

These lawsuits cost thousands of dollars and are supported by thousands of concerned North Central Florida residents. The lawsuits are based on competent, substantial evidence and expert testimony.

Lyles should take another look.

PHYLLIS P. SAARINEN,
Newberry



"Mirror, mirror, on the wall,
who's the fairest
of the mall?"

Too bad this is just a fairy tale

Here's a fairy tale about an evil giant called the St. Johns Water Management District.

Once upon a time, there was a sleepy little village surrounded by lakes. Because of the beauty and recreational opportunities in the area, people would sell all their worldly goods in order to relocate and live there.

Visitors and tourists also were attracted. The local merchants prospered. But alas, this was not to last.

An evil giant ruled the land and claimed he owned all the water. He would decide how much water the community could have and parceled the water out as he capriciously saw fit.

After all, giants know what is best for the people since they are so much smarter than the people.

The giant also had the power to tax the townspeople whatever he wanted. He would take their money and their water. And sometimes he would take their land.

Only when the giant bought land from other giants would he pay fair-market value. When the giant was questioned about "fair" value, he would say: "Of course it was fair, I paid the other giant a lot more money than he could have gotten by selling it."

As a result of the giant gobbling up land whenever he could, the villagers had to pay higher taxes because the giant had less land to tax.

What would the giant take next? The people became concerned. They did not want to lose any more water, land or money. They hoped that the aging king would help them, since he had promised before he had come to power that he would keep a rein on the giants

and their unbridled power.

Unfortunately, the king did not keep his promise. He would not help the people because he was too afraid of the giants.

Eventually, the once prosperous village, whose fortune was based on the availability of water, began to wither. The once happy people became morose and sad as they saw their dreams literally dry up. Quality of life deteriorated. People were no longer attracted to the area and all business suffered.

In spite of the obvious, most people remained apathetic and uninformed. No one seemed to realize the importance of water to everyone. Everyone is affected in every possible way, from drinking water and property values to economic success and happiness.

Then one day a prince appeared. Prince George was a sportsman and a fisherman. And he had helped save other bodies of water with his leadership. People gradually began to wake up and realize what was happening to them and that it need not be this way.

The prince convinced the king to keep his promise that he would control the water giants.

With the support of the king and the prince, the townspeople, carrying torches and pitchforks, marched to the giant's castle in Palatka and drove the monster out of the county. And everyone lived happily ever after.

Nope. Not exactly. This was a fairy tale. In real life, not enough people get upset enough to exert enough political pressure to get anything done.

The giants always win in real life.

D.B. CANARD,
Keystone Heights

ARCTIC NATIONAL WILDLIFE REFUGE

Oil spill was a disaster of epic proportions

In an April 23 editorial, support was expressed for oil drilling in the Arctic National Wildlife Refuge.

The following reasons were given: The Alaska pipelines from Prudhoe Bay have doubled the average household income of Alaskans and built schools and kept taxes down.

"Breathtaking" photographs of caribou in National Geographic prove no environmental damage was done. The Exxon Valdez oil spill was an acceptable risk for all of this and, besides, it was "cleaned up by the oil company."

I find this reasoning to open the refuge to oil drilling to be incredibly myopic. The reporting of the facts was gross oversimplification, at best, and blatant misstatement, at worst.

The facts, as most of us understand them, appear to be that the Exxon Valdez oil spill was a disaster of cataclysmic proportion for not only the environment, but also the economy of Prince William Sound. It put many of the area's local fishermen out of business for years,

To say that the spill was "cleaned up by the oil company" is such a monumental distortion of reality that it defies comprehension.

some permanently. Many fisheries have been damaged for decades to come.

It tarnished the area's tourist business, which many Alaskans depended on. To say that the spill was "cleaned up by the oil company" is such a monumental distortion of reality that it defies comprehension.

Exxon's unpreparedness and negligence during the early hours and days of the spill are what contributed to magnitude of the disaster. Exxon fought in courts for years to limit and avoid its liabilities. The area will suffer consequences from the spill for

many years to come.

Regarding oil in the Arctic National Wildlife Refuge, no reliable scientific study has been able to substantiate the viable amount of recoverable oil. By most estimates, it is a limited amount.

Incredibly, it is an amount that could have been saved if Congress would have passed the recommended standards for gas economy in automobiles a few years ago. But bowing to pressure from special interests, Congress failed to do so.

Why go all the way to Alaska for oil? Let's drill off the coast of Florida for oil. The risk is minimal. And, think of all the income it will bring to Floridians, keeping our taxes down and gas in our tanks.

Does it matter that one spill would soil our world-class beaches and resorts for decades to come? Our billion-dollar tourist industry has nothing to fear. Besides, if there is a spill, the oil company will clean it up.

RICHARD A. PEARSON, D.D.S.
Jacksonville

AMPHITHEATER

Noise would disturb residents

I do not think the Cellar Door amphitheater should be located in Metropolitan Park.

It should be located elsewhere, perhaps closer to Wolfson Park or north of the stadium, if it is to be built at all.

I am concerned not only for the intrusion of unwanted noise into our waterfront residences but also for other families in the Harbor Oaks and St. Nicholas neighborhoods, whether they live on the waterfront or not.

The noise that will be generated by this facility will have powerful acoustic (amplitude) buildup across the open water that will affect families all the way to Atlantic Boulevard, as the ill-fated Music Shed did before its welcome demise. In fact, there could be powerful echos from the metallic east wall of the former shed.

Even if the stage had sound barriers behind it and the amphitheater faced away from the river, the intense response from members of the audiences who revel in such highly amplified productions would create screams, shouts and other responses.

With these flowing back across the river, they would rival the stage productions themselves. Imagine the response of 10,000 to 20,000 roaring voices across the St. Johns to the ears of those of us who treasure a quiet neighborhood.

It is really a matter of location. The people who desire such amplified music have every right to hear it but not at the sacrifice of the fine Metropolitan Park.

Its original purpose did not encompass an outside company arriving to make a deal with our city government at the expense of many of its citizens.

Certainly, there are other areas where Cellar Door could locate without stealing part of our waterfront and affecting many families and the value of their properties.

Our parks should never be invaded for other uses, be it parking or amphitheaters.

A great number of Jacksonville's citizens on the south side of the river sincerely hope that Mayor John Delaney and the City Council will heed our legitimate concerns before any deal is cut.

ROBERT C. BROWARD,
architect,
Jacksonville

The Gainesville Sun, Saturday, May 3, 1997

■ NEW ORLEANS

Committee to look at environmental racism

The Nuclear Regulatory Commission on Friday rejected an application to build an \$855 million nuclear plant near two predominantly black neighborhoods, saying it needed to investigate charges of environmental racism.

The commission's Atomic Safety and Licensing Board said its own staff must more thoroughly examine accusations that Louisiana Energy Services purposely chose to locate the plant close to poor, black neighborhoods.

The Orlando Sentinel, Monday, May 5, 1997

Bithlo racetrack speeds to clean up mercury spill

By Will Wellons

OF THE SENTINEL STAFF

BITHLO — This week's racing at Orlando Speedworld won't be stalled by a mercury spill that had cleanup crews working through the weekend.

Speedworld was abruptly shut down Friday night after a small amount of mercury leaked from a wrecked late-model stock car. The track 20 miles east of downtown Orlando has stock-car and drag racing three nights a week.

Crews at the track scrambled Saturday to clean up the mess before the highly toxic mercury could spread. There were no reports of injuries.

State Department of Environmental Protection inspectors are expected to return to the track early this week to make sure the mercury is gone.

On Sunday, several workers were combing though the racetrack's infield to make sure all of the potentially lethal mercury had been scooped up. Several truckloads of infield dirt and car parts are expected to be removed today, track managers said.

Track owner Robert Hart sent spectators and drivers home after he saw that the silver-white liquid metal was leaking from the race car of South Florida driver Randy Fox. Hart immediately called state environmental regulators, said track spokesperson Tammie Bratcher.

The use of mercury in cars is against racing rules. But the liquid is inside some older race-car frames because it flows and helps balance the cars in the turns.

"He [Hart] knew it was serious," Bratcher said of the spill. "But it's all cleaned up, and the track will be open as usual on Wednesday."

Fox, who could not be reached, told track owners he did not know his car had the mercury. Fox will be responsible for the cleanup bill, which Bratcher said could run from \$40,000 to \$100,000.

The speedy cleanup could be good practice. The track is expecting a cleanup of a different kind this weekend. The track expects a lot of crashes when race cars speed around the track pulling campers and trailers.

"It will look like a tornado by the time we are done," Hart said in his recorded preview of the speedway's upcoming events.

Budget contains fuel to promote electric cars

By JOHN KENNEDY
Tallahassee Bureau

TALLAHASSEE — When state environmental officials leafed through the state's \$42 billion budget, they got a surprise on Page 267.

In a little-noticed line item, the Department of Environmental Protection has been given a new \$900,000 program to promote the use of electric cars in Florida — an effort driven by some influential backers.

"It was not our proposal, and we were not consulted," said Joy Mills, a Department of Environmental Protection spokeswoman. "We are surprised as anyone by it."

The measure, tucked into the budget by Sen. Jim Scott, R-Fort Lauderdale, requires the state to hand \$3,000 rebates to the first 300 people buying electric vehicles in Florida.

The program is sought by a consortium of utility companies, car manufacturers, rental car firms and battery producers working under the banner of the Florida Alliance for Clean Technologies.

The alliance's public relations and marketing efforts are handled by Miamian Seth Gordon, whose firm has Sen. Mario Diaz-Balart, R-Miami, as a partner.

But like DEP, "Mario was kept in the dark on this," Gordon said on Thursday.

Diaz-Balart, too, said he played no role.

"I keep out of anything Seth has that might go before the Legisla-

ture," Diaz-Balart said. "I don't know anything about it."

Florida's four investor-owned utilities, which include Florida Power & Light Co. and Florida Power Corp., also were among the biggest contributors last fall to the state Republican Party, which won control of the Legislature for the first time this century.

Legislators today are scheduled to approve the state budget, including the \$900,000 provision, that pulls money from the state air pollution control trust fund for buyers of the experimental vehicles.

The program is modeled after an electric car effort in California that offers \$5,000 rebates to customers. Arizona also has a similar program, according to the Southern Coalition for Advanced Transportation, which is promoting the use of electric cars in the region.

Rick Rodriguez Pina, a coalition lobbyist who helped work the provision into the budget, conceded that DEP was given little insight. But he blamed that on the quick pace of negotiations.

He said he's now working to win DEP's support — and that of Democratic Gov. Lawton Chiles.

Scott said he got interested in the electric car idea after meeting last year with General Motors executives who were talking about a pilot project. He thought that would be an appropriate use of the trust fund money, he said.

Told that DEP didn't know about the proposal, Scott said, "I guess they'll find out."

Researchers say ozone's new role is a dirty job

Engineers in Fort Pierce are introducing a laundry system that uses ozone to clean clothes. Developed by Tri-O-Clean, the technique injects this highly reactive form of oxygen in the wash water to clean more quickly and thoroughly and with less energy and chemicals. The Florida company is working with the Electric Power Research Institute in California.

A generator produces ozone through an electric charge in much the same way ozone is created to purify tank water at the Florida Aquarium.

After use, the water is recycled and re-ozoneated for the next "closed-loop" wash cycle. Many hospitals are testing the system: In the United States, 7,300 hospitals wash an estimated 5 billion pounds of linen each year. Studies show chemical costs could be reduced by 60 percent and hot water costs by 80 percent. The closed-loop system would cut water consumption by 70 percent.

"Ozone is 15 times more powerful a disinfectant in water as chlorine and many times faster in destroying viruses and bacteria," says Myron Jones of the institute. "So there are many health as well as environmental and cost benefits."

For more information on the ozone system, call the Electric Power Research Institute at 1 (415) 855-2731.



The Herald

SECTION
SATURDAY,
MAY 3, 1997



GM cuts rates to jolt leases of electric cars

TROY, Mich. — (AP) — Disappointing sales of General Motors' electric car — the EV1 — have forced the automaker to cut the monthly lease payment by 25 percent.

After talking with 800 likely customers and finding they were discouraged by the monthly payment, GM reduced the lease rate from \$530 per month to \$399.

GM said 176 people have leased the cars already and they will get the lower rate. The automaker is aiming to sign up 100 new lessors per month.

The teardrop-shaped vehicle introduced in December is being offered for lease at 25 of GM's Saturn dealerships in Los Angeles, San Diego, Phoenix and Tucson, Ariz.

The new \$399 rate includes rent for the home-charging station.

The price drop comes as the EV1 faces its first competitor in the electric vehicle arena. In two



AP

ADDING POWER TO PITCH: Demand for the EV1 hasn't come up to GM's expectations, so the auto company lowered the leasing rate.

weeks, Honda Motor Co. will begin leasing EV Plus, a battery-powered hatchback coupe, in Southern California.

GM's Lansing, Mich., plant continues to make electric cars, even as several hundred EV1s remain unsold. Joe Kennedy, vice president of sales, service and marketing for Saturn Corp., said GM is ready to be patient.

"We don't see this as a technology that is going to take off overnight," he said. "It's going to step one step at a time into the next millennium."

Law protects cement plant

By GORDON RUSSELL

Sun capital bureau

TALLAHASSEE — A Sierra Club lobbyist accused Alachua County lawmakers of "selling out their people" Friday after they passed a law that would effectively halt environmentalists' efforts to block a cement plant being built in Alachua County.

A bill by Sen. George Kirkpatrick, D-Gainesville, that would have prevented localities from enforcing tougher pollution laws against polluters with permits had stalled in the Senate.

But the gist of Kirkpatrick's bill mysteriously reappeared Friday in the form of a lengthy Senate amendment, authored by Kirkpatrick, to a House bill on land reclamation.

What had been a four-page bill was now a 23-page "train," a hodgepodge of related laws packaged into a single bill.

The bill hit trouble when a group of Southwest Florida lawmakers opposed it, fearing that it would give new life to Florida Power & Light's efforts to burn the cheap



FLORIDA
LEGISLATURE
1997

Venezuelan fuel Orimulsion in Manatee County.

Power industry lobbyists, who helped craft Kirkpatrick's amendment and lobbied hard for its passage, said the bill had nothing to do with Orimulsion.

Kirkpatrick told the Southwest Florida contingent that he was just trying to protect the cement plant being built by Florida Rock Industries near Gainesville. "It's a tremendous economic development issue," Kirkpatrick told The Sun on Friday.

But the Suncoast lawmakers were skeptical. If that's all the bill was designed to address, they wondered, why was the bill so sweeping? And why were power-industry lobbyists rallying behind a bill written to protect a cement plant?

"All these power guys are really Please see AIR, 3B

AIR

continued from 1B

great at crafting language that goes way beyond what you think it does," said Rep. Mark Ogles, R-Bradenton. "After you pass the law, they get these million-dollar lawyers in there to interpret it."

Ogles said he feared Kirkpatrick's amendment would have "grandfathered in" FP&L's permit to burn Orimulsion in Parrish.

So the Sarasota and Manatee lawmakers met quickly and drew up an amendment to remove Kirkpatrick's addition.

But they were opposed by several Gainesville-area lawmakers, who, along with Kirkpatrick, wanted to protect the cement plant.

Rep. Cynthia Chestnut, D-Gainesville, said she didn't think that was fair for environmentalists to try to block a company that had received its permits already.

"This company that wants to come to Gainesville has met all the permitting requirements," she said. "The county commission has spoken, the state DEP has spoken and the feds have spoken on this issue."

So the Southwest Florida contingent said, in essence, you can have your cement plant in Gainesville — just leave the rest of the state out of it.

They wrote a new amendment which states that the law only applies "to any installation or source located north of the Cross Florida Greenway, permitted and under construction as of May 1, 1997."

In addition, it says that the section shall not apply to any facility that "primarily generates electric power."

In the end, everyone was happy with the amended bill, except Rep. Bob Casey, R-Gainesville.

"This was crafted to apply only to Alachua County," he said. "It related to an ongoing problem

down there. It's a local problem. If this doesn't apply to all of the rest of Florida, it shouldn't apply to just anything north of the Cross Florida Greenway."

Casey was the lone opponent of the bill, which passed the House 116-1. The Senate passed the bill later in the day; it is now awaiting the signature of Gov. Lawton Chiles.



Kirkpatrick

Sierra Club lobbyist Susie Caplowe praised the Sarasota and Manatee delegations for their quick action. But she was disappointed in the Gainesville group, who she said "sold their

own people out." The president of a cement plant opposition group in Gainesville said Kirkpatrick was trying to "worm" the legislation through on the busy last day of the session.

"This is nothing more than an attempt by Sen. Kirkpatrick to help out his buddies at Florida Rock to get their cement plant in," said Haile Community Association President John McCall.

"It is nothing more than an obstruction to enacting our own clean air ordinance and protect the health and welfare of the citizens," he said.

The proposed Clean Air Ordinance in Alachua County would set limits on 10 pollutants. Organizers said it was intended to force Florida Rock to reduce pollution.

Supporters last fall helped collect the 6,443 signatures needed to put the ordinance on the 1998 election ballot.

Gordon Russell is a staff writer for the Sarasota Herald-Tribune. Sun staff writers Bruce Ritchie and Doug Martin also contributed to this report.

Savannas: Residents call for limited use

P.S.L. Tribune

Jacques Picard
TRIBUNE STAFF WRITER 4-10-97

ST. LUCIE COUNTY — With the exception of horseback riding, most of the people attending a public hearing Wednesday night favored restricting use of the Savannas State Reserve to protect its delicate ecology.

More than 50 people attended the meeting called by the Department of Environmental Protection, the first step in developing a long-term plan for the Savannas' use as a state park.

Many said they attended because they feared the state would ban horseback riding in the savannas, apparently based on a rumor going around.

The state-owned portion of the savannas is about 5,100 acres stretching 11 miles from Midway Road south to Jensen Beach Boulevard, lying just west of the

**'It's just a
wonderland.
You can get
closer to
wild animals
on horse-
back than
on foot. The
existing
trails are ex-
quisite,
winding up
and down
hills; they
never go
straight.'**

Carol Herzog
PSL resident

railroad. The county owns 650 acres just north of Midway Road.

J.B. Miller, a biologist with the Florida Park Service, described the savannas as a sheet of water caught behind coastal dunes with bands of flat woods that drop off into marsh. It is home to about 400 species of plants and a wide range of animals, from bobcats to

wild pigs.

Port St. Lucie resident Carol Herzog apparently spoke for many present when she described the joys of horseback riding in the savannas.

"It's just a wonderland. You can get closer to wild animals on horseback than on foot," she said. "The existing trails are exquisite, winding up and down hills; they never go straight."

As evidence of their harmony with the environment, she presented a bird's nest made in part with hair from a horse's tail, which stirred applause from the audience.

Some spoke in favor of new uses, such as bicycle trails and building an environmental learning center for children with a \$500,000 grant.

But others, such as Loyd Johnson, president of the Sugar Hill Property Owners Association in Jensen Beach, favored minimal development. Johnson said gas-powered boats should be banned because they are causing violent destruction of the vegetation in the savannas and polluting the

water. He also favored making access to the park more difficult to reduce use.

Joe Gilio recommended wider buffer zones around the park to reduce the flow of fertilizer into the water.

Turn to SAVANNAS/A8

Savannas

From A1

Low Scruggs, a planner with the DEP Office of Park Planning, said restricted access with an admission charge, as in many other state parks, would be impractical in the savannas, but said an honor system with donations of \$1 or \$2 would probably be used.

Responding to those who favored horseback riding, Scruggs said there was no plan yet, but when a conceptual plan is presented in two to three months, "I can pretty much guarantee there

will be horses in it."

Scruggs said the savannas would probably be classified as a "preserve," the most restrictive category of park, but that many preserves permit horseback riding.

"I don't think our plan will be radically different from what you've seen in the savannas over time."

Herzog urged the state to change the spelling of the park back to its original "Savannahs," as used on most maps, and said she was willing to support the change of the reserve to a preserve.

"I'd go for the P if we could get the H back," Herzog said.



John McKay, R-Bradenton, is sponsoring the measure in the Senate.

Preserved land could be subject to ranching, drilling

coffers, where it would be used for land management.

McKay has complained that Florida keeps buying conservation land without spending money to adequately manage land it already owns.

Advocates argue that it's important to buy land before the state is completely developed and focus on managing it later.

"Florida is growing," Forman said. "We have an expanding population and expanding desire for recreational needs. We need to do more, not less."

The Senate Natural Resources Committee discussed the measure Thursday and plans to take it up again Tuesday. That day, a companion bill will be heard in the House Water and Resource Management Committee.

Forman, D-Pembroke Pines.

Others would welcome a change.

"We need more flexibility" in managing public lands, state Sen. George Kirkpatrick argued. "If you ask people, 'Should we buy this land to protect the redheaded or red-cockaded woodpecker, or do we want to buy some land and make sure we've got a water supply?' people are going to vote for the water."

Environmentalists argue that the state buys land under other programs for water, and it doesn't need to put well fields on land purchased under the popular CARL program.

The measure, sponsored in the Senate by John McKay, R-Bradenton, also would put proceeds from leasing state lands into state

refuges, or should they "earn their keep" as everything from timberland to mining pits?

A small percentage of Florida's public land is already home to cattle ranches, timber operations and citrus groves. But the new measure — to be debated in House and Senate committees next week — would open lands bought under the Conservation and Recreation Lands program to other economic uses.

"It seriously changes public policy on why we buy and manage land," said Audrey Ordenes, of the Florida chapter of the Nature Conservancy. "It presumes that public lands are purchased for commercial purposes instead of for conservation."

"It's almost like breaking the faith," said state Sen. Howard

■ House and Senate committees will debate a measure that would force public lands to "earn their keep."

By JULIE HAUSERMAN
Times Staff Writer

TALLAHASSEE — When the state buys land for conservation and recreation, most Floridians expect that it will be used for just that.

But some state lawmakers want to open that land to all sorts of uses, including cattle ranching, well drilling and pipelines.

Florida's philosophical debate mirrors a national one: Should public lands be set aside as quiet

Bill could limit local control over pollution laws

■ Environmentalists say Sen. George Kirkpatrick's role in the bill is to protect Florida Rock's cement plant.

By GORDON RUSSELL

Sun capital bureau

TALLAHASSEE — With Sen. George Kirkpatrick, D-Gainesville, playing a leading — or at least supporting — role, a Senate committee Thursday approved legislation that would prevent

localities from passing and enforcing tougher pollution laws after a builder has been granted a permit and begun construction.

Environmentalists immediately pointed to Kirkpatrick's role as one sympathetic to the construction of Florida Rock's cement plant near Newberry.

