GW - 10

GENERAL CORRESPONDENCE

YEAR(S):

1988

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

December 8, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Charles W. Hagen, Vice President
EL PASO NATURAL GAS COMPANY
South Region
P. O. Box 1492
El Paso, Texas 79978

RE: Discharge Plan GW-10
Jal #3 Gas Plant
Lea County, New Mexico

Dear Mr. Hagen:

The Oil Conservation Division (OCD) has received and is in the process of reviewing the above referenced discharge plan renewal application. The application, dated October, 1988, was received by the OCD on September 30, 1988. The following comments and requests for additional information are based on our review of data submitted in the application, the data contained in the original discharge plan as approved on November 21, 1983, and OCD site visits of March 24, 1988, and November 29, 1988.

Section 3. Effluent Sources

1. Section 3.2.6 states "Table 2 (p20) of the 1983 Discharge Plan contains the waste water analyses for each stream." Table 2 (p21) of the OCD 1983 Discharge Plan copy contains the general characteristics of each stream not a detailed analyses. If a detailed analyses of each stream exists, please supply a copy for inclusion in the plan.

2. Section 3.3. Is there an SPCC plan in effect at this facility? If so, please provide a copy.

3) Table 3-1 lists the chemicals used at the plant. The following is a list of the chemicals for which there is no MSD sheet on file either in the 1983 plan or the renewal application.

1. De Ox 21
2. Hymol-8z
3. Marvel Seal Oil
4. Molylube #828-4
5. Shell Tellus 32
6. Shell Turbo 32

Section 4. Effluent Disposal

1. Section 4.1 describes the classifier. This is the below grade tank described on page 33 of the 1983 plan. Is this tank equipped with leak detection? If not, what method is used to inspect it for possible leaks and at what frequency? This is the tank that showed spillage or pump leakage at the surface during the March site visit. Have the spills and leaks been corrected? How are you planning to prevent any spills and leaks in the future?

2. Section 4.2 discusses disposal of liquids only. Where do you dispose of all solid wastes (ie filter media, sludges, trash, filter elements, etc)?

Section 6. Monitoring and Reporting

1. This section discusses the drain line testing. The copies of the diagrams of the lines tested are extremely hard to read however a comparison of the test result diagrams in Appendix B with the drain lines schematic (DWG NO JJ3-1-P2) in the 1983 plan indicated there may be two lines that were not tested.

    1. PDL 4"-L5 from the LO chiller (N 15+25: W6+5) to the propane condensing fin fan (N 14+00: W8+00).

    2. 4" LP ODL-4"-L4 from ODL-6"-L3 (N 17+00: W5+25) to F/76 (N 19+00: W4+25)

2. It is stated that annual sampling and analysis of the classifier effluent will be conducted. Has this been done in the past? Please supply the OCD with copies of the results. Also, supply this office with any future results for inclusion in the file.

3. An analysis of the cooling tower basin and classifier sludge shall be supplied to the OCD with a request for approval of the proposed method of disposal.

Miscellaneous

1. Are there any below grade or underground tanks other than the classifier?

2. Are all above grade tanks bermed to contain one third more than the tank volumes?

3. Are there any tile drainage conduits still in use? How old are they? How are they tested? What areas do they drain and to where?

4. Are all process and storage areas bermed and/or curbed? Are the bermed and/or curbed areas also paved to prevent spilled liquid infiltration?

5. Do any of the process or storage areas at the facility drain to a location other than the classifier?

If you have any questions, please contact me at (505) 827-5884.

Sincerely,

Roger C. Anderson

Roger C. Anderson
Environmental Engineer

RCA/sl

cc: OCD - Hobbs Office
Donald R. Payne - EPNG
H. Van - EPNG

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
Suite D, 3530 Pan American Highway, NE
Albuquerque, New Mexico 87107

November 15, 1988

Mr. William J. Lemay, Director
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
State Land Office Building
310 Old Santa Fe Trail, Room 206
Santa Fe, New Mexico 87503

Dear Mr. Lemay:

This responds to your public notice received October 27, 1988 in which several proposed groundwater discharge plans were described. We have reviewed the plans and have not identified any resource issues of concern to our agency in the following:

GW-8, El Paso Natural Gas Company, Monument Gas Plant, Lea County, NM.
GW-9, Phillips 66 Natural Gas Company, Eunice EP Gas Plant, Lea County, NM.
GW-10, El Paso Natural Gas Company, Jal No. 3 Gas Plant, Lea County, NM.
GW-46, El Paso Natural Gas Company, Eunice Main Line Engine Room, Lea County, NM.
TNT Construction Inc., Rio Arriba County, NM.

Discharge plan GW-49 is for El Paso Natural Gas Company's Blanco Plant located approximately 1 1/2 miles northeast of Bloomfield, New Mexico. El Paso Natural Gas Company proposes to close its unlined process ponds and discharge approximately 119,900 gallons per day of process and cooling tower wastewater to the Bloomfield Municipal Wastewater Treatment Plant.

The Bloomfield Municipal Wastewater Treatment Plant discharges its treated effluent to the San Juan River. The San Juan River from the Hammond Diversion upstream of Bloomfield to Farmington may provide habitat for the **Federally endangered** Colorado squawfish. Surveys conducted downstream of **Farmington have documented** the presence of both adult and juvenile squawfish **in the San Juan River.** The section of the San Juan River from Bloomfield to **Farmington has a high** likelihood of the presence of squawfish as well as **other fish and aquatic** organisms of importance to the rivers ecological **balance.**

The Bloomfield Wastewater Treatment Plant has received NPDES re-authorization (permit number NM0020770), to discharge to the San Juan River in Segment No. 2-401. The Fish and Wildlife Service would object to the addition of any new pollutants into the treatment works from an indirect discharger, such as the El Paso Natural Gas Company's Blanco Plant, that would cause an increase in biochemical oxygen demand, an increase in total dissolved solids, or a pass-through of toxic or hazardous materials. The effluent limitations of NPDES permit number NM 0020770 must not be exceeded as a result of the addition of the process and cooling tower wastewater.

These comments represent the views of the Fish and Wildlife Service. If you have any questions, please contact Tom O'Brien at (505) 883-7877 or FTS 474-7877.

Sincerely yours,

John C. Peterson
Field Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Regional Administrator, Environmental Protection Agency, Dallas, Texas
Director, Environmental Improvement Division, New Mexico Health and Environmental Department, Santa Fe, New Mexico
Regional Director, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Albuquerque, New Mexico

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, George W. Moore

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period

of

One weeks.
Beginning with the issue dated

October 28, 1988
and ending with the issue dated

October 28, 1988

Publisher.

Sworn and subscribed to before me this 28 day of October, 1988

Notary Public.

My Commission expires

November 14, 1988
(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE
October 28, 1988
NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan has been submitted for renewal to the Director of the Oil Conservation Division, State Land Office Building, 310 Old Santa Fe Trail, Room 206, Santa Fe, New Mexico 87503, Telephone (505) 827-5800:

(GW-8) El Paso Natural Gas Company, Donald N. Bigbie, Vice President, North Region, P. O. Box 1492, El Paso, Texas, 79978, has submitted an application for renewal of its previously approved discharge plan for its Monument Gas Plant located approximately 3.5 miles southwest of the town of Monument in the NW/4 of Section 1, Township 20 South, Range 36 East (NMPM), Lea County, New Mexico. Approximately 9600 gallons per day of process wastewater with a total dissolved solids concentration of approximately 3500 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth ranging from 35 to 60 feet with total dissolved solids concentrations from 500 to 3000 mg/l.

(GW-9) Phillips 66 Natural Gas Company, Michael D. Ford, Environmental Analyst, 4001 Penbrook, Odessa, Texas, 79762 has submitted an application for renewal of the previously approved discharge plan for its Eunice EP Gas Plant located approximately 8 miles northwest of the city of Eunice in the NW/4 of Section 5, Township 21 South, Range 36 East (NMPM), Lea County, New Mexico. The previous discharge plan was approved for El Paso Natural Gas Company and was transferred to Phillips 66 Natural Gas Company at the time of ownership transfer. The Mainline Engine Room portion of the facility will remain the responsibility of El Paso Natural Gas Company and the portion of the original discharge plan pertaining to the Manline Engine Room will be renewed under a new discharge plan designation (GW-46). Approximately 44,100 gallons per day of process wastewater with a total dissolved solids concentration of 1300 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth ranging from 80 to 150 feet with total dissolved solids concentrations from 1000 to 1700 mg/l.

(GW-10) El Paso Natural Gas Company, Charles W. Hagen, Vice President, South Region, P. O. Box 1492, El Paso, Texas, 79978, has submitted an application for renewal of its previously approved discharge plan for its Jal No. 3 Gas Plant located approximately 12 miles north of the city of Jal in the NE/4 NW/4, NW/4 NW/4 of Section 33, Township 24 South, Range 37 East (NMPM), Lea County, New Mexico. Approximately 28,600 gallons per day of process wastewater with a total dissolved solids concentration of approximately 5410 mg/l is disposed of in an OCD approved disposal well located on the plant property. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth of approximately 90 feet with a total dissolved solids concentration of approximately 900 mg/l.

(GW-46) El Paso Natural Gas Company, Charles W. Hagen, Vice President, South Region, P. O. Box 1492, El Paso, Texas, 79978, has submitted an application to renew its previously approved disharge plan for its Eunice Mainline Engine Room located approximately 8 miles Northwest of the City of Eunice in the NW/4 of Section 5, Township 21 South, Range 36 East (NMPM), Lea County, New Mexico. The previous discharge plan was designated GW-9 and is now the responsibility of and is being renewed by Phillips 66 Natural Gas Company. The Mainline Engine Room remains the responsibility of El Paso Natural Gas Company and the portions of the previous discharge plan pertaining to the Mainline Engine Room are being renewed under Discharge Plan GW-46. Approximately 17,000 gallons per day of cooling tower wastewater with a total dissolved solids concentrations of approximately 1300 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharges at the surface is at a depth ranging from 80 to 150 feet with total dissolved solids concentrations from 1000 to 1700 mg/l.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 21st day of October. To be published on or before November 4, 1988.

STATE OF
NEW MEXICO
OIL CONSERVATION
DIVISION
WILLIAM J. LEMAY,

process wastewater with a total dissolved solids concentration of approximately 5410 mg/l is disposed of in an OCD approved disposal located on the plant property. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth of approximately 90 feet with a total dissolved solids concentration of approximately 900 mg/l.

(GW-46) El Paso Natural Gas Company, Charles W. Hagen, Vice President, South Region, P.O. Box 1492, El Paso, Texas, 79978, has submitted an application to renew its previously approved discharge plan for its Eunice Mainline Engine Room located approximately 8 miles Northwest of the City of Eunice in the NW/4 of Section 5, Township 21 South, Range 36 East (NMPM), Lea County, New Mexico. The previous discharge plan was designated GW-9 and is now the responsibility of and is being renewed by Phillips 66 Natural Gas Company. The Mainline Engine Room remains the responsbility of El Paso Natural Gas Company and the portions of the previous discharge plan pertaining to the Mainline Engine Room are being renewed under Discharge Plan GW-46. Approximately 17,000 gallons per day of cooling tower wastewater with a total dissolved solids concentrations of approximately 1300 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharges at the surface is at a depth ranging from 80 to 150 feet with total dissolved solids concentrations from 1000 to 1700 mg/l.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director the Oil Conservation Division will allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 21st day of October. To be published on or before November 4, 1988.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
s/WILLIAM J. LEMAY, Director
Journal, October 30, 1988

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND
NATURAL RESOURCES DEPT
OIL CONSERVATION DIV

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan has been submitted for renewal to the Director of the Oil Conservation Division, State Land Office Building, 310 Old Santa Fe Trail, Room 206, Santa Fe, New Mexico 87503, Telephone (505) 827-5800:

(GW-8) El Paso Natural Gas Company, Donald N. Bigbie, Vice President, North Region, P.O. Box 1492, El Paso, Texas, 79978, has submitted an application for renewal of its previously approved discharge plan for its Monument Gas Plant located approximately 3.5 miles southwest of the town of Monument in the NW/4 of Section 1, Township 20 South, Range 36 East (NMPM), Lea County, New Mexico. Approximately 9600 gallons per day of process wastewater with a total dissolved solids concentration of approximately 3500 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth ranging from 35 to 60 feet with total dissolved solids concentrations from 500 to 3000 mg/l.

(GW-9) Phillips 66 Natural Gas Company, Michael D. Ford, Environmental Analyst, 4001 Penbrook, Odessa, Texas, 79762 has submitted an application for renewal of the previously approved discharge plan for its Eunice EP Gas Plant located approximately 8 miles northwest of the city of Eunice in the NW/4 of Section 5, Township 21 South, Range 36 East (NMPM), Lea County, New Mexico. The previous discharge plan was approved for El Paso Natural Gas Company and was transferred to Phillips 66 Natural Gas Company at the time of ownership transfer. The Mainline Engine Room portion of the facility will remain the responsibility of El Paso Natural Gas Company and the portion of the original discharge plan pertaining to the Mainline Engine Room will be renewed under a new discharge plan designation (GW-46). Approximately 44,100 gallons per day of process wastewater with a total dissolved solids concentration of 1300 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth ranging from 80 to 150 feet with total dissolved solids concentrations from 1000 to 1700 mg/l.

(GW-10) El Paso Natural Gas Company, Charles W. Hagen, Vice President, South Region, P.O. Box 1492, El Paso, Texas, 79978, has submitted an application for renewal of its previously approved discharge plan for its Jal No. 3 Gas Plant

EDJ-15 (R-2/86)

MEXICO } ss
lo

S J. SMITHSON

..... being duly sworn declares and

...L ADV. MGR. of the Albuquerque Journal, and that this
fied to publish legal notices or advertisements within the meaning of
Session Laws of 1937, and that payment therefore has been made or
that the notice, a copy of which is hereto attached, was published in
ar daily edition,

..... times, the first publication being on the ...30..... day

..... ,198.8....., and the subsequent consecutive

..... ,198.....

..... Thomas J. Smithson .....

Sworn and subscribed to before me, a Notary Public in and for the County of Bernalillo and State of New Mexico, this ..31.... day of October ..... ,1988.

PRICE $ 50.30

Statement to come at end of month.

ACCOUNT NUMBER CX0932

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

October 24, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Charles W. Hagan,
Vice President, South Region
El Paso Natural Gas Company
P.O. Box 1492
El Paso, TX 79978

RE: Discharge Plan Renewals
GW-8, Monument
GW-10, Jal No. 3
GW-40, Eunice Mainline Engine Room

Dear Mr. Hagan:

The Oil Conservation Division has received your applications dated September 23, 1988 for renewal of the above-referenced discharge plans. Part of the review process includes a visit to the facilities. Members of the Environmental Bureau's staff are planning a trip to southeast New Mexico for the latter part of November and would like to include a visit to the three facilities during that time. We will be finalizing our plans the first or second week of November and I will be contacting you concerning convenient times for the visit.

After the facility visits and further OCD review of the plans, specific comments and information can be exchanged. A public notice will be published on or before November 4, 1988.

If there are any questions, please do not hesitate to call me at (505) 827-5885.

Sincerely,

Roger C. Anderson
Environmental Engineer

RCA/ag

cc: Oil Conservation Division - Hobbs
Donald R. Payne - EPNG
Dr. Henry Van - EPNG

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan has been submitted for renewal to the Director of the Oil Conservation Division, State Land Office Building, 310 Old Santa Fe Trail, Room 206, Santa Fe, New Mexico 87503, Telephone (505) 827-5800:

(GW-8) El Paso Natural Gas Company, Donald N. Bigbie, Vice President, North Region, P. O. Box 1492, El Paso, Texas, 79978, has submitted an application for renewal of its previously approved discharge plan for its Monument Gas Plant located approximately 3.5 miles southwest of the town of Monument in the NW/4 of Section 1, Township 20 South, Range 36 East (NMPM), Lea County, New Mexico. Approximately 9600 gallons per day of process wastewater with a total dissolved solids concentration of approximately 3500 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth ranging from 35 to 60 feet with total dissolved solids concentrations from 500 to 3000 mg/l.

(GW-9) Phillips 66 Natural Gas Company, Michael D. Ford, Environmental Analyst, 4001 Penbrook, Odessa, Texas, 79762 has submitted an application for renewal of the previously approved discharge plan for its Eunice EP Gas Plant located approximately 8 miles northwest of the city of Eunice in the NW/4 of Section 5, Township 21 South, Range 36 East (NMPM), Lea County, New Mexico. The previous discharge plan was approved for El Paso Natural Gas Company and was transferred to Phillips 66 Natural Gas Company at the time of ownership transfer. The Mainline Engine Room portion of the facility will remain the responsibility of El Paso Natural Gas Company and the portion of the original discharge plan pertaining to the Mainline Engine Room will be renewed under a new discharge plan designation (GW-46). Approximately 44,100 gallons per day of process wastewater with a total dissolved solids concentration of 1300 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth ranging from 80 to 150 feet with total dissolved solids concentrations from 1000 to 1700 mg/l.

(GW-10) El Paso Natural Gas Company, Charles W. Hagen, Vice President, South Region, P. O. Box 1492, El Paso, Texas, 79978, has submitted an application for renewal of its previously approved discharge plan for its Jal No. 3 Gas Plant located approximately 5 miles north of the city of Jal in the SW/4 NW/4, NW/4 SW/4 of Section 33, Township 24 South, Range 37 East (NMPM), Lea County, New Mexico. Approximately 28,600 gallons per day of process wastewater with a total dissolved solids concentration of approximately 5410 mg/l is disposed of in an OCD approved disposal well located on the plant property. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharge to the surface is at a depth of approximately 90 feet with a total dissolved solids concentration of approximately 900 mg/l.

(GW-46) El Paso Natural Gas Company, Charles W. Hagen, Vice President, South Region, P. O. Box 1492, El Paso, Texas, 79978, has submitted an application to renew its previously approved discharge plan for its Eunice Mainline Engine Room located approximately 8 miles Northwest of the City of Eunice in the NW/4 of Section 5, Township 21 South, Range 36 East (NMPM), Lea County, New Mexico. The previous discharge plan was designated GW-9 and is now the responsibility of and is being renewed by Phillips 66 Natural Gas Company. The Mainline Engine Room remains the responsibility of El Paso Natural Gas Company and the portions of the previous discharge plan pertaining to the Mainline Engine Room are being renewed under Discharge Plan GW-46. Approximately 17,000 gallons per day of cooling tower wastewater with a total dissolved solids concentrations of approximately 1300 mg/l is disposed of in an OCD approved contract disposal well. The discharge plan addresses how spills, leaks and other discharges to the ground at the plant will be managed. The groundwater most likely to be affected by any discharges at the surface is at a depth ranging from 80 to 150 feet with total dissolved solids concentrations from 1000 to 1700 mg/l.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 21st day of October. To be published on or before November 4, 1988.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY, Director

S E A L

El Paso NATURAL GAS COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978

PHONE: 915-543-2600

ALEXANDER H. CARAMEROS VICE PRESIDENT

September 23, 1988

Mr. William J. LeMay, Director
Energy, Minerals and Natural Resources Department
New Mexico Oil Conservation Division
310 Old Santa Fe Trail #206
Santa Fe, NM 87504

RE: **Discharge Plan GW-10 for El Paso Natural Gas Company - Jal No. 3 Gas Plant**

Dear Mr. LeMay:

Enclosed for your review is the completed Discharge Plan for the El Paso Natural Gas Company Jal No. 3 Gas Plant. The plan details proposed methods and techniques to ensure compliance with the New Mexico Water Quality Act and New Mexico Water Quality Control Commission Regulations.

El Paso respectfully requests approval of this plan and will meet with agency personnel whenever necessary should clarification or further information be required. Information requests should be directed to Mr. Donald R. Payne, Manager of Compliance Engineering for the South Region at (915) 541-5399.

Thank you for your consideration in this matter.

Very truly yours,

EL PASO NATURAL GAS COMPANY

Alexander H. Carameros

Alexander H. Carameros
Vice President

AHC:cds

Enclosure

DISCHARGE PLAN GW-10
RENEWAL APPLICATION
FOR
EL PASO NATURAL GAS CO.
JAL NO. 3 GAS PLANT

El Paso
Natural Gas Company

LEA COUNTY, NEW MEXICO
OCTOBER, 1988

DISCHARGE PLAN GW-10 RENEWAL APPLICATION

FOR

EL PASO NATURAL GAS COMPANY

JAL NO. 3 GAS PLANT

LEA COUNTY, NEW MEXICO

October 1988

Submitted to:

NEW MEXICO OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87501

AFFIRMATION:

"I hereby certify that I am familiar with the information contained on and submitted with this application and that such information is true, accurate and complete to the best of my knowledge and belief."

Signature
A. H. Carameros
Vice President

September 23, 1988

Date

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

1.0 EXECUTIVE SUMMARY

El Paso Natural Gas Company, P.O. Box 1492, El Paso, Texas 79978, proposes to discharge approximately 10,446,000 gallons per year of wastewater to a disposal well via an internally and externally epoxy-coated steel tank-type classifier. The wastewater is generated at the Jal No. 3 Plant which is located in the SW 1/4 NW 1/4, NW 1/4 SW 1/4 of Section 33 T-24-S, R-37-E, Lea County, New Mexico, approximately 5 miles north of Jal, New Mexico, and approximately 2 miles east of State Highway No. 18. The wastewater discharged by the Jal No. 3 Plant has a total dissolved solids concentration of approximately 5410 milligrams per liter.

EPNG proposes to continue to discharge the Jal No. 3 Plant wastewater to the disposal well via the classifier.

EPNG is wholly committed to carrying out sound disposal practices and to this end submits the plan outlining the proposed procedures. Likewise, EPNG is committed to cooperating fully with NMOCD in honoring requests for additional information or clarification of existing information related to the Discharge Plan.

2.0 GENERAL INFORMATION

2.1 NAME OF DISCHARGER/LEGALLY RESPONSIBLE PARTY

All correspondence regarding this discharge plan should be sent to EPNG South Region headquarters at the address below:

Charles W. Hagen
Vice President
South Region
El Paso Natural Gas Company
P. O. Box 1492
El Paso, TX 79978
(915) 541-2600

2.2 LOCAL REPRESENTATIVE OR CONTACT

A copy of all correspondence and all questions should be directed to the South Region Compliance Engineer:

Donald R. Payne
El Paso Natural Gas Company
South Region
P. O. Box 1492
El Paso, TX 79978
(915) 541-5399

EPNG requests that copies of correspondence also be sent to:

Environmental and Safety Affairs
El Paso Natural Gas Company
P. O. Box 1492
El Paso, TX 79978
ATTN: H. Van
(915) 541-2832

2.3 LOCATION OF DISCHARGE

The Jal No. 3 Plant is located in the SW 1/4 NW 1/4, NW 1/4 SW 1/4 of Section 33 T-24-S, R-37-E, Lea County, New Mexico, approximately 5 miles north of Jal, New Mexico and approximately 2 miles east of State Highway No. 18. Figures 1, 2 and 3 (pp. 3, 4, 5 and 6) of the 1983 Discharge Plan show the location of the plant.

2.4 LOCAL LAND USE

The Jal No. 3 Plant occupies approximately 80 acres and can be seen in the 1981 aerial photograph in Figure 2 of the 1983 Discharge Plan. However, the Plant does not have the 42-house camp for the employees. This camp has been closed permanently, and the houses have been removed from the site.

Information regarding land ownership is contained in Figure 3 (pp. 6 and 7) of the 1983 Discharge Plan.

2.5 DESCRIPTION OF OPERATIONS

El Paso Natural Gas Company's Jal No. 3 Plant is engaged in the compression of natural gas. During the preparation of this discharge plan renewal application EPNG Environmental and Safety Affairs Department representatives visited the Jal No. 3 Plant and inquired about the operation of the plant. Plant personnel indicated that the process had not changed since the submittal of the 1983 Discharge Plan. Processes are described on pages 29 and 33 of the 1983 Plan.

2.6 REGULATORY INDEX

Table 2-1 presents the regulatory index. This table provides a cross reference between WQCC Regulations and this discharge plan.

TABLE 2-1

REGULATORY INDEX

WQCC Regulation Required in Discharge Plan	Section in Discharge Plan
1-201	1.0, 2.0
1-202	3.2.3
1-203	3.3.4
3-106 C.1	3.2
3-106 C.2	2.3
3-106 C.3	1.0, 5.3
3-106 C.4	5.4
3-106 C.5	3.0, 4.0
3-106 C.6	5.1
3-106 C.7	7.0
3-107	6.0
3-108.B	1.0

NMOCD Regulation Required in Discharge Plan	Section in Discharge Plan
116	3.3.4

3.0 EFFLUENT SOURCES, CHARACTERISTICS AND DISPOSAL

3.1 WASTE SOURCES, QUANTITY AND FLOW CHARACTERISTICS

3.1.1 GAS LIQUID SEPARATORS

Entrained liquids are removed from the gas streams prior to the various stages of compression by eighteen gas-liquid separators. this process produces approximately 1,420 gallons per day of wastewater.

3.1.2 COOLING TOWER BLOWDOWN

The Plant cooling tower blowdown is approximately 9,790 gallons per day, or 6.7 gallons per minute. The cooling tower blowdown is discharged to the disposal well via the wastewater classifier.

3.1.3 DOMESTIC SEWAGE

Sanitary sewage effluent from the Plant is pumped from a septic tank to the classifier. The injection well, located in the northeast area of the Plant yard, receives the effluent from the classifier. The domestic wastewater stream is chlorinated in an aboveground tank prior to mixing with the industrial wastewater in the classifier. Since the camp was closed in 1986, the domestic sewage flow has been reduced considerably. The domestic sewage now being produced is from six toilets located in various buildings throughout the Plant. Figures 18 and 19 of the 1983 Discharge Plan show the existing wastewater-producing processes and schematic of the collection system.

3.1.4 BUILDING FLOOR DRAINS

Wastewater from the building floor drains is discharged to the classifier. The volume is minimal, approximately 300 gallons per day, and consists of wastewater produced by the washing of building floors. This wastewater is discharged to the disposal well via the wastewater classifier.

3.1.5 WATER TREATING

Water treatment for make-up to plant process water consists of chlorination of the water pumped into the storage tanks and treatment of water for process use through two Zeolite treaters. The Zeolite treaters have a capacity of 130 gallons per minute each, or a total of 260 gallons per minute. Regeneration of these zeolite beds requires a total of 11,910 gallons of water/brine per day. This effluent is discharged into the unpressured drain system and then to the wastewater classifier. The water supply system consists of eleven off-site wells, five on the Hubb Ranch and six on the Cooper Ranch. These wells are

located from approximately two to four miles to the east and southwest of Jal No. 3 Plant.

Jal No. 3 Plant used a total 49,812,410 gallons of water in 1987. Figure 18 of the 1983 Discharge Plan shows the water flow schematic. However, the 42-house camp has been permanently closed. Therefore, the water consumption associated with the camp does not occur anymore.

3.1.6 STORM WATER

Storm water is collected in open drains and discharged to the disposal well via the wastewater classifier.

3.2 WASTE QUANTITY AND FLOW CHARACTERISTICS

3.2.1 GAS-LIQUID SEPARATORS

Entrained liquids are removed from the gas streams prior to the various stages of compression by eighteen gas-liquid separators. The total estimated liquid discharge from the separators is 6,610 gallons per day of which about 1,420 gallons is wastewater. The wastewater is discharged to the classifier. The wastewater effluent from the classifier is injected into the San Andres Formation at a depth of approximately 4,700 feet. The injection well was completed in this formation in compliance with NMOCD administrative order No. SWD-231 (see Appendix F of the 1983 Discharge Plan). The formation water is known to be a brine containing sulfate and chloride salts in concentrations in excess of 10,000 mg/l and has been described as salty sulfur water (1983 Discharge Plan).

3.2.2 COOLING TOWER BLOWDOWN

Evaporative cooling tower water is used to cool compressed pipeline gas for transmission. Cooling tower water is recycled as much as possible, but some is blowndown and replaced to prevent TDS buildup. The blowdown is approximately 9,790 gallons per day, or 6.7 gallons per minute.

3.2.3 DOMESTIC SEWAGE

About 300 gpd are generated from the six restrooms. The domestic sewage discharges to the disposal well via the classifier system.

3.2.4 BUILDING FLOOR DRAINS

Wastewater from the building floor drains is discharged to the disposal well via the classifier system. The flow is minimal (approximately 300 gallons per day) since it consists of wastewater produced by the washing of building floors.

3.2.5 STORM WATER

Storm water is collected in open drains and discharged to the classifier and its effluent to the disposal well.

3.2.6 WASTEWATER ANALYSIS

Table 2 (p. 20) of the 1983 Discharge Plan contains the wastewater analyses for each stream. Chemical analyses of two composite wastewater samples are shown in Table 3 (p. 22) of the 1983 Discharge Plan. There is no reason to believe that the character of this waste stream has changed since the operation of this plant has not changed.

3.3 SPILL/LEAK PREVENTION AND HOUSEKEEPING PRACTICES

3.3.1 OPERATING AND MAINTENANCE PROCEDURES

The Jal No. 3 Plant is operated in a manner to prevent and mitigate any unplanned releases to the environment. Plant processes are regularly observed by a number of personnel during daily operations, and any evidence or sign of spills or leaks are routinely reported to supervisory personnel so that repairs or cleanup can be promptly effected. Routine maintenance procedures conducted at the Plant also help to assure that equipment remains functional and minimize the possibility of spills or leaks.

3.3.2 CHEMICAL AND ENVIRONMENTAL HAZARDS

Process and non-process chemicals or additives (Table 3-1) used at the Jal No. 3 Plant could present a threat to the environment only in the event of a major spill or release. Appendix A contains the new Safety Material Data Sheet for the chemical not listed in the 1983 Discharge Plan. The majority of the chemicals are used in small quantities (25 gallons to 22,000 gallons per year). Hence any spills or leaks would be very small in volume and easily contained in the immediate area.

3.3.3 CLEANUP PROCEDURES

Cleanup procedures would obviously vary with the nature and extent of any unplanned release. Spills of acids are relatively easy to control and general procedures would include neutralization of the material in-place before a final evaluation is made on its ultimate disposal. Once neutralization is confirmed by sampling and pH determination, it is quite probable that no further actions would be required to ensure protection of human health and the environment.

Spills or leaks of hydrocarbons could potentially occur from the lube oil, or waste oil storage tanks. Lube oils are stored in

55-gallon drums. The location of these drums and the structures in the area would preclude any releases from reaching natural drainage.

TABLE 3-1

CHEMICALS USED AT THE JAL NO. 3 PLANT
(AVERAGE ANNUAL AMOUNTS)

WATER TREATING		
Brine (10#)	Zeolite Regeneration	28,590 gal
COOLING TOWERS		
Antipol G40	Scale Control	2,395 gal
HTH (Chlorine)	Biocide	300 lbs
Hydrochem D-300	Dispersant	1,100 gal
Soda Ash (Anhydrous)	pH Adjustment	50 gal
Sulfuric Acid	pH Adjustment	5,830 gal
Toxene 35	Biocide	75 gal
Toxene 37	Biocide	110 gal
BOILER FEEDWATER CHEMICALS		
Coravol	Corrosion Inhibitor and pH Adjustment	35 gal
De Ox 21	Deaerator	215 lbs
Hymol-8Z	Sludge Conditioner	35 gal
Sodium Hydroxide	pH Adjustment	285 lbs
Soda Ash (Anhydrous)	pH Adjustment	50 gal
CLOSED JACKET AND OIL COOLING WATER SYSTEM		
Chromine-T	Corrosion Inhibitor	40 gal
Citric Acid	pH Adjustment	210 lbs
GAS TREATING		
Diethylene Glycol	Gas Dehydration	910 gal
Monoethanol Amine	Hydrogen Sulfide Removal	5,960 gal
LUBE OIL		
Chevron Hydraulic	E.S.D. Valve Actuator Cylinders	15 gal
Marvel Mystery Oil	Lubricant/Detergent	820 gal
Marvel Seal Oil	H.C. Product Removal	112,910 gal
Molylube No. 90	Gear Box Lubricant	55 gal
Molylube #828-40	Lubrication of Classifier	45 gal
Molylube #828-H	Compressor Lubrication	110 gal

	LUBE OIL (continued)	
Pegasus 485	Crankcase Lubrication	58,473 gal
Shell Carnea 32	Air Breather Oil	165 gal
Shell Tellus 32	Upper Cylinder Lube	500 gal
Shell Tellus 68	Lubrication of Engine Governors	110 gal
Shell Turbo 32	Lubrication of Turbocharges	7,750 gal
Shell Turbo 46	Turbine Lubrication	4,950 gal
Shell X-100	Vehicle Engine Lubrication	70 gal
	DEGREASER	
Varsol	General Cleaning Solvent	5,985 gal

3.3.4 REPORTING

Should a release of materials occur, EPNG will provide verbal notification to NMOCD as soon as possible after discovery as required by NMOCD and WQCC Regulation 116 and 1-203, respectively.

3.3.5 GENERAL HOUSEKEEPING PROCEDURES

EPNG strives to reduce the potential for spills and leaks in all areas. Existing records and interviews with plant personnel indicate that no reportable spills have occurred at Jal No. 3 Plant.

Non-process chemicals are used in relatively small quantities at the Plant and are managed in a manner to prevent discharges to the environment. Any chemical spills which might occur would be immediately contained and disposed of according to proper guidelines.

4.0 EFFLUENT DISPOSAL

4.1 EXISTING OPERATIONS

EPNG disposes of all industrial aqueous wastes in an on-site internally and externally epoxy-coated steel tank-type classifier. The classifier effluent is discharged to the injection well located on the Plant property. Figures 18, 19 and 21 (pp. 34, 35, 37 and 38) of the 1983 Discharge Plan show the existing wastewater-producing processes and the collection system in schematic forms. No changes have been made to this system since 1983.

4.2 OFF-SITE DISPOSAL

No off-site disposal of wastewater occurs at the Jal No. 3 Plant. However, the used oil floating in the classifier is sold to PARABO, INC. (P.O. Box 1737, Eunice, New Mexico 88231).

4.3 PROPOSED MODIFICATIONS

EPNG proposes to continue to discharge its wastewater generated at the Jal No. 3 Plant to the classifier located on the Plant property and the classifier effluent discharged to the injection well located on the Plant property.

5.0 SITE CHARACTERISTICS

Site characteristics of the Jal No. 3 Plant area are described in the 1983 Discharge Plan (pp. 39-43).

5.1 REGIONAL GEOLOGY

The regional geology is described in the 1983 Discharge Plan (pp. 39-41).

5.2 LOCAL GEOLOGY

The local geology is described in the 1983 Discharge Plan (pp. 39-41).

5.3 REGIONAL AND LOCAL HYDROLOGY AND GROUNDWATER QUALITY

The regional and local hydrology and groundwater quality is discussed in the 1983 Discharge Plan (pp. 42-46).

5.4 SURFACE WATER HYDROLOGY AND FLOODING POTENTIAL

The surface water hydrology and flooding potential of the Jal No. 3 Plant is described in the 1983 Discharge Plan (p. 24).

6.0 MONITORING AND REPORTING

El Paso will perform the following evaluation to ensure that the wastewater collection systems operated by EPNG in the Plant do not become "discharge sites." The Plant underground drain systems (shown in Figure 20, Map Pocket of the 1983 Discharge Plan) will be tested to ensure the integrity of the drain system. Appendix B contains the 1988 results of the pressure testing of the drain lines. Test procedures are structured so that each line is pressure tested for a specified time period to verify that no line is leaking. Any leaks identified will be repaired. The drain line test procedure is found in Appendix J of the 1983 Discharge Plan. Well integrity will be ascertained by regularly monitoring the pressure of the annular fluid.

For purposes of this discharge plan renewal application, the results of the drain line tests are included in Appendix ~~X~~ B

Annual sampling and analysis of the wastewater stream (classifier effluent) will be conducted and a Plant file maintained. A monthly report to NMOCD on Form C 120-8, describing disposal volumes, is now being submitted. The wastewater flow records will be periodically reviewed to determine if any unexplained changes in disposal volume have developed. If any such anomalies occur, an inspection of the collection system will be conducted to identify the cause.

Any records related to integrity testing and waste characteristics will be retained by EPNG for five years.

Sludge will be removed from the cooling tower basin and the classifier as needed and will be evaluated and disposed of in an approved landfill or on the Plant property in an acceptable manner.

Any changes, anticipated or otherwise, to the disposal system will, of course, be reported to NMOCD.

7.0 BASIS FOR APPROVAL

The existing site conditions and proposed continued use of the present wastewater disposal system at the EPNG Jal No. 3 Plant act together to ensure that there will be no present or future adverse effects to groundwater as a result of discharges to existing wastewater management units. No present or future users of groundwater in the Jal No. 3 Plant area would be affected by the facility's waste management practices for the following reasons:

- EPNG proposed to continue using existing waste management units and their effluent discharged to the injection well located on Plant property.
- There is no significant potential for wastewater release due to flooding by a 100-year storm (1983 Discharge Plan, p. 24).

8.0 REFERENCES CITED

EPNG Discharge Plan for Jal No. 3 Plant, Lea County, New Mexico, August 1983.

APPENDIX A

MATERIAL SAFETY DATA SHEET

Mobil

MOBIL OIL CORPORATION MATERIAL SAFETY DATA BULLETIN

REVISED: 08/23/83

********** I. PRODUCT IDENTIFICATION **********

MOBIL PEGASUS 485

SUPPLIER:
MOBIL OIL CORP.

CHEMICAL NAMES AND SYNONYMS:
PET. HYDROCARBONS AND ADDITIVES

USE OR DESCRIPTION:
INDUSTRIAL LUBRICANT

HEALTH EMERGENCY TELEPHONE:
(212) 883-4411

TRANSPORT EMERGENCY TELEPHONE:
(800) 424-9300 (CHEMTREC)

PRODUCT TECHNICAL INFORMATION:
(800) 662-4525

********** II. TYPICAL CHEMICAL AND PHYSICAL PROPERTIES **********

APPEARANCE: ASTM 5.0 LIQUID ODOR: MILD PH: NA
VISCOSITY AT 100 F, SUS: 650.0 AT 40 C, CS: 72.0
VISCOSITY AT 210 F, SUS: 70.0 AT 100 C, CS: 13.0
FLASH POINT F(C): 480(249) (ASTM D-92)
MELTING POINT F(C): NA POUR POINT F(C): 10(-12)
BOILING POINT F(C): > 600(316)
RELATIVE DENSITY, 15/4 C: 0.89 SOLUBILITY IN WATER: NEGLIGIBLE
VAPOR PRESSURE-MM HG 20C: < .1

NA=NOT APPLICABLE NE=NOT ESTABLISHED D=DECOMPOSES

FOR FURTHER INFORMATION, CONTACT YOUR LOCAL MARKETING OFFICE.

********** III. INGREDIENTS **********

	WT PCT (APPROX)	EXPOSURE LIMITS MG/M3	PPM	SOURCES (AND NOTES)
HAZARDOUS INGREDIENTS:				
NONE				
OTHER INGREDIENTS:				
REFINED MINERAL OILS	>90			
ADDITIVES AND/OR OTHER INGREDS.	<10			

KEY TO SOURCES: A=ACGIH-TLV, A*=SUGGESTED-TLV, M=MOBIL, O=OSHA

NOTE: LIMITS SHOWN FOR GUIDANCE ONLY. FOLLOW APPLICABLE REGULATIONS.

********** IV. HEALTH HAZARD DATA **********

--- INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED ---

EFFECTS OF OVEREXPOSURE: NOT EXPECTED TO BE A PROBLEM.

********** V. EMERGENCY AND FIRST AID PROCEDURES **********

--- FOR PRIMARY ROUTES OF ENTRY ---

EYE CONTACT: FLUSH WITH WATER.
SKIN CONTACT: WASH CONTACT AREAS WITH SOAP AND WATER.
INHALATION: NOT EXPECTED TO BE A PROBLEM.
INGESTION: NOT EXPECTED TO BE A PROBLEM. HOWEVER, IF GREATER THAN 1/2 LITER(PINT) INGESTED, IMMEDIATELY GIVE 1 TO 2 GLASSES OF WATER AND CALL A PHYSICIAN, HOSPITAL EMERGENCY ROOM OR POISON CONTROL CENTER FOR ASSISTANCE. DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

********** VI. FIRE AND EXPLOSION HAZARD DATA **********
FLASH POINT F(C): 480(249) (ASTM D-92)
FLAMMABLE LIMITS. LEL: .6 UEL: 7.0
EXTINGUISHING MEDIA: CARBON DIOXIDE, FOAM, DRY CHEMICAL AND WATER FOG.
SPECIAL FIRE FIGHTING PROCEDURES: FOR FIRES IN ENCLOSED AREAS, FIREFIGHTERS MUST USE SELF-CONTAINED BREATHING APPARATUS.
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE
NFPA HAZARD ID: HEALTH: 0, FLAMMABILITY: 1, REACTIVITY: 0

********** VII. REACTIVITY DATA **********
STABILITY (THERMAL, LIGHT, ETC.): STABLE
CONDITIONS TO AVOID: EXTREME HEAT
INCOMPATIBILITY (MATERIALS TO AVOID): STRONG OXIDIZERS
HAZARDOUS DECOMPOSITION PRODUCTS: CO.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

********** VIII. SPILL OR LEAK PROCEDURE **********
ENVIRONMENTAL IMPACT: REPORT SPILLS AS REQUIRED TO APPROPRIATE AUTHORITIES. U. S. COAST GUARD REGULATIONS REQUIRE IMMEDIATE REPORTING OF SPILLS THAT COULD REACH ANY WATERWAY INCLUDING INTERMITTENT DRY CREEKS. REPORT SPILL TO COAST GUARD TOLL FREE NUMBER 800-424-8802.
PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: ADSORB ON FIRE RETARDANT TREATED SAWDUST, DIATOMACEOUS EARTH, ETC. SHOVEL UP AND DISPOSE OF AT AN APPROPRIATE WASTE DISPOSAL FACILITY IN ACCORDANCE WITH CURRENT APPLICABLE LAWS AND REGULATIONS, AND PRODUCT CHARACTERISTICS AT TIME OF DISPOSAL.
WASTE MANAGEMENT: PRODUCT IS SUITABLE FOR BURNING IN AN ENCLOSED, CONTROLLED BURNER FOR FUEL VALUE OR DISPOSAL BY SUPERVISED INCINERATION. SUCH BURNING MAY BE LIMITED PURSUANT TO THE RESOURCE CONSERVATION AND RECOVERY ACT. IN ADDITION, THE PRODUCT IS SUITABLE FOR PROCESSING BY AN APPROVED RECYCLING FACILITY OR CAN BE DISPOSED OF AT ANY GOVERNMENT APPROVED WASTE DISPOSAL FACILITY. USE OF THESE METHODS IS SUBJECT TO USER COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS AND CONSIDERATION OF PRODUCT CHARACTERISTICS AT TIME OF DISPOSAL.

********** IX. SPECIAL PROTECTION INFORMATION **********
EYE PROTECTION: NO SPECIAL EQUIPMENT REQUIRED.
SKIN PROTECTION: NO SPECIAL EQUIPMENT REQUIRED. HOWEVER, GOOD PERSONAL HYGIENE PRACTICES SHOULD ALWAYS BE FOLLOWED.
RESPIRATORY PROTECTION: NO SPECIAL REQUIREMENTS UNDER ORDINARY CONDITIONS OF USE AND WITH ADEQUATE VENTILATION.
VENTILATION: NO SPECIAL REQUIREMENTS UNDER ORDINARY CONDITIONS OF USE AND WITH ADEQUATE VENTILATION.

********** X. SPECIAL PRECAUTIONS **********
NO SPECIAL PRECAUTIONS REQUIRED.

********** XI. TOXICOLOGICAL DATA **********

---ACUTE---

ORAL TOXICITY (RATS): SLIGHTLY TOXIC(ESTIMATED) ---BASED ON TESTING OF SIMILAR PRODUCTS AND/OR THE COMPONENTS.

DERMAL TOXICITY (RABBITS): SLIGHTLY TOXIC(ESTIMATED) ---BASED ON TESTING OF SIMILAR PRODUCTS AND/OR THE COMPONENTS.

INHALATION TOXICITY (RATS): NOT APPLICABLE ---HARMFUL CONCENTRATIONS OF MISTS AND/OR VAPORS ARE UNLIKELY TO BE ENCOUNTERED THROUGH ANY CUSTOMARY OR REASONABLY FORESEEABLE HANDLING, USE, OR MISUSE OF THIS PRODUCT.

EYE IRRITATION (RABBITS): EXPECTED TO BE NON-IRRITATING. ---BASED ON TESTING OF SIMILAR PRODUCTS AND/OR THE COMPONENTS.

SKIN IRRITATION (RABBITS): EXPECTED TO BE NON-IRRITATING. ---BASED ON TESTING OF SIMILAR PRODUCTS AND/OR THE COMPONENTS.

---CHRONIC OR SPECIALIZED (SUMMARY)---

THE BASE OILS IN THIS PRODUCT ARE SEVERELY SOLVENT REFINED AND/OR SEVERELY HYDROTREATED. TWO YEAR MOUSE SKIN PAINTING STUDIES OF SIMILAR OILS SHOWED NO EVIDENCE OF CARCINOGENIC EFFECTS. SEVERELY SOLVENT REFINED AND SEVERELY HYDROTREATED MINERAL BASE OILS HAVE BEEN TESTED AT MOBIL ENVIRONMENTAL AND HEALTH SCIENCES LABORATORY BY DERMAL APPLICATION TO RATS 5 DAYS/WEEK FOR 90 DAYS AT DOSES SIGNIFICANTLY HIGHER THAN THOSE EXPECTED DURING NORMAL INDUSTRIAL EXPOSURE. EXTENSIVE EVALUATIONS INCLUDING MICROSCOPIC EXAMINATION OF INTERNAL ORGANS AND CLINICAL CHEMISTRY OF BODY FLUIDS, SHOWED NO ADVERSE EFFECTS.

********** XII. REGULATORY INFORMATION **********

TSCA INVENTORY STATUS: ALL COMPONENTS REGISTERED.

D.O.T. SHIPPING NAME: NOT APPLICABLE

D.O.T. HAZARD CLASS: NOT APPLICABLE

US OSHA HAZARD COMMUNICATION STANDARD: PRODUCT ASSESSED IN ACCORDANCE WITH OSHA CFR 1910.1200 AND DETERMINED NOT TO BE HAZARDOUS.

RCRA INFORMATION: THE UNUSED PRODUCT, IN OUR OPINION, IS NOT SPECIFICALLY LISTED BY THE EPA AS A HAZARDOUS WASTE (40 CFR, PART 261D); DOES NOT EXHIBIT THE HAZARDOUS CHARACTERISTICS OF IGNITABILITY, CORROSIVITY, OR REACTIVITY, AND IS NOT FORMULATED WITH THE METALS CITED IN THE EP TOXICITY TEST. HOWEVER, USED PRODUCT MAY BE REGULATED.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
ZINC (ELEMENTAL ANALYSIS) (0.025 PCT)	7440-66-6	15

--- KEY TO LIST CITATIONS ---

1 = OSHA Z, 2 = ACGIH, 3 = IARC, 4 = NTP, 5 = NCI,
6 = EPA CARC, 7 = NFPA 49, 8 = NFPA 325M, 9 = DOT HMT, 10 = CA RTK,
11 = IL RTK, 12 = MA RTK, 13 = MN RTK, 14 = NJ RTK, 15 = MI 293,
16 = FL RTK, 17 = PA RTK.

--- NTP, IARC, AND OSHA INCLUDE CARCINOGENIC LISTINGS ---

****

INFORMATION GIVEN HEREIN IS OFFERED IN GOOD FAITH AS ACCURATE, BUT WITHOUT GUARANTEE. CONDITIONS OF USE AND SUITABILITY OF THE PRODUCT FOR PARTICULAR USES ARE BEYOND OUR CONTROL; ALL RISKS OF USE OF THE PRODUCT ARE THEREFORE ASSUMED BY THE USER AND WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. NOTHING IS INTENDED AS A RECOMMENDATION FOR USES WHICH INFRINGE VALID PATENTS OR AS EXTENDING LICENSE UNDER VALID PATENTS. APPROPRIATE WARNINGS AND SAFE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS.

****

PREPARED BY: MOBIL OIL CORPORATION
ENVIRONMENTAL AFFAIRS AND TOXICOLOGY DEPARTMENT, PRINCETON, NJ
FOR FURTHER INFORMATION, CONTACT:
MOBIL OIL CORPORATION, PRODUCT FORMULATION AND QUALITY CONTROL
3225 GALLOWS ROAD, FAIRFAX, VA 22037 (703) 849-3265

********** APPENDIX **********

FOR MOBIL USE ONLY: (FILL NO: RN1022D1001) MHC: 1* 1* NA 0* 0* PPEC: US83-002 APPROVE REVISED: 08/23/83

APPENDIX B

RESULTS

OF

DRAIN LINE TESTING

El Paso Natural Gas Company

MEMORANDUM

TO: Larry Meyer

DATE: September 21, 1988

FROM: Johnny M. Owen

PLACE: Pipeline Maintenance

RE: DRAIN LINE TESTS

JAL #3 Drain Lines

Replaced all bad pipe that was found during test of these lines. All drain lines were tested for one hour. All tests showed no leaks.

EUNICE PLANT Drain Lines

Replaced all bad pipe that was found during test of these lines. All drain lines were tested for one hour. All tests showed no leaks.

MONUMENT PLANT Drain Lines

All drain lines are in good shape at Monument. No pipe was replaced at this plant. All pipe was tested for one hour. All tests showed no leaks.

Johnny M. Owen

Johnny M. Owen

ps

cc: File

FM-10-0003

JAL #3 DRAIN LINES

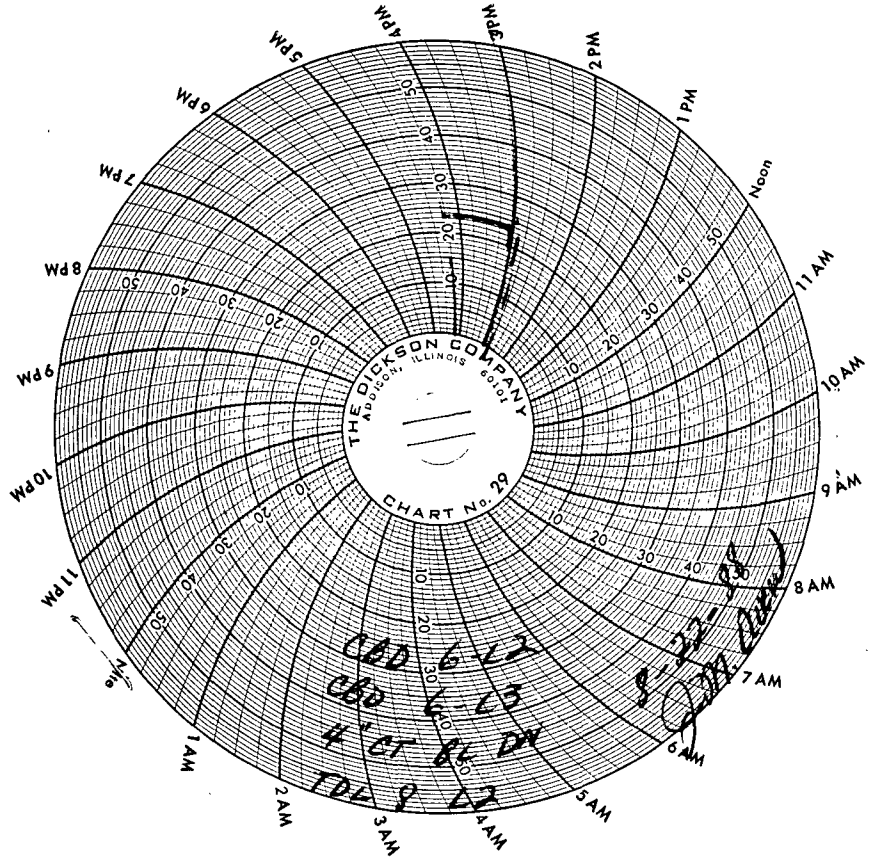
TESTED LINES CBD 6" - L2, CBD 6" - L3, 4" CT BL DN, and TDL 8" - L2.

1. Shut pump down, fill, and test from this site.
2. Close 6" valve (should be in a closed position at all times).
3. Pull flapper out of check valve.
4. Close valve at water leg of flare.
5. Close by-pass valve at classifier.
6. Close valve at bottom of sewer tank.
7. Blind plate 2 - 4" 150 flanges on top of sewer tank and plug 2" vent.
8. Close valve at classifier.
9. Close valve at filter (have process area operator close these valves).
10. Close valve at cooling tower.
11. Leave 8" valve in open position and close 2" valve inside tin-horn.
12. Blind plate 8" 150 series flanges off oil skimmer.
13. Blind plate 8" 150 series flanges off sewer line.
14. Blind plate 8" 150 series flanges off sump at process area.

REMARKS:

Had to replace 12 feet of by-pass piping at classifier coming off line from sewer tank. Bottom of tee had eroded. Replaced all of TDL 8" - L2 with 510 feet of steel pipe (used 8 5/8", .322 wt., Gr. X-42). Installed new butterfly valve at location (11) and new set of 8" Ser. 150 flanges. Piped approximately 14' of 2" pipe from pump off of flare sump to down stream side of 8" valve. Installed 8" 150# flanges at locations 12, 13, & 14 with 1" collars for air vents.

TEST PRESSURE: 20# minimum for one hour
DATE TESTED: August 22, 1988
TESTED BY: Johnny M. Owen (E.P.N.G.)
Mike Hall (Merryman Const.)



THE REPRODUCTION OF

THE

FOLLOWING

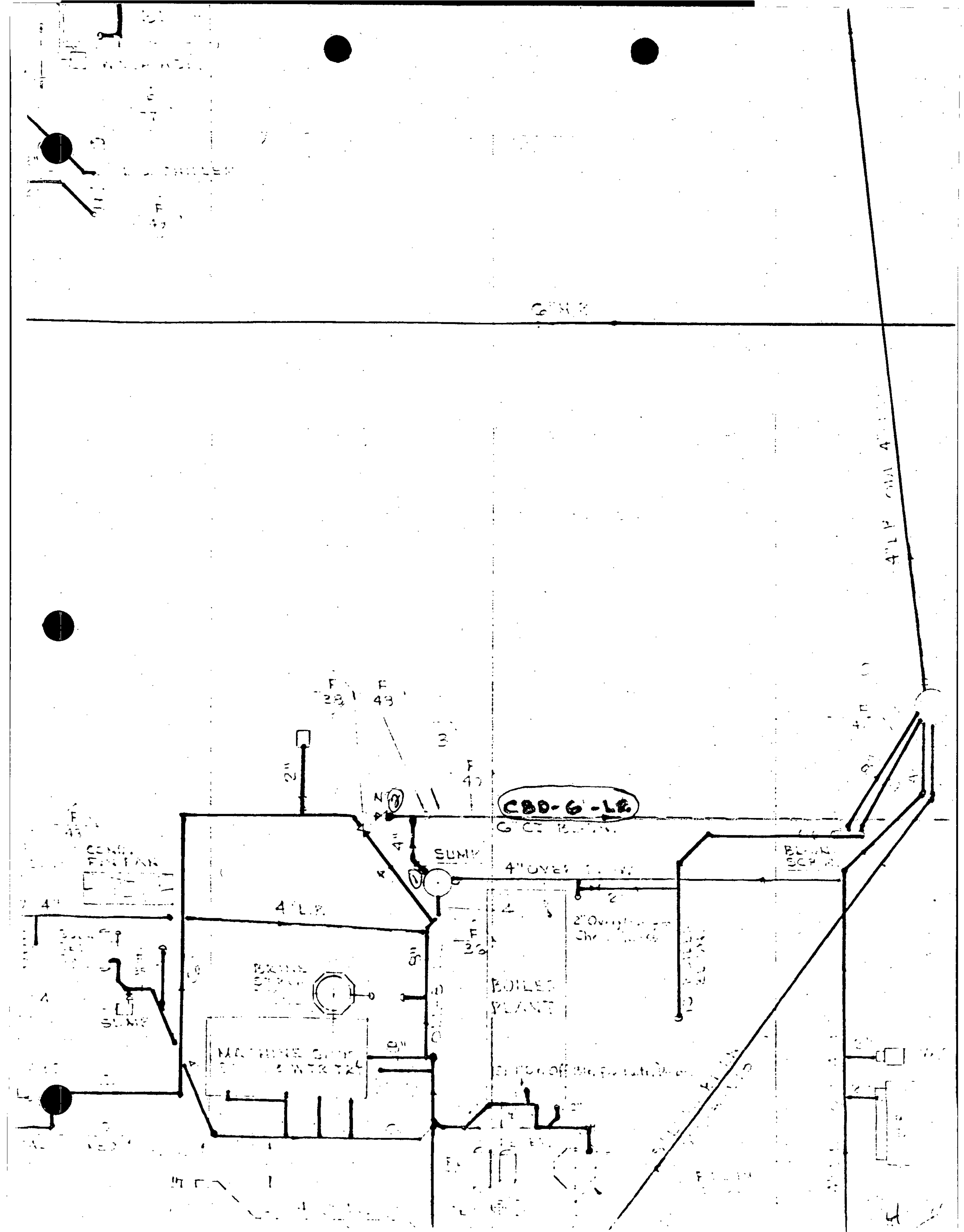
DOCUMENT (S)