What finally happened Thursday was that a bill environmentalists fear could strip cities and counties of their power to enforce local air-pollution laws cleared the Senate's Natural Resources Committee over the objections of activists and a couple of senators.

Environmental groups had attacked the bill, by

Sen. Charles Williams, D-Live Oak, since its introduction. Then Williams amended his bill to ease many of their concerns.

But the bill was re-amended Thursday morning — under the guidance of lobbyists for the power industry.

"The way the bill was written when it started out gave us heartburn," said Susan Caplowe, a lobbyist for the Sierra Club. "Then they added a series of amendments that gutted the bill, which made us feel better. And then this handwritten amendment gutted what the other amendments had done. So it brought us full circle, to where local governments still don't have a say."

The amendment that pleased environmentalists took out a section of the bill that had prohibited local air-pollution laws from being written into industrial permits.

Kirkpatrick was nominally the author of the amendment, which bore a remarkable resemblance to a bill of his that has stalled so far.

But though Kirkpatrick's name was on it, the real sponsors appeared to be Wade Hopping, a lobbyist for Florida Electric Power Coordinating Group, and Jodi Chase, chief lobbyist for Associated Industries of Florida.

When called on to explain his amendment,

Please see AIR, 2B

AIR

continued from 1B

Kirkpatrick referred several questions to Hopping and Chase. And though Kirkpatrick's amendment was "handwritten" — submitted at the last minute — Chase obviously had a hand in the writing, as Sen. Buddy Dyer, D-Orlando, pointed out.

"I have to compliment you on anticipating a handwritten amendment and already having a fact sheet typed up on it," Dyer joked,

referring to a list of reasons to support the amendment that Chase had passed out before the meeting.

Chase called the amendment a good business issue.

"It sends a signal that if someone comes in and makes a big investment, the rules won't be changed in the middle of the game," she said.

Environmentalists suspect Kirkpatrick's amendment is designed to protect the Alachua County cement kiln that has been given a permit. Local environmental groups are trying to get an initiative on the 1998 ballot that would

restrict pollution levels in the county.

Though he hasn't admitted that, Kirkpatrick referred to the cement plant situation at a previous committee meeting, implying he didn't think it fair to block a company's plans after it had already made an investment.

Caplowe and local-government representatives from Dade and Duval counties spoke against Kirkpatrick's amendment, arguing it would pre-empt local environmental controls.

Despite their objections, nearly all of the senators approved it. Then

they passed the amended bill, with Sens. Jack Latvala, R-Clearwater, and Howard Forman, D-Pembroke Pines, voting no.

Originally, environmentalists had worried that Williams' bill could have given new life to Florida Power & Light's attempt to burn Orimulsion, a cheap Venezuelan fuel, at its Parrish plant.

But at Thursday's meeting, Sens. James Hargrett, D-Tampa, and John McKay, R-Bradenton, both asked DEP attorney Barry Odom whether the rewritten bill could open the door for Orimulsion in Manatee County. Odom said it couldn't.



"These (waste-control) companies have very future-looking plans."

MARK GOLDSTEIN,
LANDFILL COMMITTEE MEMBER

Firms willing to gamble on regional landfills

By BRUCE RITCHIE

Sun staff writer

What the area's local political leaders wouldn't do nearly a decade ago, the waste industry now apparently is willing to chance.

Thirteen North Central Florida counties studied the idea of a regional landfill in the late 1980s as new regulations forced the closure of leaky, unlined landfills.

Florida Department of Environmental Protection officials encouraged counties to develop a single regional landfill to reduce

operating costs and environmental impacts.

But the counties couldn't agree on a single location.

Some counties formed partnerships while others decided to build their own landfills. Some, including Clay and Alachua, have decided to ship their waste elsewhere.

But the cost savings that a larger operation would bring haven't gone away. And with the help of court rulings that created a free market for waste, the idea of a regional landfill is back again.

USA Waste Systems Inc. of Texas is

considering sites in North Central Florida for a regional landfill.

A proposal by the company to use part of a 3,000-acre site in northeast Gilchrist County has generated opposition from area residents. An estimated 1,500 of them attended a public hearing in March dominated by opposition speakers.

That isn't the only site being considered by USA Waste, says company official Jackie Barron, the former elected Gilchrist County clerk of court.

Barron, who was involved in the 13-county

study during the 1980s, says other sites in the region also are being studied, and he has refused to rule out Alachua County as a possibility.

In fact, Barron recently visited county officials elsewhere in the region to discuss landfill possibilities.

He told representatives for the regional landfill for Baker, Bradford and Union counties that USA Waste wants to buy their landfill near Raiford, said Darrell O'Neal of the tri-county landfill group.

Please see WASTE, 4B

WASTE

continued from 1B

USA Waste Systems is trying to establish a presence in the region even though the targeted market for waste once it opened would not be as large as the company hoped.

The company would seek to dump 2,000 tons per day but would receive only 300 to 500 tons per day when it opens, Barron said in February.

DEP waste regulator Mike Fitzsimmons says such waste companies can out-compete local landfills because of the savings from operating on a larger scale

The savings from a regional operation still exist as they did in the 1980s when DEP

was encouraging counties to go regional, Fitzsimmons said.

"If somebody comes to us and says, gee, they can't afford to be in the solid-waste business, we would encourage them to look at regional opportunities," said Fitzsimmons, of DEP's Jacksonville district office.

Many counties in the region have opened new landfills since 1990, when stricter regulations increased the cost of landfill operations. Or they have opted to send their waste elsewhere.

Alachua County decided last year against a new landfill. The county agreed to haul its waste to a Waste Management Inc. regional landfill about 200 miles away in the Florida Panhandle.

Levy, Suwannee, Columbia, Hamilton and Putnam counties also have added landfill capacity since 1990, according to

North Florida counties considered a regional landfill in the 1980s.

DEP.

Taylor, Dixie and Madison counties share a landfill in Madison County that was built since 1990.

Lafayette County sends its waste to Suwannee County. Clay County sends its waste to Nassau County.

Jacksonville sends its waste to the huge Trail Ridge Landfill in Duval County operated by Waste Management Inc.

Mark Goldstein, who was on an Alachua County committee that recommended

against building a new landfill, says there is now more landfill capacity than demand in the region.

But that might not stop a company, such as USA Waste, from wanting to open a regional landfill to establish a market in the area, he said.

"Companies like Waste Management realized they needed a presence in every region of the United States if they were going to compete 10, 20, 30, 50 years down the line," he said. "These companies have very future-looking plans."

Competition and lower dumping fees are not necessarily good, Goldstein says.

More landfills, whether operated by local governments or by companies, could mean more environmental harm in the region, he said.

USA Waste apparently is betting that

counties cannot operate their landfills as cheaply as the company can, says O'Neal, of the tri-county landfill group, named the New River Solid Waste Association.

But that still doesn't mean counties would take such a deal, O'Neal said.

Although some observers say a company might operate regional landfill cheaper, O'Neal suggests that some counties still might be worried about their waste futures.

He said Barron has no answer for where Baker, Bradford and Union counties would take their waste if the Raiford landfill was sold and became filled with waste from outside the region.

"I can't imagine New River (Solid Waste Association) or any other county would give up their (landfill) capacity without having a known disposal facility in the future, at least 20 to 25 years," he said.

24

Could gas line improve cement plant?

■ Some hope a new technology could help reduce pollution.

By JUD MAGRIN

Sun staff writer

City officials hope an emerging technology will allow Gainesville Regional Utilities to supply natural gas to fire the new Florida Rock

Industries cement plant in Newberry and lower pollution there.

City Commissioners Bruce Delaney and Pegeen Hanrahan, who comprise the city's Utilities Committee, will recommend that the full commission direct GRU to solicit Florida Rock's interest in using natural gas and, if feasible, make an offer to build a gas line to the plant.

The two commissioners see an

opportunity to boost business for GRU and ease tensions throughout the community.

The key is an emerging and developing technology called Gyro-Therm burners. The patent for the technology is owned by Fuel Combustion Technology International of Malvern, Pa.

The project manager for Florida Rock's Newberry cement plant is familiar with the technology, but

isn't sold on it.

"We tried to make it work (in Colorado) and spent a great deal of money," said Fred Cohrs, "and decided we couldn't justify going on."

Cohrs said all the burners could do was burn gas more efficiently. There's no evidence yet, he added, that it's cleaner than coal. He said the cost of gas vs. coal here puts a *Please see PLANT, 6A*



Commissioners Bruce Delaney and Pegeen Hanrahan want GRU to approach Florida Rock.

PLANT

continued from 1A
damper on the idea.

Still, he said, "We'll listen to all offers."

Gyro-Therm burners are available for gas and coal fuel, according to data gathered by Yolanta E. Jonynas, a senior environmental engineer at GRU.

Its effectiveness at the Newberry plant would depend on the process that Florida Rock will use to make cement, according to Mike McCabe, president of Fuel Combustion Technology International. Cement plants in Canada and on the West Coast use natural gas.

"On some specific plants where Gyro-Therm has been applied, it has burned with lower (nitrogen

"We tried to make it work and spent a great deal of money ... we couldn't justify going on."

FRED COHRS, FLORIDA ROCK

oxide) emissions than conventional gas systems," McCabe said. He noted, though, it is still too early to tell if it pollutes less than coal.

Ash Grove Cement in Oregon is the only plant in the United States using Gyro-Therm technology. The cost of coal and gas in that region is similar, and the Gyro-Therm burner there will burn both.

Gas was used to fuel cement plants more extensively in the early 1970s, but coal became the preferred fuel because it burned hotter and contained some additive for clinker used in cement production.

Gas had to be fired at higher temperatures to give the same heat as coal and therefore it generated more nitrogen oxide.

"The Gyro-Therm burners were developed to overcome these problems," Jonynas wrote in an April 21 memo to GRU general Manager Mike Kurtz.

One vocal opponent of the plant said she sees hope.

"The (nitrogen oxide) emission would be reduced and lower particulates (released)," said Newberry resident Phyllis Saarinan, who has contacted experts on the subject. "In other words, it would be a much cleaner plant."

It would be a "win-win" resolution, she added.

"I am delighted that Commissioners Delaney and Hanrahan are trying to initiate an effort to negotiate with Florida Rock. They recognize a very significant impact and are trying to do something about it," Saarinan said.

But a member of the Haile Community Association that is fighting the plant said this gas proposal doesn't change "that this (permitting) process was defective from the beginning."

"Any discussion that ignores that is missing the true issue," said Tom Bussing.

As part of a package of recommendations, the Utilities Committee also asked that the city request from the state Department of Environmental Protection more air monitoring stations.

25

Handwritten notes in the right margin: "I've been contacted by the Haile Community Association & I've been told that they are not interested in the gas line proposal. They are more concerned with the air quality issue." and "I've been contacted by the Haile Community Association & I've been told that they are not interested in the gas line proposal. They are more concerned with the air quality issue."

DEP ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION)

3. Kim - To Florida Rock Files

1. BAR/DARM - MS# 55054

2. all lines

5.

PLEASE PREPARE REPLY FOR:

____ SECRETARY'S SIGNATURE

____ DIV/DIST DIR SIGNATURE

____ MY SIGNATURE

____ YOUR SIGNATURE

____ DUE DATE _____

ACTION/DISPOSITION

____ DISCUSS WITH ME

____ COMMENTS/ADVISE

____ REVIEW AND RETURN

____ SET UP MEETING

☒ FOR YOUR INFORMATION

☒ HANDLE APPROPRIATELY

____ INITIAL AND FORWARD

____ SHARE WITH STAFF

____ FOR YOUR FILES

COMMENTS:

RECEIVED
APR 16 1997
BUREAU OF
AIR REGULATION

per Bob Leetch

FROM: NED-JAX DB DATE: 4/15/97 SS ext 233
Doreen - AIR PHONE: 880-4310



EARTH ACTION RECYCLERS

To Promote the Environmental Awareness of the Public

Richard Selwach,
President

Friday, March 28th, 1997.

DEPARTMENT OF
ENVIRONMENTAL PROTECTION

The Honorable US Senator Bob Graham
United States Senate
Washington, DC 20510-0903

APR 03 1997

OFFICE OF THE SECRETARY

Re: Environmental impact statements as required by the National Environmental Policy Act of 1969 (NEPA) and the permitting process of Florida Rock Industries proposed cement plant near Newberry, Fl.

Dear Senator Graham:

I am in receipt of your letter dated march 24, 1997. Thank you for being ready to assist me in issues where federal guidelines apply...

It is at this time that I am informing you of violations of federal law concerning the permitting process for Florida Rock Industries proposed cement plant near Newberry, Fl.

Pursuant to the National Environmental Policy Act of 1969 (NEPA), Chapter 55, section 4332, paragraph (c), items i, ii, iii, iv, & v have not been met... The publication of environmental impact statements concerning the effects of FL rock Industries operations are required. Environmental impact statements are reports that evaluate all planned projects or programs which might seriously effect the environment. A federal agency must issue a report for any large project that it will regulate.

The purpose of an environmental impact statement is to make a federal agency (EPA, USDA, etc,) consider the possible environmental damage that might result from a project under its jurisdiction. The agency then decides whether to alter or abandon the project.

In the case of FL rock Industries cement plant, the USDA and EPA must study how pollution from its operations (coal burning, tire burning, etc.) will affect the area. Each agency must prepare a preliminary impact statement and submit it to federal, state, and local agencies, as well as the general public. Since we are having a wild honeybee emergency nationwide, the USDA or State Dept. of Agriculture is required to make studies on how smoke stack emissions will effect both feral and commercial honeybee populations since honeybees help pollinate crops and honey is an agricultural item. The EPA needs to do studies on how the projects pollution will effect human life, the aquifer, bald eagles, endangered species, wetlands, etc.

The agencies must prepare preliminary impact statements and submit them to federal,

507 NW 5th Ave. • Gainesville, FL 32601 • 1-800-EARTH ACTION • 904-376-6969



3616 NW 186th Street
Newberry, FL 32669

23 March 1997

Mr. John Hankinson, Region IV Administrator
US Environmental Protection Agency
345 Courtland Stret, N.E.
Atlanta, GA 30365

REF: Florida Rock Industries, Newberry, Alachua County, FL (PSD-FL-228)

Dear John:

The citizens of Alachua County find themselves on the verge of having a new and unwanted member of their community: a 720,000 ton per year cement kiln proposed by Florida Rock Industries. The plant is proposed to burn up to 120,000 tons of coal per year and up to 30 percent of fuel requirements as whole tires. The permitting of this plant at both the state and county level has been challenged by every available legal means over the last two years. At present, the DEP air construction permit is under appeal to the First District Court of Appeals and the county site plan approval has been challenged by a suit filed in the Circuit Court.

Our chief concern with the plant is the level of air emissions permitted for the plant and the likely exceedance of proposed ambient air quality standards for PM2.5 when this plant goes on line. As reviewed by US EPA Region IV and permitted by the Florida DEP, this plant will emit up to 11 tons per day of regulated and unregulated hazardous air pollutants, including PM10 at 1335 lb/day (214 tons per year). As you may know, the particulate matter from cement kilns is in large part cement kiln dust, which has been described by EPA in the *Regulatory Determination* of February 1995 as "having the characteristics of a hazardous material."

According to an affidavit filed by an expert air quality consultant (copy enclosed), Alex Sagady, the level of PM10 emissions permitted for this plant represents only a 30 percent improvement over PM10 performance standards issued by US EPA in 1971. According to Mr. Sagady, technology exists and is in use at other cement kilns which could achieve as much as a 28-fold decrease in the particulate matter emitted by this plant.

The contribution of this plant to future PM2.5 nonattainment status could be further significantly diminished if Florida Rock had been required by the air permitting process to use natural gas as fuel with currently available NOx reburn technology.

From: Howard Rhodes
4/14

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APR 07 1997

DIVISION OF AIR
RESOURCES MANAGEMENT

RECEIVED

APR 14 1997

BUREAU OF
AIR REGULATION

The suit we filed in Circuit Court against the county approval of a site plan for Florida Rock is based upon the county's refusal to apply its own regulations for industrial emissions.

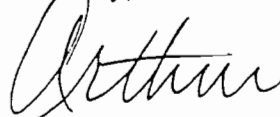
We wrote you three times (copies attached) in 1995 with our concerns and have never received a response.

Neither the US EPA, nor the Florida DEP, nor the Alachua County staff and board of county commissioners have adequately addressed the air quality and public health and environmental impacts of the emissions from this plant. The FDEP permitting review process was a travesty and a fraud, with such gross oversights as not requiring Florida Rock to submit any design information on the primary air pollution control device (electrostatic precipitator). Florida DEP knowingly and deliberately declined to require Florida Rock to prepare a public health assessment, although DEP staff knew or should have known of the presence of an unusually vulnerable population in Alachua County because of the location here of major southeastern regional US medical facilities.

Frankly, John, we are appalled at the lack of competent professional review of a facility which, according to Carol Browner's testimony before Senate hearings on the proposed ambient air quality standards, will have a significant impact on the health of the residents and the future attainment status of this region of Florida. We are frustrated beyond words.

We demand that you halt initiation of construction of this plant pending a thorough review of the DEP air construction permit and the permitting process as well as the earlier EPA PSD review.

Sincerely,



Arthur W. Saarinen, Jr.



Phyllis P. Saarinen

CC: Senator Bob Graham
Representative Karen Thurman
Representative Bob Casey
Administrator Carol Browner
Secretary Virginia Wetherell
Howard Rhodes, Florida DEP
Bobby Summers, Chair, Alachua County Board of County Commissioners

**BEFORE THE ALACHUA COUNTY
BOARD OF COUNTY COMMISSIONERS**

IN THE MATTER OF:

FLORIDA ROCK INDUSTRIES, INC.
SITE PLAN APPLICATION
(PORTLAND CEMENT PLANT)

Application # 96080141

AFFIDAVIT OF ALEXANDER J. SAGADY

ALEXANDER J. SAGADY, being first sworn, deposes and says in regard to the emissions from the proposed Florida Rock cement plant, Alachua County, Florida and the Florida Department of Environmental Protection air construction permit for this proposed cement production facility:

1 Identification and qualification of Alexander J. Sagady

- 1.1 I am presently a self-employed environmental consultant in private practice, specializing in air pollution control and waste management as these matters relate to state and federal regulation, enforcement and policy. I have been self-employed in this capacity since August, 1995.
- 1.2 Previously, I was employed by and served as Director of Environmental and Occupational Health for the American Lung Association of Michigan from April, 1980 until July, 1995. In that capacity I was responsible for the Association's research and advocacy on the effectiveness and adequacy of emission controls and siting to prevent air pollution and air contamination at existing and proposed industrial and waste facilities.

In addition, I was responsible for the Association's initiatives to influence public policy on the control of air pollution and airborne toxicant emissions. Prior to the time I was employed by the Association, I served as an Air Conservation Consultant to the Association from 1977 through early 1980.

- 1.3 Through efforts at the American Lung Association of Michigan, I significantly affected the direction of public policy in the control of air pollution in Michigan through intervention in permit and enforcement proceedings at the state and federal level, legislative deliberations on air pollution statutes and work with citizens and community organizations concerned about air and waste issues. I have presented testimony numerous times in Michigan administrative proceedings concerning air pollution, airborne toxicants and waste management practices of regulated facilities.
- 1.4 I have been certified as an expert witness in air pollution control by a Michigan Circuit Court in the case of NAACP, et al vs. John Engler, et al, in proceedings which occurred in late 1995. This expert testimony contributed to enactment of a court ordered consent judgement which significantly limited permissible amounts of lead contaminated demolition wood that could be burned in a waste derived fuel power plant. I have also presented environmental testimony in court proceedings concerning emissions from the Greater Detroit Resource Recovery Authority municipal waste incinerator.

- 1.5 I have written detailed comments to the U.S. Environmental Protection Agency concerning the regulation of hazardous waste combustion in waste incinerators and cement kilns and the regulation of emissions from bleached kraft pulp mills. Both of these detailed comments were submitted on behalf of the national organization of the American Lung Association.
- 1.6 I have had experience in dealing with emissions at cement production facilities and I have made observations of cement plant operations in Michigan, Ohio, Kansas, Missouri, and Texas. In Michigan, my work to identify non-compliance at two Michigan cement plants resulted in an enforcement action and other actions to reduce emissions. I have prepared testimony to the U.S. Environmental Protection Agency concerning regulation of emissions from a cement plant in Kansas. On behalf of the American Lung Association, I managed a national project on hazardous waste incineration which included a major focus on the combustion of hazardous waste in cement kilns. This project sought to influence the development of federal and state regulatory policy on matters affecting cement kiln and waste incinerator combustion of hazardous waste.

2 Expert Opinions Concerning Emissions from the Proposed Florida Rock Cement Plant

I have examined certain materials describing the proposed Florida Rock cement plant and the decision of the Florida Department of Environmental Protection to grant an air discharge permit for this facility. Pursuant to an

examination of the Application for Air Permit, the final permit as issued, the Best Available Control Technology determination, and other selected materials, I have concluded that the proposed Florida Rock Industries cement plant will not comply with the performance standard requirements at Section 11.4 of Alachua County Ordinance 92-5.

Emissions of particulate matter

2.1 The Florida Rock cement plant will emit particulate matter from the main kiln stack, the clinker-cooler stack and several other process-related stacks and fugitive emission particulate matter sources at the plant. The two most significant particulate matter sources are the main kiln stack (permitted by the State of Florida to emit about 30 pounds of particulate per hour) and the clinker cooler stack (permitted by the State of Florida to emit about 15 pounds of particulate per hour). Although the aforementioned particulate emission rates are for maximum permissible operations of the facility, the selection of cement making process equipment and emission control technologies selected by Florida Rock ensures that anytime the facility is producing cement in any capacity, the facility will still emit measurable particulate matter to the air.

2.2 The maximum amount of permissible particulate emissions as determined by the Florida Department of Environmental Protection from the proposed Florida Rock kiln stack is 0.2 lbs of particulate matter

per ton of dry kiln feed. This maximum permissible particulate emission rate is only 33% less than the emission factor issued by the U.S. EPA as a New Source Performance Standard under the Federal Clean Air Act in 1971. Over the last 26 years, dramatic improvements in emission control performance have been made with both electrostatic precipitator and baghouse emission control systems that can be applied to portland cement plants..

2.3 The 0.2 pounds of particulate per ton of dry feed emission standard for the Florida Rock facility is equivalent to permissible particulate emissions of 0.028 grains per dry standard cubic foot in stack gas particulate concentrations (corrected to 7% oxygen).¹ This conversion to stack gas particulate concentrations is made for the purpose of comparing the level of effort in stack gas cleanup to stack emission control performance at other cement plants of varying sizes.