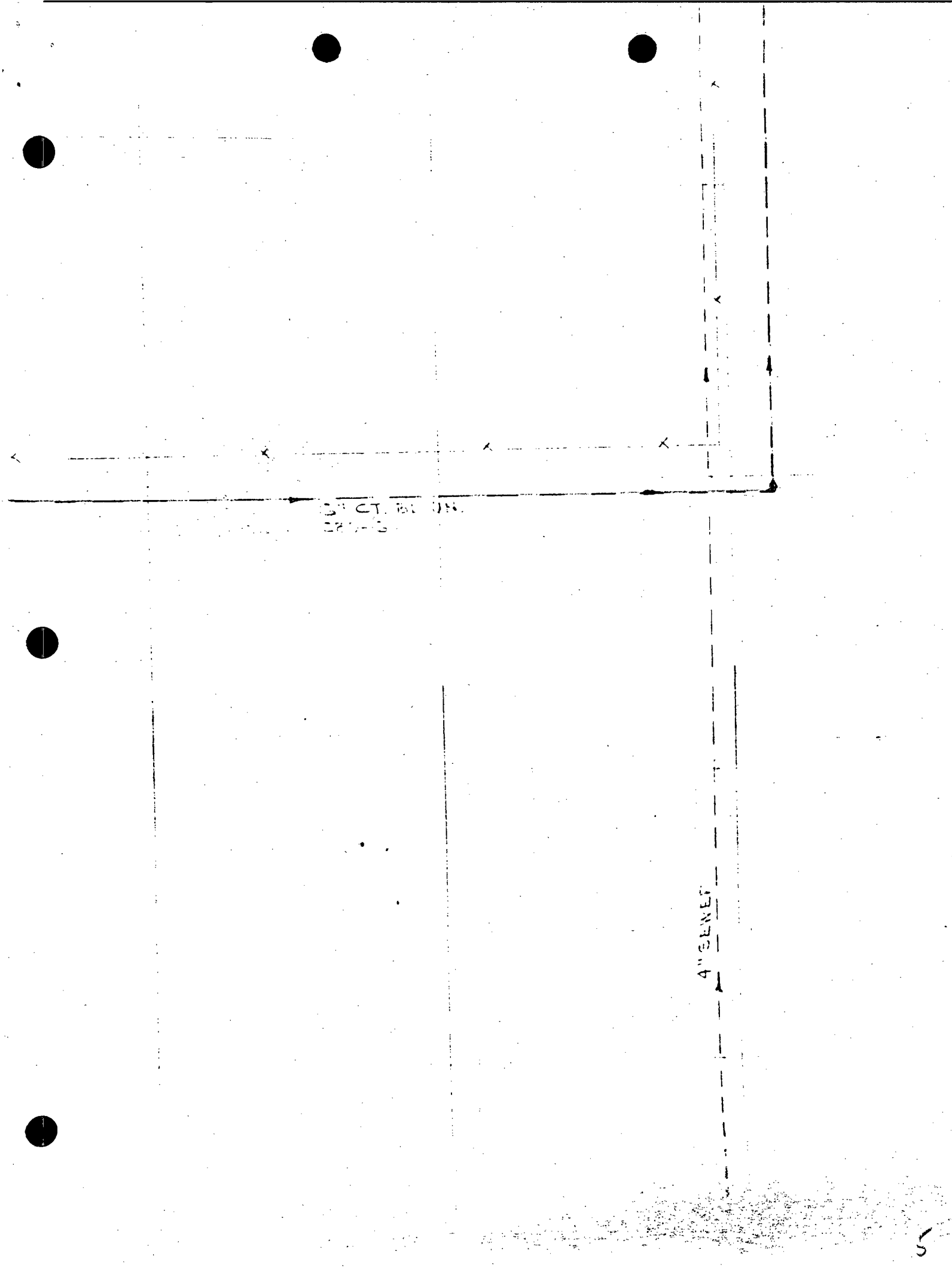
CANNOT BE IMPROVED

DUE TO

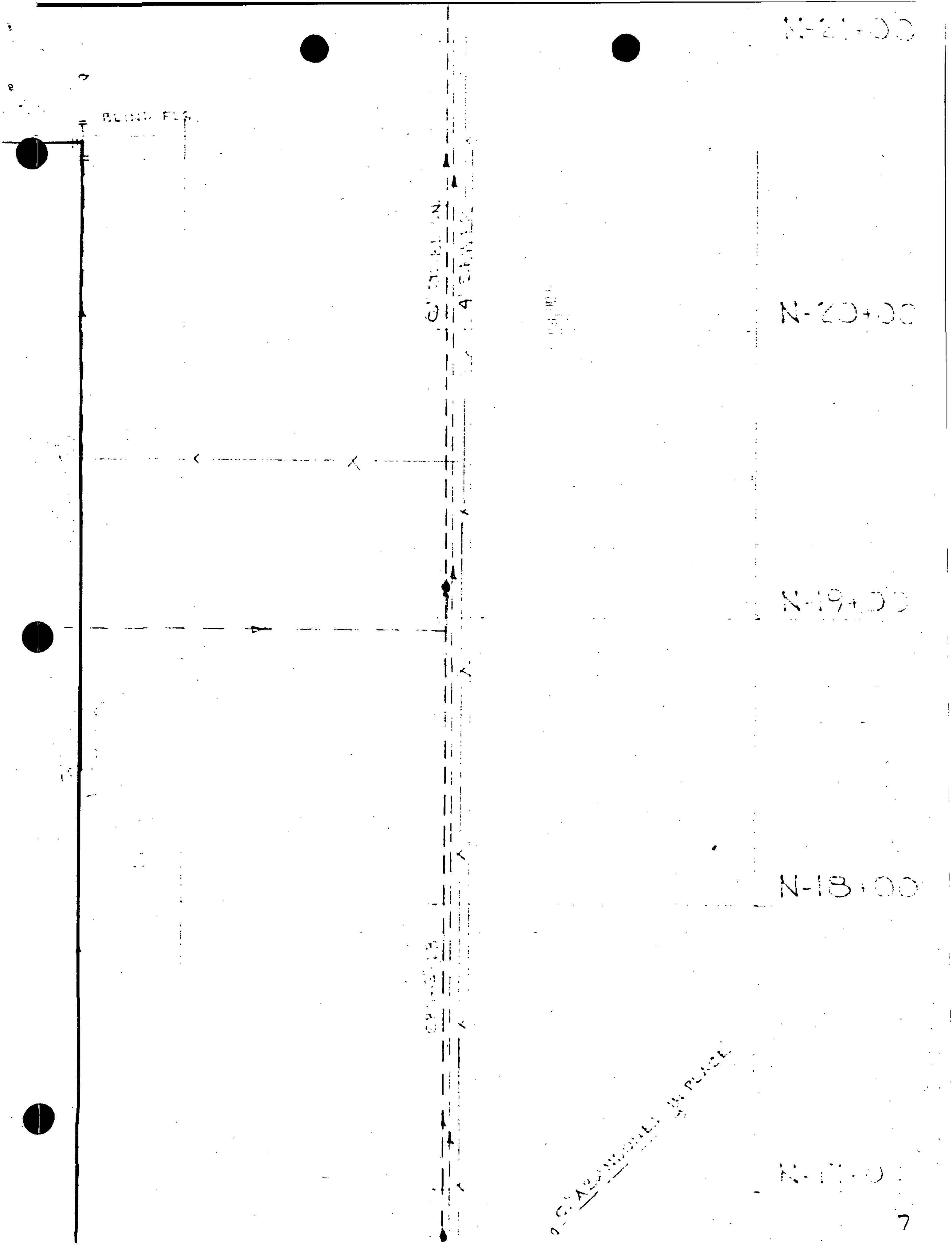
THE CONDITION OF

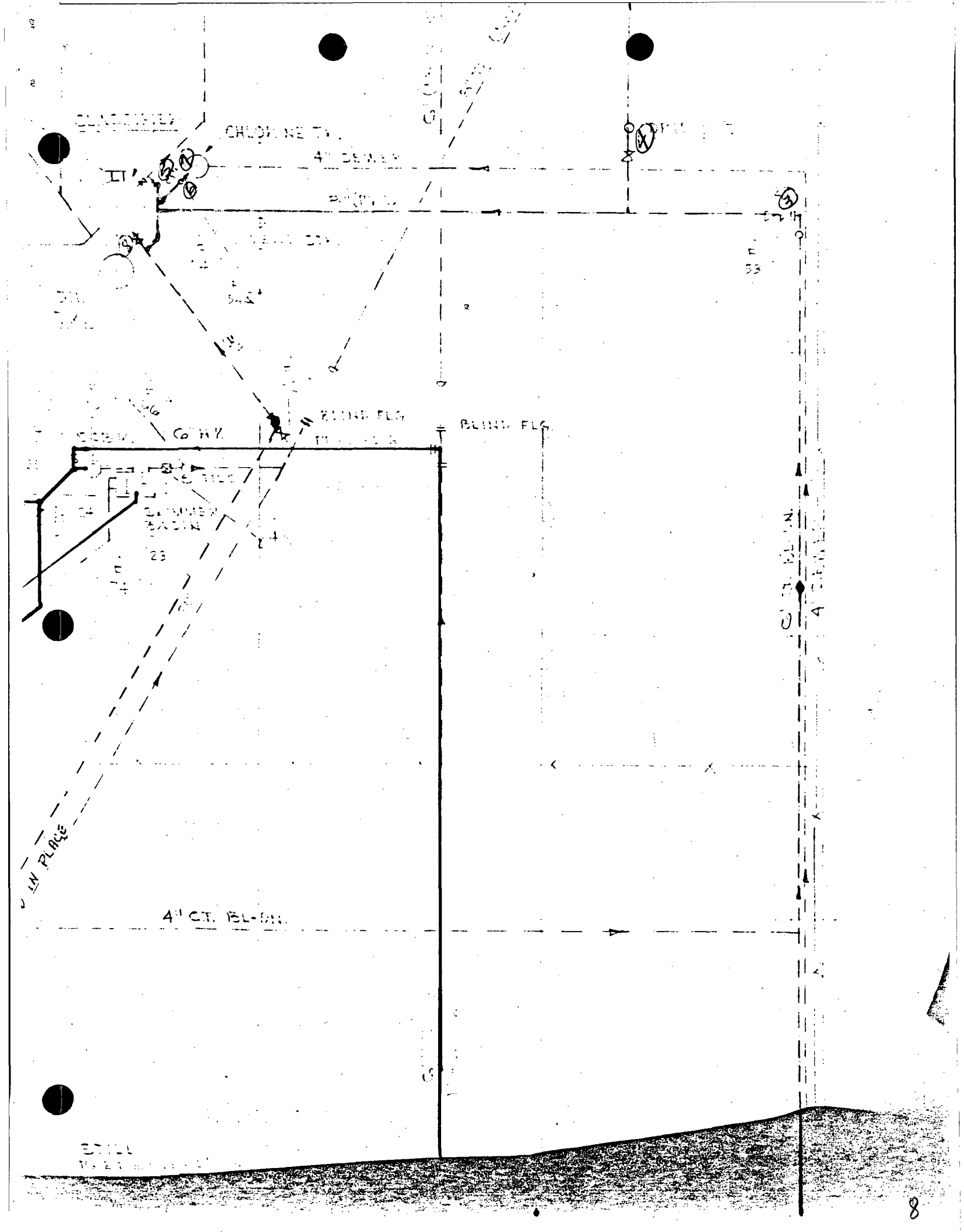
THE ORIGINAL

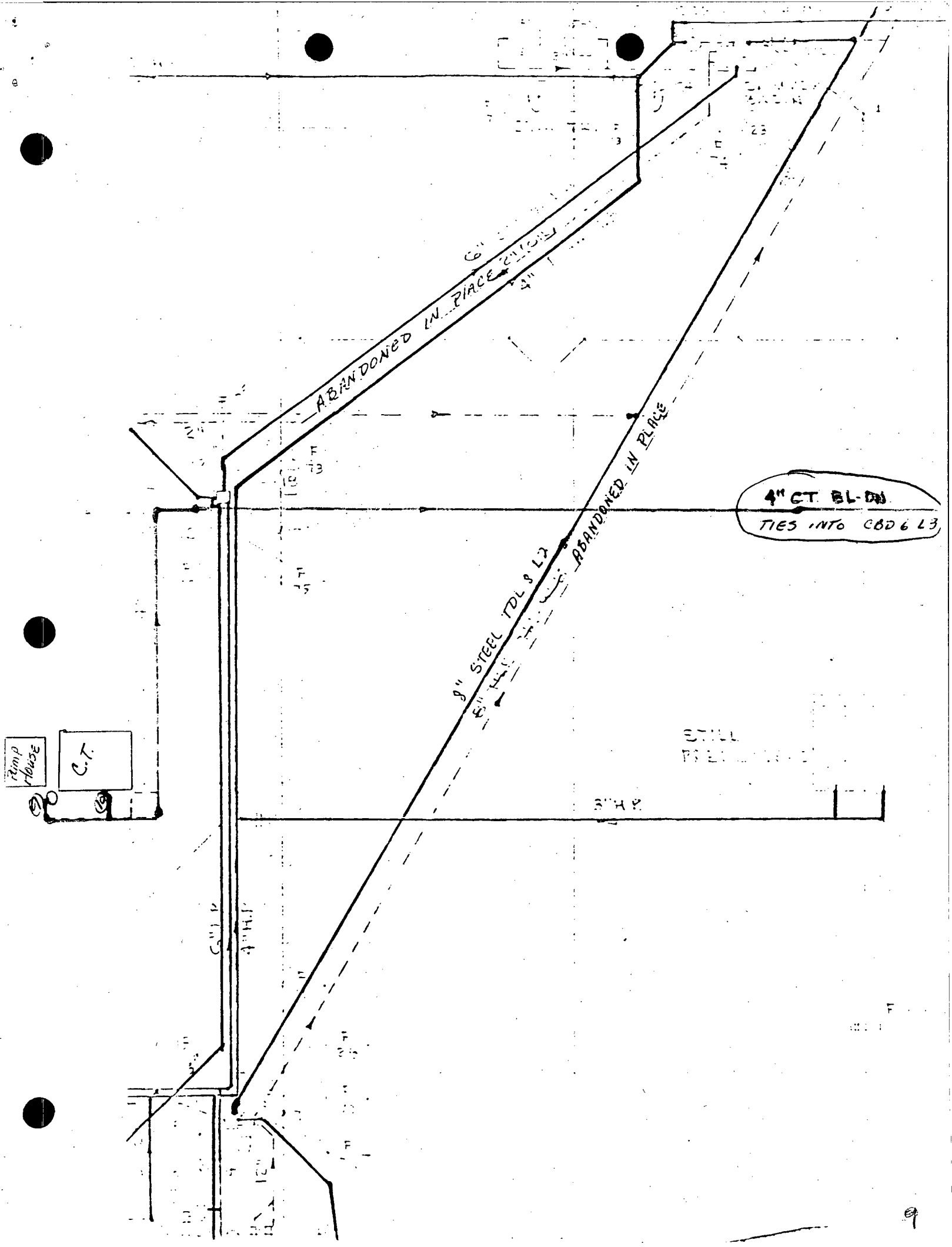

F
28
F
43
3
C80-6-LE
SUMP
4" L.P.
BOILER
PLANT

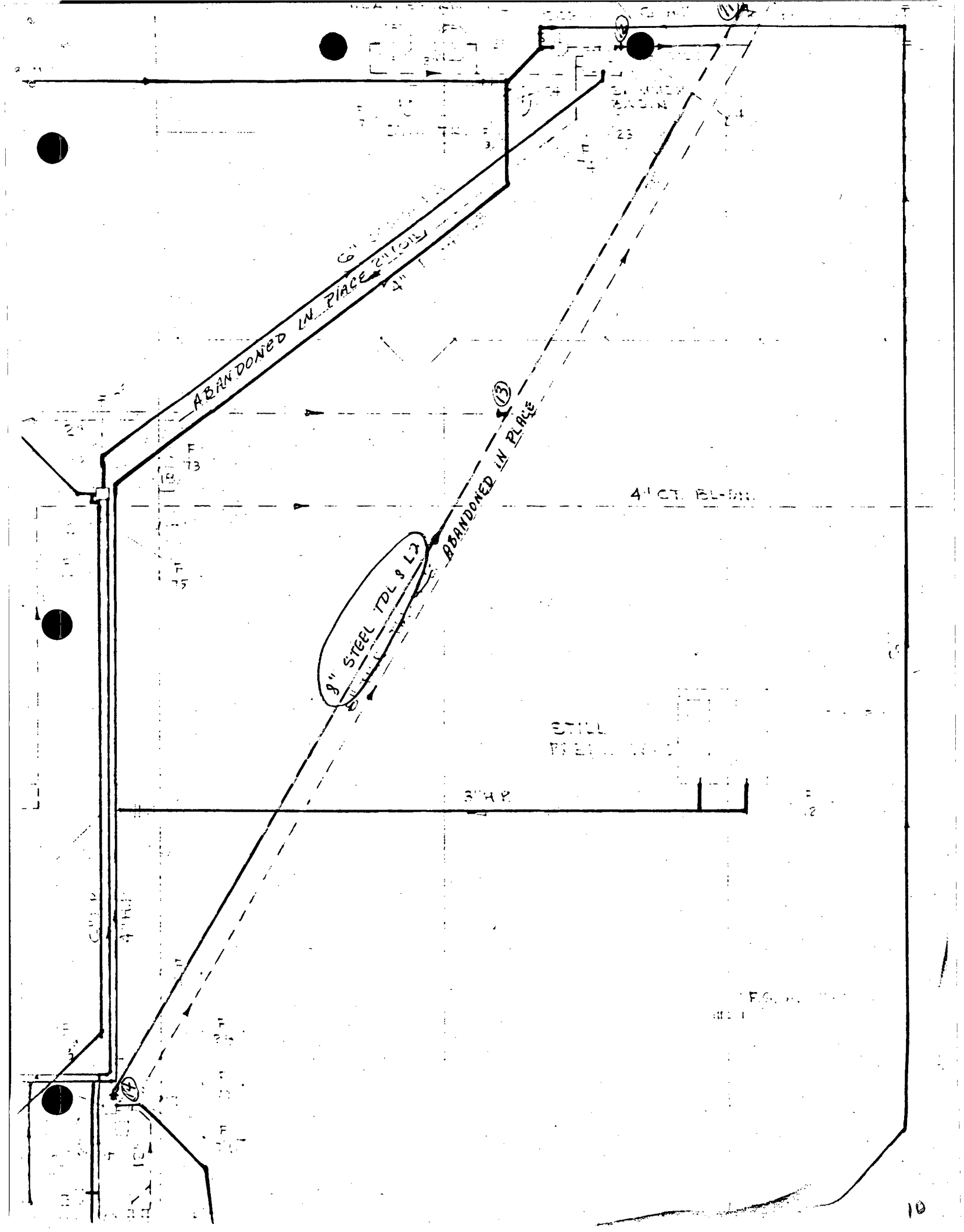

4" SEWER

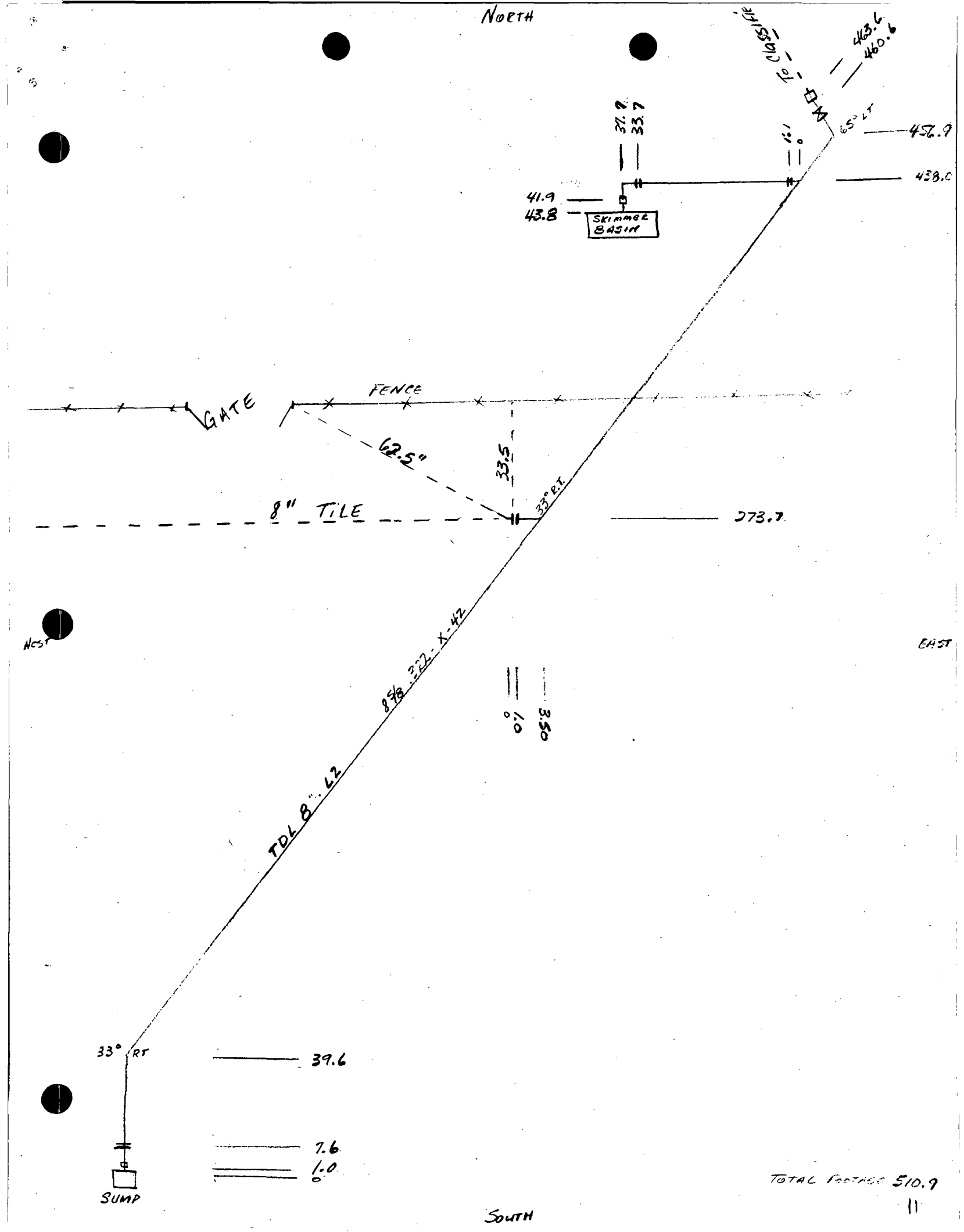
CBD-6' L3


N-20+00
N-18+00


CHLORINE TK.
4" SEWER
BLIND FLG.
BLIND FLG.
CO. HWY.
CLEANOUT
BASIN
4" CT. BLDG.
LN PLACE


ABANDONED IN PLACE
4" CT BL-DN
TIES INTO CBD 6 L3
8" STEEL TDL 8 L2
ABANDONED IN PLACE
Pump House
C.T.


ABANDONED IN PLACE
3" STEEL TDL & L2
ABANDONED IN PLACE
4" CT. BL-DN.
STILL



TOTAL FOOTAGE 510.9

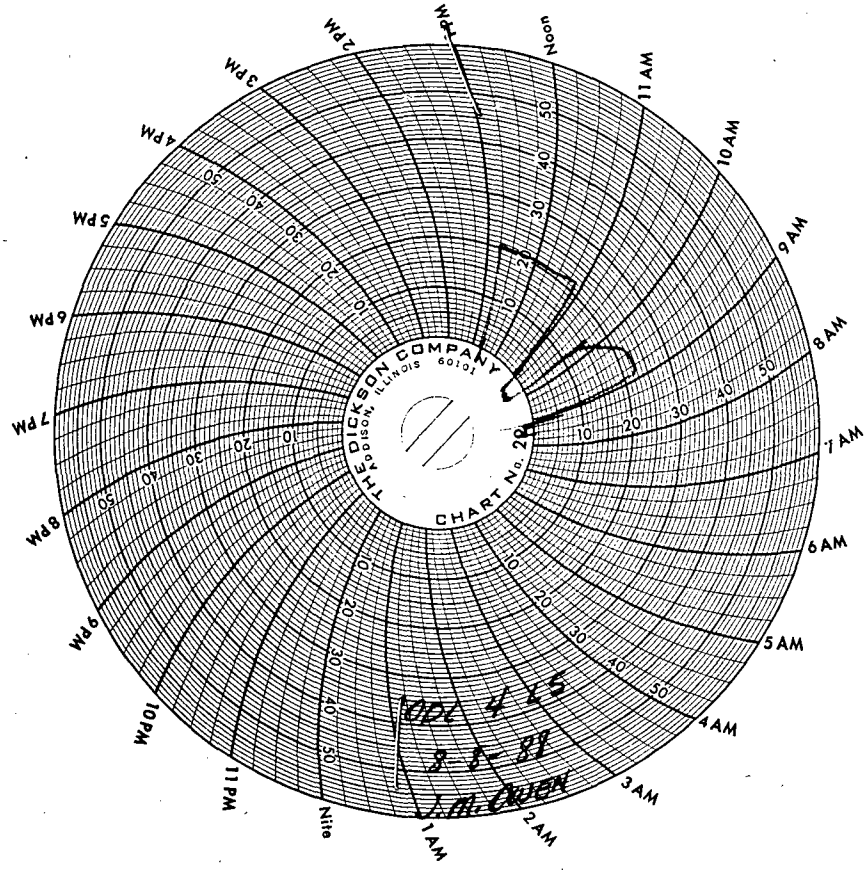
JAL #3 DRAIN LINES

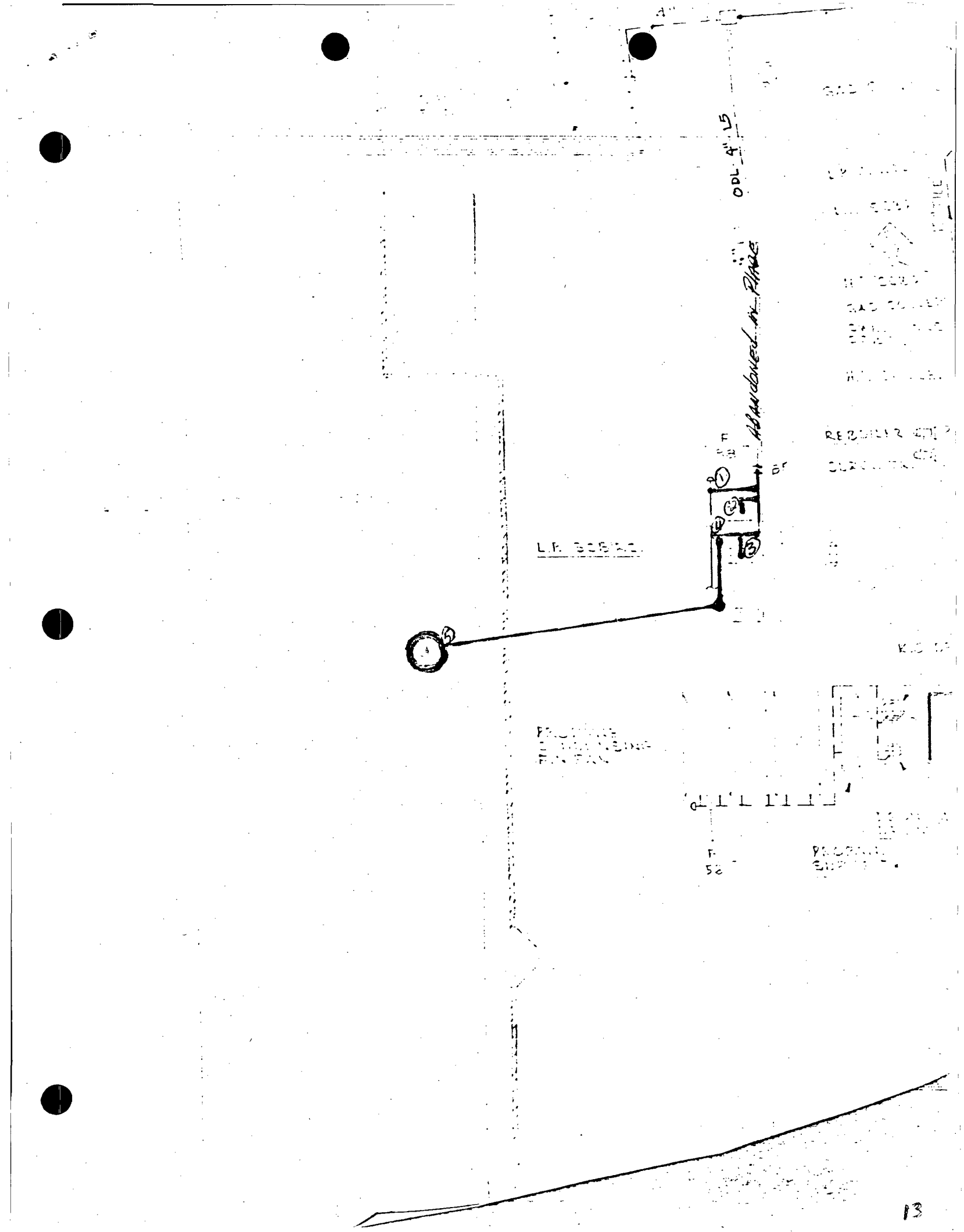
ODL 4 - L5 From Low Pressure Scrubbers to 210 Barrel Tank West of Plant Fence

1. Close off automatic dump from Header (L.P.)
2. Close off automatic dump from scrubber (L.P.)
3. Close off automatic dump from scrubber (L.P.)
4. Close off 4" valve from header (This valve should be in a close position at all times)
5. Close 3" valve at 210 barrel tank

REMARKS: **FROM BLIND FLANGE TO SUMP AT B PLANT HAS BEEN ABANDONED. DRAIN WAS REROUTED TO TANK. RAISED TEST PRESSURE FROM 10# to 20#. HAD TO INSTALL CLAMP AT LOCATION #4 ON 3" LINE GOING TO TANK. GREASED ALL 2" VALVES.**

Test Pressure	20# - 1 hr.
Date Tested	8-8-88
Tested by	Johnny M. Owen (EPNG)
	Mike Hall (Merryman Construction)

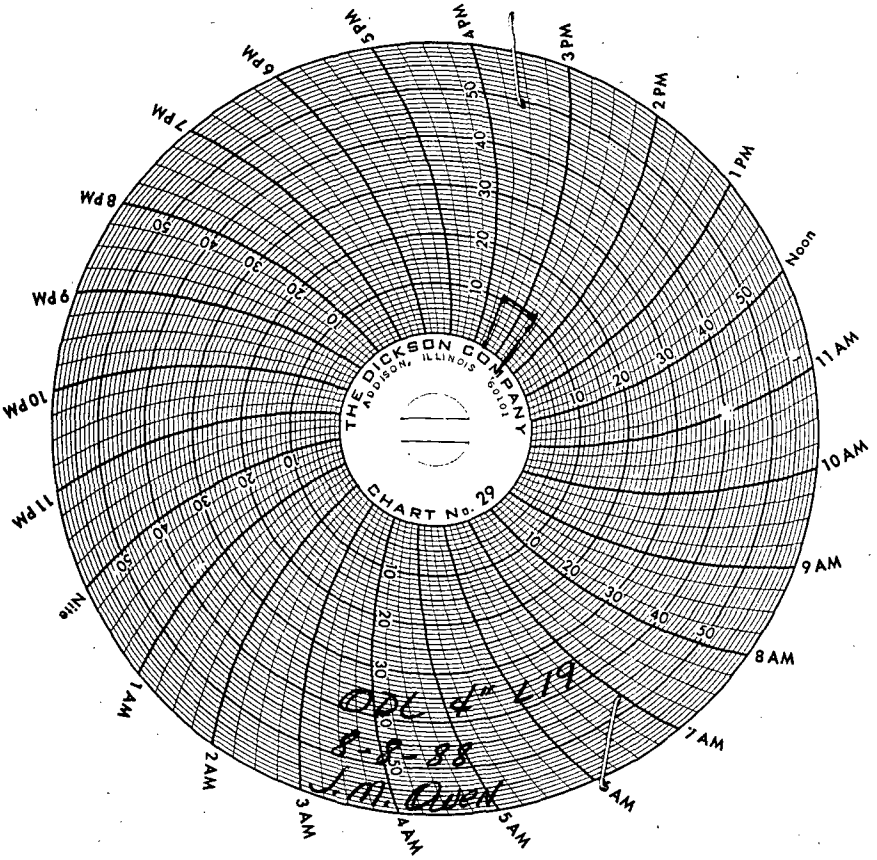


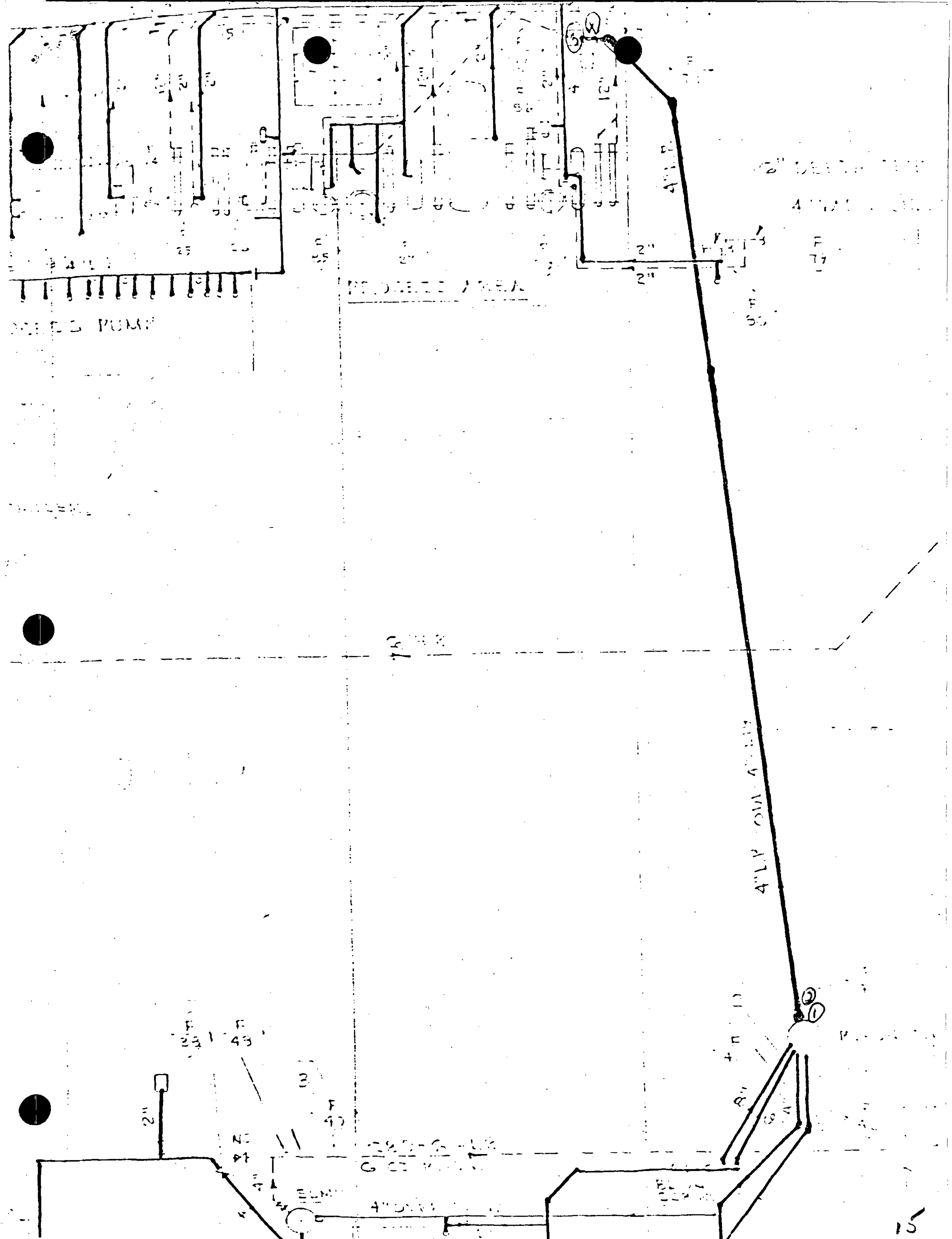

ODL 4" LS
Abandoned in Place
L.P. SCRIBE
1
2
3
4
5

ODL - 4" L 19 Boiler Blow Down Tank to Sump North of Process Area

1. Shut current off to pump
2. Close valve at Pump
3. Install expandable plug in 4" at Sump
4. Test from 1" collar at Sump.

Test Pressure 10# 1hr.
Date Tested: 8-8-88
Tested by: Johnny M. Owen (EPNG)
Mike Hall (Merryman Construction)




2"
2"
4"LP ON 4"
F 43
F 55
F 77
PUMP

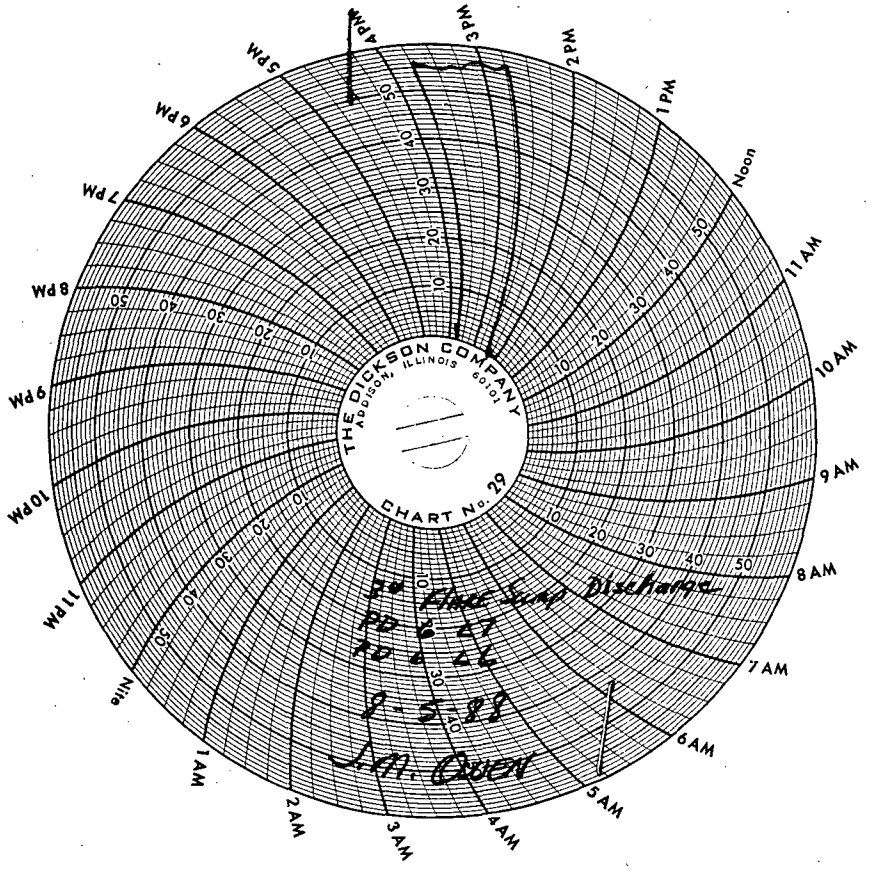
JAL #3 DRAIN LINES

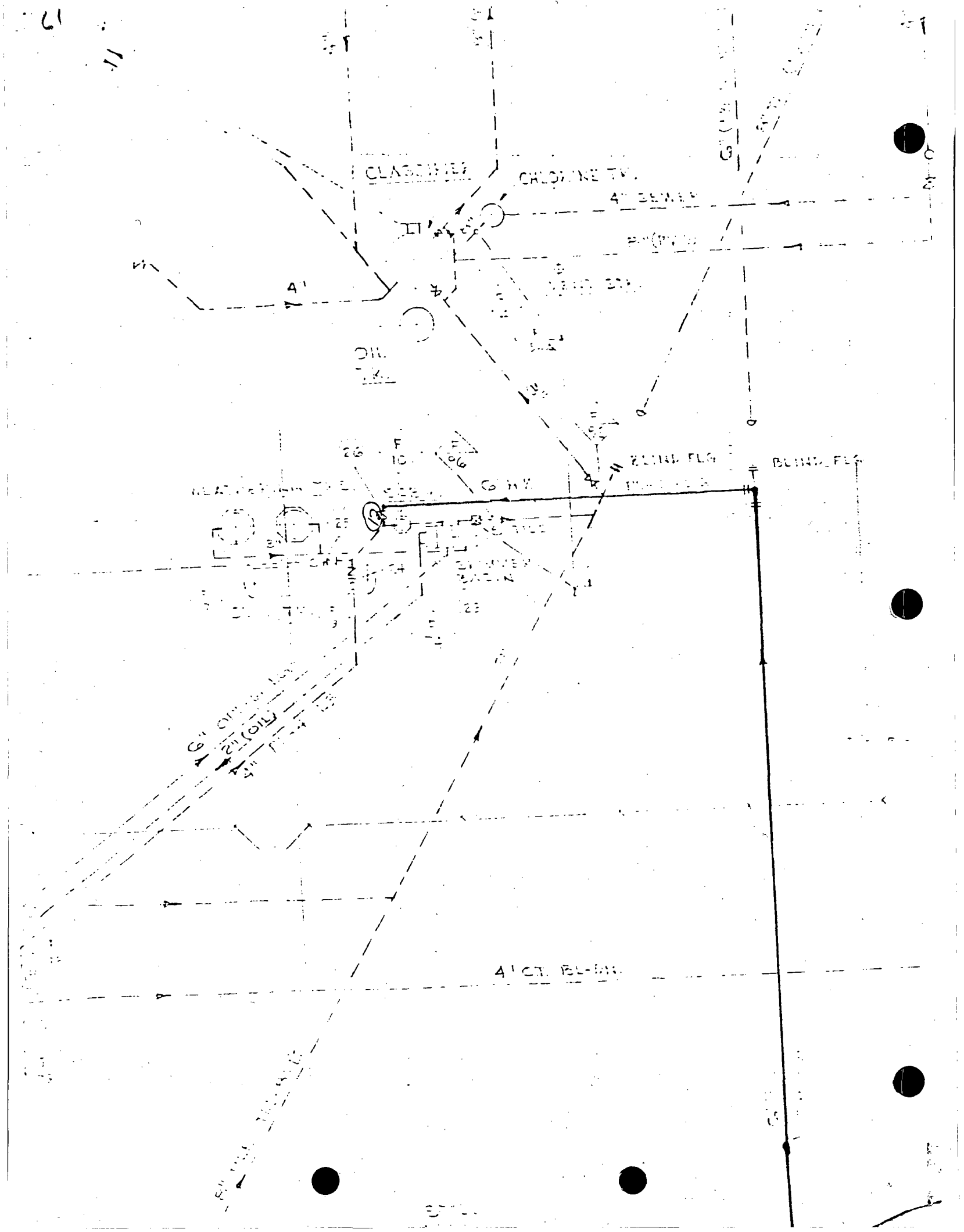
3" Line from Flare Sump to Junction of PD 6" L7
PD 6" L7 to Junction of PD 6" L6
PD 6" L6 to Junction of PD 4/6 L2

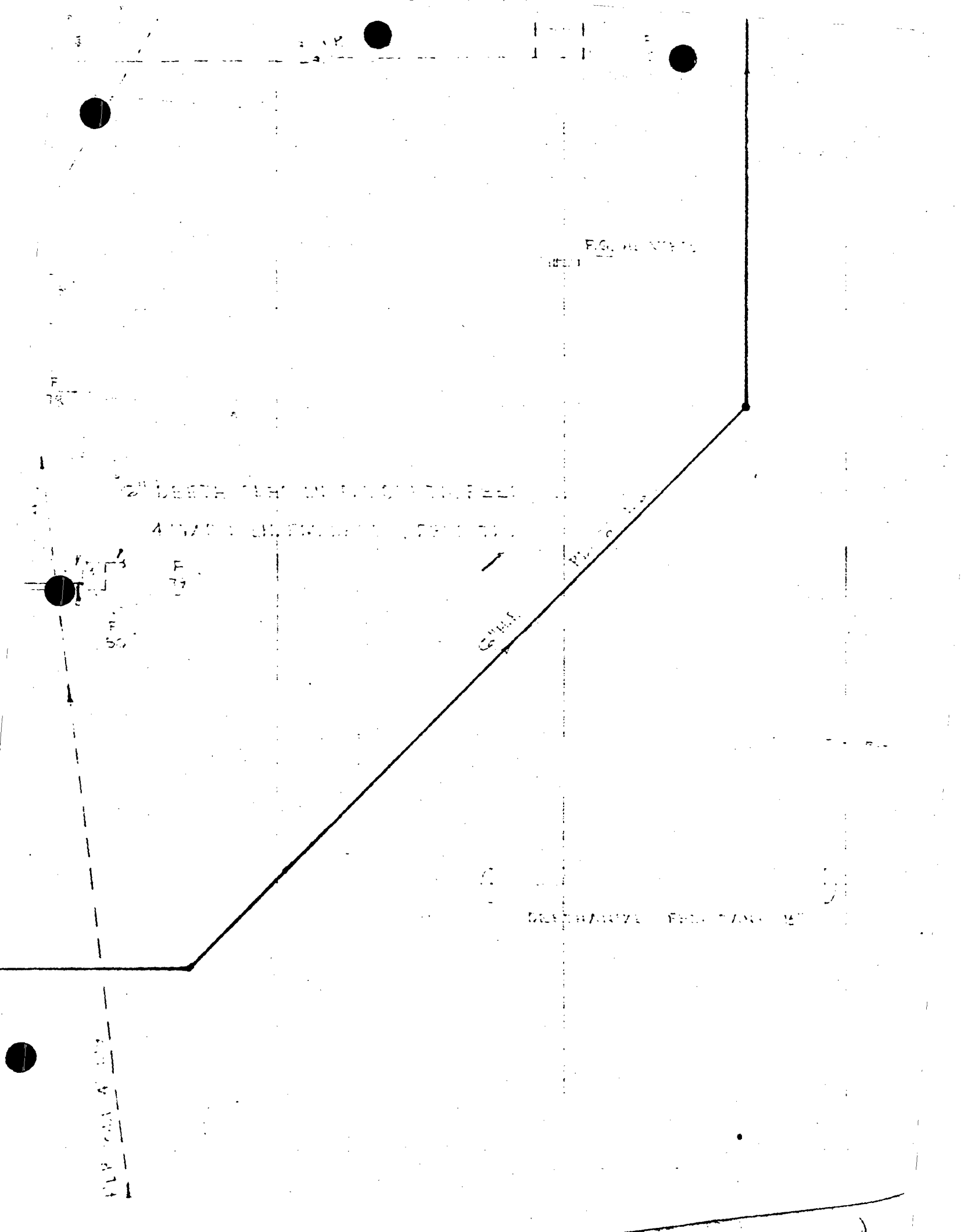
1. Shut current off to pump at sump
2. Close 3" valve at pump
3. Close valve at scrubber
4. Close valve at scrubber
5. Close valve at scrubber
6. Close valve at absorber
7. Close valve at absorber
8. Close valve at still
9. Close valve at contactor
10. Close valve at scrubber
11. Install 2" blind at check valve at junction with PDL 2" L8
12. Close 6" gate valve at Junction PD 6" L2

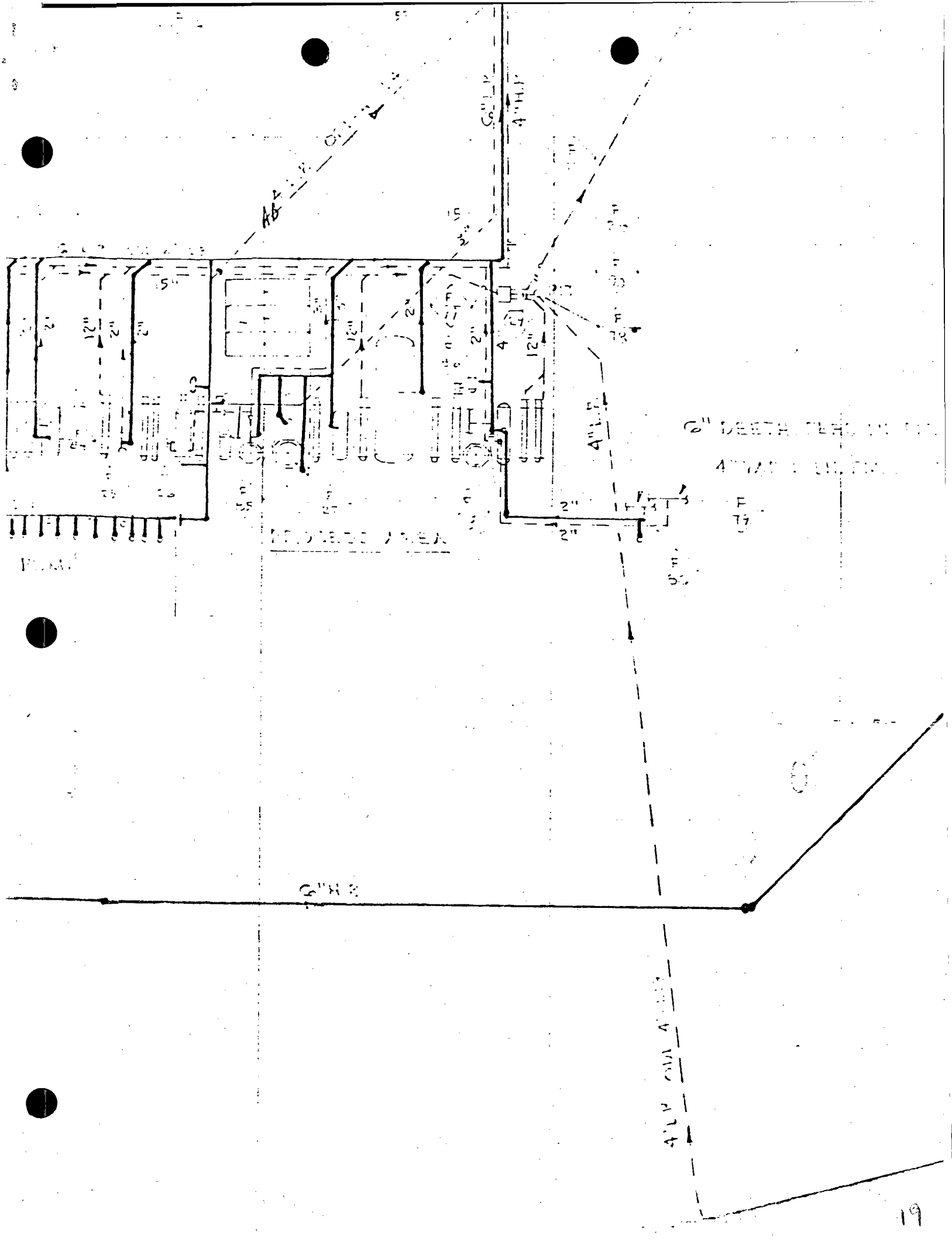
REMARKS: **FILL LINE FROM 1" COLLAR AT CHECK VALVE. THERE IS A 1" COLLAR AT GATE VALVE AT JUNCTION WITH PDL 6" L2 TO LET AIR OUT OF LINE**

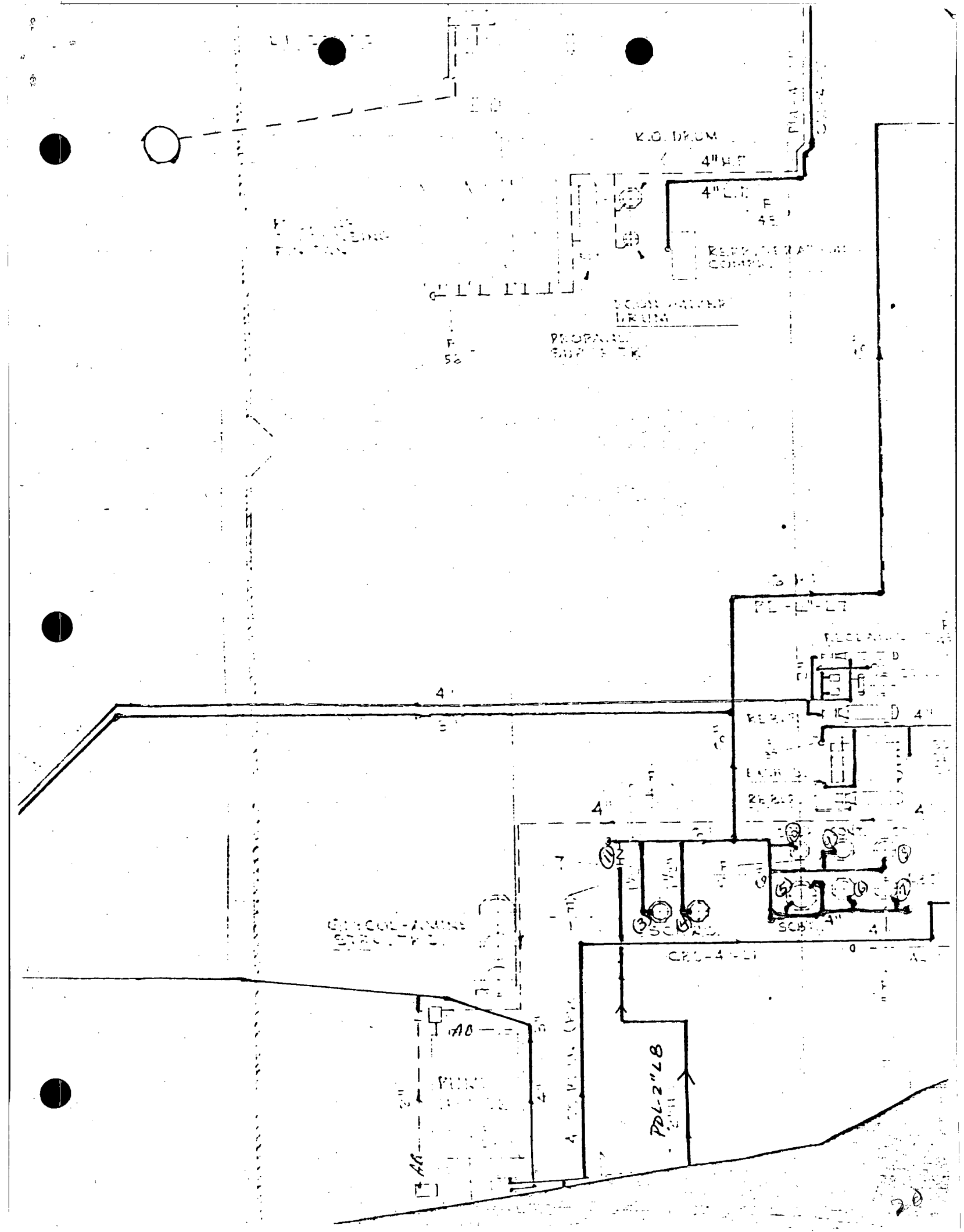
Test Pressure	50# Min 1 hr
Date Tested	8-5-88
Tested by	Johnny M. Owen (EPNG)
	Mike Hall (Merryman Construction)

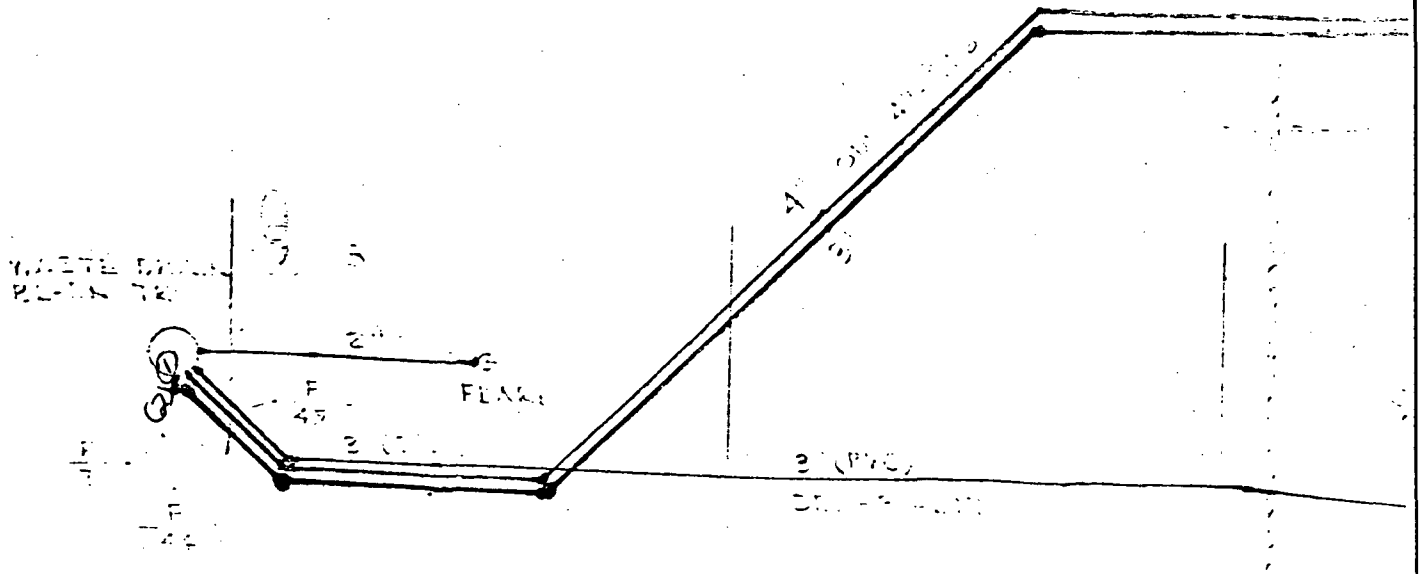



CLASSIFIER
CHLORINE TK.
4" SEWER
4'
OIL
BLDG. FLR.
BLDG. FLR.
CO. HWY.
4' CT. BLDG.






K.O. DRUM
4" H.T.
4" L.T.
PROPANE
PDL-2"-48
AB



JAL #3 DRAIN LINES

PD 4/6 L2 to Scrubber
PD 6 L1 C Plant to Junction of PD 4/6 L2

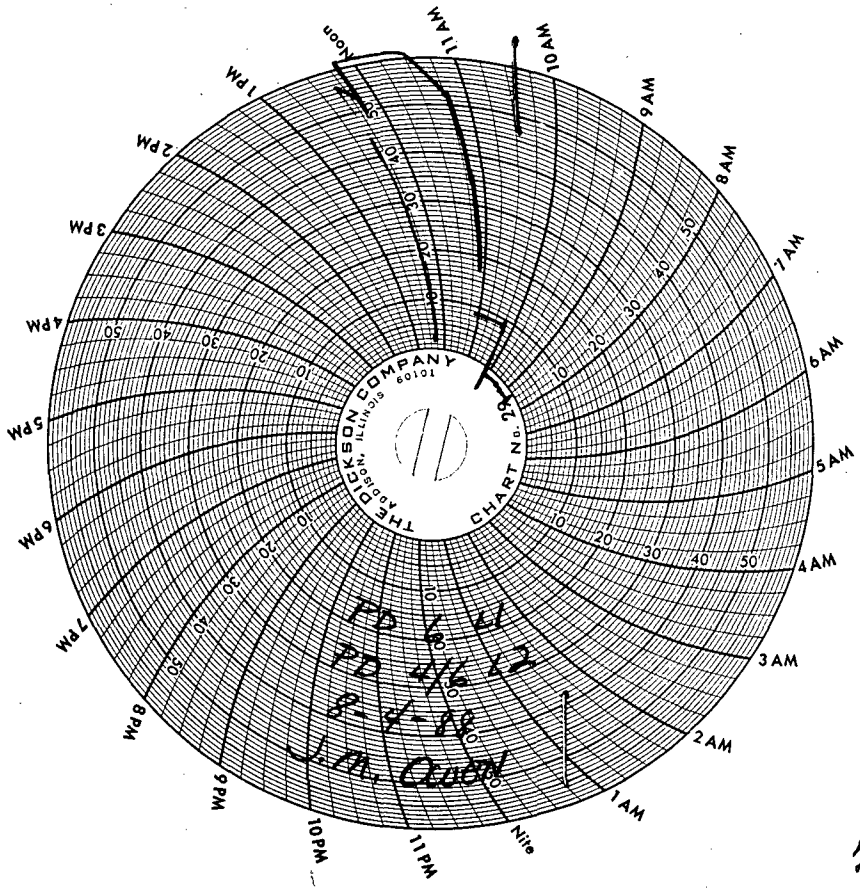
1. Have C Plant Operator shut in all pressure drains
2. Close 2" valve above ground (Break union and fill line from this point and test.) This line is from gas blowdown from header's of Worthington Engines B Plant valve located approximately 20' from inlet scrubber
3. Close 2" valve off of pump
4. Close valve at inlet scrubber — Automatic Regulator
5. Close valve at 1st stage scrubber #6 Engine — Automatic Regulator
6. Close valve at 2nd stage scrubber #6 Engine — Automatic Regulator
7. Close valve at 1st stage scrubber #5 Engine — Automatic Regulator
8. Close valve at 2nd stage scrubber #5 Engine — Automatic Regulator
9. Close valve at Pit — Automatic Regulator
10. Close valve at Horizonal Vessel — Automatic Regulator
11. Blind plate scrubber

REMARKS: INSTALLED NEW CHECK & 6" BUTTERFLY VALVE BY STOP TANK AT LOCATION #12 LOCATED APPROXIMATELY 3' FROM EAST SIDE OF PIER AND 2' FROM NORTH SIDE OF PIER OF STOP TANK

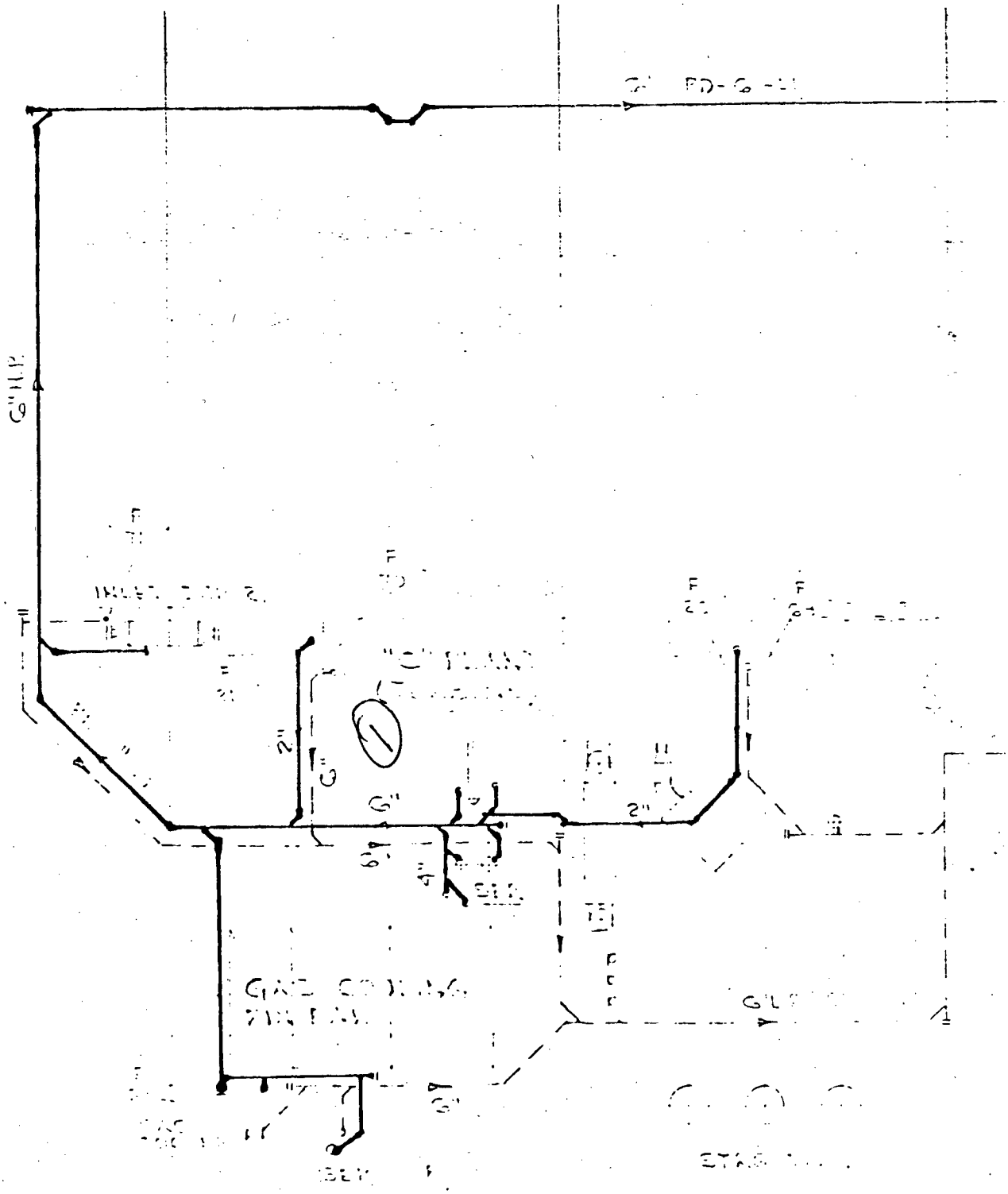
Test Pressure: 50# min 1 hr. Test got to 78# on gauge. Bled down to 53# at 12:15 PM. Line laying by hot line.