2.4 This affiant has examined an available data set from the U.S. Environmental Protection Agency of actual emissions information collected from cement plants across the United States that burn both fossil fuels and hazardous waste. Although hazardous waste will not be burned in the proposed Florida Rock facility, examination of the EPA data set is useful because particulate emissions from cement plant kiln stacks are dominated by the cement kiln dust evolved from the processing, calcining and sintering of the raw feed and clinker materials

¹ Assumes "direct" operation mode, 173,000 actual cubic feet per minute of stack gas flow rate with stack gas conditions of 5% stack oxygen, 3% moisture and 350 degrees F exit temperature.

in cement plants. As a result, in general, the particulate emissions will not be appreciably different in cement kilns that don't burn hazardous waste as compared to cement kilns that do burn such wastes.

- 2.5 Examination of the aforementioned EPA data set on particulate emissions from cement plants indicates several United States cement plants that actually achieve substantially superior performance when compared to the maximum permissible 0.028 grains per dry standard cubic foot performance for the Florida Rock facility.
- 2.6 EPA's cement kiln particulate emission data shows that the best performing cement plant controlled by an electrostatic precipitator can achieve stack gas particulate concentrations down to 0.004 grains per dry standard cubic foot. The same data set shows the best performing baghouse controlled cement kiln can achieve stack gas particulate concentrations of 0.001 grains of particulate matter per dry standard cubic foot. As a result, Florida Rock's facility would thus be permitted to emit stack gas with particulate concentrations 7 times more than the best performing kiln controlled by an electrostatic precipitator or 28 times more than the best performing kiln controlled by a baghouse system.
- 2.7 In analyzing the particulate emission data set referenced above, the U.S. Environmental Protection Agency determined that 60% of the kilns in

the data set can comply with stack gas particulate emission concentrations of 0.03 grains per dry standard cubic foot. This means that the maximum permissible emissions of 0.027 grains per dry standard cubic foot allowed for the Florida Rock facility (which is only slightly different than the 0.03 grains per dry standard cubic foot level) does not require the company to install particulate emission control technology that extends the state of the art for excellence in particulate emission control on a national basis.

2.8 Florida Rock could have attempted to more fully comply with the Alachua County Ordinance restrictions on emissions of particulate matter by selecting baghouse particulate emission controls for their kiln and clinker cooler stacks. Such baghouse particulate emission controls would have controlled particulate emissions to a greater degree than the electrostatic precipitator technology selected by the company. However, Florida Rock is not proposing to install baghouse controls on kiln stack and clinker cooler emissions.

2.9 Electrostatic precipitator (ESP) performance can be influenced by several factors, but a primary specific design parameter is the specific collection area (SCA), measured in square feet of ESP collection plate area per thousand cubic feet of stack gas flow at actual stack gas conditions. As proposed by Florida Rock's apparent ESP vendor, the electrostatic precipitator will have a specific collection area of 349.4 square feet per thousand cubic foot of stack gas emissions for the

"direct" mode of operation, as per the design specifications². This amount of SCA is at the low end of recommended specific collection area for electrostatic precipitator design.³

2.10 Florida Rock could have specified and committed to install a larger electrostatic precipitator with a larger specific collection area that could achieved a greater degree of emission control than has been proposed by their apparent ESP vendor. Such an action by Florida Rock would have allowed the company to attempt to more fully comply with the particulate emission restrictions of the Alachua County Ordinance. Other cement production companies have installed larger electrostatic precipitators with greater SCA values than Florida Rock at existing facilities. In a review of particulate emission control technology performance standards for cement plants, for example, EPA has considered facilities controlled by electrostatic precipitators that had specific collection areas of 580 square feet per thousand actual cubic feet as among the best performing units in the United States for particulate emission control.

2.11 The State of Florida particulate emission limitation in the permit for the

² See "Environmental Elements Corporation Electrostatic Precipitator for Polysius Corporation, Atlanta, GA, for Florida Rock, Newberry, FL, Proposal number ACS-95-04-15290-R2110E-F-A&B, May 5, 1995" which is attached to March 13, 1996 correspondence from A. A. Linero, P.E., Florida Dept. Of Environmental Protection, to Jewell A. Harper, Chief, Air Enforcement Branch, U.S. EPA Region IV

³ "Increase in the SCA of a precipitator design will in most cases increase the collection efficiency of the precipitator. Most conservative designs call for an SCA of 350 to 400 square feet per 1000 acfm..." Handbook of Air Pollution Control Engineering and Technology, Mycock, McKenna and Theodore, CRC Press, 1995.

clinker cooler is identical to the out-of-date clinker cooler emission limitation in the Portland Cement Plant New Source Performance Standard issued by EPA in 1971. There has been very significant progress in the development of both electrostatic precipitator and baghouse emissions control systems since that time. In a number of cement plants, emissions from clinker coolers are controlled with baghouse technologies because of the lower stack gas flows from this source category and the ability to achieve the best available emission control performance.

- 2.12 Electrostatic precipitator particulate emission controls are uniquely vulnerable to certain adverse upset conditions that can occur in cement plants. During poor combustion upset conditions which can occur with too much fuel feed and/or too little oxygen in the kiln, large amounts of carbon monoxide can be emitted from kiln combustion systems. During such practice, it is common industry practice to de-energize electrostatic precipitator systems, allowing uncontrolled particulate emissions from the kiln stack to avoid explosions caused by sparking in the electrostatic precipitator.
- 2.13 In the Florida Rock facility, the use of whole tires at the cool end of the kiln where oxygen concentrations can drop to 0.5% or less, combined with a loss of combustion in the pre-calciner, could potentially exacerbate such poor combustion upset conditions by providing a ready source of poorly combusted carbonaceous material at the rear of the kiln which would still be resident for a period of time after commencement of

a kiln combustion upset.

- 2.14 During times the electrostatic precipitator is turned off, uncontrolled emissions can be on the order of 18 grains per actual cubic foot. This is equivalent to the enormous emission rate of over 26,000 pounds of particulate matter per hour (over 13 tons/hour) from the main kiln stack⁴.
- 2.15 Cement plants cannot be simply "turned off" during upset conditions that cause high emissions since failure to run all of the raw meal and clinker out of both the kiln and the pre-heater could cause serious damage to the kiln. The raw feed and kiln processed materials must be "run out" if the plant is to be completely shut down.
- 2.16 Other upset conditions occurring in cement kilns involve the breaking of ring dams that can form in a kiln with a large cascade flow of kiln contents to the firing end of the kiln, pluggage in pre-heaters, and other conditions that cause very significant excess emissions.
- 2.17 Florida Rock is permitted to emit visible emissions of particulate matter from several stacks. The heaviest permissible visible emissions will be from the main kiln stack, the clinker cooler stack, and from fugitive

⁴ As large as it is, this rate may still be a significant understatement. The rate of 18 grains per actual cubic foot of emission is based on the design inlet concentration specified for performance of the electrostatic precipitator by its vendor. EPA has published materials indicating that uncontrolled kiln exit gas particulate concentrations can reach or exceed 30 grains per actual cubic foot of kiln exit gas, nearly twice as high as the 18 grain/ACF rate.

emissions associated with material processing and handling and coal pile stocking. These sources will be permitted to have visible emissions of 10% opacity, except for coal pile activities which can emit fugitive emissions of up to 20% during stocking/addition events.

- 2.18 Although the permit requires the operator to install and use continuous emissions monitoring equipment for visible emissions from the plant, the permit does not allow the results of this monitoring to be used for enforcement purposes. As a result, in order to enforce visible emission requirements on this plant, an inspector who is a certified visible emission observer must make an observation of excessive visible emissions from the plant. This means that there can be no enforcement of visible particulate emission requirements without the presence of State of Florida staff who may be located remotely from this facility and who cannot be relied upon to make observations during or shortly after complaints of visible emissions and contemporaneous reports of excess emissions.

Emissions of Oxides of Nitrogen and "Plume Blight"

- 2.19 The manufacture of cement produces large amounts of nitrogen oxides from the oxidation of nitrogen in fuel and from combustion-related reactions associated with molecular nitrogen and oxygen found in combustion air.

- 2.20 Oxides of nitrogen are undesirable pollutants because they are precursors to the formation of ozone and smog and contribute to the production of acid precipitation and atmospheric acid nitrate aerosols..
- 2.21 Oxides of nitrogen are generally emitted primarily as nitrogen oxide (NO) and this gas is oxidized shortly after stack emission to nitrogen dioxide (NO₂). Nitrogen dioxide is brownish colored.
- 2.22 I have observed heavy emissions of brownish nitrogen dioxide detached plumes from cement plants in Alpena, Michigan and from other large NOX sources. I expect that such visible nitrogen dioxide plumes will be observable downwind of the Florida Rock facility under certain conditions.
- 2.23 "Plume blight" from nitrogen dioxide downwind of combustion sources is generally most visible under conditions of blue sky, full sunshine and stable atmospheric conditions aloft. Stable atmospheric conditions allow a gas plume to stay within narrow horizontal and vertical angles and tend to restrict available dispersion in the air. Plume blight effects on atmospheric clarity constitutes one damaging end result from emissions of large amounts of oxides of nitrogen.
- 2.24 Florida Rock has not taken all measures it could have committed to in limiting the emission of oxides of nitrogen from the proposed plant in a more diligent effort to comply with the Alachua County Ordinance restrictions on harmful gas emissions. Florida Rock has not committed

to immediately installing and operating (at plant startup) a flue gas NOX emission control system known as selective non-catalytic reduction (SNCR).

2.25 The State of Florida determined that installation and operation of a SNCR system and compliance with an emission limitation of 2.8 lbs of NOX per ton of clinker produced constituted "best available control technology." However, the Florida Department of Environmental Protection is allowing Florida Rock:

- a) to evade requirements for a SNCR NOX emission control system that can reduce NOX emissions to 1.0 pound of NOX per ton of clinker produced; under the Florida Department of Environmental Protection permit, Florida Rock can potentially evade this requirement for as long as the first two years of operation.
- b) to emit more NOX (3.8 pounds of NOX per ton clinker produced) for the first two years than was determined by the Florida Department of Environmental Protection to be an emission level representing "best available control technology" (2.8 pounds of NOX per ton clinker produced)⁵.

⁵ See Florida Department of Environmental Protection Best Available Control Technology (BACT) Determination for Portland Cement Manufacturing Facility, Florida Rock Industries," December 20, 1996

- 2.26 Florida Rock could have made an effort to more fully comply with Alachua County Ordinance restrictions on gas emissions by installing and operating at the time of initial plant startup a selective non-catalytic reduction (SNCR) system for NOX emission control. Such a system would significantly and economically control NOX emissions from this plant. However, Florida Rock is not proposing to immediately install such NOX emission control equipment according to provisions of the State of Florida BACT determination.
- 2.27 A failure to install and operate such a NOX emission control system after the State of Florida has determined that this technology and appropriate emission limitations constitutes the best available emission control technology requirement for this new plant allows this facility to evade requirements of the Prevention of Significant Deterioration provisions of the Federal Clean Air Act.
- 2.28 In the first two years of operation, nitrogen oxide emissions will be limited to 3.8 lbs of NOX per ton of clinker, or 364 pounds of nitrogen oxides per hour. This is nearly 4 times the demonstrated nitrogen oxide emissions of another existing cement plant using selective non-catalytic reduction technology that was cited in the State of Florida best available control technology determination⁶. After the first two years, the maximum permissible nitrogen oxide emission limitation will be 2.8 lbs of NOX per ton of clinker or 268 pounds of nitrogen oxides per hour.

⁶ The Florida Department of Environmental Protection cited the Ash Grove Cement, Seattle Washington and its use of SNCR NOX emission control systems to achieve a 1.0 pound NOX per ton of clinker produced emission. Ibid, FL BACT determination, page 7, 12/20/96

2.29 The applicant's air quality modeling did not address plume blight from NOX emissions.

Odors

2.30 The Alachua County ordinance requires that:

“Odor. There shall be no emission of odorous gases or other odorous matter in such quantities as to be offensive at the points of measurement. Any process which may involve the creation or emission of any such odors shall be provided with both a primary and a secondary safeguard system so that control may be maintained in the event of failure of the primary safeguard system.” (Ordinance at 11.4(b)(iv))

2.31 Odors arising from cement production generally result from poor combustion events or from progressive outgassing of kerogens or other hydrocarbon materials found in raw feed to the kiln. Odors of this nature can be indirectly monitored by the installation of continuous emission monitors for volatile organic compounds. I have observed strong odors downwind of cement kilns during observations, and such odors tend to be pungent and irritating. Odors arising from outgassing of raw feed materials will likely include such materials as aldehydes, phenols and other products of incomplete combustion; additional air contaminants will result from secondary reactions of the straight-chained hydrocarbons found in kerogens that may be present in kiln raw feed.

2.32 The Florida Rock facility will emit volatile organic compounds, but the State of Florida permit for the Florida Rock plant does not require installation of continuous emission monitors for volatile organic compounds; as a result, the emission limitation for volatile organic compounds, a surrogate of kiln-related odors described above, will only be enforced during a short stack test after commencement of plant operation. As a result, Florida Rock will not be required to provide emission monitoring that would otherwise detect a surrogate of odor emissions that are regulated by the provisions of Alachua County Ordinance restrictions on odors for industrial facilities.

2.33 In addition, the State of Florida permit doesn't explicitly require the installation of a continuous carbon monoxide emission monitor, leaving it to the discretion of Florida Rock to choose between oxygen and carbon monoxide monitors to ensure compliance with good combustion conditions. If carbon monoxide monitors are installed, which could indicate the surrogate presence of odors from poor combustion, the permit does not allow the State of Florida to use these monitor results to enforce carbon monoxide emission limitations. Excessive carbon monoxide emissions will be associated with combustion upset conditions that may cause odor emissions from the facility.

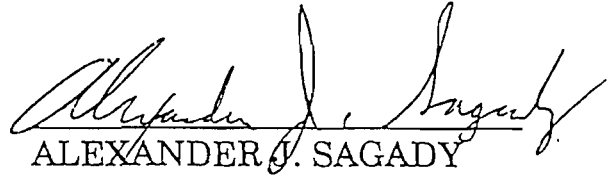
2.34 The proposed Florida Rock plant does not contain any system for controlling volatile organic compound emissions from outgassing of kerogens or other hydrocarbon materials that may be found in raw feed to the cement plant and which may be emitted from the kiln stack

and/or raw feed drying processes.

- 2.35 To summarize, there is no continuous hydrocarbon emission monitoring system required by the permit for the plant to detect elevated hydrocarbon emissions that would likely indicate a plant odor impact. There is also no emission control system to ensure that odors arising from outgassing and subsequent incomplete combustion of hydrocarbon materials that may be found in raw feed are controlled or contained.
- 2.36 In regard to odors arising from hydrocarbon emissions from the burning of tires, there is only a primary control system with the pre-calciner burner. There is no secondary system as required by the County Ordinance for the control of potentially odorous emissions from the poor combustion of tires under low oxygen conditions at the rear of the kiln at times when combustion at the pre-calciner burner has failed and subsequent products of incomplete tire combustion continue to be generated.

Further deponent sayeth not.

I CERTIFY THAT THE STATEMENTS ABOVE ARE TRUE AND CORRECT
TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF
UNDER PENALTY OF PERJURY.



ALEXANDER J. SAGADY

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Notary Public

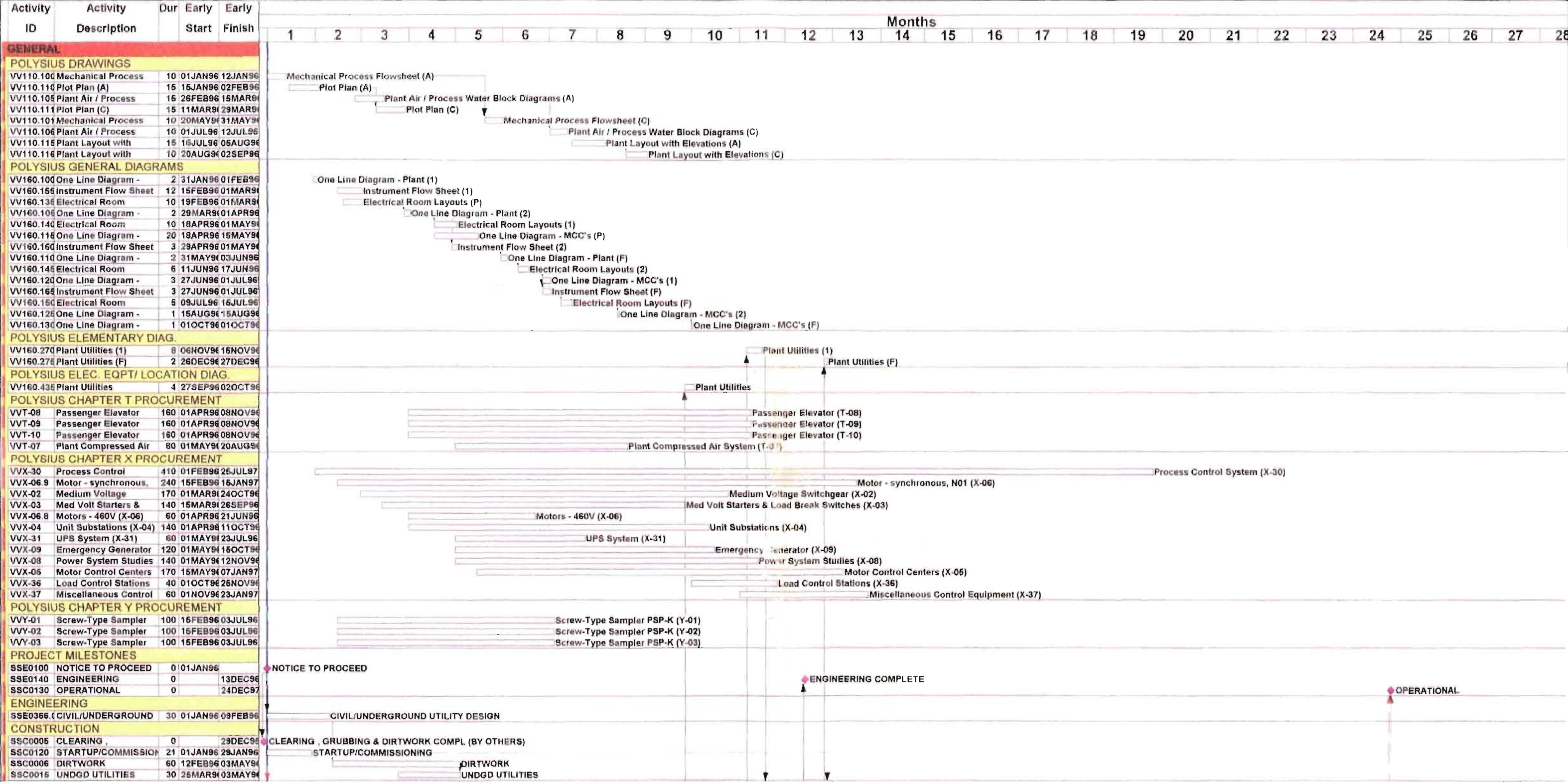
 2/24/97

WILLIAM A. HALL

Notary Public, Eaton County, MI

My Commission Expires June 12, 2000

acting in Ingham County



Project Start	01JAN96	Early Bar
Project Finish	24DEC97	Progress Bar
Date Date	01JAN96	Critical Activity
Plot Date	29AUG96	

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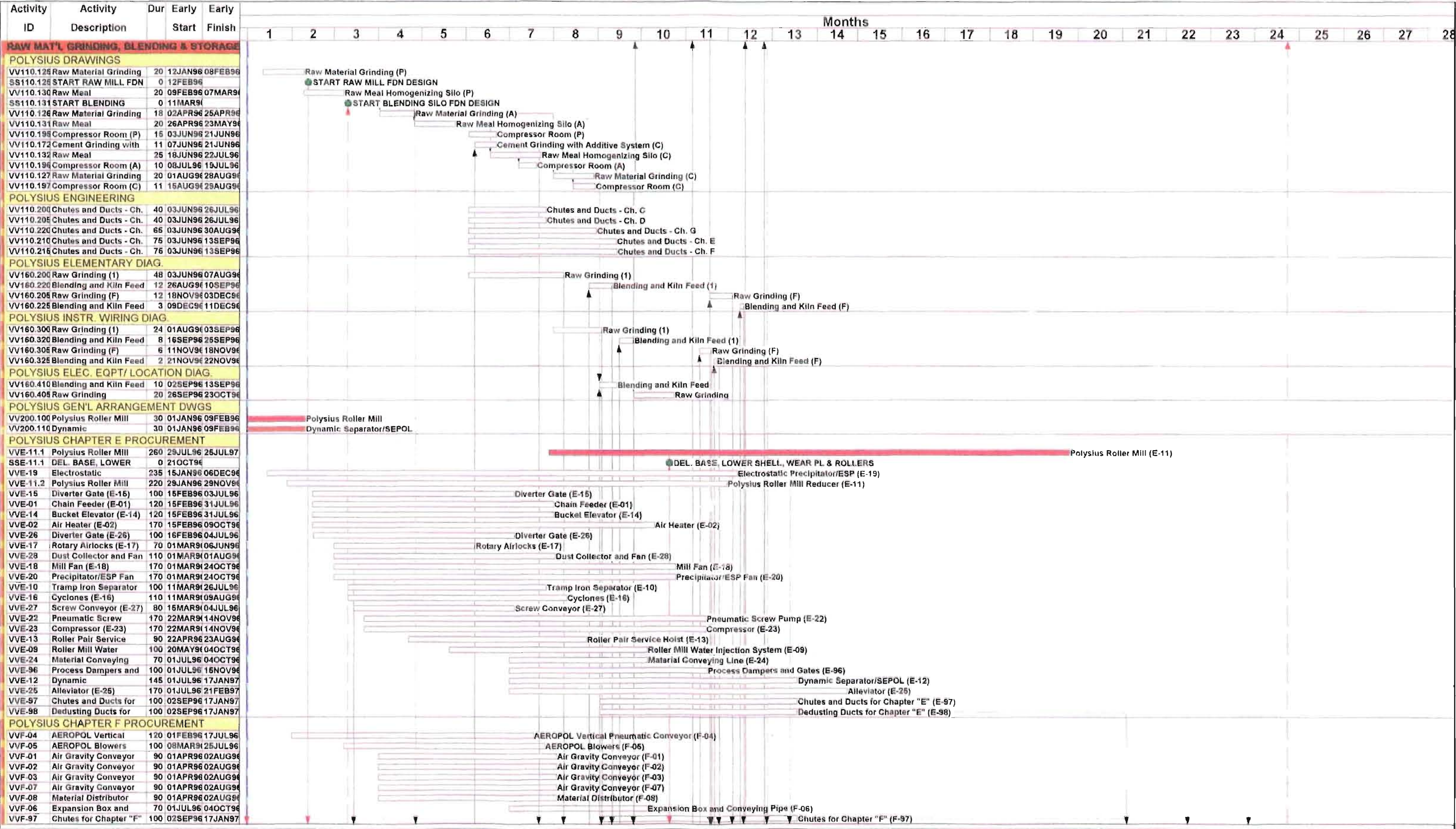
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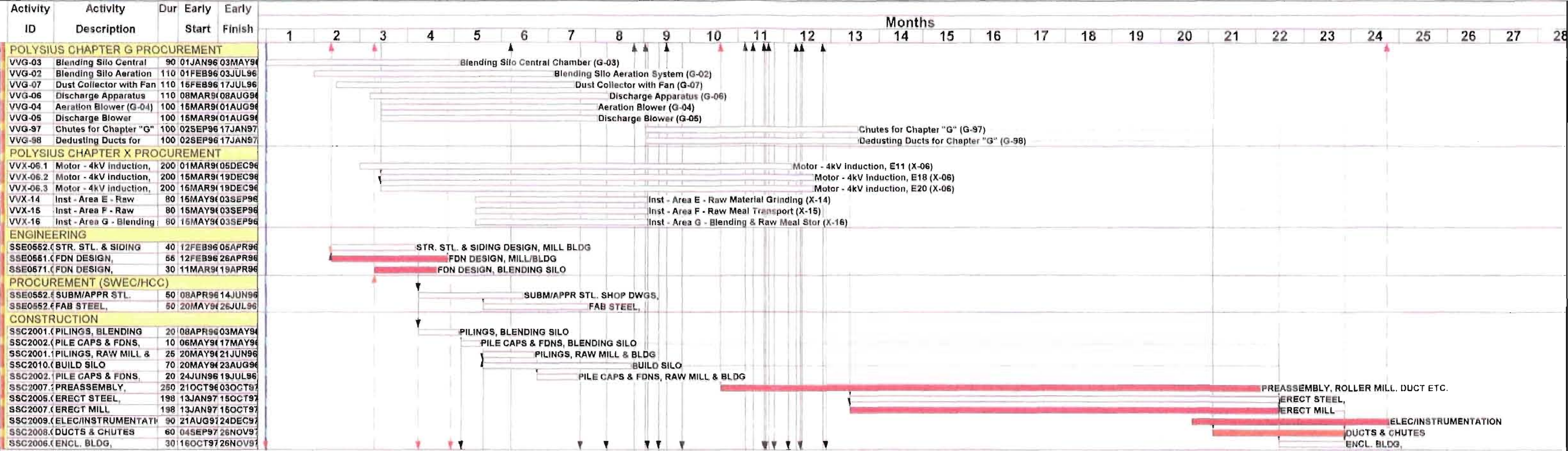
FLORIDA ROCK INDUSTRIES
NEWBERRY CEMENT PLANT
EPC SCHEDULE, CRITICAL AREAS