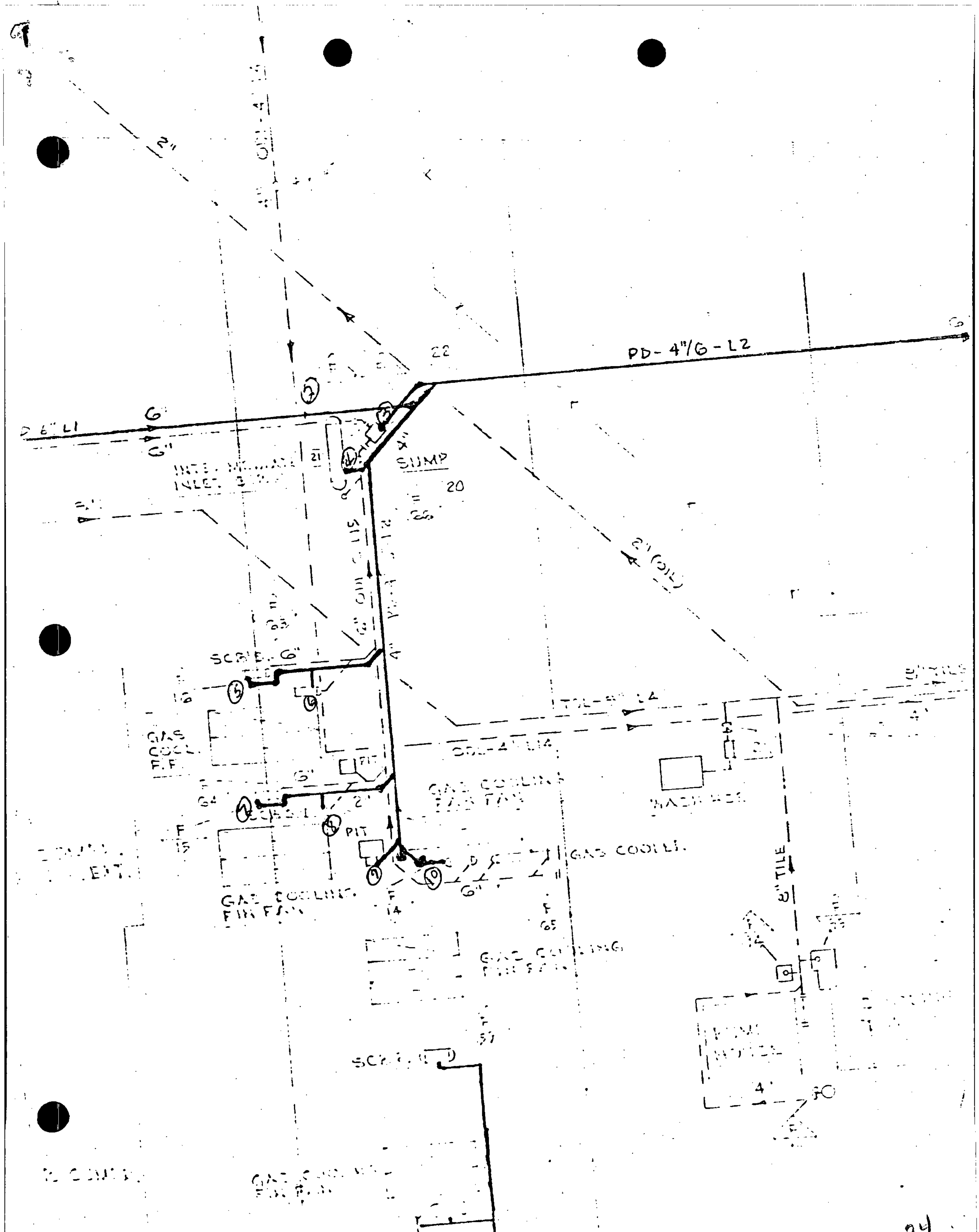
Date Tested: 8-4-88

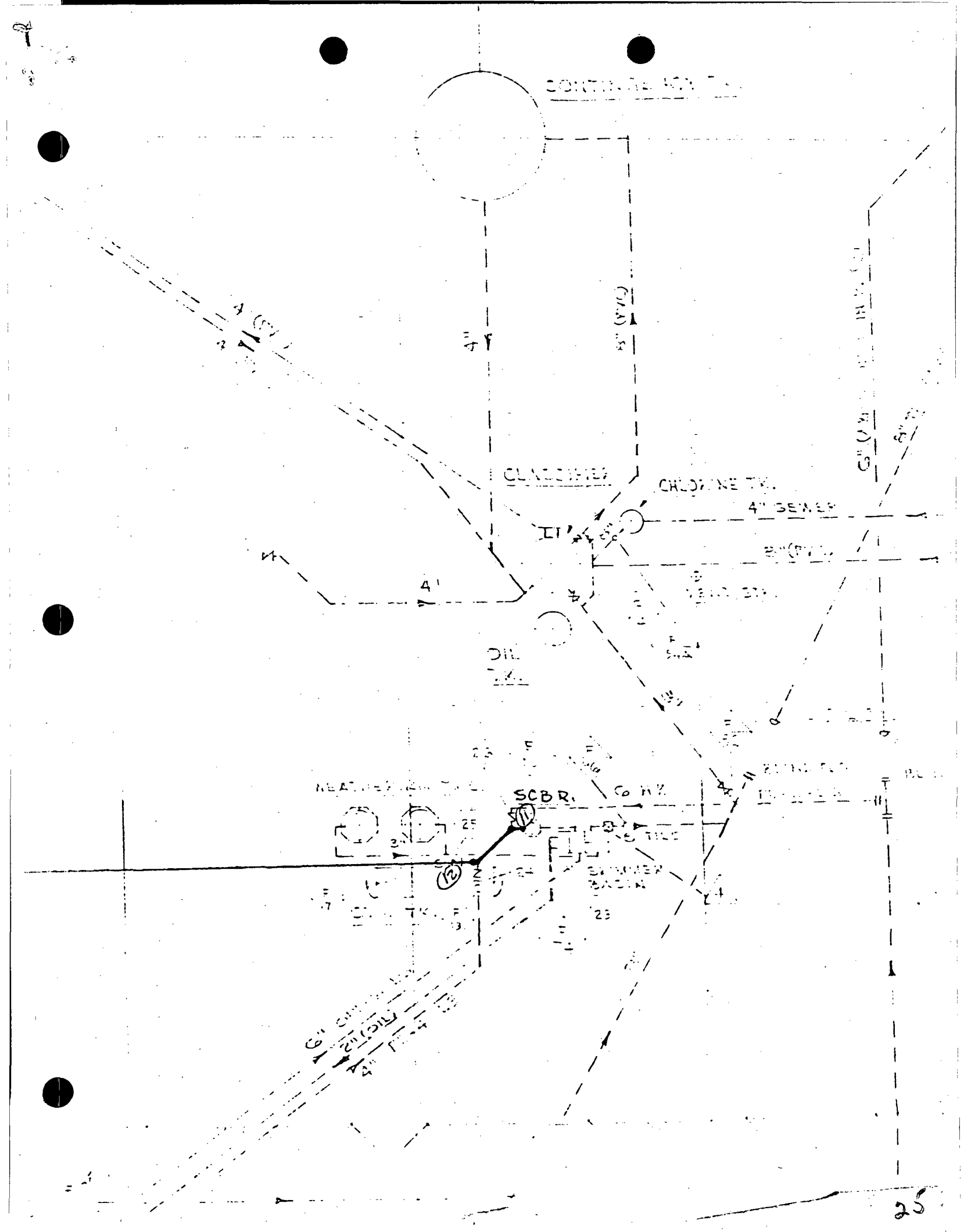
Tested by: Johnny M. Owen (EPNG)
Mike Hall (Merryman Construction)



22




PD-4"/6-L2
22
6"
SUMP
20
21
4"
PIT
6"
2"
GAS COOLER
GAS COOLING FIN FAN
8" TILE
4"
F 63
16
F 64
F 15
F 14
F 65
F 57
2"
6"


CHLORINE TK.
4" SEWER
SCBR.
11
12

PDL - 4 - L5 From low oil chiller to junction of PDL - 4 - L4

1. Close valve on L. O. chiller
2. Close valve on H. P. chiller
3. Close valve on H. P. scrubber
4. Close valve on H. P. absorber
5. Close valve on H. P. scrubber
6. Close valve on L. P. absorber
7. Close valve on L. P. chiller
8. Close valve on scrubber

THIS IS A PARTIAL OF PDL - 4 - L5. OTHER PART OF LINE IS TIED INTO GAS SYSTEM GOING TO 6" RELIEF VALVE GOING TO FLARE LINE. ALL PIPING ON THIS SECTION IS ABOVE GROUND. THIS DRAWING IS INCORRECT. THE BLIND FLANGE ON SOUTH END OF LINE IS ACTUALLY ABOUT 10" FROM CENTER OF SOLUTION CONTACTOR TO THE SOUTH.

PDL - 4 - L4 From junction of PDL - 4 L% to Junction of PDL 4 - L3

1. Close valve on cold oil tank
2. Close valve on fuel separator
3. Close valve on hot oil tank
4. Close valve on still
5. Close valve on oily water still
6. Close valve on still
7. Close valve on still
8. Close valve on overhead vessel
9. Close valve on 8" header off rack

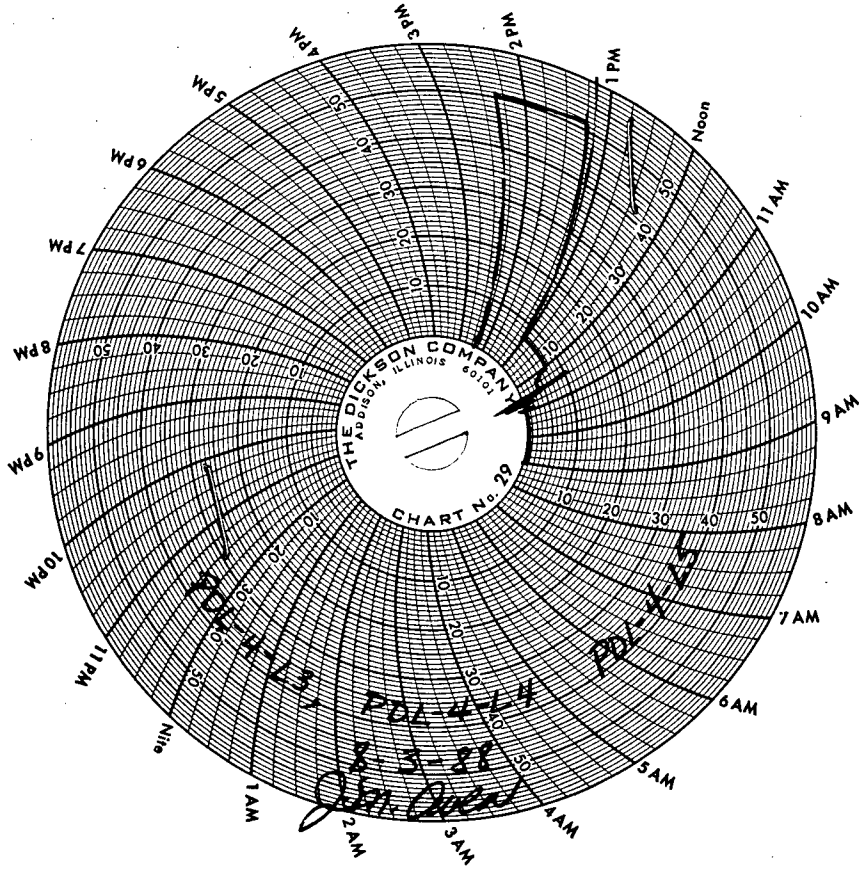
PDL - 4 - L3 From junction of PD 4 - L4 to junction of PD 4/6 L2

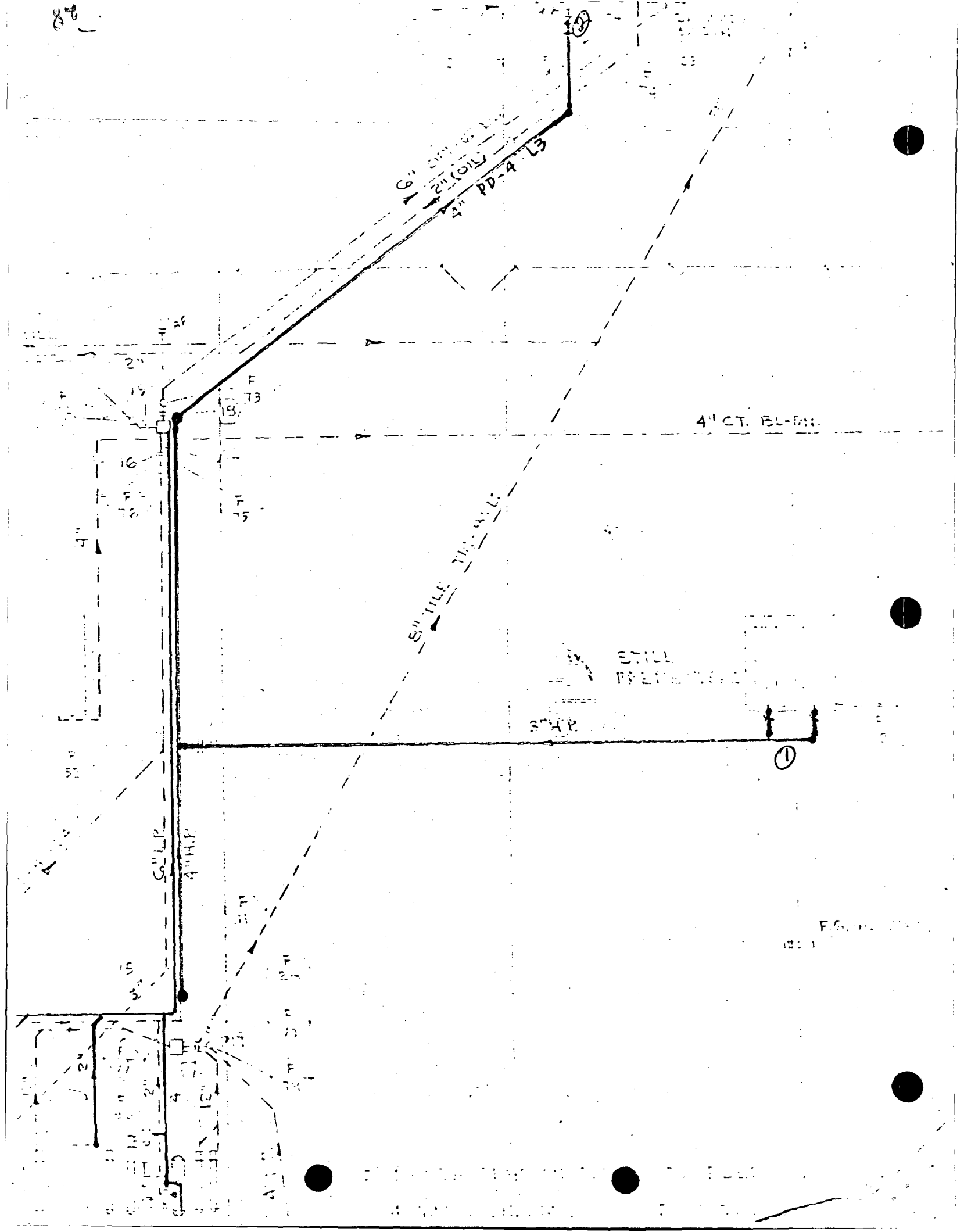
1. Close valves on still preheaters
2. Close 4" butterfly valve at end of line

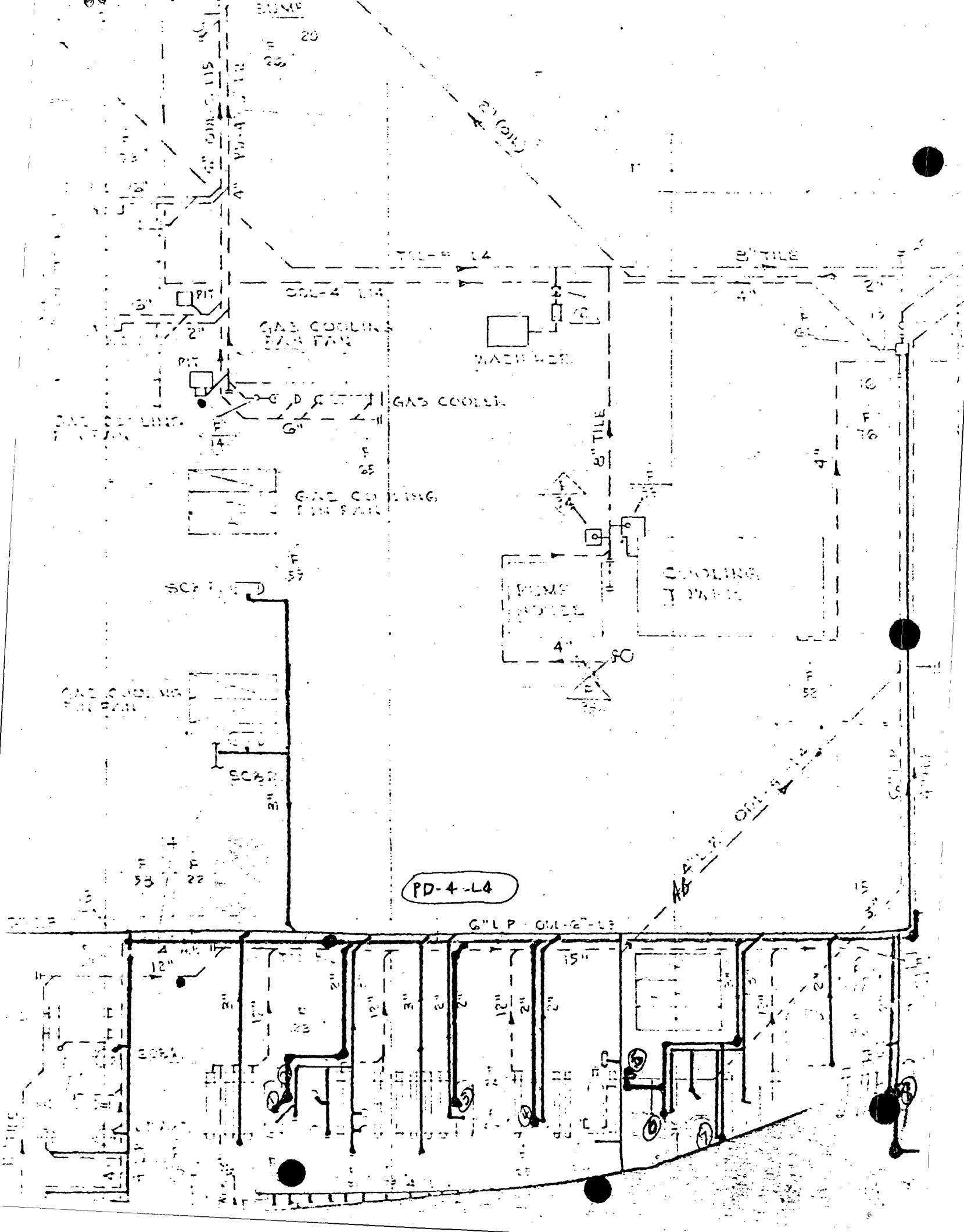
REMARKS: THE BUTTERFLY VALVE AT LOCATION #2 IS LOCATED APPROXIMATELY 3' EAST OF PIER OF THE LARGE OVERHEAD SCRUBBER. ALL THREE TESTS WERE DONE TOGETHER - PD - 4 - L5, PD - 4 - L4, PDL - L3

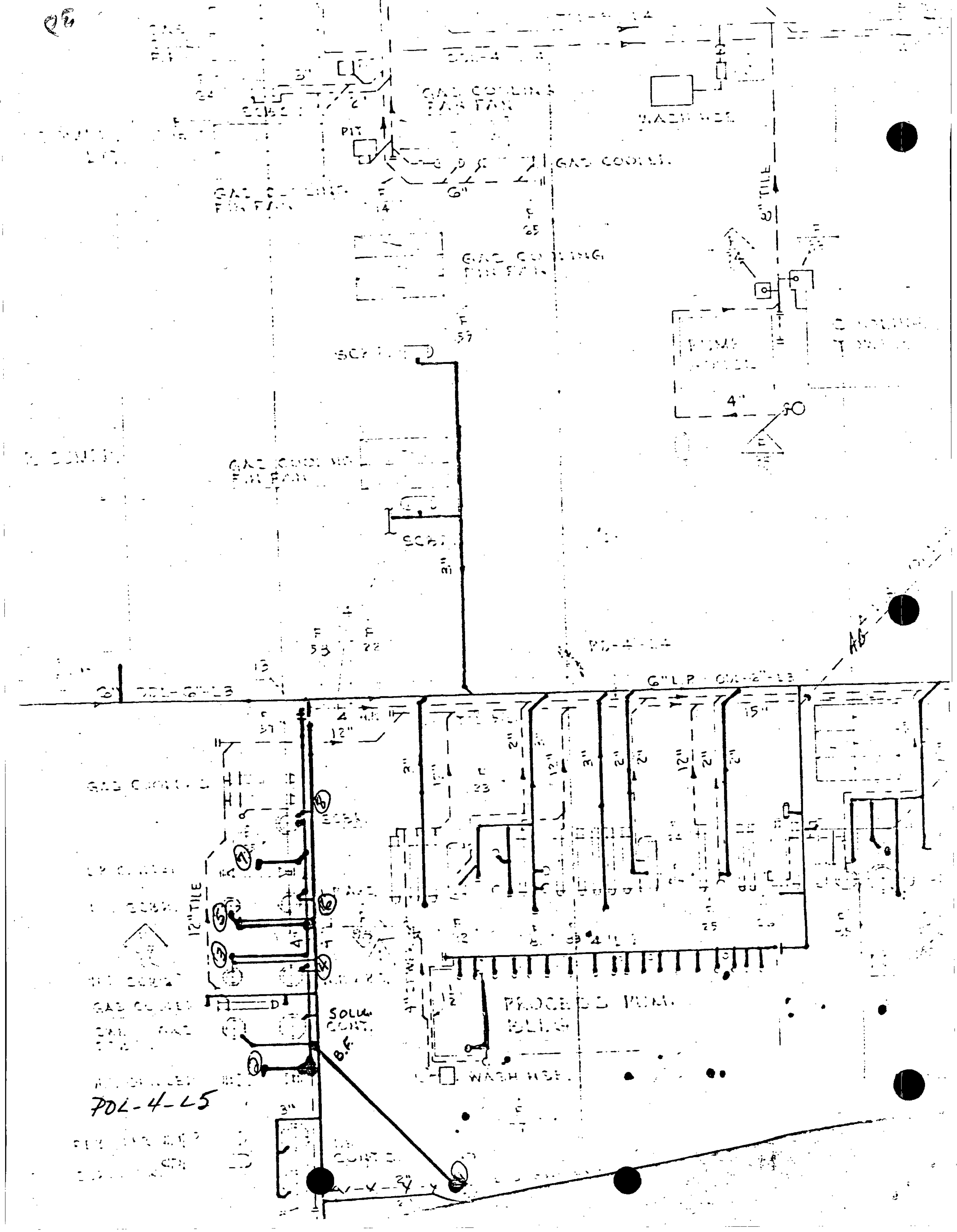
Test Pressure: 50# - 1 hr.
Test Date: 8-3-88

Tested by: Johnny M. Owen (EPNG)
Mike Hall (Merryman Construction)


THE DICKSON COMPANY
ADDISON, ILLINOIS
CHART No. 29
PDL-4-L-3
PDL-4-L-4
8-3-88
PDL-4-L-5
Noon
1PM
2PM
3PM
4PM
5PM
6PM
7PM
8PM
9PM
10PM
11PM
Nite
1AM
2AM
3AM
4AM
5AM
6AM
7AM
8AM
9AM
10AM
11AM


6" CWP (OIL)
2" (OIL)
4" PD-4" L3
4" CT. BL-FAB.
3" H.P.
6" LP
4" H.P.


PD-4-L4


GAS COOLING FIN FAN
WASH HOSE
PIT
6"
8" TILE
4"
12" TILE
SOLU CONT.
B.F.
PROCESS ROOM BLDG.
POL-4-L5
AG

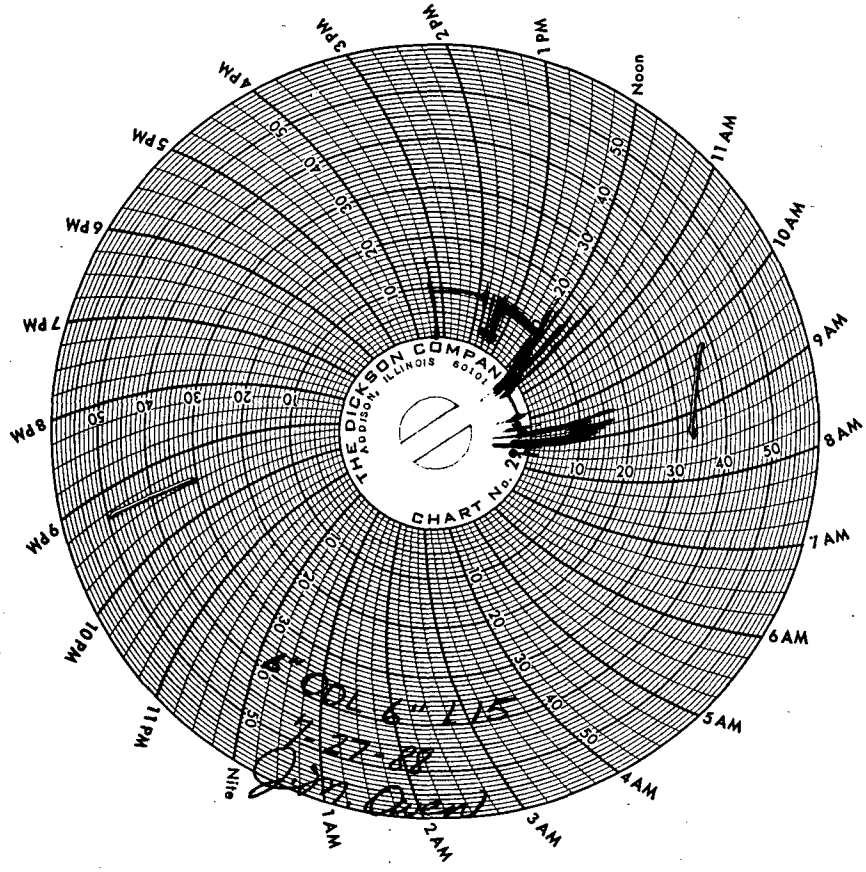
JAL #3 DRAIN LINES

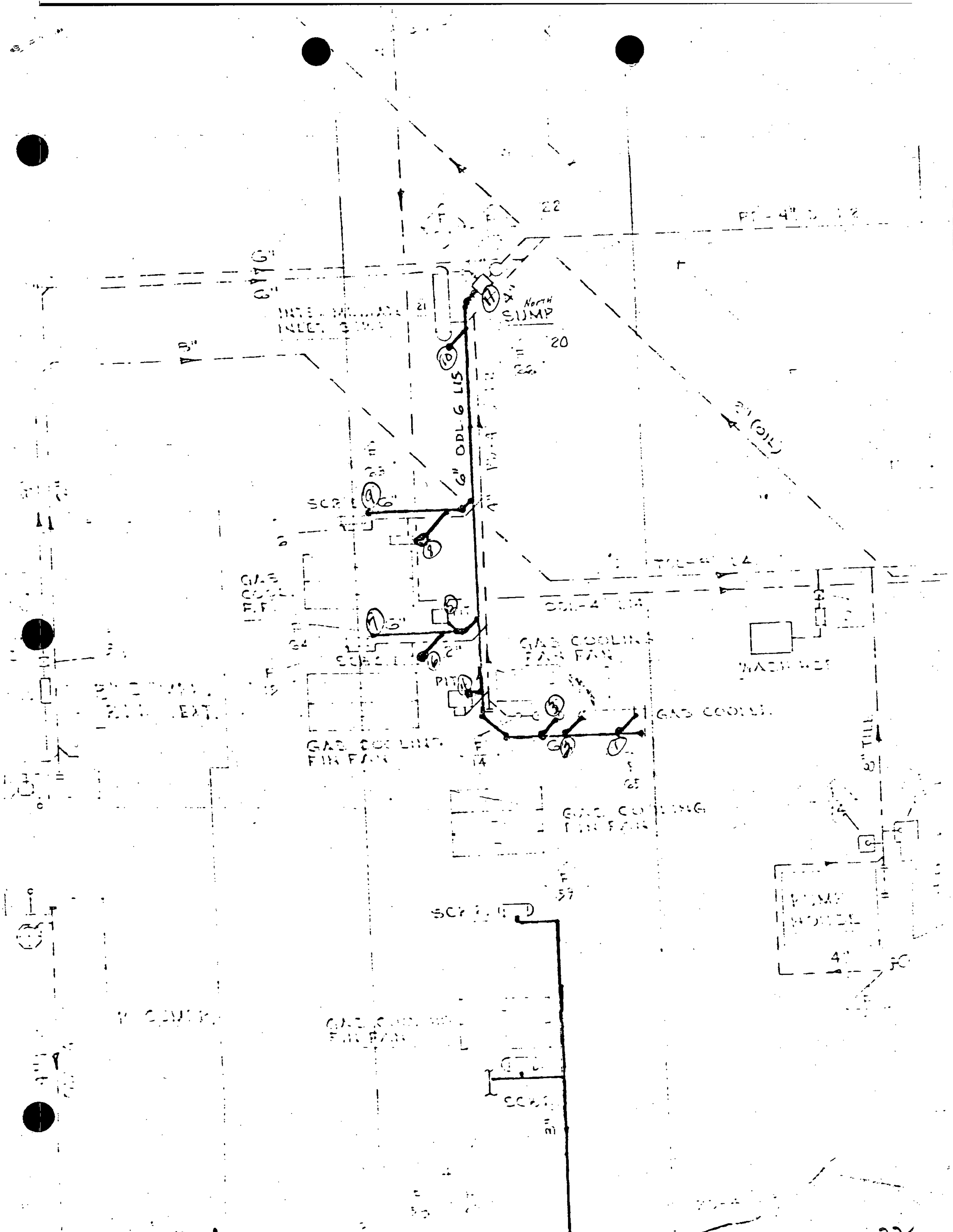
6" ODL 6-L15 From gas cooler to north sump

1. Install expandable plug in apron drain east side of gas cooler
2. Install expandable plug in apron drain west side of gas cooler
3. Install expandable plug in pit off scrubber
4. Install expandable plug in pit between fin fans
5. Install expandable plug in pit
6. Install expandable plug in pit off scrubber (2nd stage)
7. Install expandable plug in pit off scrubber (1st stage)
8. Install expandable plug in pit off scrubber (2nd stage)
9. Install expandable plug in pit off scrubber (1st stage)
10. Install expandable plug in pit off inlet scrubber
11. Install expandable plug in sump.

REMARKS: Fill line from location #4, let air out at location #1 - All these openings are 6" pipe, lost approximately ½ pound due to plug seeping at location #2

Test Pressure: 10# - 1 hr.
Tested: 7-27-88
Tested by: Johnny M. Owen (EPNG)
Mike Hall (Merryman Construction)



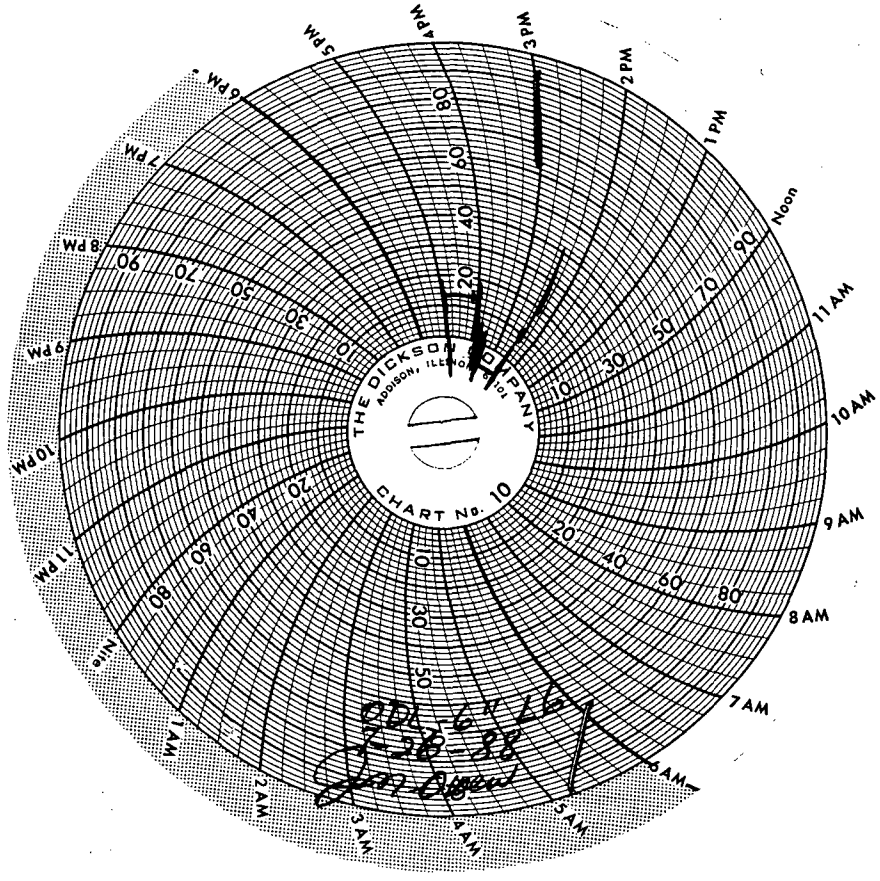

22
North
SUMP
20
6" ODL 6 LIS
PIT
GAS COOLING
FIN FAN

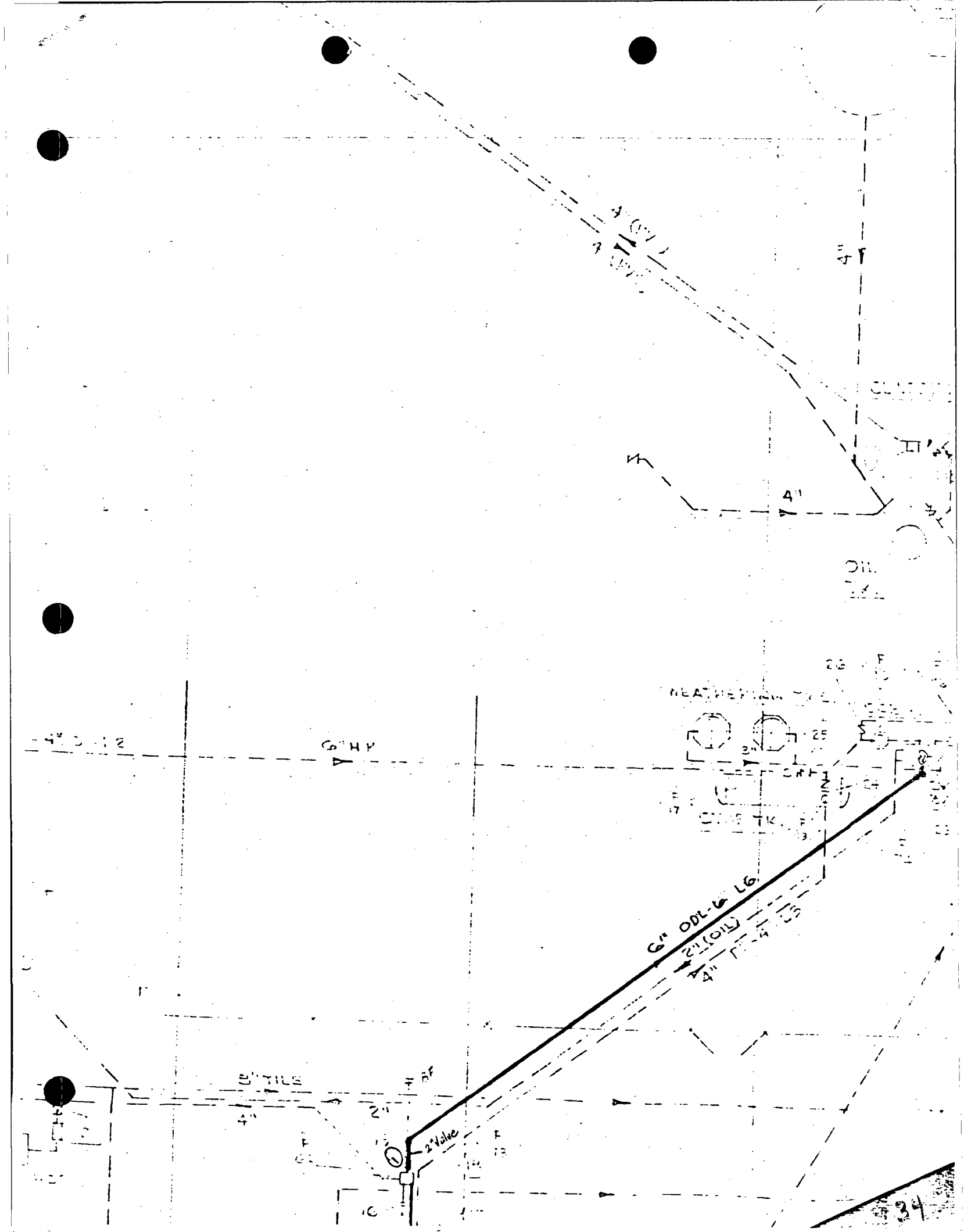
ODL - 6" L6 From sump north of cooling tower to skimmer basin

1. Plug 6" drain in sump
2. Plug tee inside skimmer basin (Use two (2) 6" plug for tee)

Test Pressure: 10# min - 1 hr
Test Date: 7-26-88
Tested by: Johnny M. Owen (EPNG)
Mike Hall (Merryman Construction)

REMARKS: THIS LINE HAD PULLED INTO 3 DIFFERENT PLACES. REPAIRED ALL THREE PLACES WITH DRESSER SLEEVES. HAD 1 COLLAR TO LEAK, CUT IT OUT AND REPAIRED WITH 10' of PLASTIC PIPE - REPLACED APPROXIMATELY 124' - 10" of PLASTIC PIPE WITH 6 5/8" STEEL PIPE. THE STEEL PIPE STARTS AT SUMP NORTH OF COOLING TOWER. THERE IS A 2" VALVE APPROXIMATELY 2' FROM THE NORTH EDGE OF SUMP. USE THIS TO TEST FROM.




4"
OIL
6" H P
6" TILE
4"
2"
2" Valve
6" ODL & LG.
2" (OIL)
4"
34

JAL #3 DRAIN LINE

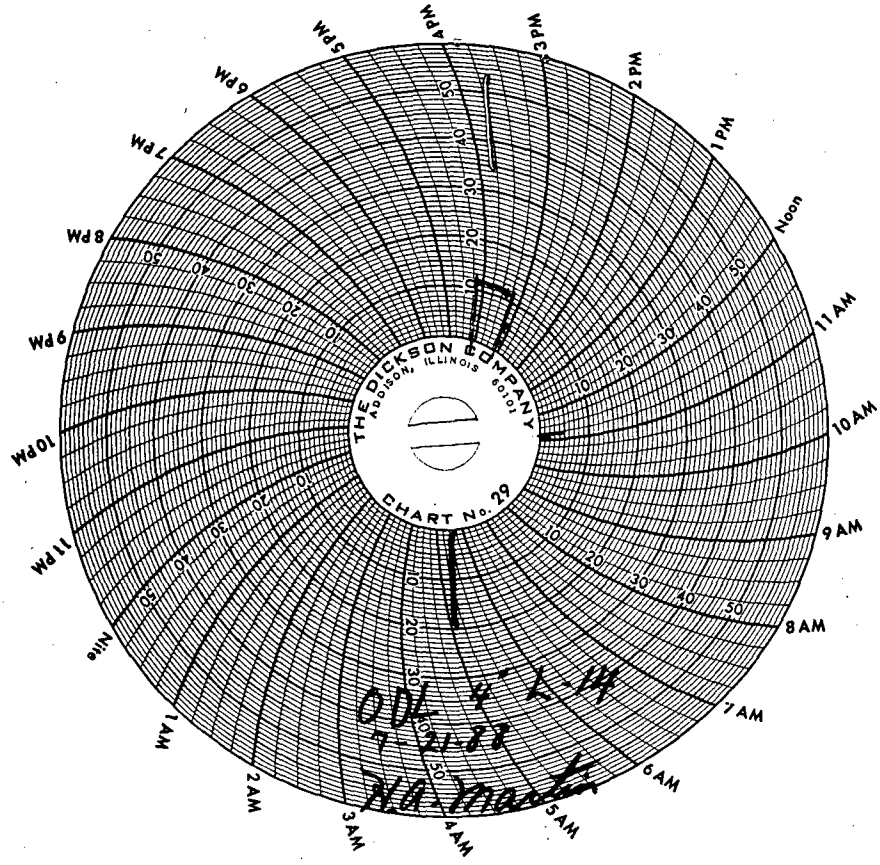
ODL - 4" - L 14 From product storage area to north sump

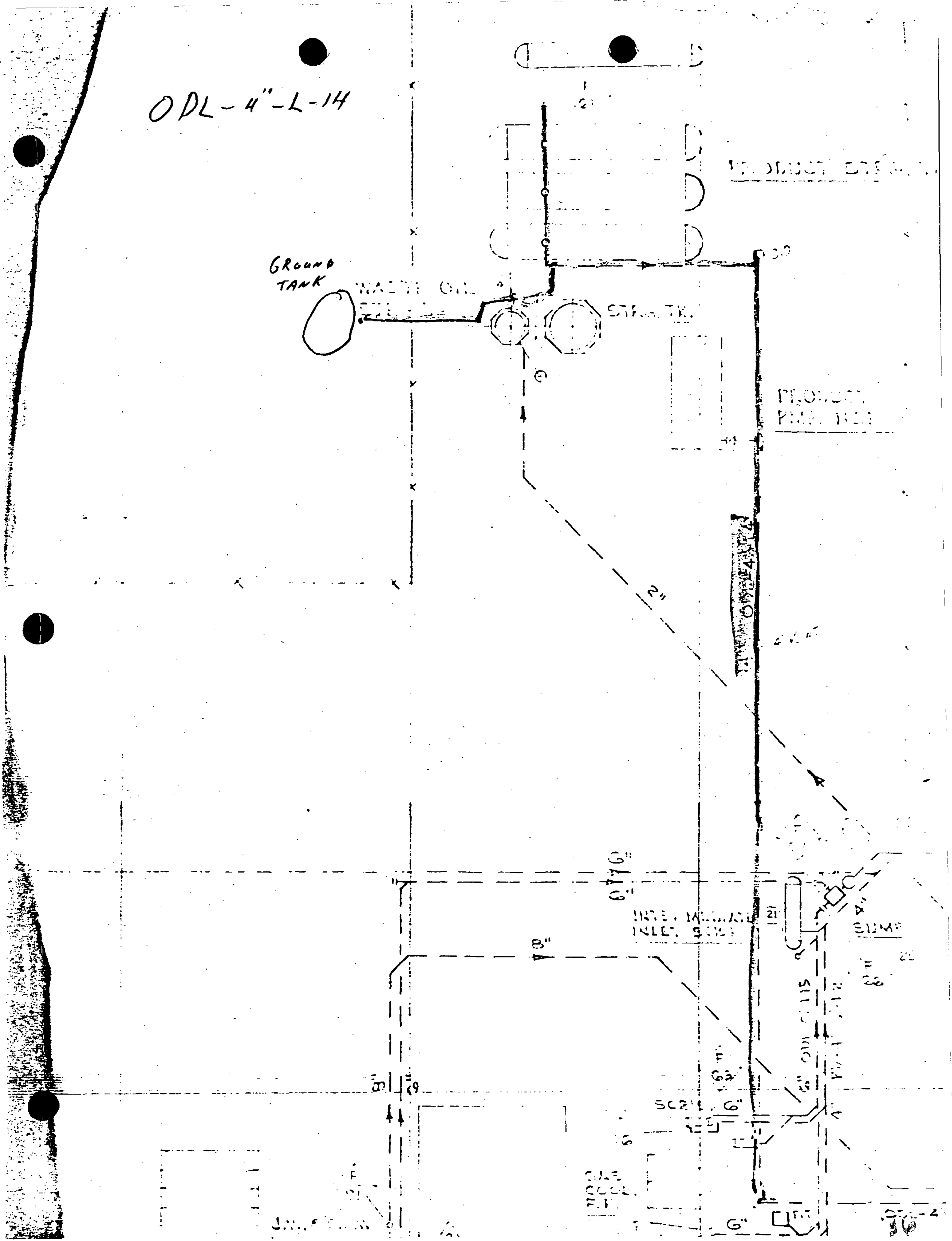
1. Close valve on ground tank located outside fence west of storage area
2. Blind plate overlfow line on waste oil storage tanks, close valve on drain line on same tank
3. Close valve on product storage tanks
4. Plug drain lines in product pump house
5. Close valve on back wash filter at cooling tower
6. Plug drain lines in pump house
7. Plug overflow in cooling tower
8. Plug drain in emergency shower at F94
9. Plug apron drain at F93
10. Plug 6" line in north sump
11. Fill and test from top approximately 80 feet south of product pump house (Blind plate on tap)
12. Test for one hour at 10#

REMARKS **THE 8" TILE LINE SHOWN ON MAP FROM PUMP HOUSE AND COOLING TOWER WAS CHANGED OUT WITH 4" PVC LINE AND CONNECTED TO L-14 LINE.**

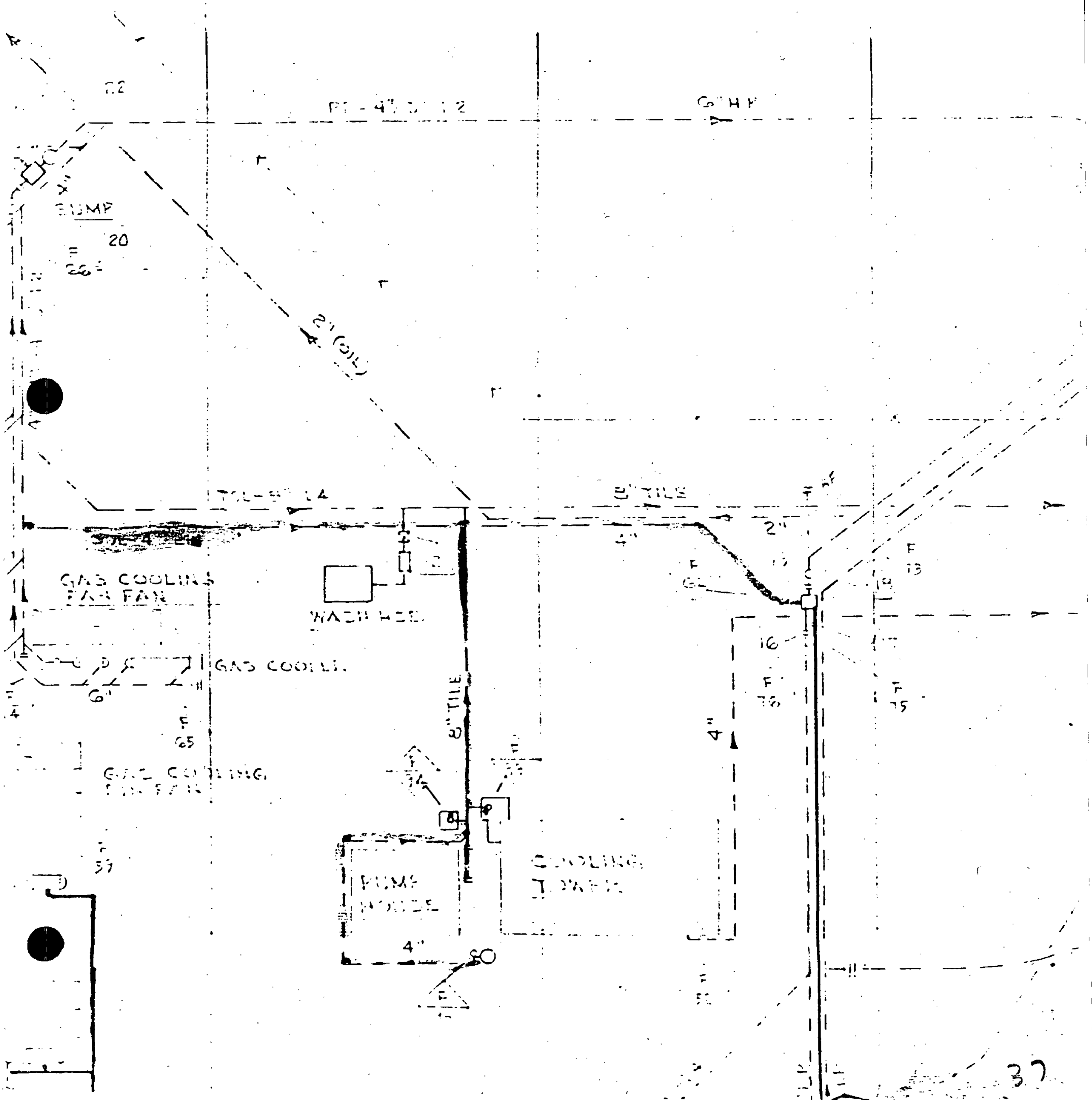
Tested for 1 hour on 7-21-88

Tested by **H. A. MARTIN (EPNG)**
MIKE HALL (MERRYMAN CONSTRUCTION)




ODL - 4" - L - 14
GROUND TANK
2"
8"
6"
6"
SUMP

ODL-4"-L 14



SUMP
2" (OIL)
8" TILE
GAS COOLING
GAS COOLER
WASH HOSE
PUMP HOUSE
COOLING TOWER
4"
2"
6"

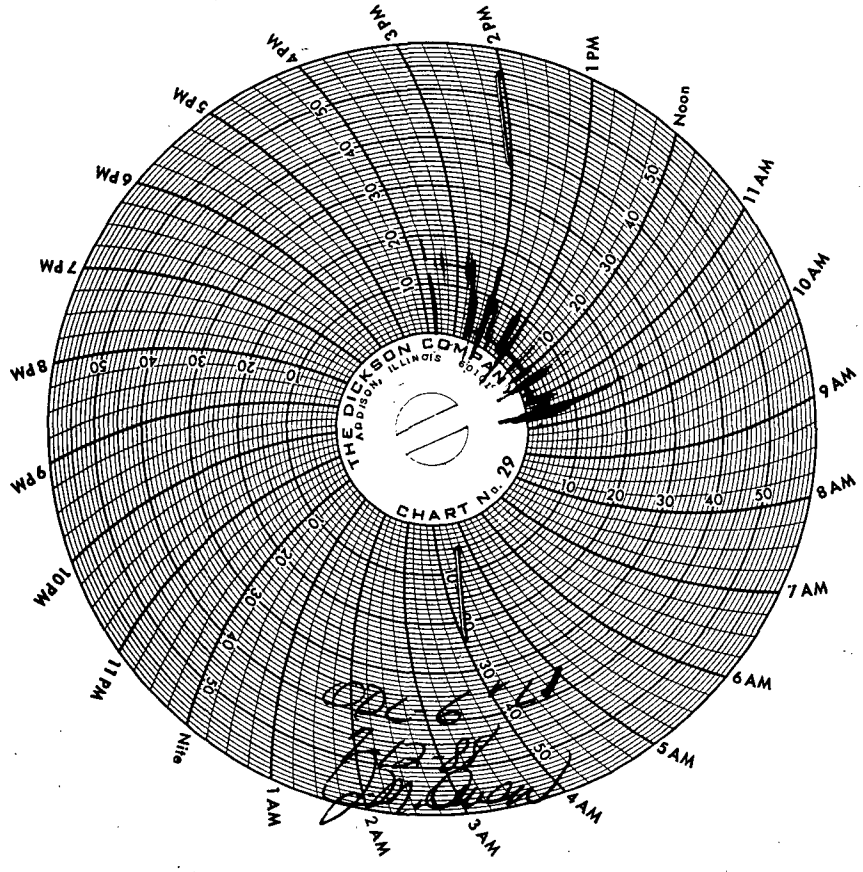
JAL #3 DRAIN LINES

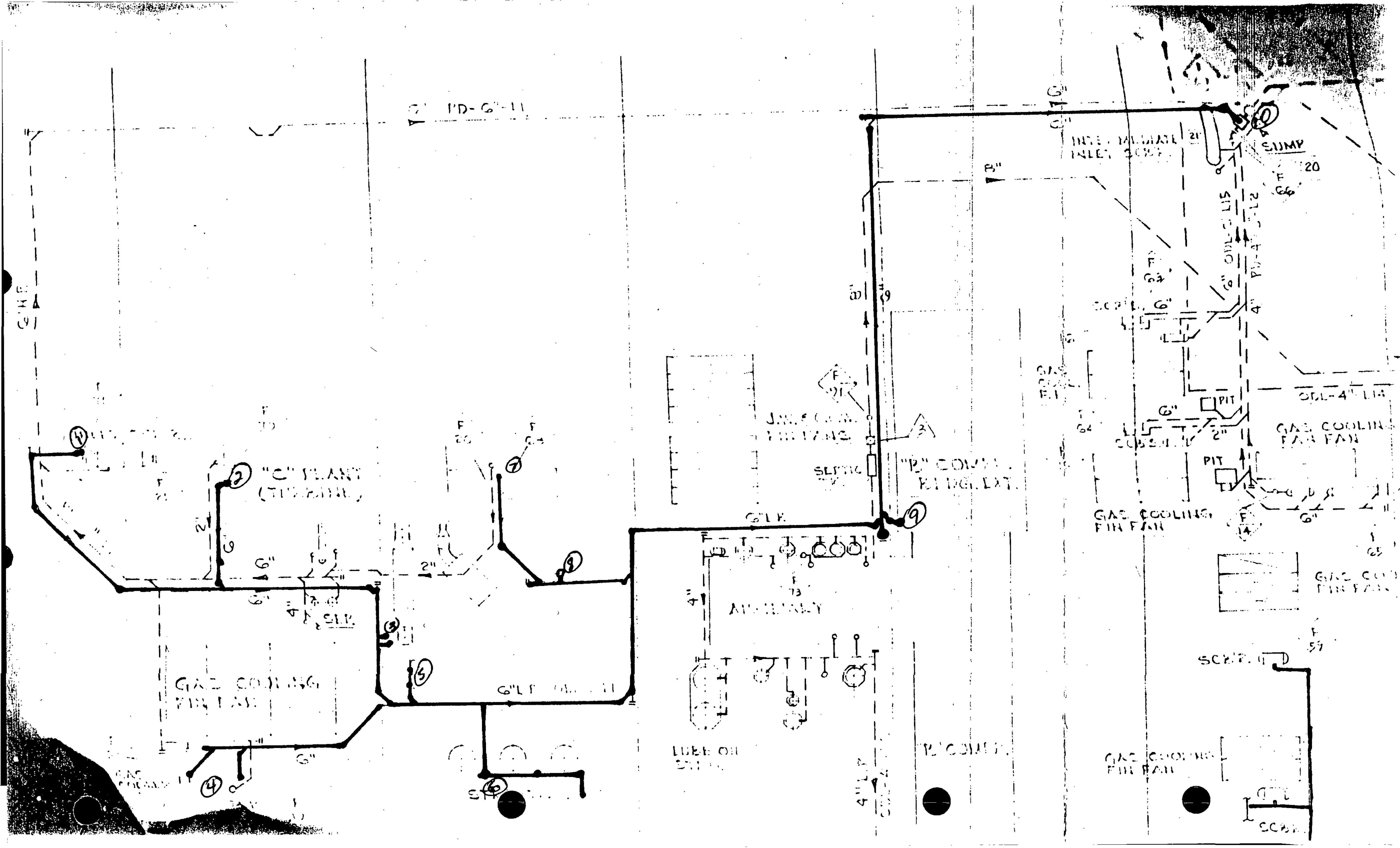
ODL - 6 L1 Open Drain Line from C Plant to Sump Northeast of B Plant

1. Plug apron drain west side inlet scrubber 1-6"
2. Plug apron drain west side turbine 1-6"
3. Plug funnel drains (2) - west side of heater 2-6"
4. Plug apron drain off gas cooler 2-6"
5. Plug funnel drains off - abandoned - pump site - 2-6"
6. Plug funnel drains off oil storage tanks 2-6" - 1-4"
7. Plug apron drain north side of building
8. Plug air condensate tank (steam) 1-3"
9. Close 2" valve off pump in basement - Shut off power
10. Plug 6" line inside pump 1-6"

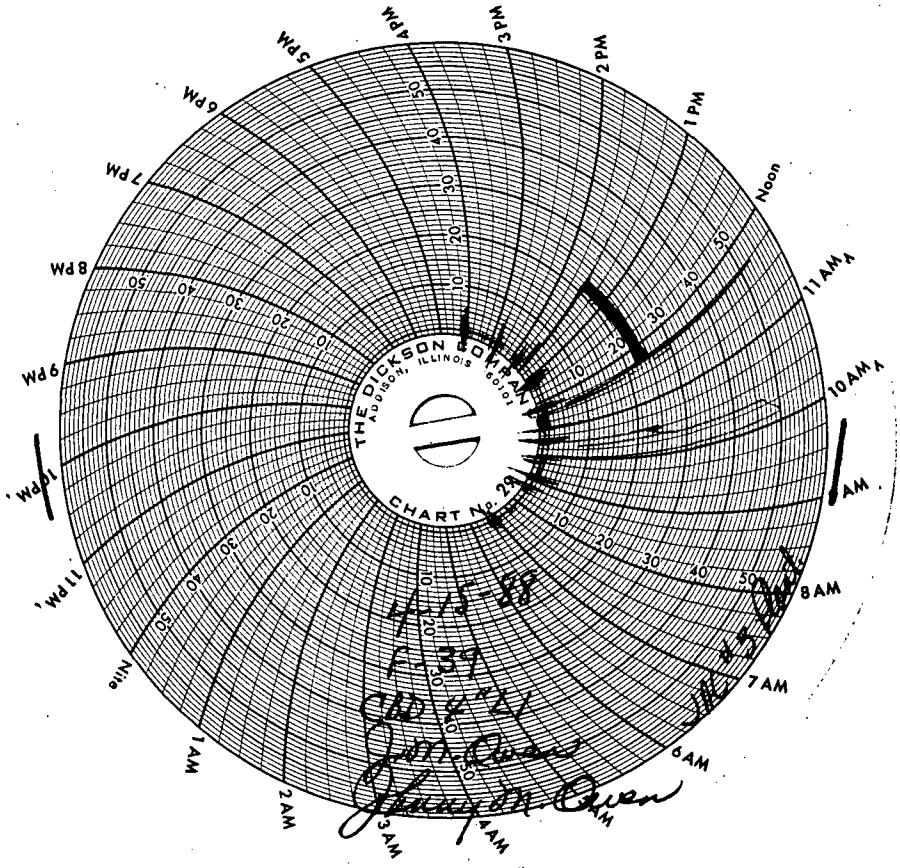
REMARKS: **FUNNEL AT LOCATION #4 ARE IN BAD SHAPE. HAD TO BORROW PLUGS FROM WELDING SHOP TO STOP FROM LEAKING. THESE PLUGS ARE DIFFERENT FROM REGULAR EXPANDABLE PLUG - THEY COVER MORE AREA IN FUNNEL. AT LOCATION #8 TAKE OFF TOP OF TANK AND PLUG 3" DRAIN. AT LOCATION #10 USE FRESH AIR UNIT TO GO INSIDE SUMP.**

Test Pressure	10# - 1 hr.
Date Tested	7-12-88
Tested by	Johnny M. Owen (EPNG)
	Mike Hall (Merryman Construction)





"C" PLANT
GAS COOLING FIN FAN
"B" COMP. BLDG. EXT.
SEPTIC
AUXILIARY
LUBE OIL
INTERMEDIATE INLET SCRB.
SUMP
GAS COOLING FAN FAN
GAS COOLING FIN FAN
ODL-4" LR
PIT
PD-6"-LL
6" ODL-C-LIS
PD-4"-C-L2

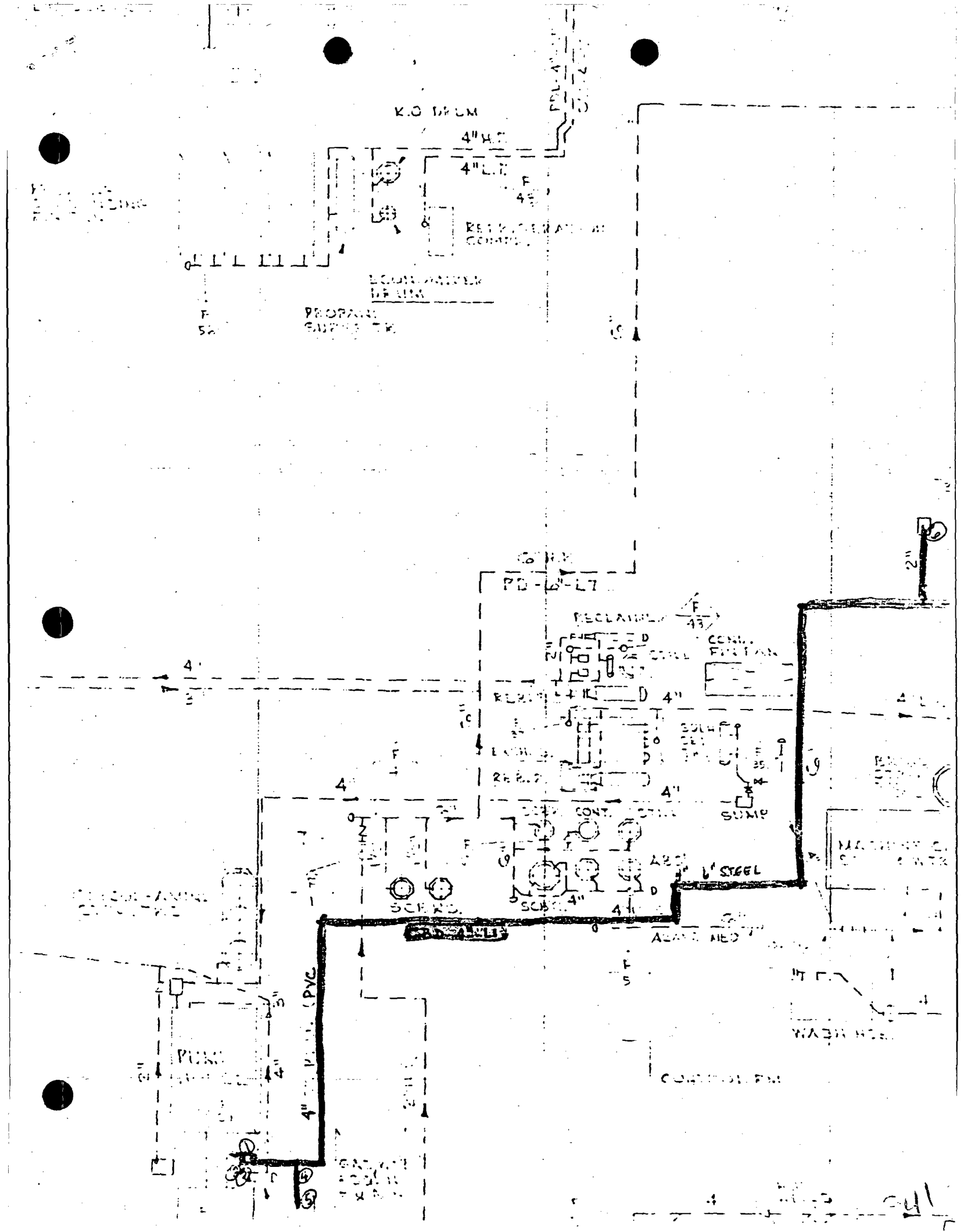


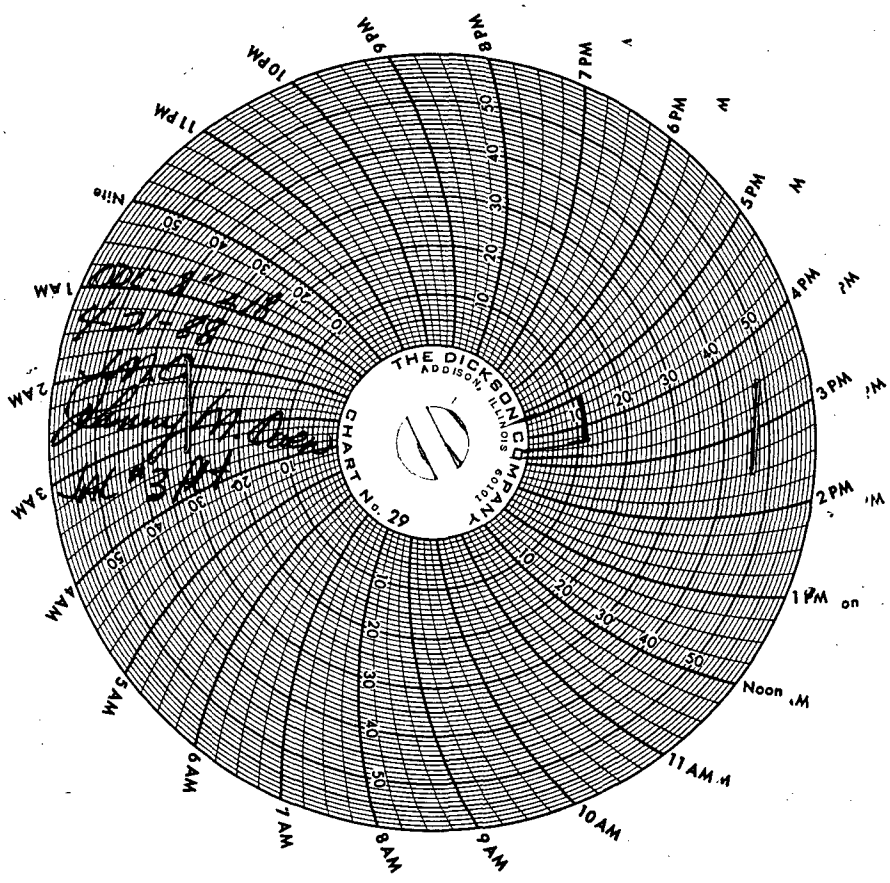
CBD 4" L 1

1. Close 4" butterfly valve on cooling tower header between pump room & cooling tower.
2. Blind 4" 150# flange on downcomer leg.
3. Open ½ valve on downcomer leg.
4. Open valve on apron drain at cooling tower.
5. Plug apron drain at cooling tower.
6. Plug apron drain on north end of line.
7. Close 6" valve at junction.
8. Close 4" valve at junction ODL 8" L12.