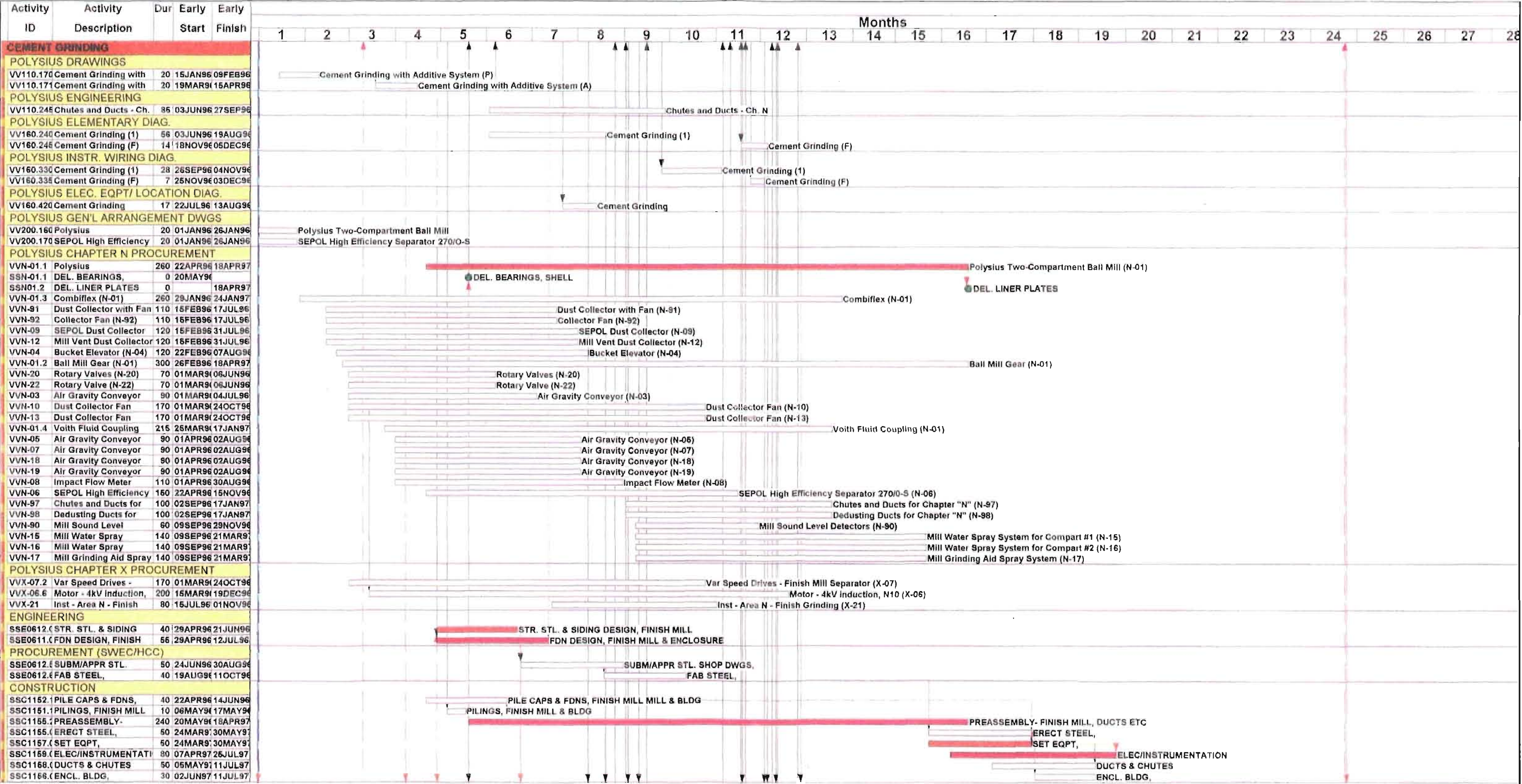
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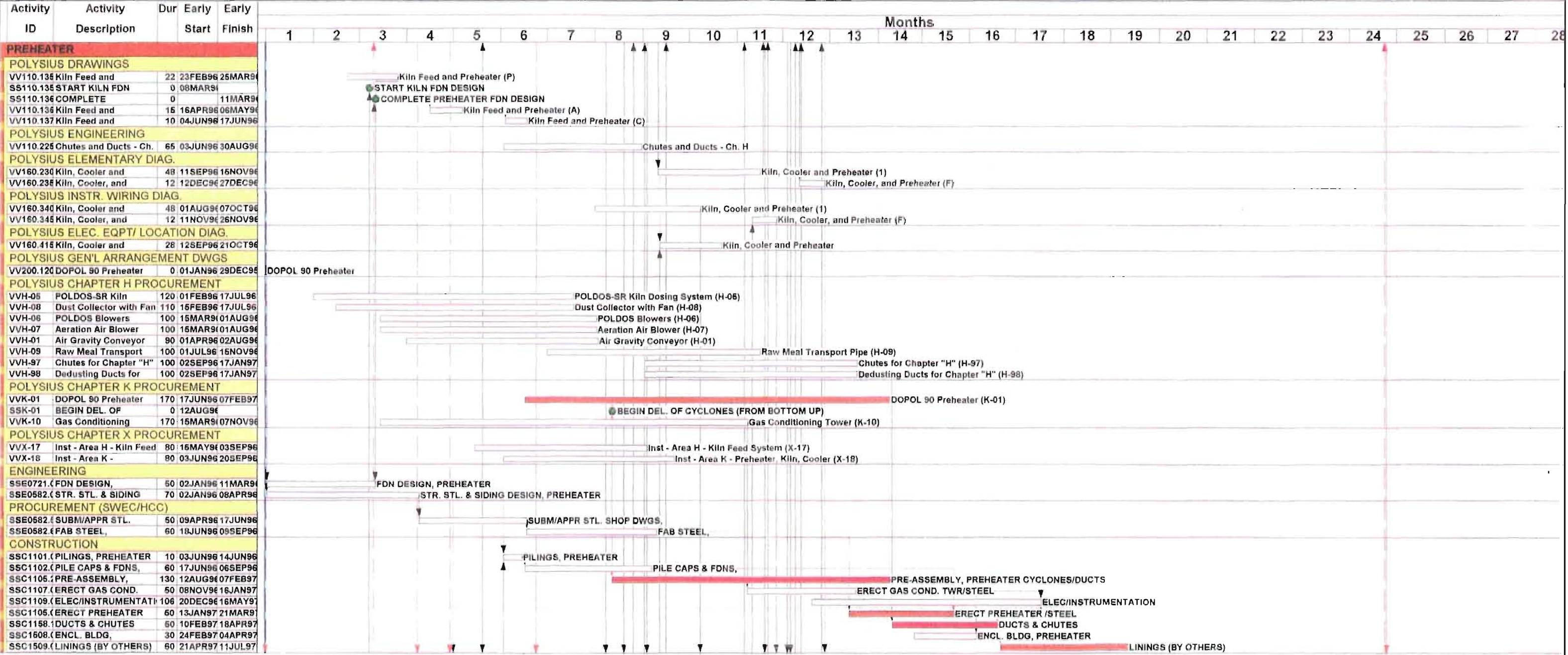
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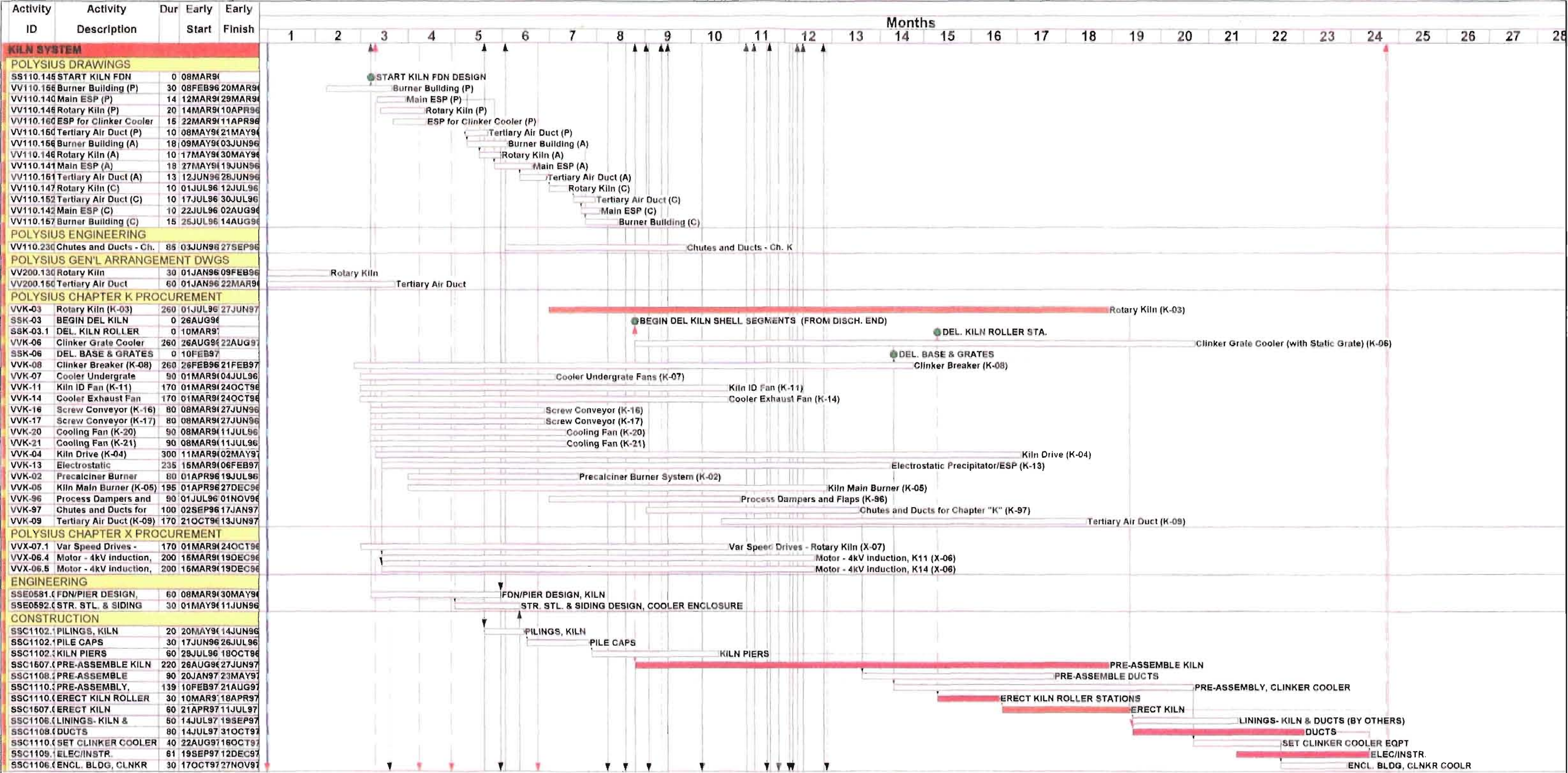
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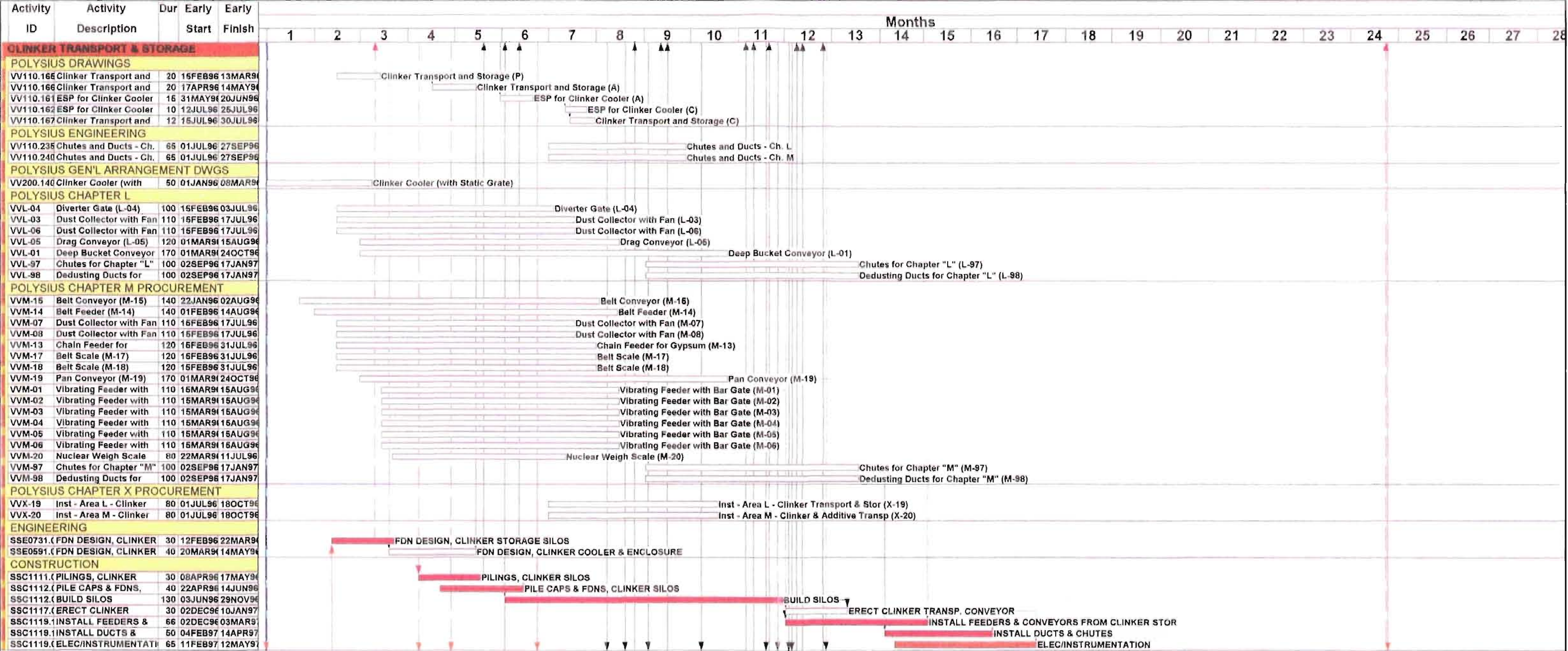