REMARKS: Tested line at 20# pressure - fixed leak on 6" plastic union by 2" valve going to apron drain by cooling tower - tightened-up Bonnett on same valve.

Test run on 4-15-88.


4" L.F.
PROPANE
4"
SUMP
CONT.
6" STEEL
4" (PVC)

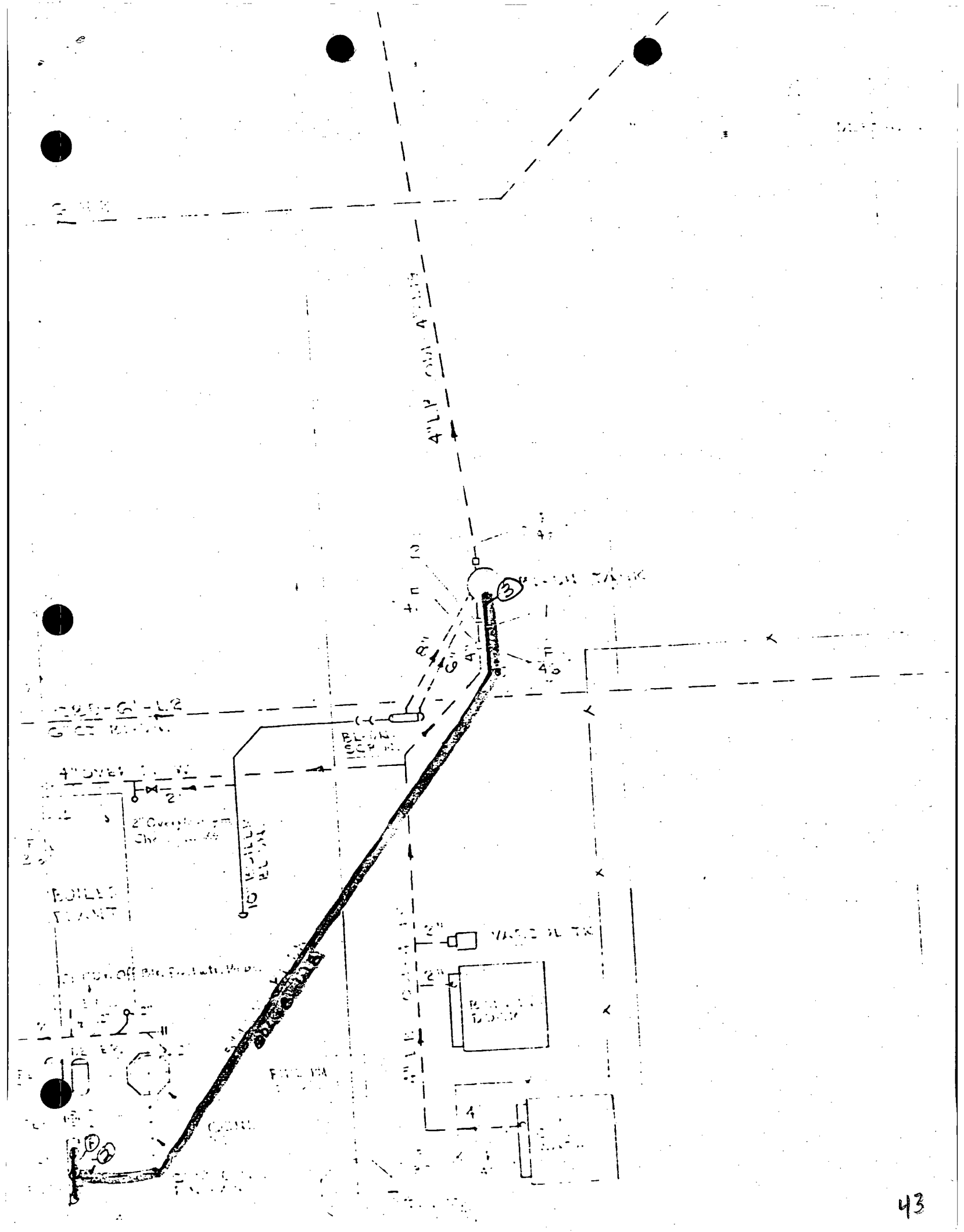


ODL 8" L18

1. Close three (3) valves on bottom of evaporator.
2. Close of continues drain with 2 - 1" vlaves.
3. Plug drain at sump.

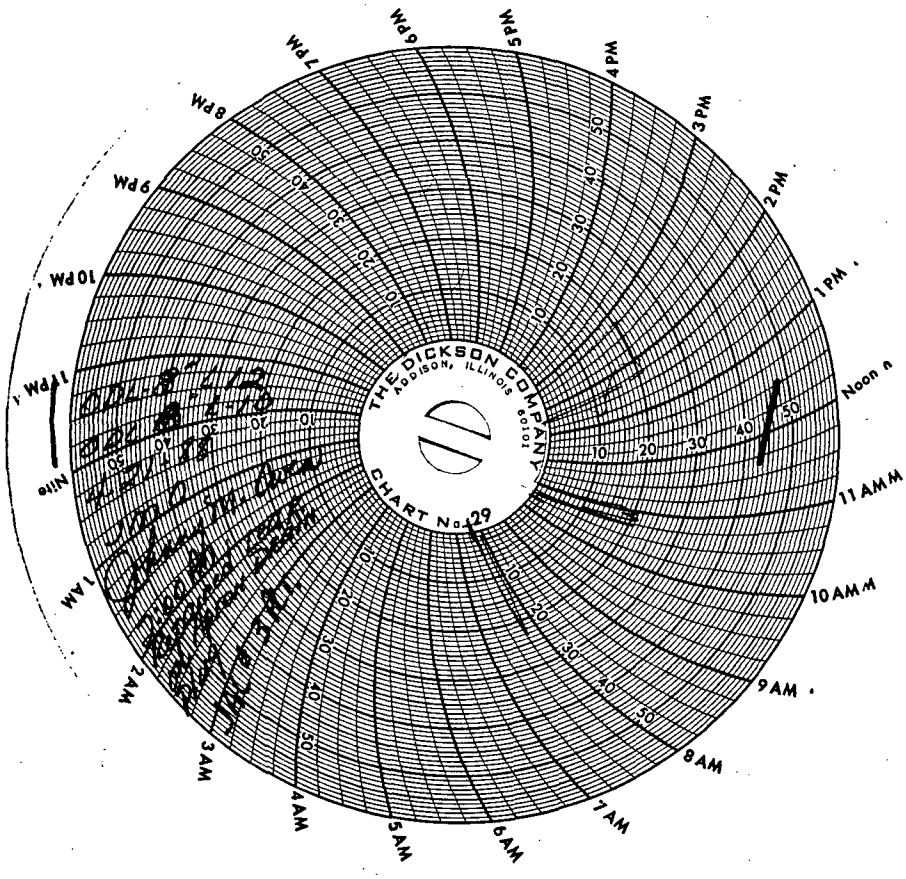
TESTED ON 4-21-88. 10# Water Test for one hour.

Johnny M. Owen and Kenneth R. Edwards
Merry Construction/Mike Hall (Foreman)

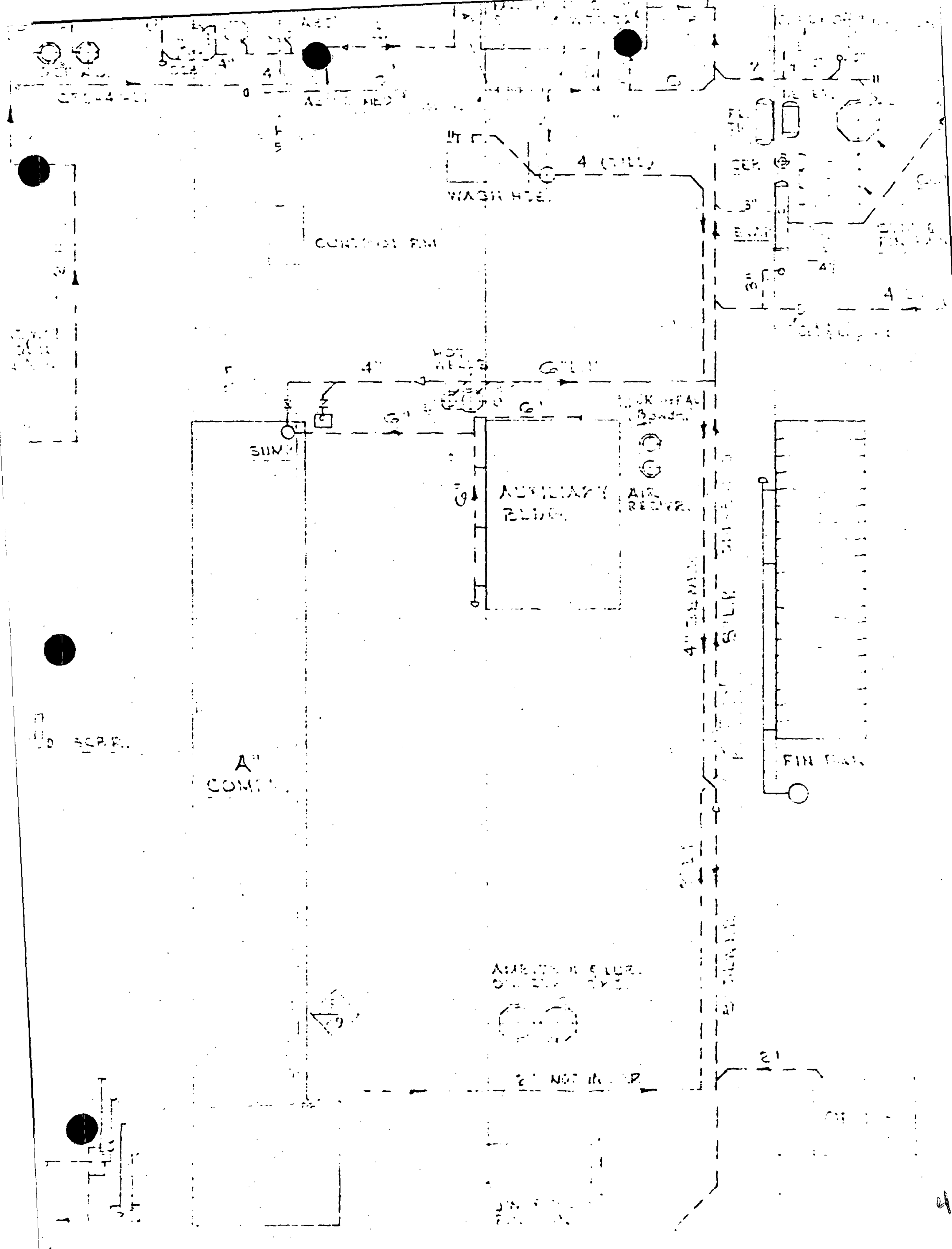


ODL - 8" L12 -- ODL 8" L10

1. Close 4" Gate Valve function of ODL 8" L12 and CBD L1.
2. Close butterfly valve at south side of sump.
3. 4" L.P. line plug three (3) apron drains.
4. Take-off air condensate pot on east side of water treating building plug 2" line and ½" line.
5. Plug 8" and 4" drain inside water treating building. Drains are located in sump 8" on south - 4" on north.
6. Close 1" valve from pump south side of water treating building.
7. Close 2" valve located inside water treating building coming from Lab and ice machine.
8. Plug 2" drain south side of water treating building coming from eye wash.
9. Plug 2" drain south side of water treating building coming from stop.
10. Open 2" valve located in sump box - running west to east.
11. Close 2" valve located in sump box - running north to south.



12. Close 2" valve on drain of solution set. tank.
13. Plug drain line at condensate tanks by boiler house.
14. Plug drain on south side of boiler house.
15. Close 1" valve south side of boiler house.
16. Plug drain under evaporator.
17. Plug drain on apron south side of evaporator.
18. Close 2" ball valve coming from air dondensate tanks east side of aux. building.
19. Plug drain (sump) on north side of aux. building.
20. Close valves 6" & 4" off vessels north side of aux. building.
21. Plug drain (sump) on west side of aux. building.
22. Plug apron drain on east side of "A" compressor building.
23. Have operator or repairman close discharge valves on sump pumps in basement of "A" Compressor building.

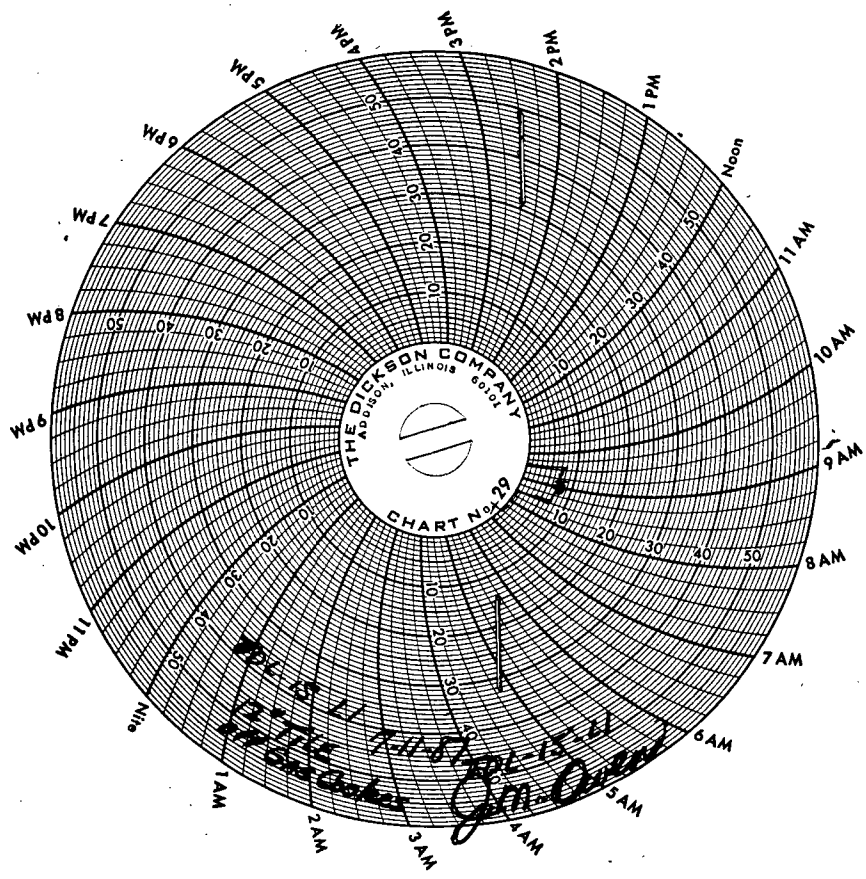

WASH HSE.
HOT WELLS
SUMP
AUXILIARY BLDG.
AIR RECVR.
4"
6"
A"

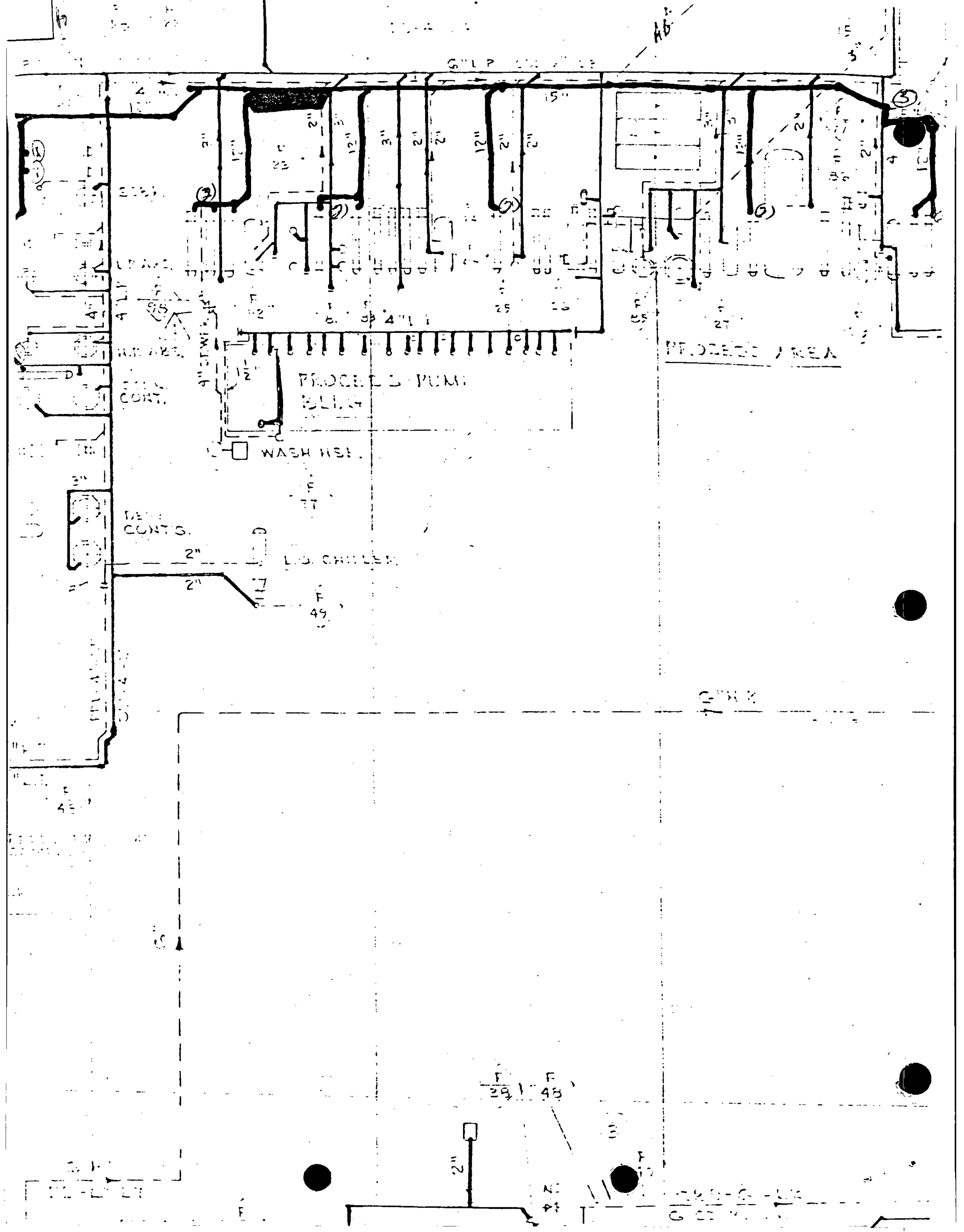
JAL #3 DRAIN LINES

TDL - 15 L1 - 12" Tile

1. Plug 3 - 12" funnels off gas coolers
2. Plug 9 - 15" funnels off stills and contactor off Process Plant North side of building
3. Plug 15" drain in sump

Tested	7-11-88
Test	5 lbs - 1hr
Tested by	Johnny M. Owen (EPNG) Mike Hall (Merryman Construction)




PROCESS AREA
PROCESS PUMP BLDG
WASH HSE.
DEI CONTS.
L.O. CHILLER
F
49
F
77
2"
12"
3"
4"
15"
1 1/2"
F
28
F
48

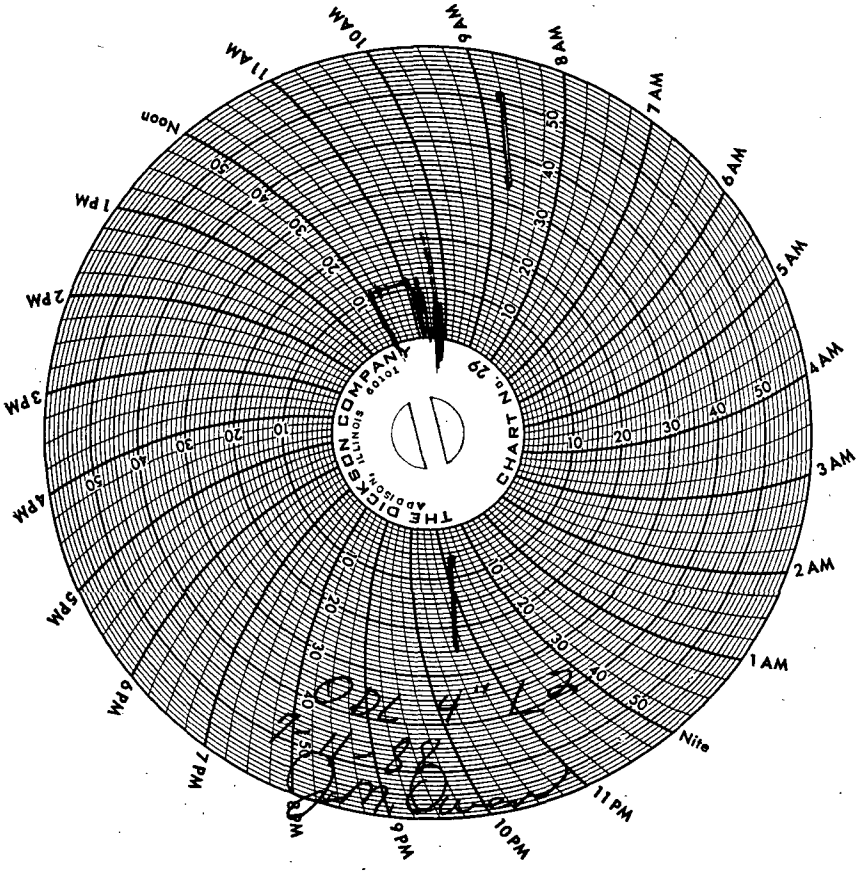
JAL #3 DRAIN LINES

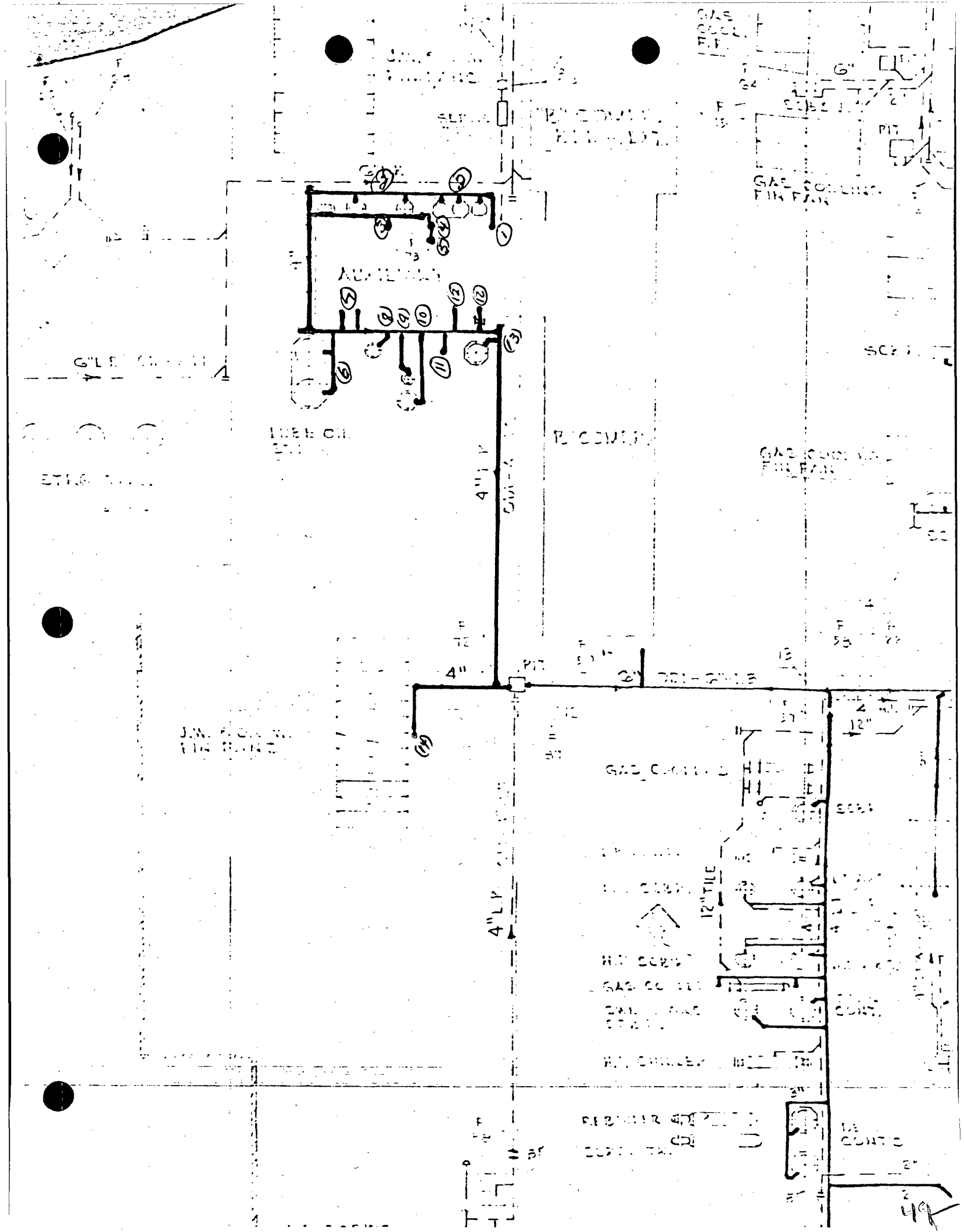
ODL - 4 - L2 - Open drain from pump house to sump at southwest corner of B Plant

1. Install expandable plug in 2" drain from water fountain inside building
2. Plug all five air tanks on north side of building
3. Plug air and water leg off steps of building - This leg has a 2" collar welded on top
4. Install expandable plug in 2" drain off pump
5. Disconnect 1/2" piping and plug off air compressor
6. Plug 2" piping off lube oil storage tank (2 2" valves)
7. Install expandable plug in funnel drains off pumps 2"
8. At location #8 overflow on vessel is blind plated
9. At location #9 abandoned - Plugged
10. At location #10 abandoned - Blind plated
11. Install 6" expandable plug in apron drain
12. Install 1 2" expandable plug in drain off west pump - drain off east pump has a 2" valve outside of building in valve box.
13. Break out 4" union - install 3" expandable plug in overflow from vessel
14. Plug fin fan drain
15. Install expandable plug in sump

REMARKS: AT LOCATION #12 THESE PUMPS HAVE BEEN REROUTED TO ANOTHER DRAIN SYSTEM - FUNNEL DRAINS ARE NO LONGER IN USE.

TESTED: 10# - 1 hr
DATE TESTED: 7-11-88
TESTED BY: Johnny M. Owen(EPNG)
Mike Hall (Merryman Construction)




4"
4" L.P.
12" TILE
PIT

JAL #3 DRAIN LINES

Process Pump House Drains (Partial ODL - 4 - L4)

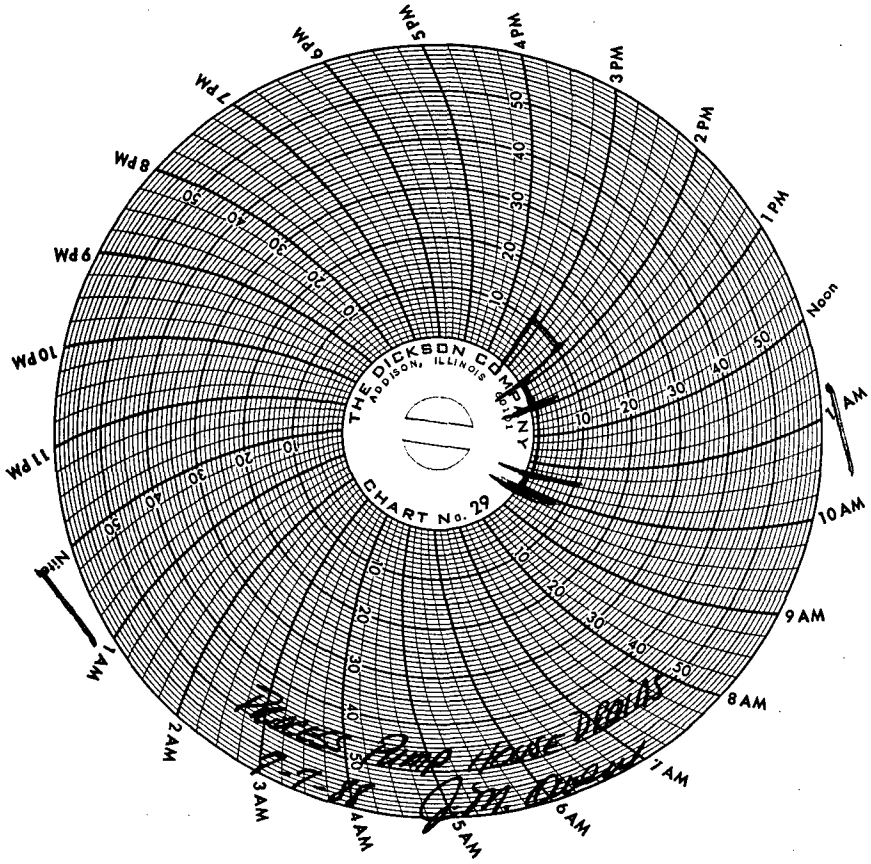
1. Plug all funnel drains inside pump house
   18 - 2" drains
   2 - 1½" drains
2. Close 2 - 3/4" valves coming off steam turbine blowdowns on north side of pump house.
3. Install blind plate between 4" 150# Series Flanges on northeast side of building.

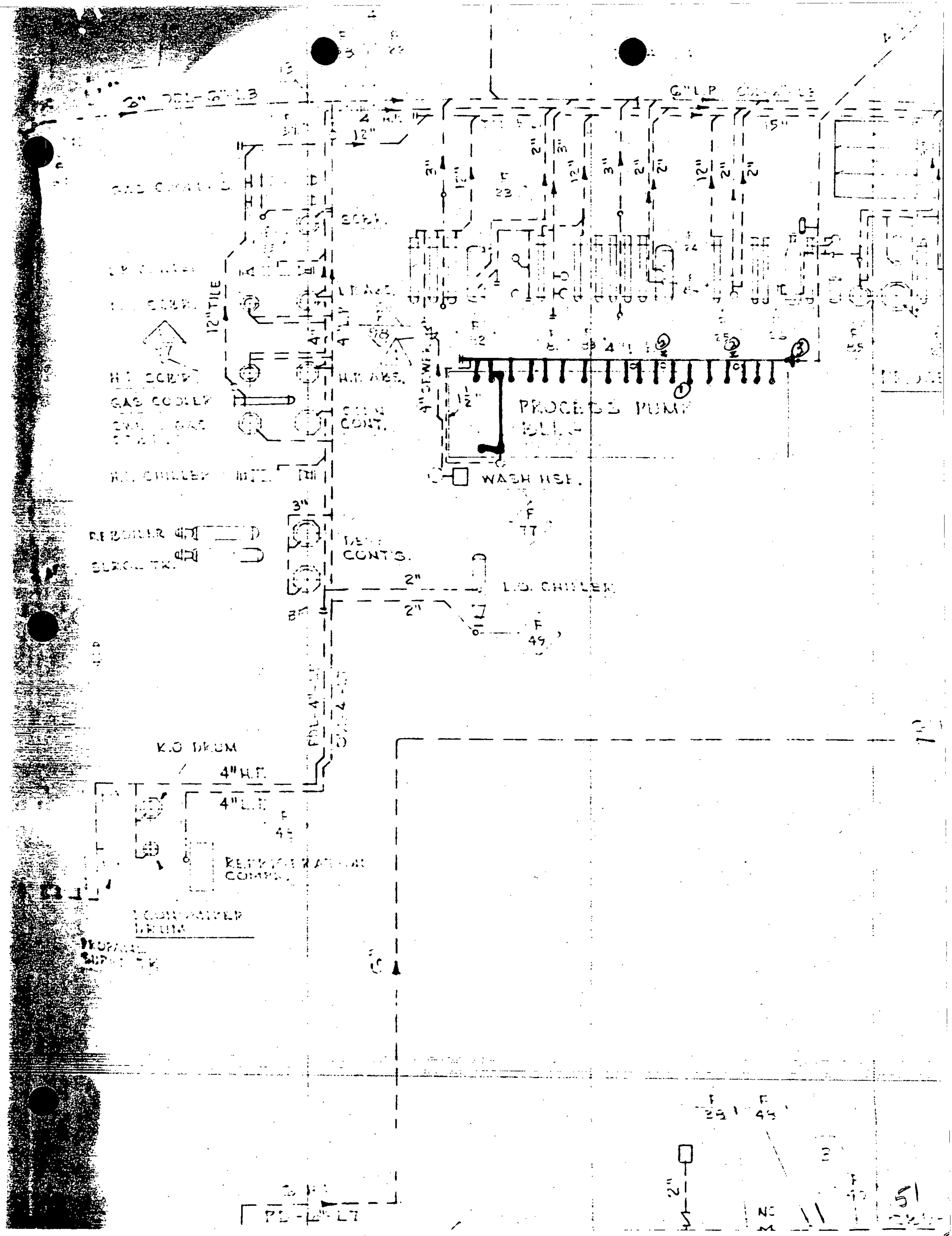
Remarks: Install test header in 1" collar at location #3. The two (2) 1½" drains at southwest corner of buildingare no longer in use, but have to be plugged. Tried to trace-out line according to map, it has to be tied in under floor to 2" drain on north side. This line is a partial of the ODL-4-L4.