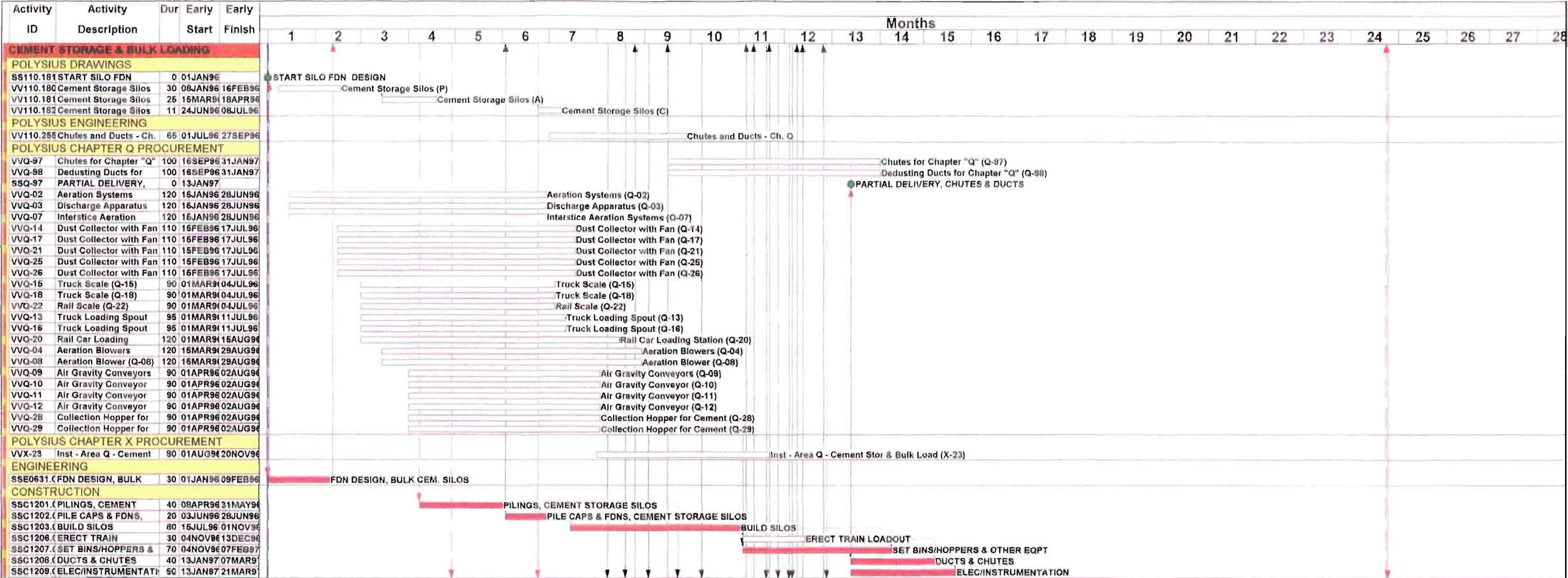


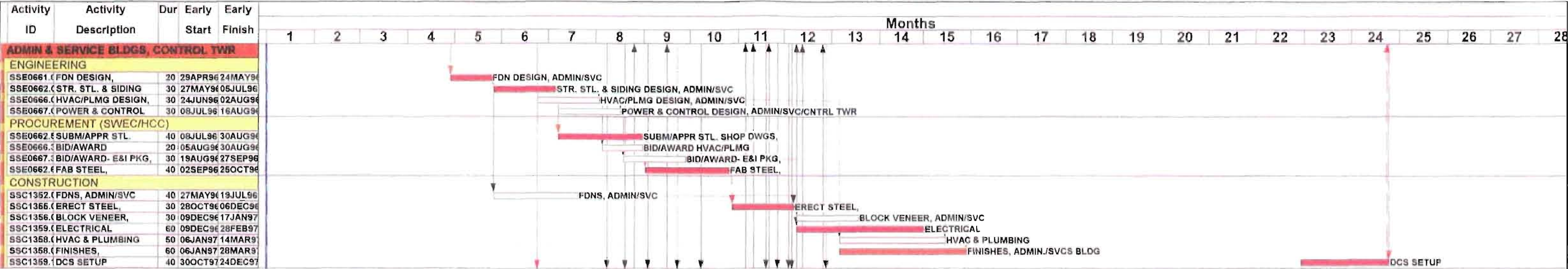


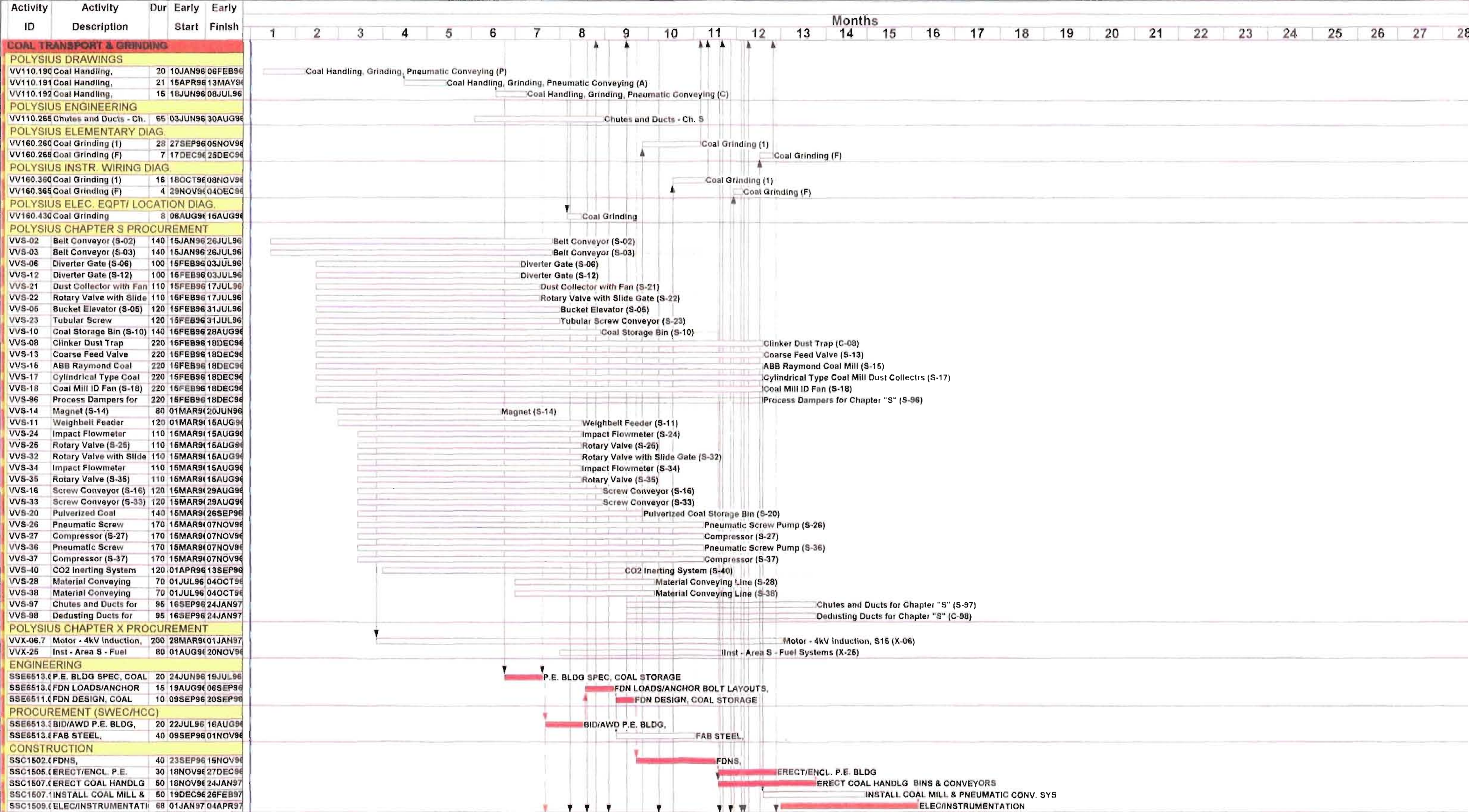


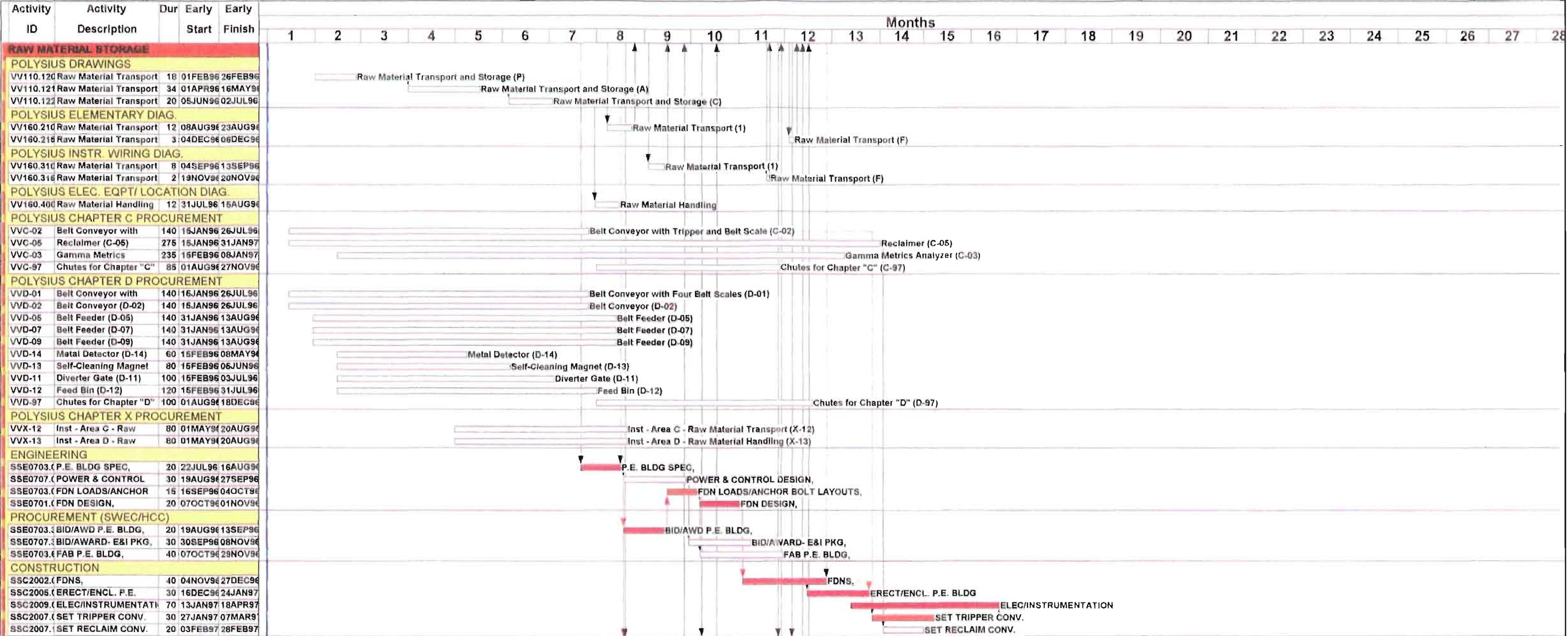


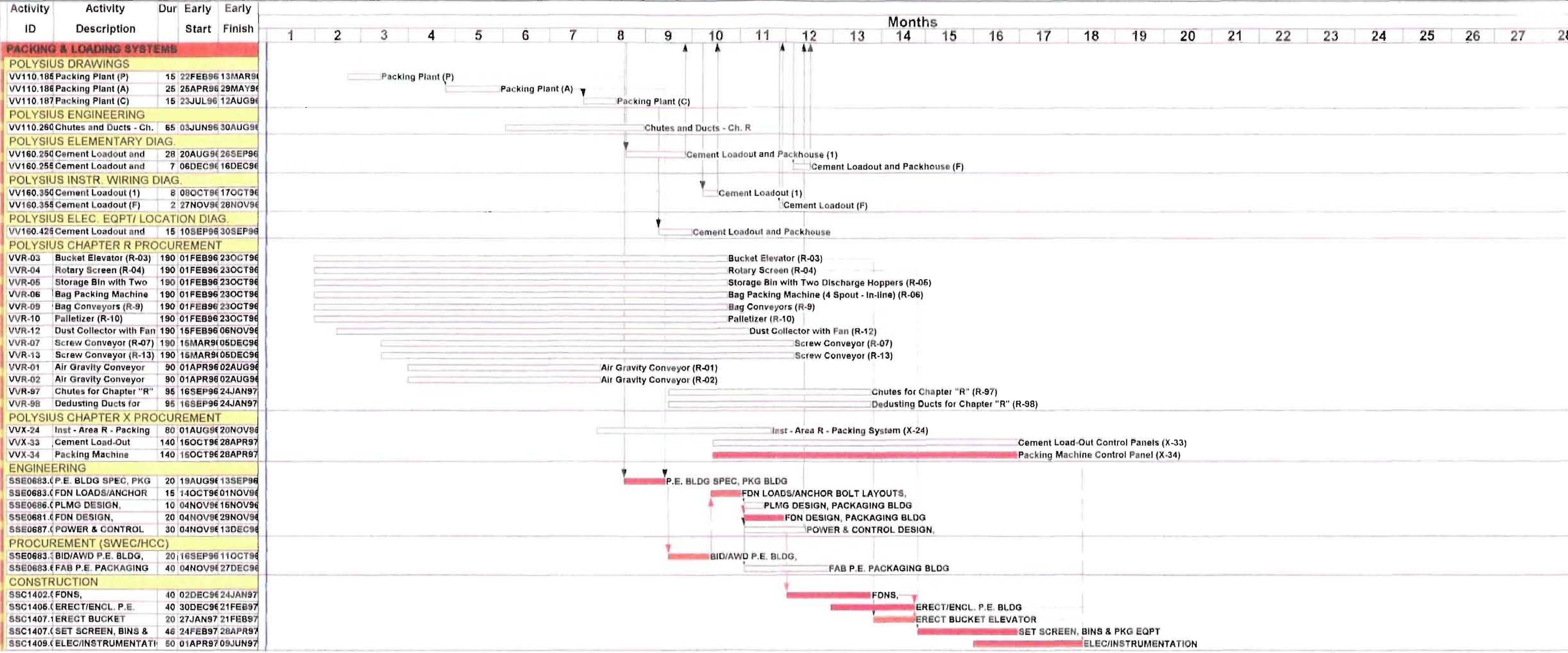










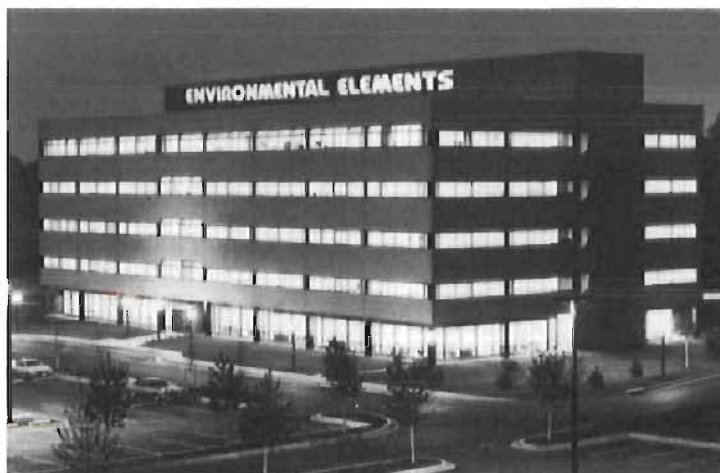


**ENVIRONMENTAL
ELEMENTS
CORPORATION**

*ELECTROSTATIC
PRECIPITATORS*

FOR *INDUSTRIAL* AND
POWER GENERATION
APPLICATIONS

SHEET METAL WORKERS
LOCAL 30



*Environmental Elements Corporation's Headquarters Building at
3700 Koppers Street, Baltimore, Maryland 21227*

Environmental Elements Corporation, a leading air pollution control systems supplier for over forty-five years, designs and supplies electrostatic precipitators, fabric filters, flue gas desulfurization equipment, acid gas cleaning systems, and continuous emissions monitoring systems. EEC's systems enable a broad range of customers in the power generation, pulp and paper, waste to energy, rock products, metals and petrochemical industries to operate their facilities in compliance with particulate and gaseous emissions standards.

Original Equipment and Systems:

Environmental Elements Corporation

P.O. Box 1318
Baltimore, Maryland 21203
(410) 368-7000
Fax: (410) 368-6896

Aftermarket Services:

Environmental Equipment Service Corporation

1302 Port Road
Jeffersonville, Indiana 47130
(812) 284-0800 **Parts:** 1-800-PART-EEC (1-800-727-8332)
Fax: (812) 284-1002

Cover photo: Two electrostatic precipitators prior to roll-in at a Canadian coal fired power plant.

Experience

Environmental Elements Corporation (EEC) and its predecessor companies have been designing, manufacturing, and erecting electrostatic precipitators for almost 50 years. Our over 1,200 installations have enabled our customers to operate their facilities in compliance with regulatory standards and recover valuable by-products on five continents. Products collected include fly ash, hazardous sludge, precious metals and various industrial by-products.

Our headquarters in Baltimore, Maryland is home base for over 230 engineers, technicians, sales and administrative personnel, who support our efforts and those of our licensees throughout the world.

The excellent reliability of the ENELCO® precipitator is the result of extensive engineering effort, applications expertise and service capability. These aspects are further supported by various testing programs at our precipitator test tower facility, construction and evaluation of three dimensional scale models of proposed installations, and the development and testing of new control

electronics in our Baltimore Technical Center. This concept ensures that our clients receive equipment designs which have been thoroughly tested for reliability and function.

Our engineering group has been using Computer Assisted Design equipment since 1977. Now in its third generation, our system integrates both design and engineering aspects into the final drawings. This degree of automation is critical to a timely response on short turn-around projects.

Our Corporate Quality Assurance Section is staffed, trained, and

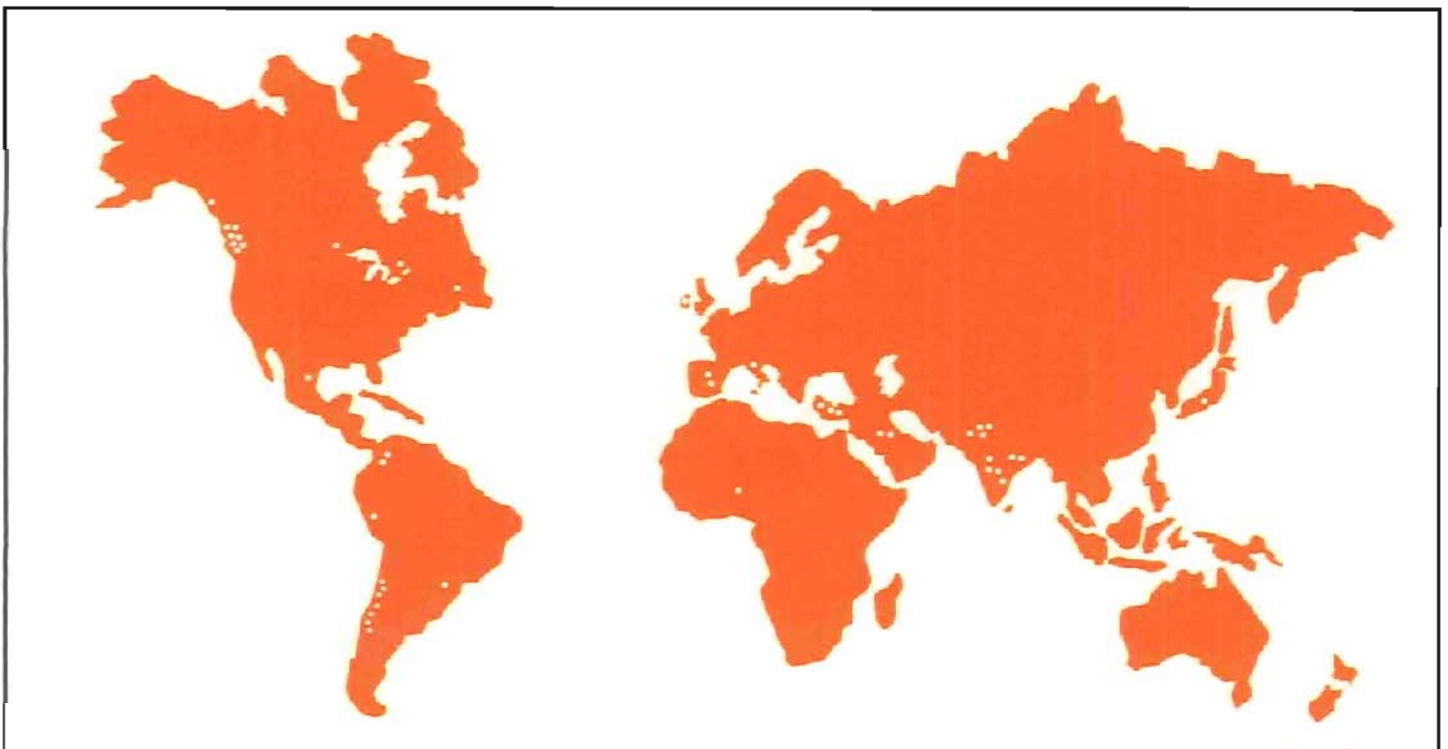
equipped to maintain quality management of the contract from the time it is awarded until final customer acceptance has been made.

Production, scheduling and material control, from sourcing through product delivery, is computer monitored on a daily basis to assure a timely response to customer needs.

Depending upon specific contractual arrangements, EEC erection capabilities range from the providing of jobsite construction advisory services, for projects erected by our customers, to complete field supervisory services for turnkey projects.



EEC Engineering Department and CAD workstations at the Baltimore Headquarters.



Partial plotting of EEC's and/or their affiliates global installations. (excluding domestic U.S. installations).

Capabilities

Environmental Elements offers complete turnkey systems including process analysis, design, erection and start-up including:

- Ductwork
- Support steel
- Prewired control rooms
- Low voltage wiring
- Thermal insulation
- Computerized data management
- Ash handling systems

Our complete research and development capabilities and experienced staff can provide the solutions necessary to solve a variety of industrial or utility air pollution control problems.

RIGITRODE® Discharge Electrode System

The rigid mast discharge electrodes are arranged in a structural matrix for maximum resistance to deflection. Corona discharge is provided by parallel rows of studs welded to each electrode in the correct pattern required for each application.

MODULOK® Collecting Electrode System

Shop assembled panels are snapped together to produce a patented, highly responsive collecting plate available in incremental widths of up to 15 feet and heights of up to 50 feet. Rapping energies are distributed over the entire surface which is free from stresses induced by welding.

Rapper Design

Our rappers, which are simple in design, provide high reliability with low maintenance and have no moving parts in areas of high temperature particulate laden gases. Five basic rapper designs, which include single impact, reciprocating, pneumatic, electric and mechanical hammers, are available to customize the rapping forces required on any specific application.

DIGICON® OPTI-PULSE™ Auto-matic Power CONTROLLER (DOC)

This digital microprocessor control utilizes the latest technological advances in solid state electronics. The microprocessor responds to both internal and external signals and makes adjust-

ments based on software custom designed for each application.

Data Management System (DMS)

The DMS is a computer data management center capable of local control or integration into the plant data management computer. It can independently control the DOC's and can be programmed to minimize precipitator power consumption, control rapping cycles and interface with boiler controls. The DMS offers complete flexibility in programming virtually every variable affecting precipitator performance including auxiliary systems. It is equipped for remote data reading, logging and precipitator control using telephone modems. Both the DMS system and the DOC have been specifically designed and developed for precipitator control. They are rugged, reliable controls suited to the rigors of industrial plant and utility boiler environments.

CAD

Advanced computer-assisted design systems are used extensively to control cost and enhance quality.

Continuous Emission Monitors (CEM)

EEC can integrate a custom designed CEM system into your overall air pollution control system facility, thereby providing single source responsibility and control.

The Efficient, Economical Solution to Three Major Industrial Gas Cleaning Problems

Air Pollution

Air pollution abatement will continue to be a global, national, and local priority, with evolving regulations and requirements. Our broad experience in solving a variety of emissions problems serves to support industry's efforts to apply economical and reliable solutions through the application of high quality, value based pollution control equipment.

Material Recovery

Many materials contained in industrial

waste or process gases are too expensive to waste. Profit-minded companies have found a solution to this problem with the application of electrostatic precipitators. With continuous product recovery possible at low operating costs, the equipment can often return its initial investment in a relatively short time, thereby adding to profitability.

Gas Purification

Whenever process or fuel gases are cleaned for subsequent use, EEC electrostatic precipitators have proven their efficiency and dependability. Our equipment can collect a wide range of micron and sub-micron size particles. To date, numerous systems have been designed for and are now reducing contaminant residuals to below .005 grains per actual cubic foot of gas.



MODULOK® collecting plates being manufactured in Baltimore.

Technical Development

Environmental Elements has an acknowledged record of success in designing, fabricating and constructing electrostatic precipitators for a variety of demanding applications.

This record is the result of ongoing product development and improvement programs. Our proprietary RIGITRODE® discharge electrode and ESI electric single impact rapper are outstanding examples of these efforts as are our patented MODU-LOK® collecting surface system and DIGICON® OPTI-PULSE™ automatic power control.

Fluid Dynamics Laboratory

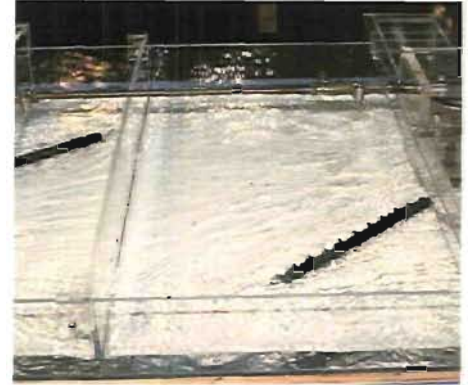
An important requirement in the design of electrostatic precipitators is the assurance of uniform gas velocity distribution through the entire precipitation collection zone. Our modern fluid dynamics laboratory is dedicated to determining the most effective means of achieving optimum velocity and profile distributions required for high precipitator efficiency. It is fully equipped to construct and evaluate

accurately scaled three dimensional models of precipitator installations. Continuing research and study of gas distribution dates back a quarter of a century.

Test Tower

The EEC test tower is a complete section of a full scale static precipitator used to test the mechanical and electrical reliability of its components. The original tower, built and operated from 1963 to 1976, was used to test hundreds of new designs. The demands for taller collecting plates led to the building of a new and larger test facility in 1976. Experimental programs conducted in these facilities have enabled us to offer our customers equipment that has undergone

rigorous life and functional testing before field installation, assuring reliable long-lasting performance.



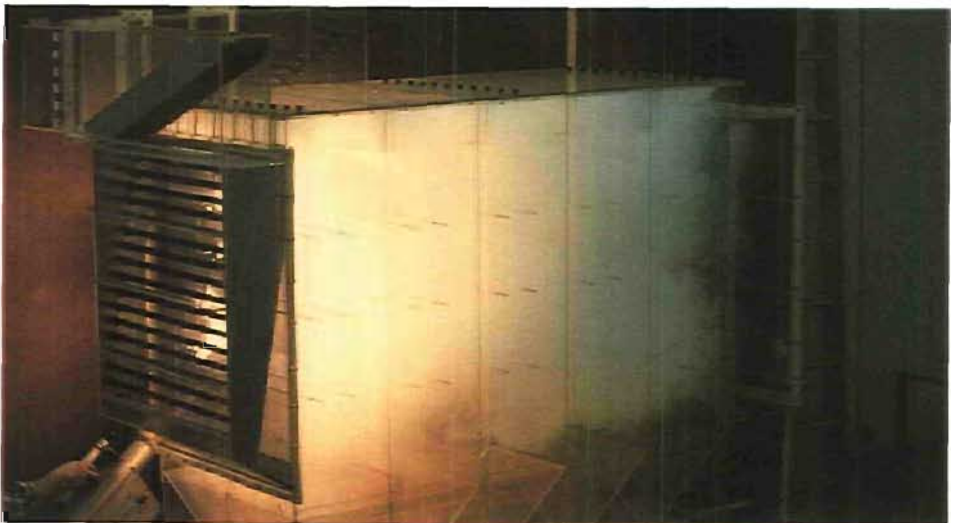
Dynamic testing of a wet bottom precipitator agitator system.



Second generation test tower for life testing of precipitator components.



Gas flow model test – Baltimore Technical Center.



Gas flow model test using smoke to study flow profiles within the precipitator.

Electrical Components

Vital to the precipitators performance and reliability is the quality and capability of the electrical control system. EEC designs, manufactures and tests certain critical control components in its modern manufacturing and laboratory facilities. We can provide engineering for a complete electrical system, including precipitator power supplies, controls and instrumentation for auxiliary equipment, lighting, power distribution, and conduit runs.

Basic electrical components utilized in our precipitator systems are:



Single bushing, side mounted, transformer rectifier with CLR

Transformer Rectifier (T-R)

T-R's are available in single or dual bushing output. Silicon diode rectifiers provide dependable maintenance-free operation and high efficiency rectification. Available special features include:

- Stainless steel tanks for corrosive ambient conditions.

- Extra heavy duty designs insulated as high as 70 KVDC average and rated to 192 KV P.I.V. These designs also have extra heavy duty output chokes and bushings.
- Heavy duty air switches, both full wave and double half wave.
- Current limiting reactor integrally mounted in the low voltage junction box.

High Voltage Control Consoles

These units contain the automatic power control and transformer rectifier control components and are available with complete electrical instrumentation, including provisions for remote indicators and operator controls. Alarm contacts are provided to signal a control trip. Consoles are available in NEMA 12 ventilated construction. Separate consoles can be supplied for each T-R.

The space saving twin pack enclosure, which economically houses two independent T-R controllers, can be also supplied along with roof top mounted current limiting reactors. Console options include face mounted circuit breakers and bussed cabinets.

If desired, these consoles can be provided in a pre-wired, prefabricated climate controlled control room shipped to the site for mounting at grade or on the precipitator roof.

DIGICON® OPTI-PULSE™ Auto-matic Power CONTROLLER (DOC)
The patented DOC power control is the latest in the family of micro-processor controls first pioneered by



Twin Pack Console



Single Console with Current Limiting Reactor



Prewired and preassembled climate controlled precipitator control house.

Environmental Elements in the late 1970's. In addition to the normal power control, overload protection and voltage maximization functions, other state-of-the-art features include:

- Back corona detection and prevention . . . for better performance with high resistivity particulate.
- OPTI-PULSE™ control . . . intermittent energization for energy savings or better performance for high resistivity particulate conditions.
- Alphanumeric display . . . coupled with extensive diagnostics for a user friendly interface.
- Plug-in key pad for program and parameter changes . . . permits on site program changes by authorized plant personnel.
- Operating program in EEPROM . . . no battery back up required.
- Expandable for integration into plant computer control or our Data Management Systems via a data highway.

Rapper Control

Aside from the transformer-rectifier controls, proper control of the precipitator rapping system is the next single most important contributor to successful precipitator operation. To achieve this, an intelligent micropro-

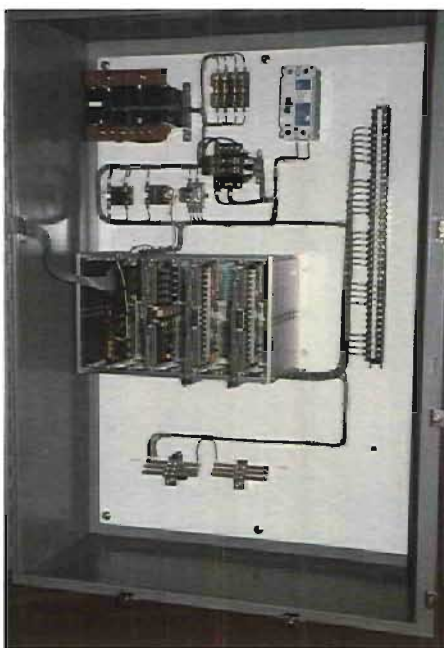
cessor based control is incorporated in the rapping system.

The variables that are regulated by the Rapper Control Systems are:

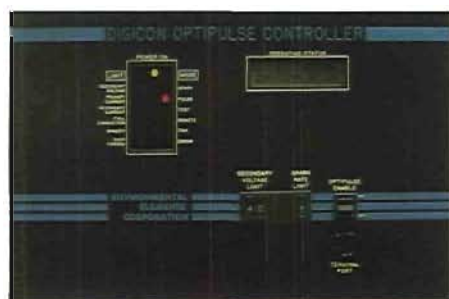
1. The duration and/or intensity of the rap.
2. The time for a complete rapping cycle.
3. The order in which the rappers are fired.

Additional features include:

- A selection of six factory preset programs.
- CD display and keyboard for additional programming.
- Individual output adjustments.
- Non-volatile memory.
- Full local-remote capability.



Microprocessor Rapper Panel



DIGICON® OPTI-PULSE™ Control



Data Management System Graphic Display

Data Management System

EEC's Data Management System (DMS) provides a station to remotely monitor and control the precipitator operation. It is a data collection unit which is connected to the transformer-rectifier controllers, rapper panel(s) and other precipitator accessory equipment for remote data acquisition, fault detection and control. The system includes an IBM™-AT compatible computer with a dedicated input/output extension, enhanced graphics color (EGA) CRT, keyboard

and a 80 column dot matrix printer. If the DMS is turned off, the precipitator controls default to normal operating conditions. Using the remote CRT and keyboard, the operator has the ability to make changes in each transformer-rectifier voltage and spark rate, and modify rapper cycle time and intensify. The system includes an alarm status screen for accessory equipment as well as a contact output for remote alarm.

Key features of the system include:

- Energy Savings
- Data Acquisition
- Functional Control
- De-Energized Rapping
- Color Graphics including precipitator roof layout
- Hard disk drive for data storage
- Floppy disk drive for data transfer
- Serial interface to a host computer.

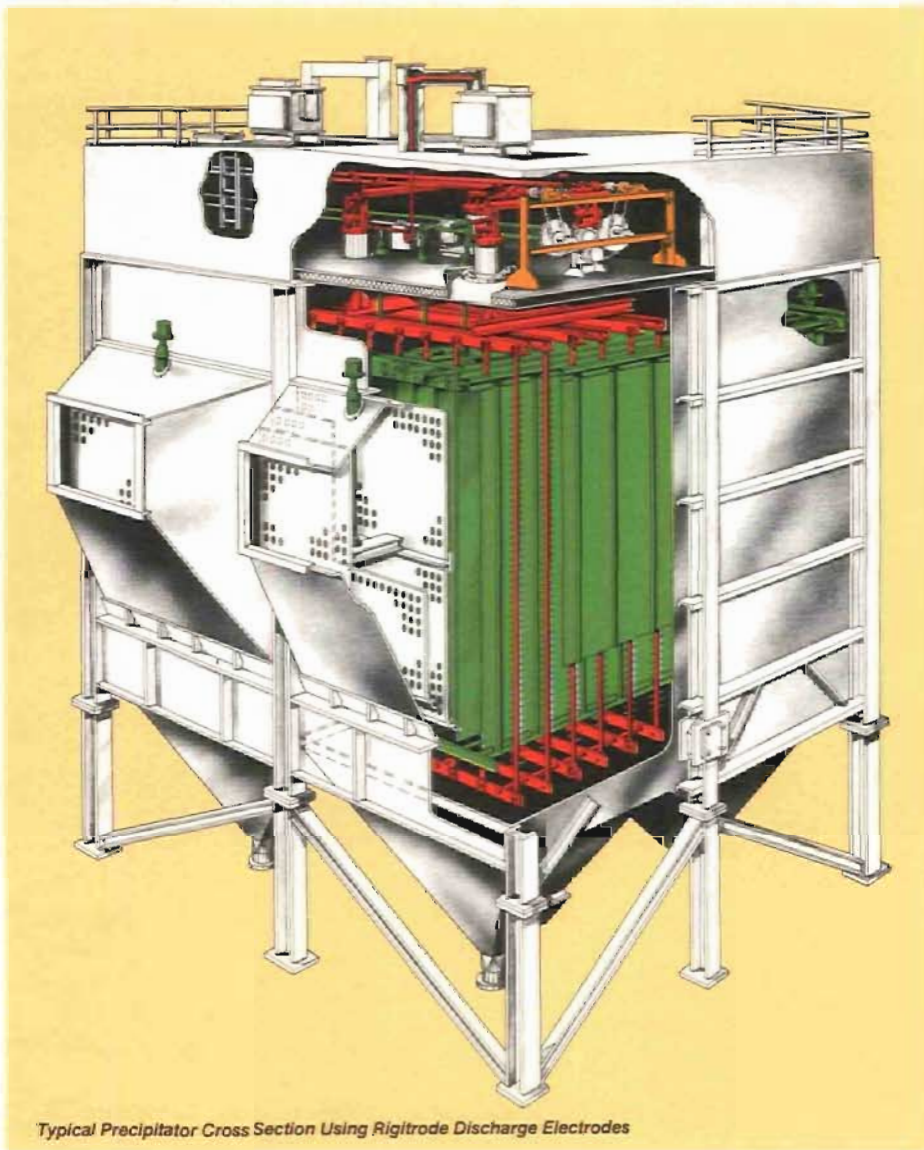
Information displayed on the color monitor includes individual transformer rectifier status, power readings, rapper status, opacity level and status of auxiliary equipment. Each screen has a built-in Help Menu.

The DMS contains programming to provide significant energy savings when connected to a stack opacity monitor.



Industrial Data Management System

RIGIDTRODE® System Precipitator



The RIGIDTRODE® System Precipitator incorporates several important key elements of design technology including discharge electrodes, collecting electrodes, rappers and automatic voltage control. Life tests of these components in our test tower and laboratory have yielded exceptional system performance and reliability data which have also been verified by testing full-scale operating units.

- **Collecting Electrodes**

The patented MODULOK® collecting electrode was developed specifically to achieve exact plate alignment tolerances and structural integrity. Extensive testing has proven its superior ability to trans-

mit rapping energy and its cleanability under all types of services conditions and plate heights.

It is comprised of a series of 18 inch preformed modules with interlocking edges that fit/snap securely together and require no field assembly. The top and bottom edges are reinforced and stiffened by tubular structural members. These members are joined to the main sheet by an arc spot welding process, the only area where heat is applied to the plate during manufacturing. The use of mechanical interlock prevents deformation and "oil canning," which occurs when individual panels are welded together along their vertical height.

When required, due to transportation limitations or remoteness of the job site, the MODULOK® plate system has been adapted to field assembly.

- **Discharge Electrodes**

The RIGIDTRODE® discharge electrode has successfully demonstrated excellent performance characteristics over a wide range of applications.

Assembled into the precipitator as a rigid structural matrix, it is precisely manufactured to fit within the MODULOK® collecting electrode plate system. It is fabricated from structural tubing with uniformly spaced corona studs welded to the surface. The studs, annealed to prevent fatigue cracking, are spaced along the electrode length to optimize the voltage/current relationship. Furthermore, its design minimizes arcing and allows considerably elevated voltage before sparkover occurs. The structural matrix of the entire RIGIDTRODE® System has sufficient stiffness to resist lateral forces resulting from over-full hoppers and longitudinal displacement due to electrical forces.

- **Rapping Systems**

To meet your design needs, Environmental Elements can offer any one of four basic rapping options. In all cases, the complete rapping mechanism is located on the precipitator roof outside the gas stream and can provide maximum plate acceleration in excess of 200 g's.

The mechanical rapping option utilizes rotating shafts with pivoted hammers striking the collecting surface and discharge electrode anvils at precise intervals. Electrical and pneumatic rapping options are similarly provided by electrically or air driven hammers.

The electric single impulse (ESI) rapper is a single impulse gravity impact device, which accommodates on-line adjustment of rapping intensity. This feature is particularly useful for installations which have variable process conditions.

- **Electrical Controls**

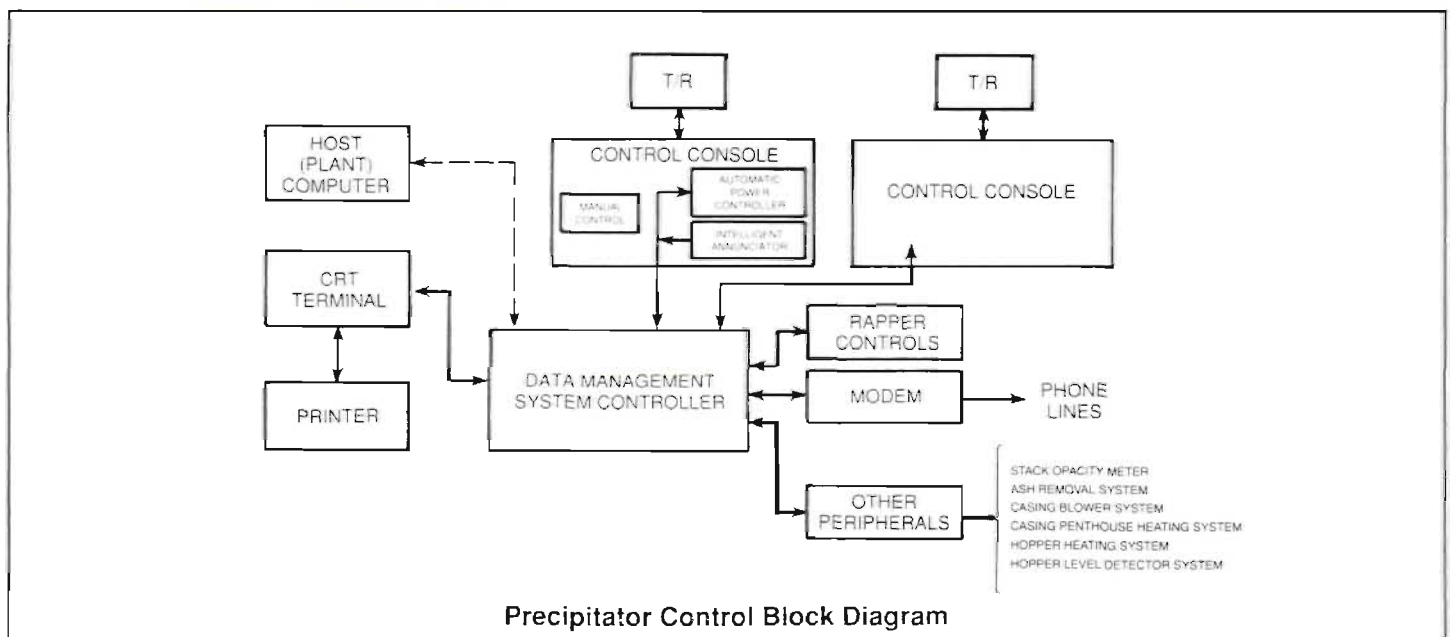
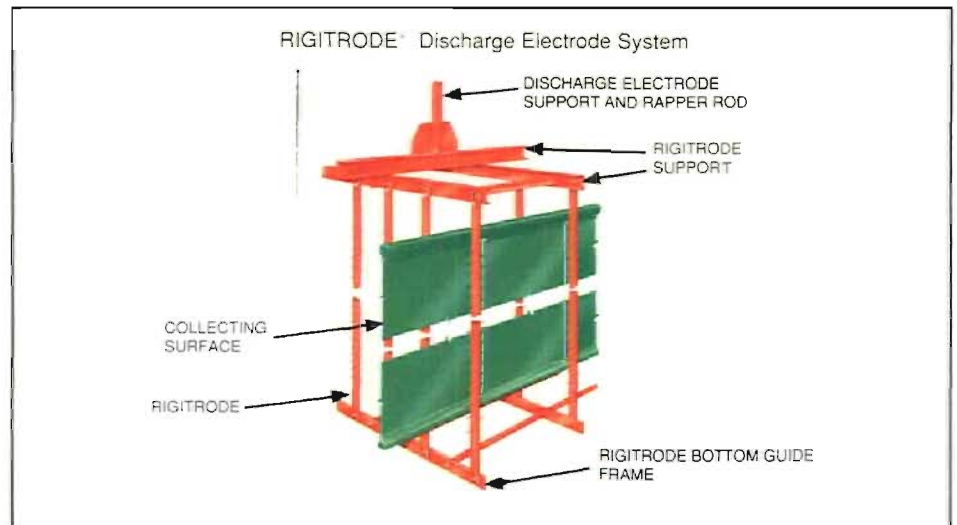
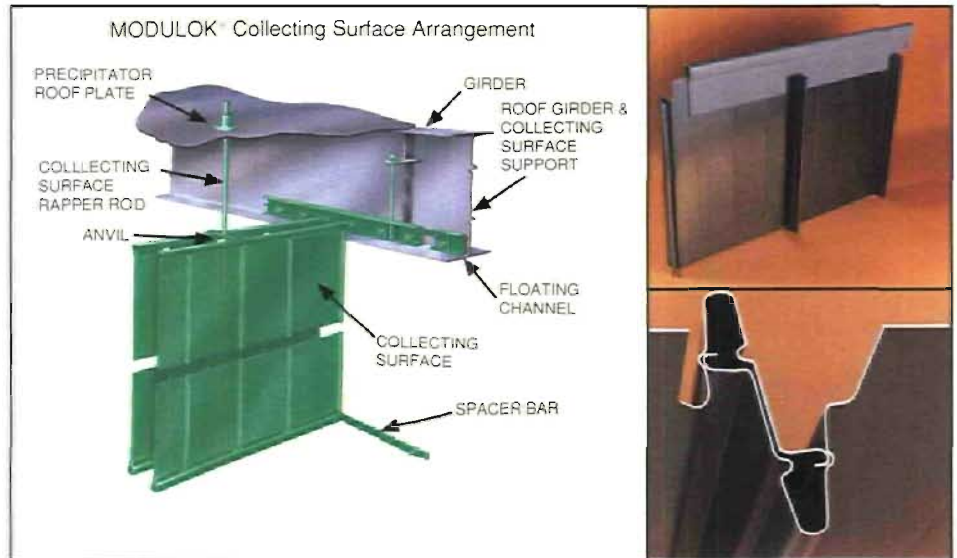
EEC offers the industry an array of sophisticated, yet easy to operate, state-of-the-art controls. This technology enables us to optimize all precipitator design parameters, and is the backbone of the RIGITRODE[®] System Precipitator. These features, in addition to full servicing know-how, ensure that our customer receives the very best equipment available.

- **Ancillaries**

In addition to electrostatic precipitators, we can supply a variety of peripheral systems as part of our overall system design capability. These include conditioning towers, ductwork, stacks, fans, screw conveyors, dust valves, bucket elevators, storage silos and supporting steel, all of which can be supplied on a turnkey basis.



ESI Rappers on precipitator roof



Precipitator Roll-Ins

Recovery Boiler ESP Roll-In at DeRidder, Louisiana



▲ ESP's in final location.



◀ ESP's in position prior to roll-in.

► ESP's erected in remote location.



◀ Workman inspecting roller assembly during roll-in procedure.

► Hydraulic jack used to lift ESP for roller insertion.



◀ Roller being positioned in guide channel.



Construction Innovation and Creativity (Saves time and lost production costs)

In recent years the technique of erecting precipitators adjacent to their final location and rolling them into position has become more and more common. This concept has been brought about primarily in response to a growing need for "in place" retrofits, accelerated erection schedules, and compressed down

time. Environmental Elements has been using this technique for a number of years and will offer it to our clients when appropriate.

The roll-in technique has been used on a range of equipment sizes from large 300 MW utility precipitators to small industrial units. Roll-ins are typically done using commercially available roller assemblies or rubber tired dollies, either on tracks or prepared grade. Determining factors for the type of roller selected are precipitator size, weight and grade conditions.

Except for final low voltage wiring and ductwork connections, rolled in precipitators can be completely erected away from the final location. Smaller units can be moved into position using a com-along, whereas larger units usually require a drum hoist.

When outage time is critical in terms of production and cost, the precipitator roll-in technique can be a very attractive solution.

Evaluation Factors

To assist the buyer in a competitive evaluation, the following points should be considered.

A. Discharge Electrode System

- Is the electrode cross sectional area large or small?
- Is uniform current density provided?
- What is the corona on-set voltage?
- Can electrode system accommodate thermal variations and high hopper ash levels without damage or permanent distortion?
- What is performance and operating experience?
- What discharge electrode configuration is being offered (weighted wire, wire frame, strung mast or rigid mast)?

B. Collecting Electrode System

- Are collecting plate modules joined together along their height for improved stability? If joined, is connection welded or mechanical?
- Are plates assembled in the shop or at the site?
- Are plates lifted into the ESP in bundles or individually?
- Is rapping energy delivered directly into the plates or into the member which supports the plates?
- What is plate gauge?
- What is performance and operating experience?

C. Rapping Systems

- What type of rapping mechanism is proposed (electrical, mechanical or pneumatic)?
- Are the rapping mechanisms external or in the gas stream?
- What is the degree of rapping sectionalization?
- Are controls microprocessor based?

D. Transformer-Rectifier (T-R) Controls

- Are T-R controls solid state and microprocessor based?
- What are features of the controls?
- Can controls interface plants DCS?

E. Fabrication/Erection

- Is equipment fabricated into the largest shippable sections?

F. Performance and Operating Parameters (Precipitator)

- What is the plate spacing and corresponding SCA?
- What is the design average field strength?
- What is the design aspect ratio?
- What are the design velocity and treatment time?
- What are the design temperature and pressure?
- What is the design pressure drop (identify scope)?
- What is the performance guarantee (specify design point or conditions)?
- What test method will be used?

G. High Voltage Systems

- What type of insulators are provided (alumina or porcelain)?
- How many T-R's per precipitator (by MA rating)?
- What is the precipitator connected load?
- What is the connected load of the precipitator and auxiliaries?

H. Material Specification (Including thickness and/or gauge).

- Casing (outside) including hoppers.
- Partitions
- Internal girders
- Roof
- Penthouse or insulator compartments.
- Inlet/outlet transitions
- Ductwork



Preassembled hopper waiting transport to erection site.



Erection of ESP casing side panels.



Erection of ESP casing and roof girders.



Modulok collecting plates being lifted off truck.



Plates being moved into position (plate realignment is not required for erection after removal from bundle).



End elevation of ESP with plenum.



Rigirode frame being positioned between collecting plates.

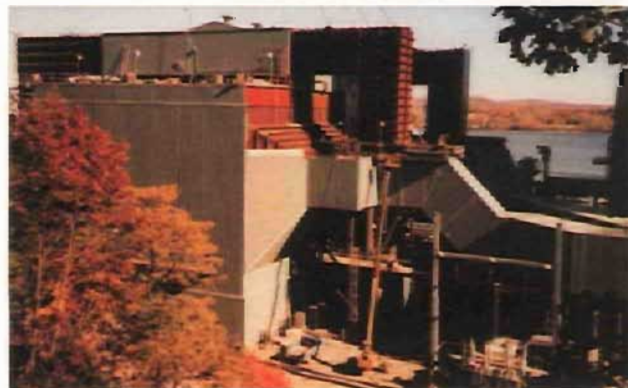
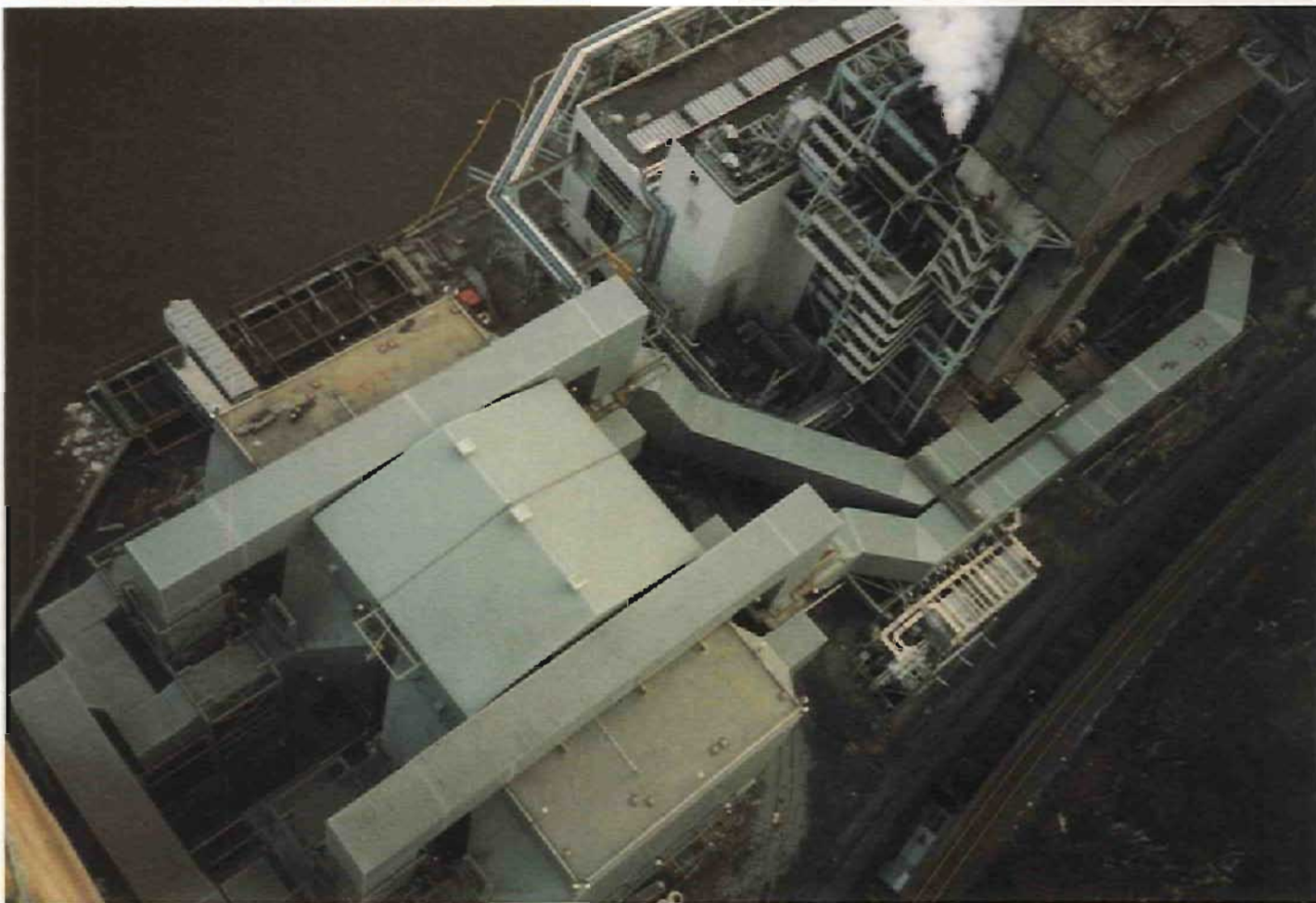


Rigirode bus section being lowered into the ESP casing.



Collecting plates being moved into position.

Utilities



Our experience in dealing with a wide range of fuel types has provided an extensive data base to determine accurately the most economical design for optimum performance under varying load conditions. The continuing accumulation of operating data has provided ample opportunity to verify design assumptions and ensure a high degree of reliability in precipitator sizing and performance guarantees.

Environmental Elements Corporation also is the original developer of the stacked precipitator configuration for large electric power generating plants. This unusual design utilizes the lower unit as the integral support structure for the upper precipitator. This results in more efficient use of materials and space along with significant savings in ductwork requirements.

Because of growing demand for higher dust removal efficiencies, lower operating costs and use of a wider range of fuels for power generation, precipitator applications in the utility industry are becoming more complex. These requirements have proposed new challenges to traditional precipitator designs.

Since 1945, when we first entered the electrostatic precipitator field, considerable knowledge and experience has been gained in the collection of fly ash from various fuels including lignite, eastern bituminous coal, western sub-bituminous coal, oil and coal mixed with petroleum coke, and mixtures of bark and coal.



Two Rigitrode precipitators on cyclone boilers — Beesley's Point, New Jersey.



Three precipitators on pulverized coal boilers — Dutch Gap, Virginia.



◀ Two precipitators (with erection photos) on 2-200 MW pulverized coal boilers — Tomkins Cove, New York.

▶ Six precipitators on 1300 MW pulverized coal boilers — double-decked design in Scary, West Virginia.

Pulp and Paper



One 2-chamber, wet bottom, low odor recovery boiler precipitator, with truncated outlet nozzles, designed for 730,400 ACFM — Crossett, Arkansas.



Typical heavy duty drag scraper conveyor system.



Two single chamber 440,000 ACFM dry bottom low odor recovery boiler precipitators — Deridder, Louisiana.

Recovery Boiler Precipitators

Environmental Elements Corporation is the leading supplier of particulate emission control systems, for the pulp and paper industry in the United States and Canada. The modern steel casing design, which we helped to pioneer, features no internal struts, vanes or rapping devices that can cause dust buildups. It is not uncommon for us to offer precipitators with two chambers, having a common shop-insulated partition wall, which permits either one or two chamber operation. This design concept reduces overall space and capital cost. We initiated the development of the top or bottom inlet and outlet plenum configurations which minimize the potential for salt cake buildup in those areas. We also developed the use of stacks mounted on top of the outlet plenum to eliminate horizontal duct runs and provide a more compact design.

EEC has exclusively offered its RIGITRODE® System Precipitator to the industry since 1982. The RIGITRODE® System including the heavy gauge MODULOK® collecting electrode, electric impulse rappers, heavy duty transformer-rectifiers, state of the art microprocessor controls, and a heavy duty dry bottom drag system conveyor, adds up to one of the most reliable and preferred recovery boiler precipitator systems in the industry today.

Typically, our drag scraper conveying system runs perpendicular to gas flow with positive fixed baffles between each field. Its time proven construction includes a heavy duty, rivetless type, slow moving chain with large drag bars attached. All wear surfaces are hardened steel, and the internal Graphalloy bearings require no lubrication. Since our head and tail-shafts are solid, we do not require circular welding such as that needed on the pipe and stub-shaft design use by some competitors. This welding is critical to the alignment of the conveyor and can be the source of frequent assembly failures. The system is designed to handle both

coarse and heavy salt cake carry-over at high removal rates while operating at very low speeds to minimize wear.

Combination Boilers and Lime Kilns

Environmental Elements is also an industry leader in the supply of precipitators for power boilers firing wood, bark, coal or hogged fuel, or any combination of those fuels, and lime kilns. Precipitators can be of single or double chamber design with either trough or pyramidal collection hoppers.

EEC custom engineers the inlet and outlet duct transition configurations so as to match the end user's specific requirements, and designs the support steel arrangement to minimize the amount of civil work required.

At EEC, we believe the term RIGITRODE® System Precipitator is synonymous with ease of maintenance, servicing and reliability of design. This integral concept has evolved from many years of experience and servicing the industry.



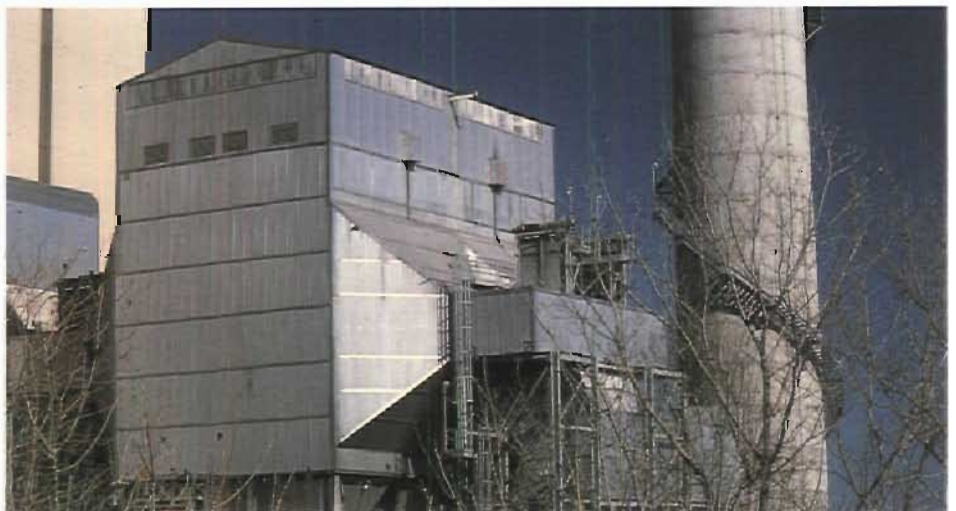
A 650 TPD Sludge Lime Kiln Precipitator followed by a wet scrubber — Brunswick, Georgia.



Two single chamber dry bottom precipitators on a 470,000 ACFM low odor recovery boiler — Brunswick, Georgia.

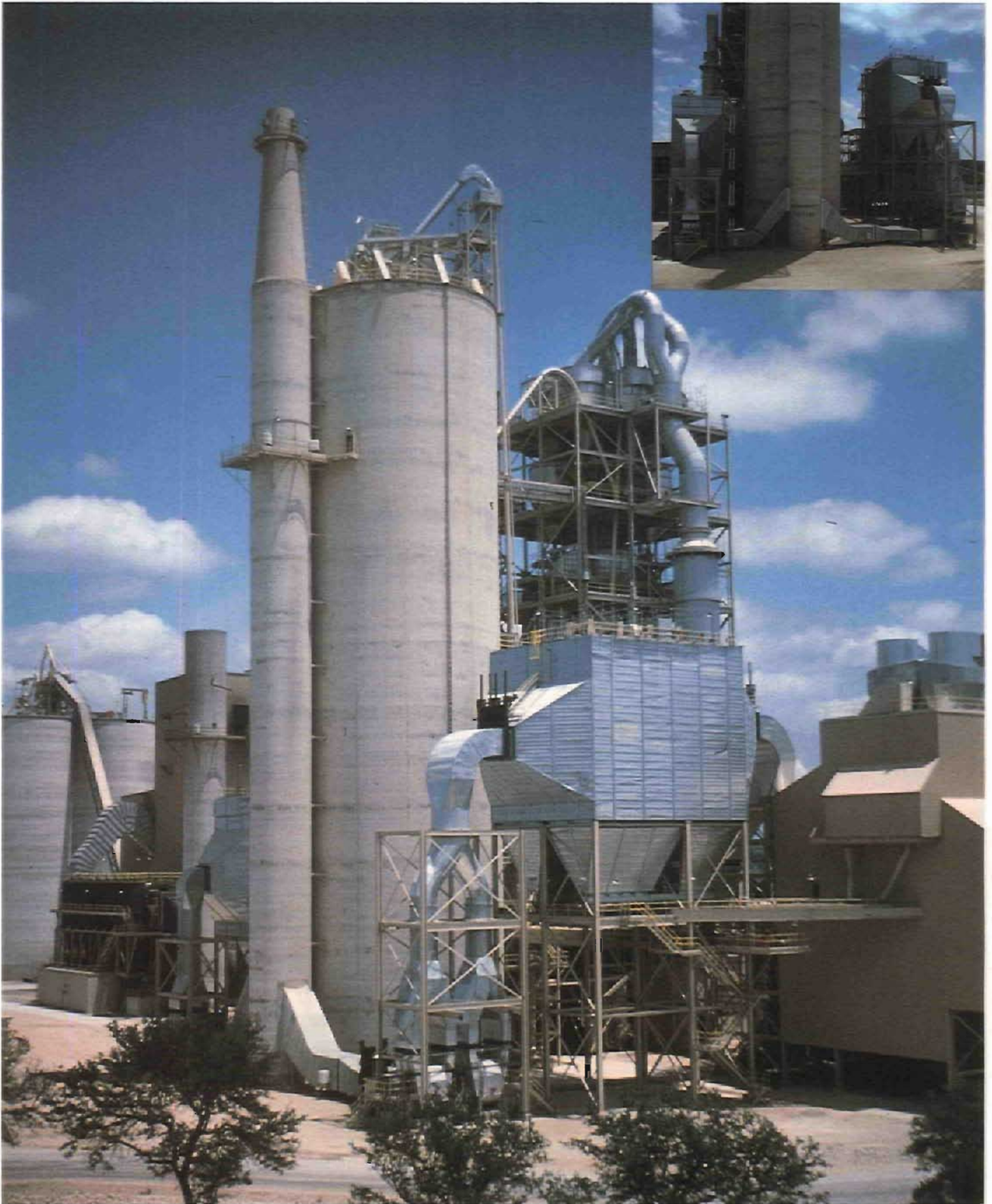


Two 370,000 ACFM wet bottom, precipitators — Mansfield, Louisiana.



One 440,000 ACFM 2-chamber power boiler precipitator — Hopewell, Virginia.

Rock Products



Design innovation, in combination with detailed knowledge of the user's process and materials, has made us one of the rock products industry's most highly respected suppliers since 1945.

Our early experience in the industry provided electrostatic precipitators for gas cleaning or product recovery from wet and dry process rotary kilns, clinker coolers, dryers, and ball mills for raw and finish grinding.

As the cement industry altered its processes to meet the economic pressures of rising fuel and labor costs our experience provided an excellent base for the application of reliable, efficient electrostatic precipitators and peripheral systems for traveling grate preheater kilns, suspension preheater kilns, roller mills utilizing package furnace air and roller mill/suspension preheater combinations.

Other EEC electrostatic precipitator rock products applications include material from kilns processing alumina, dolomitic lime, sludge lime for the paper industry, metallurgical lime, rotary and vertical kilns processing kaolin clay and rotary kilns processing of sodium tetra borate.

Low operating and maintenance costs of our precipitators are a result of our experience in this industry. A minimal amount of moving and wearing parts results in low maintenance. These considerations, along with the ability of the equipment to withstand high temperatures, reduce the cost of protective devices and simplify maintenance.



Two precipitators on two roller mills (left) and one precipitator on traveling grate preheater kiln (right) — Roanoke, Virginia.



Two precipitators on two process rotary kilns — Festus, Missouri.



Alkali bypass preheater precipitator — Davenport, California.



► A precipitator on a four stage suspension preheater kiln — Davenport, California.

◄ Four stage suspension preheater kiln precipitator (right) and alkali bypass precipitator (left), New Braunfels, Texas.

Alternate Fuels and Other Processes

Environmental Elements offers equipment that can meet the air cleaning requirements for the growing range of alternative fuel combustion, synfuel productions and incineration.

Alternate Fuels and Incineration

Use of municipal solid waste incinerators and combination fuel (mixes of wood, coal, oil and gas) boilers to generate steam and power has increased significantly in recent years. An electrostatic precipitator is often the preferred equipment for fly ash removal from the flue gases of these systems. When an acid gas or flue gas desulfurization clean-up system is required, the precipitator in combination with our proprietary Dry Scrubbing Process can comply with Federal New Source Performance Standards and most other locally mandated removal levels for HCL and SO₂ as well as particulate.

Other Processes

Coal gasification, oil shale retorting, tar sands extraction, and wood or grain gasification require gas cleaning equipment, such as our dry dust plate precipitator, which can respond to a wide variety of process variations.

Fuel produced through coal or other gasification processes must be cleaned to an unusually high degree prior to use. Extremely fine particles and condensed aerosol contaminants are removed by an irrigated wet-type, flat plate or tubular precipitator. Where free flowing tars and oils are produced, either our flat plate or tubular type precipitator can be used for collection.

In the oil-shale retorting process, our flat plate precipitator is used to collect condensed hydrocarbon vapors as a liquid for further processing.

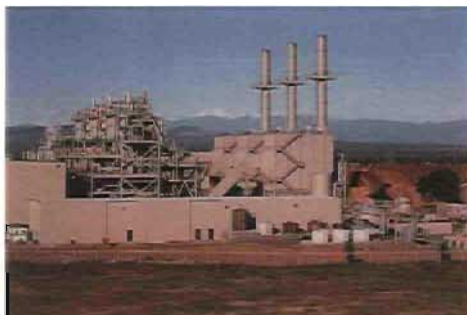
Environmental Elements has the experience and design capability to meet your air and process gas cleaning needs. Our turnkey capabilities allow us to supply the air cleaning system best suited to a particular situation.

► Two 90,000 lb/hr steam hogged fuel fired boilers, each having one single chamber precipitator in Oroville, California.



◄ Two 375 TPD municipal solid waste incinerators, each having one single chamber precipitator in Tulsa, Oklahoma.

► Two 300 TPD continuous feed refuse furnaces, each having a single chamber precipitator (left) two single chamber precipitators (competitors) completely rebuilt and expanded by EEC on two 300 TPD furnaces (center), and one single chamber unit on a 300 TPD furnace in Baltimore, Maryland.



◄ Three 190,000 lb/hr steam combination biomass and wood fired boilers each with a single chamber precipitator in Anderson, California.

Steel

The company's experience in the steel industry covers the entire basic steel making process.

Our precipitators are used in sinter plants to capture fine particulate generated in the mixing and agglomerating of iron ore and other additives for blast furnace feed stock. Tars and other particulates in coke oven gases are removed by our tubular or concentric ring precipitators before the gas is recovered and collected for storage as an energy source for coke oven operation. The stored gas is cleaned by a secondary fuel gas precipitator prior to combustion in the ovens. This process removes a majority of the remaining tars and particulates to ensure proper gas flow through the oven combustion nozzles.

EEC precipitators are operating in open hearth and basic oxygen shops to remove particulates before exhaust gases are discharged into the atmosphere. We were among the first to install a precipitator in the United States on this application. We can supply any part of a precipitator system for the BOF process, or we can do the job on a turnkey basis.

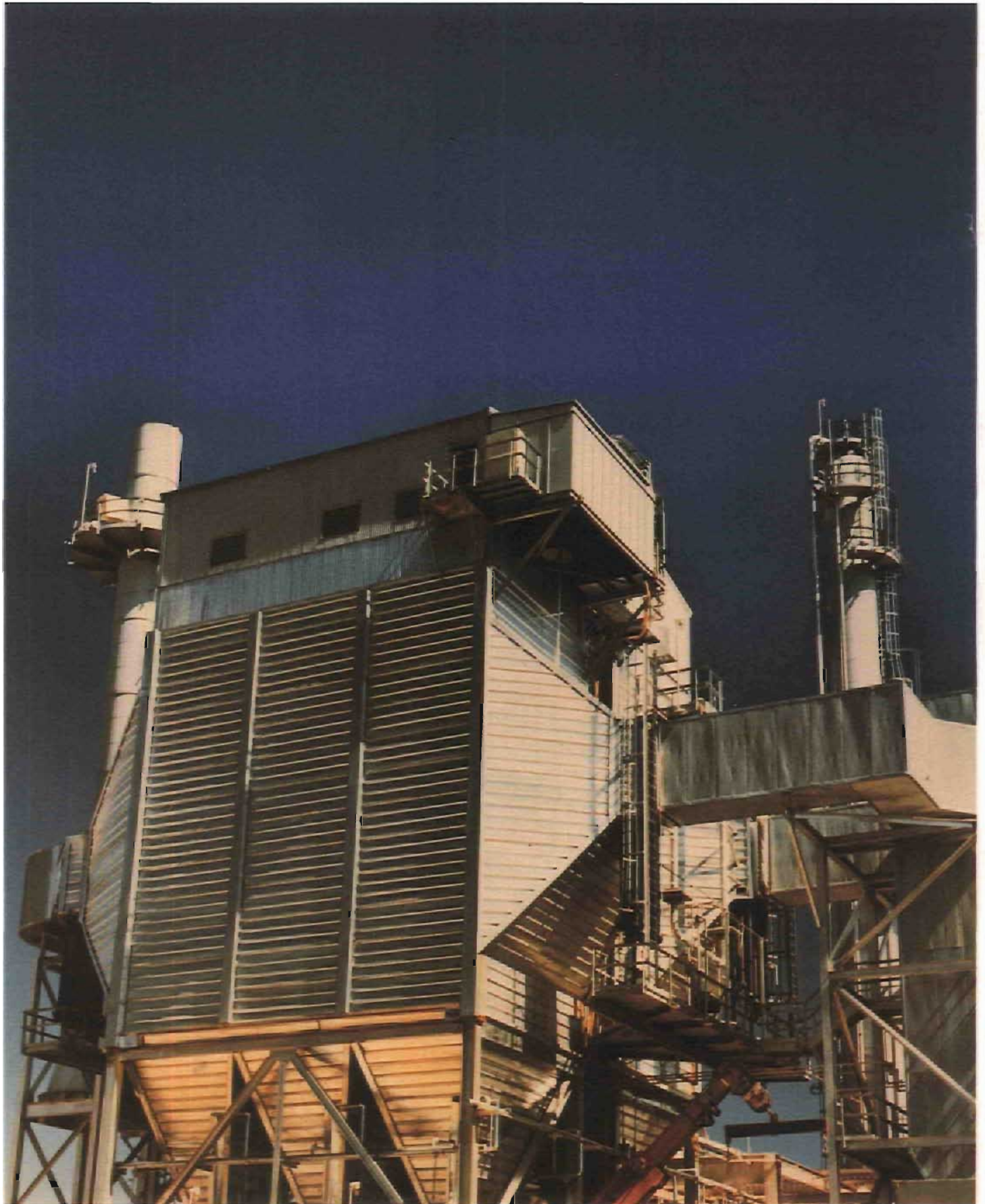


Three 130 tube gas detarrer precipitators — East Chicago, Illinois.



One 89 tube fuel gass detarrer — East Chicago, Illinois.

Chemicals and Non-Ferrous Metals



Application of electrostatic precipitators to chemical processing and non-ferrous metal refining operations requires considerable process knowledge.

Our experience and equipment have helped solve a variety of air pollution, material recovery and gas cleaning problems in both of these industries, and we are constantly developing improved designs for these demanding applications. For example, we developed the enclosed tube balanced pressure acid mist precipitator. This design effectively protects against tube collapse common with exposed tube section types.

RIGITRODE[®] System Precipitators have been used successfully in petroleum refineries to remove catalyst and coke fines from exhaust gases.

Cleaning process gases in the refining of non-ferrous metals and related minerals is another important area of activity. We have designed and manufactured equipment to handle gases generated from processing operations for copper, zinc, chromium, sodium carbonate, phosphorus pentoxide and calcium fluoride.

Our dry precipitators are being used to remove solid particulates from gases which contain sulfur oxides. In some applications, these gases are then passed through our tubular lead units to remove corrosive acids harmful to the equipment and catalysts used in the manufacture of sulfuric acid. The collected dilute acids are employed in the drying of the gas feed stock.

Our tubular lead acid mist units perform the same function when the sulfur oxide feed stocks are generated by the incineration of spent acids and acid sludges resulting from the treatment of chemicals, petrochemicals and petroleum products.

In specialty areas, we have developed electrostatic precipitation techniques for the recovery of valuable materials from non-ferrous process gases. Material recovery from these gas streams can include elements such as antimony, arsenic, bismuth, iron, lead, selenium, sulfur, tin, tellurium, gold, silver, and platinum.



One 72 tube acid mist precipitator — West Lake, Louisiana.



Four 211,300 ACFM fluid catalytic precipitators — Texas City, Texas.



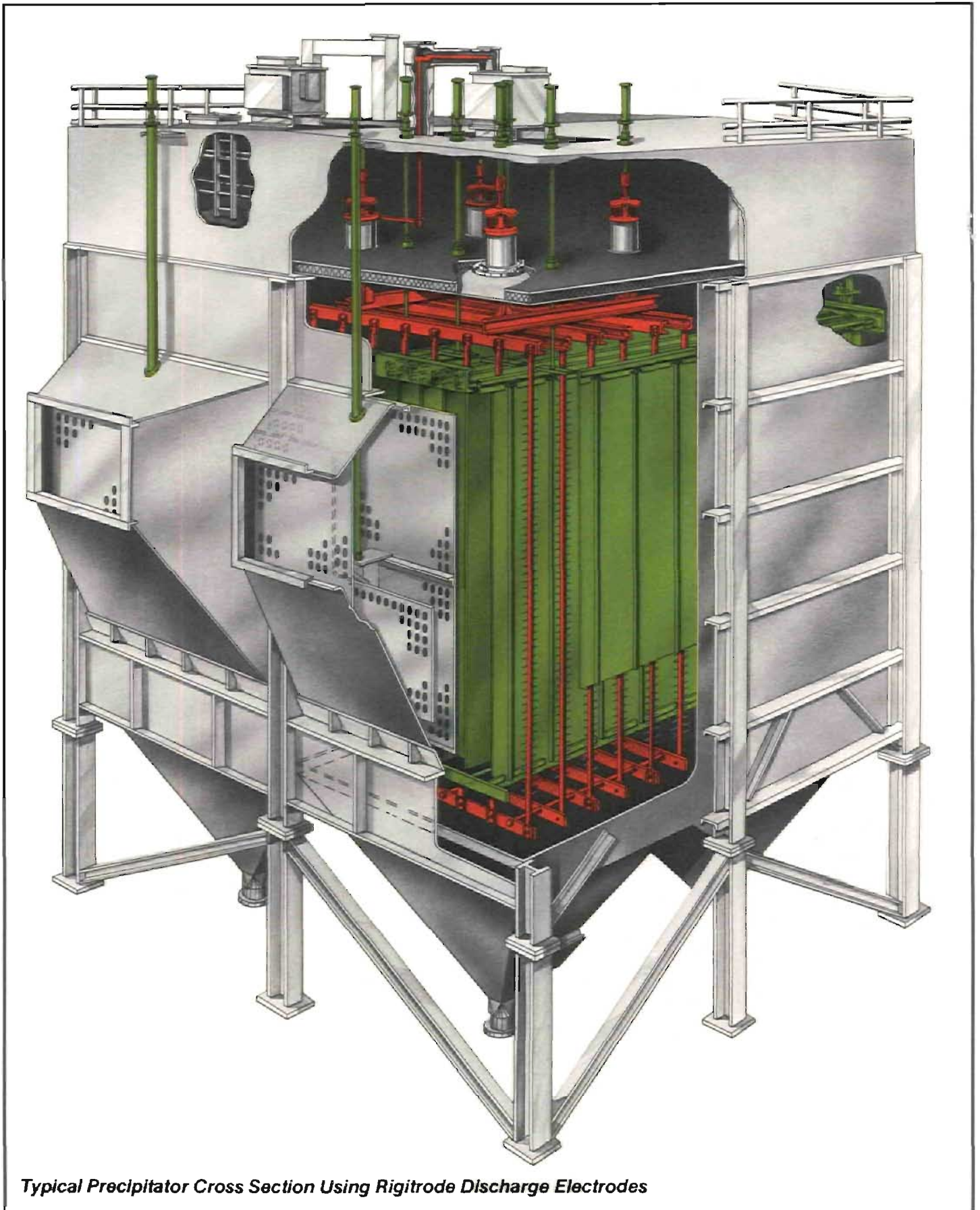
One 36 tube FRP tubular fibre glass acid mist precipitator — Barrancabermeja, Colombia.

► Three 90,046 ACFM fluid catalytic cracker precipitators — East Chicago, Illinois.

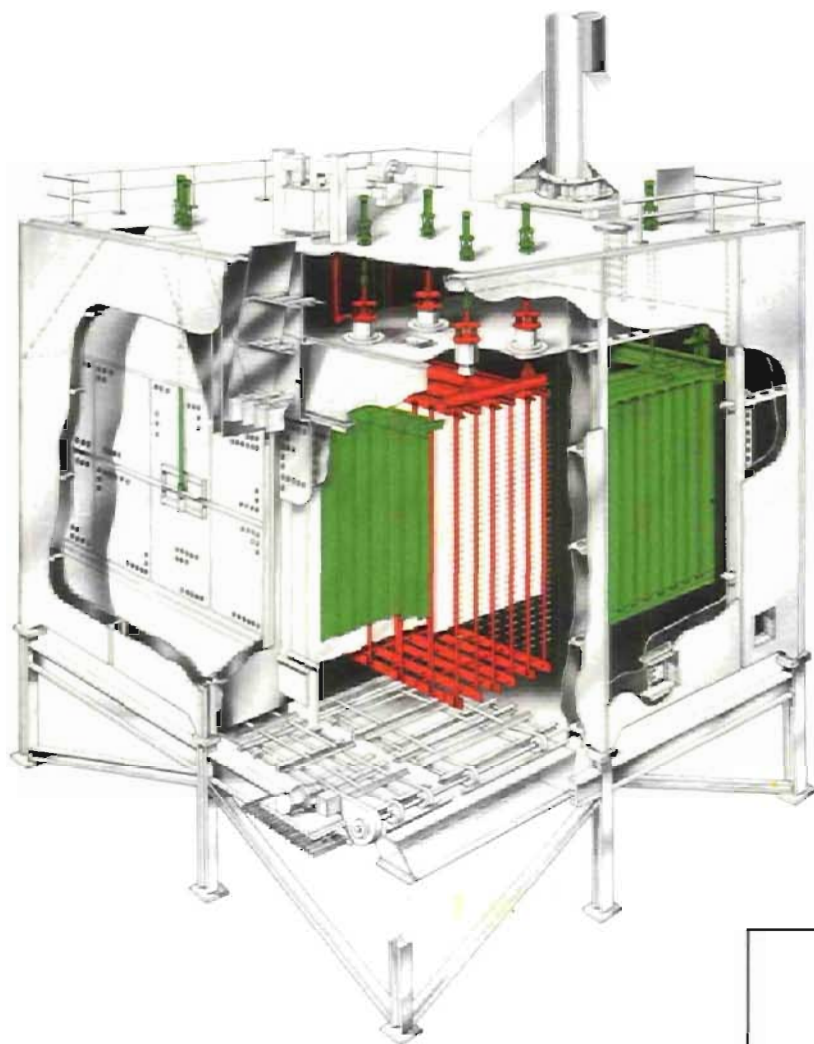
◄ Two 100,000 ACFM fluid catalytic cracker precipitators — Sunray, Texas.



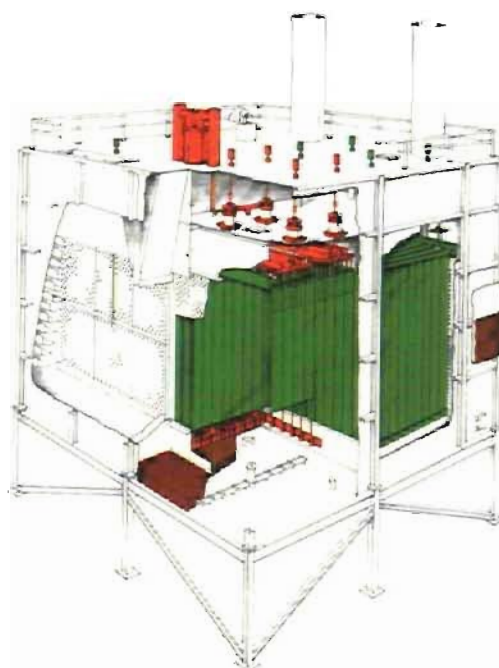
Typical Rigitrode® System Precipitator



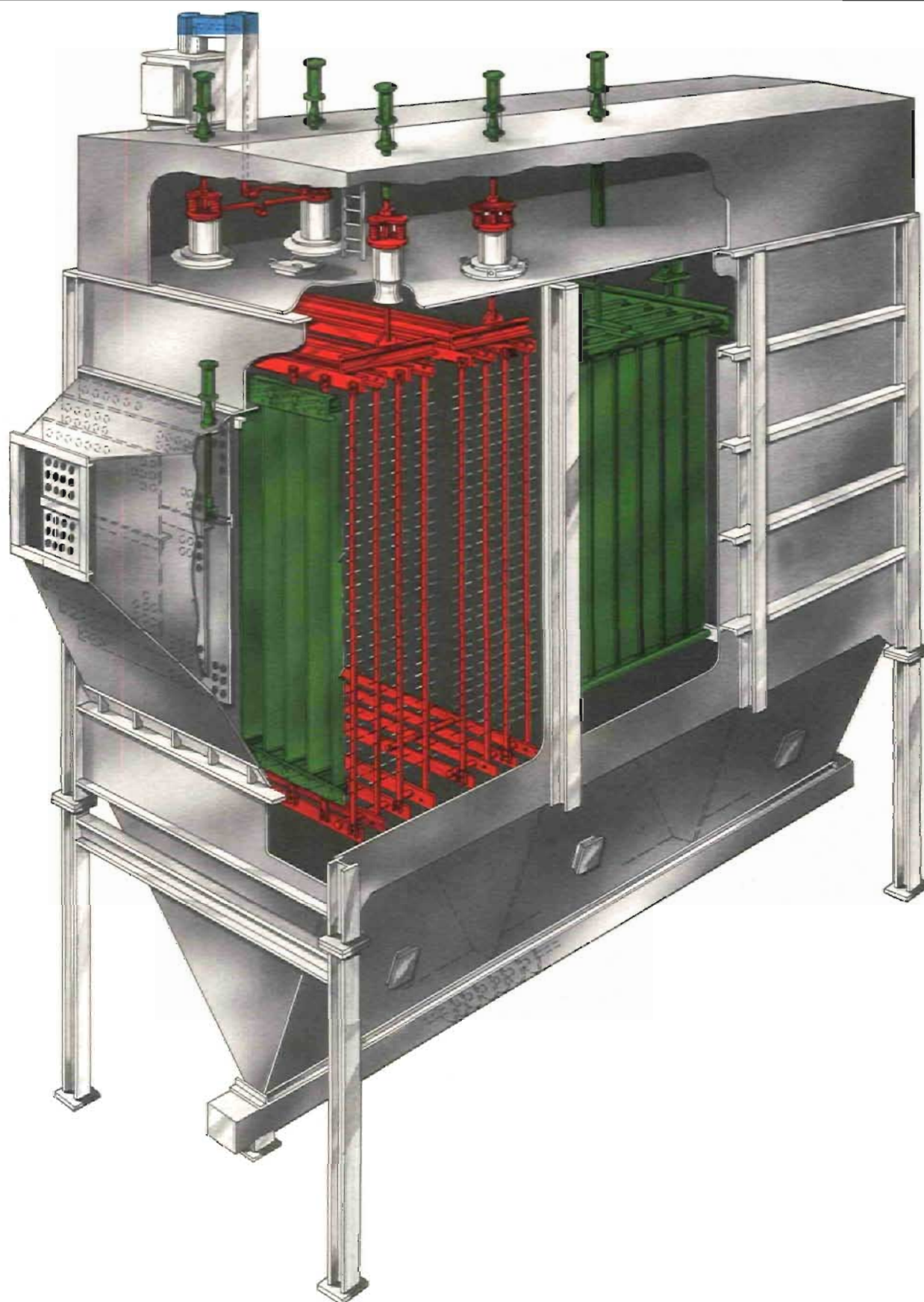
Typical Precipitator Configurations for Industrial Applications



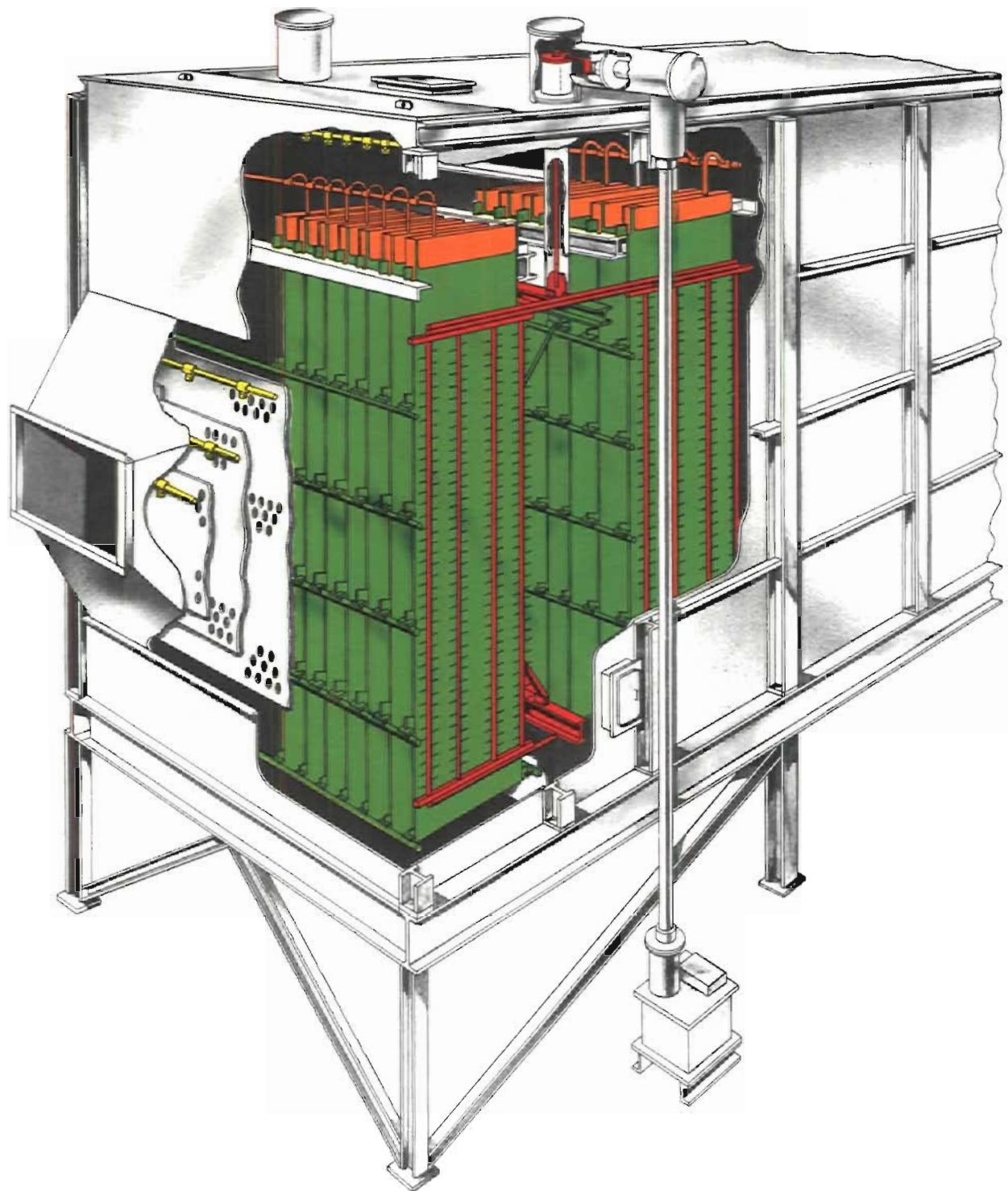
Salt cake dry bottom precipitator, shown with rigitrode discharge electrodes.



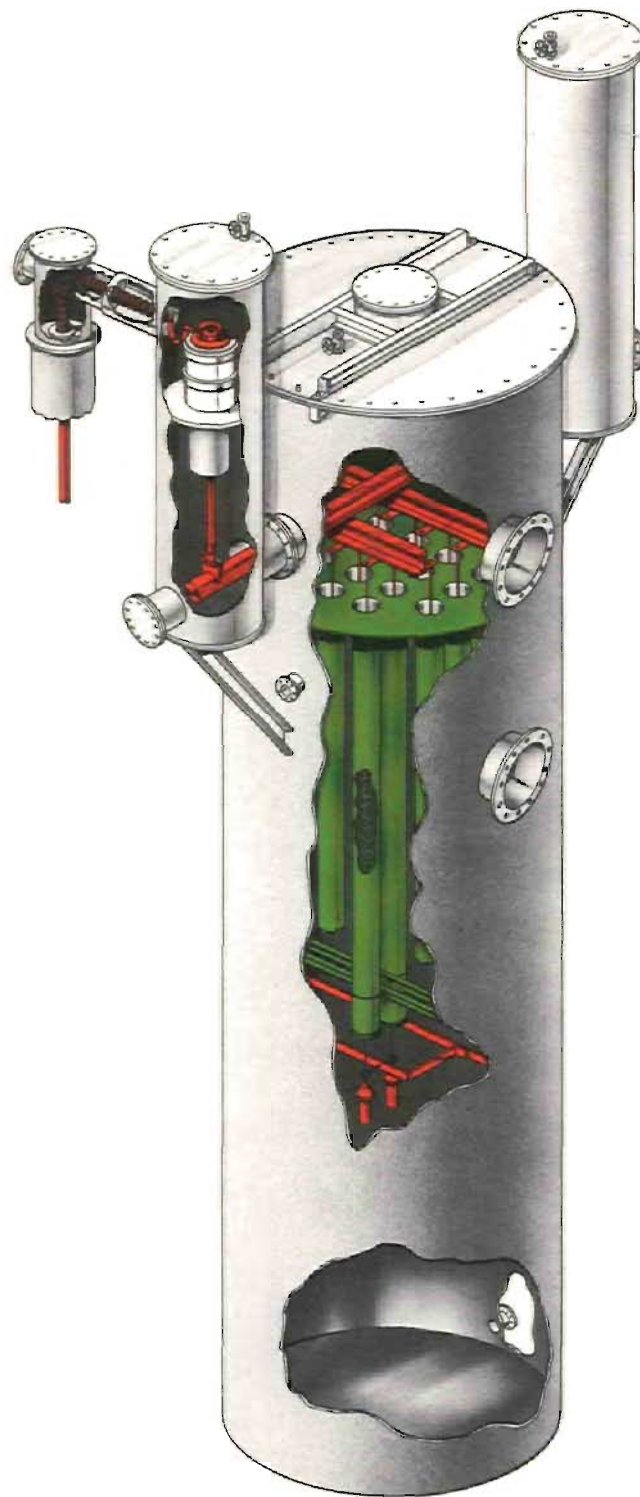
Salt cake wet bottom precipitator, shown with optional weighted wire discharge electrodes.



General Industrial Precipitator shown with Trough Hopper



Irrigated and Non-Irrigated (not shown) Flat Plate Precipitator



Typical Tube Type Precipitator

Summary

- Over 45 years of experience
- Proven equipment designs for all systems
- Proven experience in virtually all industries
- Proven track record of successful installations
- Design services
- Installation services
- Field service support
- Aftermarket services
- Accessory equipment

Environmental Elements Corporation, a leading air pollution control systems supplier for more than forty-five years, designs and supplies electrostatic precipitators, fabric filter systems, flue gas desulfurization equipment, acid gas cleaning systems, gas conditioning systems and continuous emissions monitoring systems. EEC's systems enable a broad range of customers in the power generation, pulp and paper, waste to energy, rock products, metals and petrochemical industries to operate their facilities in compliance with particulate and gaseous emissions standards. Environmental Elements Corporation's systems and services include:

Electrostatic Precipitators

- Dry and wet designs
- Top rapped, rigid electrode
- Bottom rapped, rigid frame
- Typical applications:
Utility • Power • Pulp and paper • Cement
Waste incineration • Petrochemicals • Metals

Flue Gas Conditioning Systems

- Sulfur based systems
- Test programs
- Typical applications:
Utility • Power

Fabric Filters

- Reverse air and pulse jet designs
- Custom and pre-fabricated
- Typical applications:
Utility • Power • Mining • Cement
Waste incineration • Metals

Scrubber Systems

- Circulating fluid bed dry reactors for flue gas desulfurization
- Spray dryer reactors for flue gas desulfurization and acid gas cleanup
- Wet scrubbers for special gaseous or particulate applications
- Typical applications:
Utility • Power • Waste incineration • Petrochemicals

Continuous Emissions Monitoring Systems

- Single and multi-gas analyzers
- Data acquisition systems
- Preassembled equipment buildings
- Typical applications:
Utility • Power • Pulp and paper • Cement and lime
Waste incineration • Petrochemicals

Aftermarket Services

- Materials and services for the repair, upgrade, rebuild and replacement of equipment
- Parts and accessories for the operation and maintenance of all air pollution control systems
- Technical services for system performance optimization

Original Equipment & Systems:

Environmental Elements Corporation

P.O. Box 1318
Baltimore, Maryland 21203
(410) 368-7000
Fax: (410) 368-6896

Aftermarket Services:

Environmental Equipment Service Corporation

1302 Port Road
Jeffersonville, Indiana 47130
(812) 284-0800 **Parts:** 1-800-PART-EEC (1-800-727-8332)
Fax: (812) 284-1002