Test Pressure: 10# - 1 Hour

Date Tested: July 7, 1988

Tested By: Johnny M. Owen (.E.P.N.G.)
Mike Hall (Merryman Const.)





6" PBL-6" LB
6" L.P
4
12"
GAS CONT.
COMP.
12" TILE
4" L.P
4"
78
4" SEWER
PROCESS PUMP
WASH HSE.
H.P. COMP.
H.P. ABS.
GAS COOLER
COND. CONT.
H.P. CHILLER
3"
REBOILER
CONT'S.
2"
L.P. CHILLER
F 77
F 49
F 23
F 22
K.O DRUM
4" H.P.
4" L.P.
REFRIGERATION COMPR.
PROPANE
2"
NC
51

JAL #3 DRAIN LINES

ODL - 6 - L3 **Partial ODL 4 - L4 from sump of "B" Plant northeast of cooling tower.**

1. Install 6" expandable plug in sump southwest corner of "B" Plant.
2. Install 4" expandable plug in sump southeast corner of "B" Plant.
3. Install blind in 4" 150 series flanges at intersection of ODL-6-L3 and ODL-4-L7.
4. Install expandable plugs in apron drains off upper, lower, and "B" Cont. coolers.
5. Install expandable plugs in drain off scrubbers off fin fans.
6. Install expandable plugs in drain off reabsorber.
7. Install expandable plug in drain off fuel gas scrubber.
8. Install expandable plug in drain off abandoned site.
9. Install expandable plug in drain off oil to oil heat exchanger apron drains.
10. Install expandable plug in drain off hot oil flash tank.
11. Install expandable plug in drain off hot vent condensor separator.
12. Install expandable plug in drain off line ODL-4-L4.
13. Install expandable plug in drain off Cont. out of service.
14. Install expandable plug in drain off still water draw.
15. Install expandable plug in drain off still.
16. Install expandable plug in drain off still reflux water draw.
17. Install expandable plug in drain off "A" feed tank water draw.
18. Install expandable plug in drain off evaporator accumulator.
19. Install expandable plug in drain off steam line deethanizer still.
20. Install expandable plug in drain off equalizer between "A" & "B" feed tank.
21. Install expandable plug in drain off water leg deethanizer accum.
22. Install expandable plug in drain off oil reclaimer drain off triplex pump.
23. Install blind in 4" 150# series flanges at northeast corner of pump house.
24. Install 6" dresser sleeve with plug in sump on north end of line.
25. Install expandable plug in drain off cold oil flash tank.

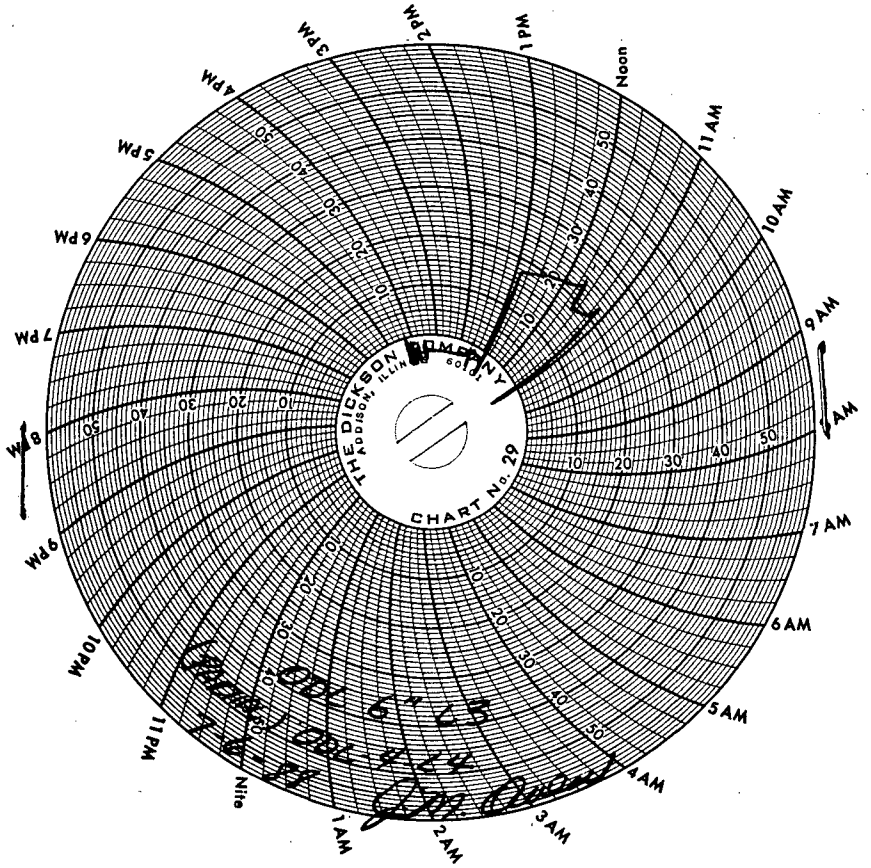
Remarks: Part of the ODL-4-L4 was tested with the ODL-6-L3. This line ties directly into the ODL-6-L3 at a point just northwest of fin fans. The flanges at junction of ODL-6-L3 and ODL-4-L7 are located just west of sidewalk approx. 1'. Flanges located at pump house are on the northeast corner of pump house approx. 8" off building to North - 2' off building to east. This line has two

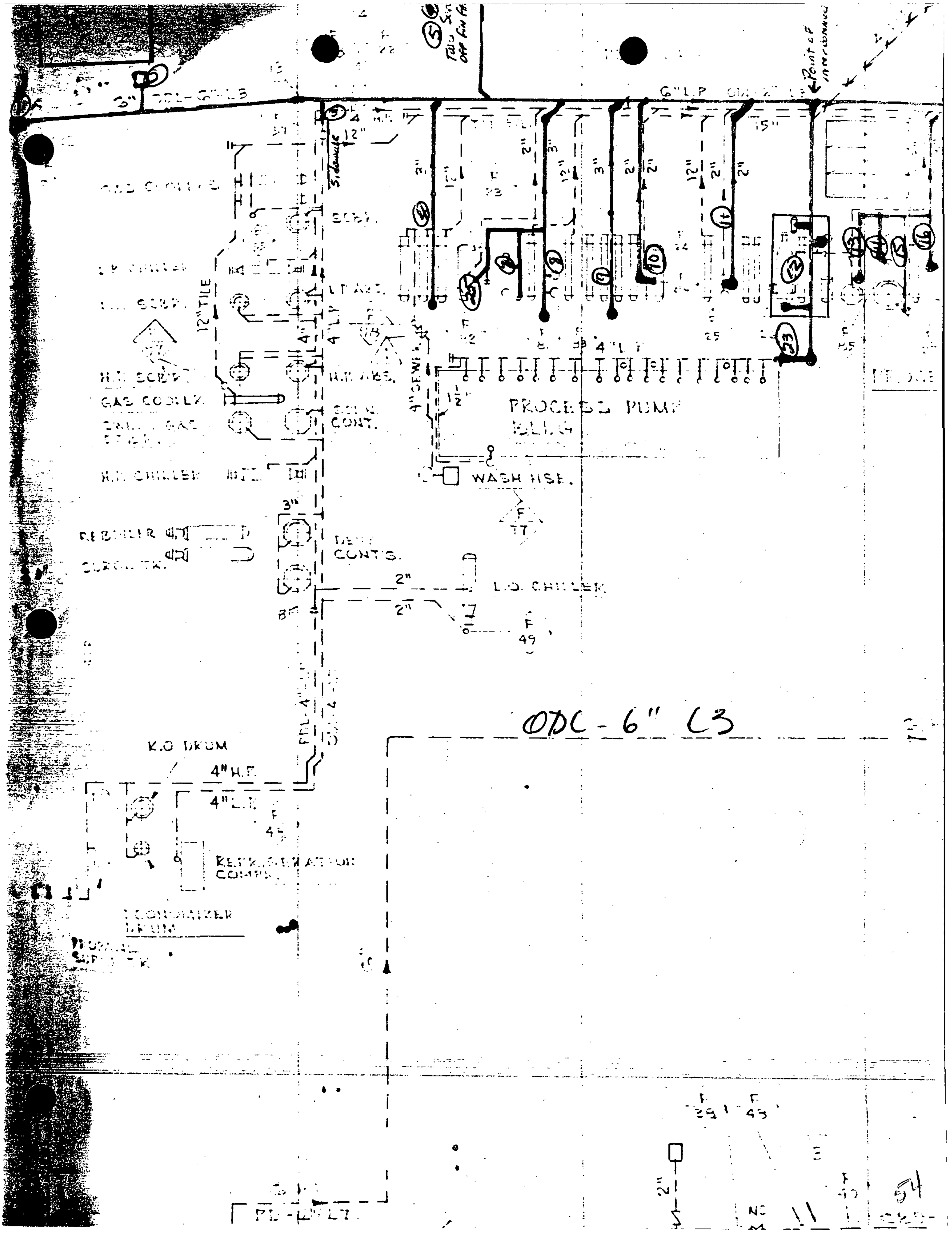
plugs leaking off apron drains of upper and lower and "B" Cont. coolers, one plug leaking off apron drain of oil to oil heat exchanger. This is the reason for the drop in pressure. Could not stop these plugs from leaking.

TEST PRESSURE: 20# - 1 Hour

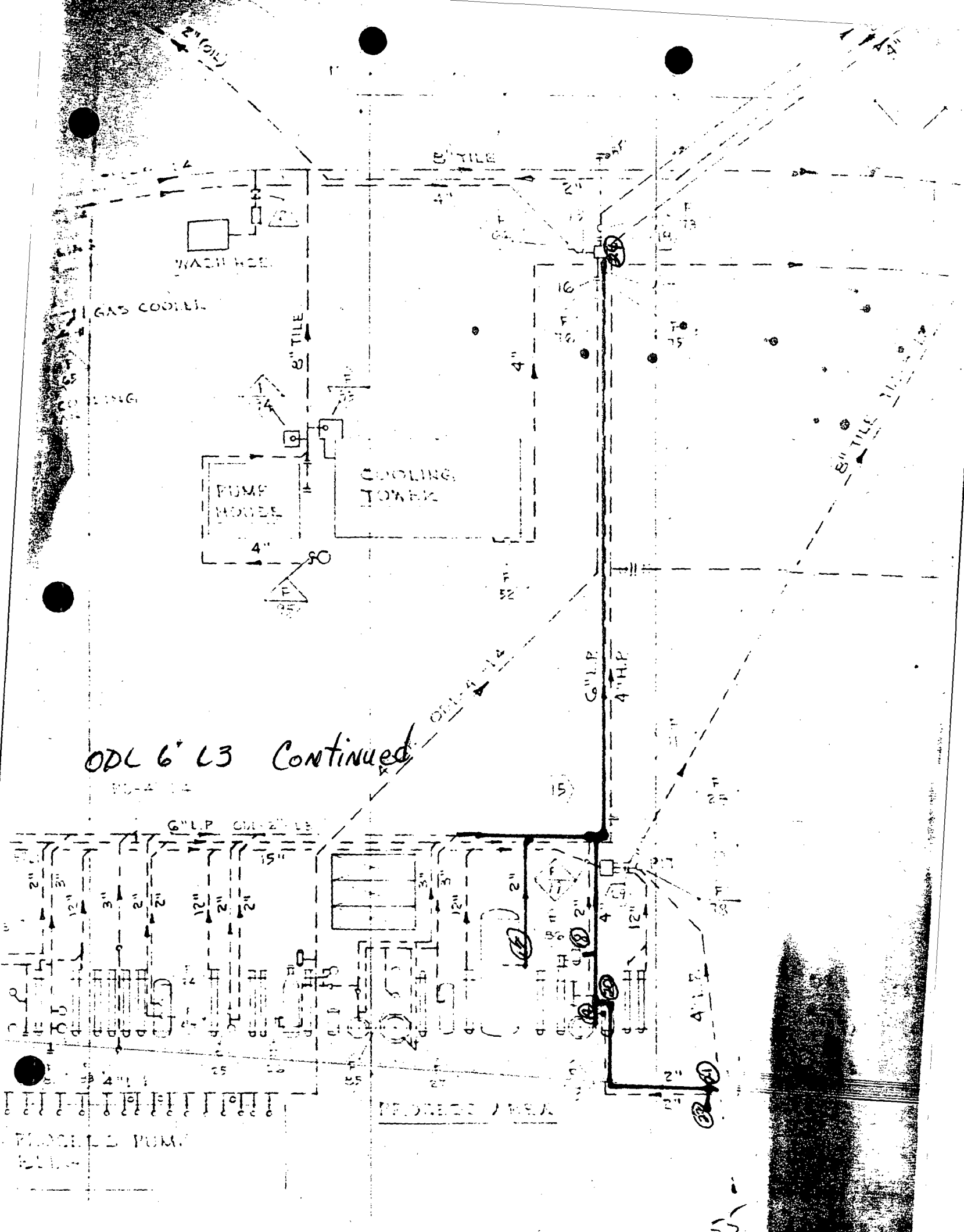
DATE TESTED: July 6, 1988

TESTED BY: Johnny M. Owen (E.P.N.G.)
Mike Hall (Merryman Construction)





ODC - 6" C3
6" L.P.
Point of
Sidewalk
12" TILE
H.P. SCRB.
GAS COOLER
H.P. ABS.
CONT.
H.P. CHILLER
PROCESS PUMP
BLDG
WASH HSE.
4" SEWER
DEPR
CONT'S.
L.O. CHILLER
F
49
K.O DRUM
4" H.P.
4" L.P.
F
45
REFRIGERATION
COMPR.
54


8" TILE
WASH HOUSE
GAS COOLER
8" TILE
PUMP HOUSE
COOLING TOWER
4"
6" L.P.
4" H.P.
ODL 6" L3 Continued
15
6" L.P.
4"
8" TILE

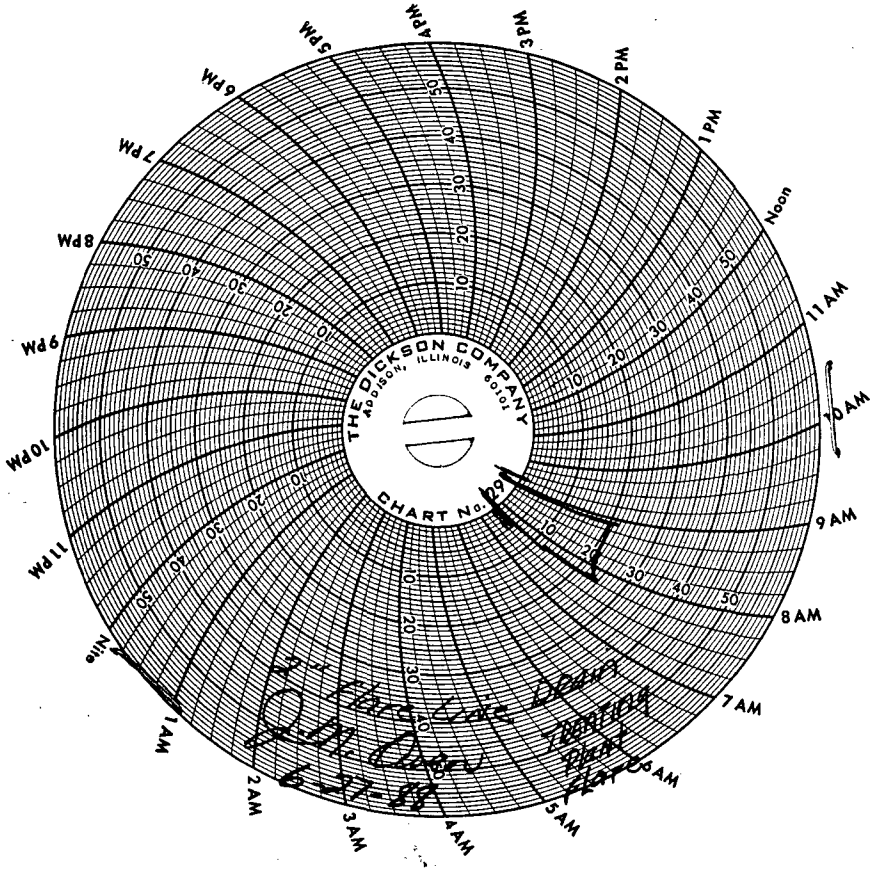
JAL #3 DRAIN LINES

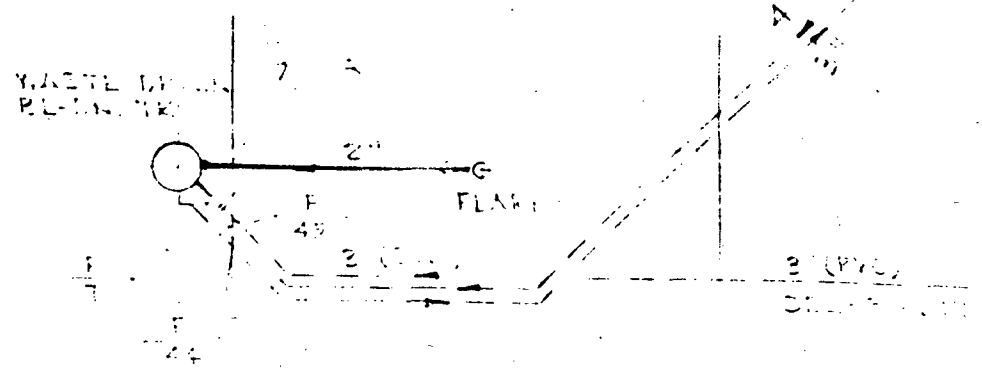
2" Treating Plant Flare Line

1. Close 2" valve off water leg.
2. Install test header in clean-out (2" Tee).
3. Install expandable plug in sump.

Remarks: 2" Valve is located 5'6" from centerline of flare approx. 4' deep. This line was completely uncovered during test. There were no visible leaks in system. Cloudy and cool during test.

TEST PRESSURE: 20# - 1 Hour
DATE TESTED: June 27, 1988
TESTED BY: Johnny M. Owen (E.P.N.G.)
Mike Hall (Merryman Construction)




2"
G
FLAN
45

JAL #3 DRAIN LINES

ODL - 4" - L7 Drain Line from Refrigeration Compressor to Intersection of ODL - 6" L3

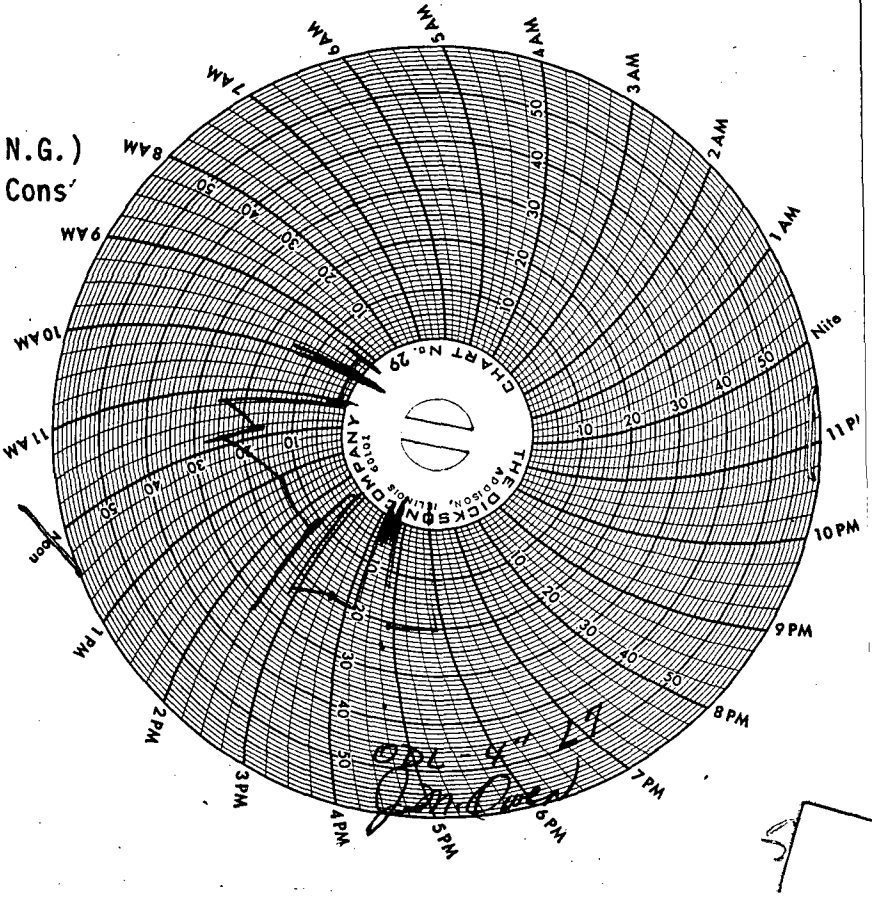
1. Install expandable plug in 4" line off refrigeration unit.
2. Install expandable plug in 4" apron drain off L.O. chiller.
3. Install expandable plugs in dehy. cont. (2) - 2".
4. Install expandable plug in sweet gas scrubber (1) - 2".
5. Install expandable plug in solution cont. (1) - 2".
6. Install expandable plugs in apron drain off gas coolers (2) - 3".
7. Install expandable plug in H.P. scrubber (1) - 2".
8. Install expandable plug in H.P. absorber (1) - 2".
9. Install expandable plug in L.P. scrubber (1) - 2".
10. Install expandable plug in L.P. absorber (1) - 2".
11. Install expandable plug in scrubber (1) - 2".
12. Install blind plate 150 series flanges between ODL-4-L7 and ODL-6-L3.
13. Fill through tap #57 - 1" Collar at location #12.

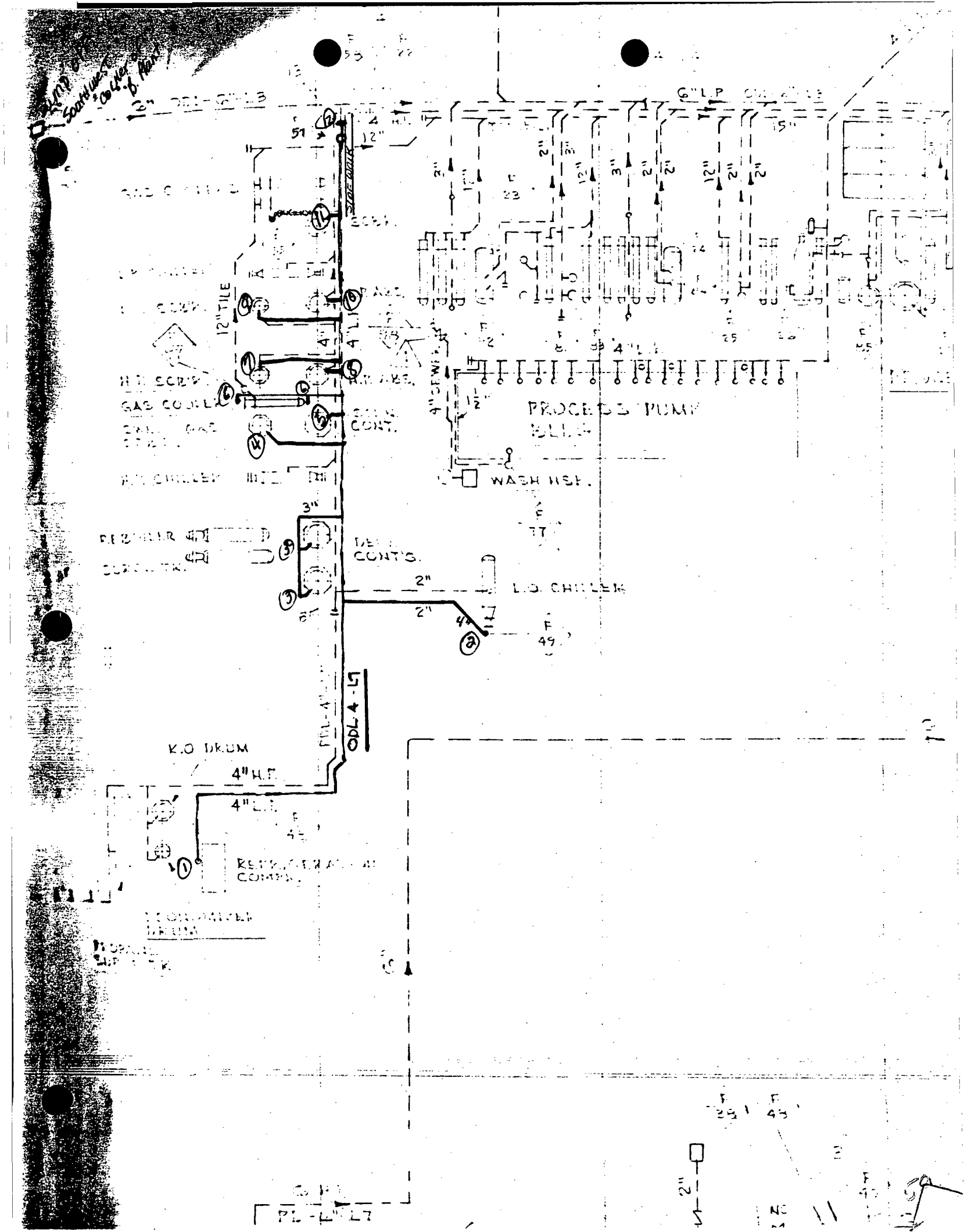
Remarks: Replaced approx. 3' of 2" pipe at location #11. Replaced approx. 3' of 2" pipe at location #9. These places were replaced from drain funnel down.

Tested: 20# - One Hour

Date Tested: June 29, 1988

Tested By: Johnny M. Owen (E.P.N.G.)
Mike Hall (Merryman Cons'




6" L.P
12" TILE
4" L.P
PROCESS PUMP
WASH HSE.
3"
2"
K.O DRUM
4" H.P
4" L.P
ODL 4-L7
PL-4"-L7

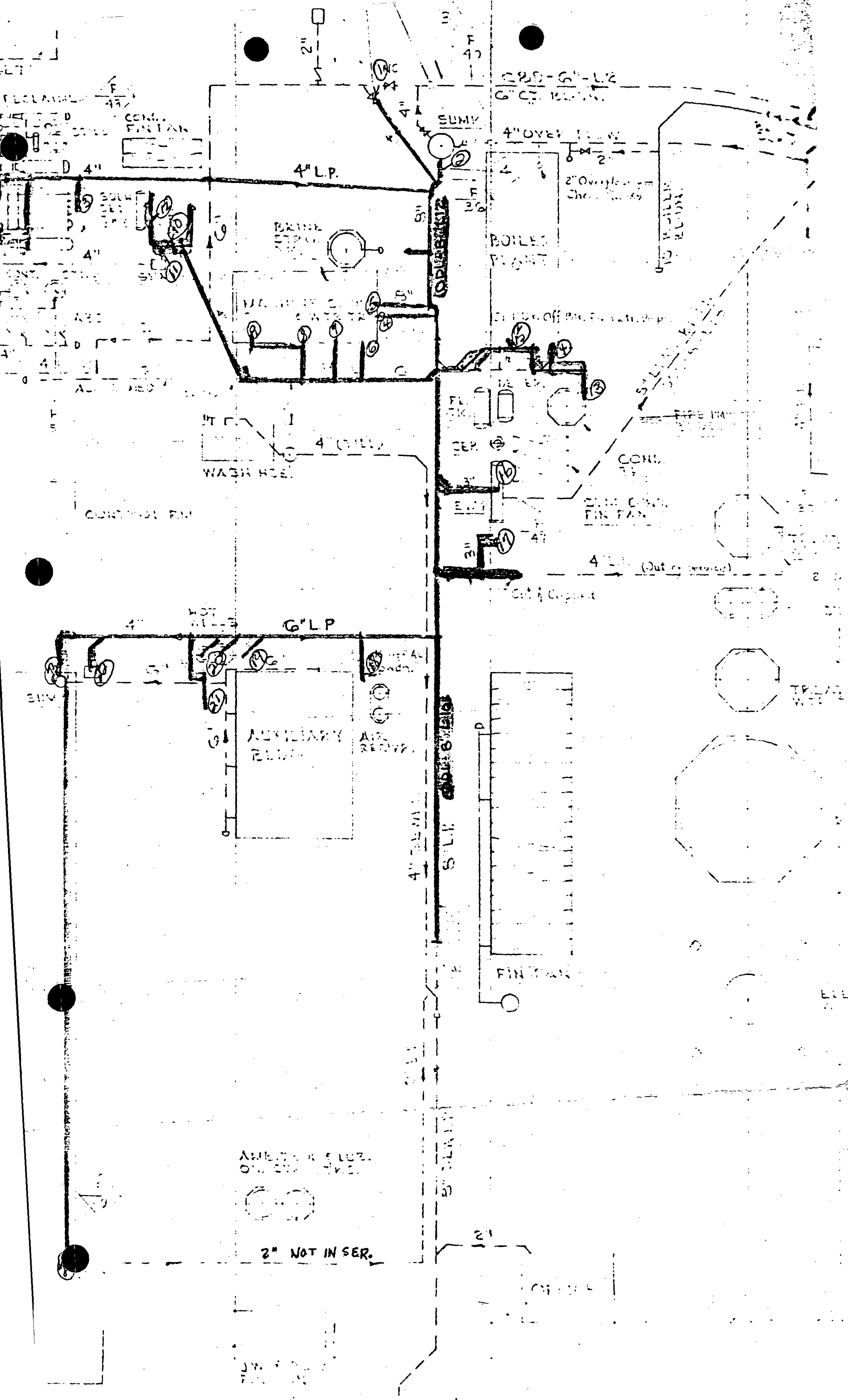
ODL 8" L12 - ODL 8" L1

These two (2) lines were tested together on 4-21-88 by Johnny M. Owen and Kenneth R. Edwards, & Merryman Construction/Mike Hall (Foreman).

20# Water test for one hour.

REMARKS:

Replaced 2" line from condensate tanks to tie-in ODL-8"-L12.
Replaced 1" drain from pumps in boiler house to 2" line from condensate tanks.
Replaced from 6" Main Drain to 2" ball valve inside water treating building with plastic schedule 80 pipe.
Replaced apron drain on 4" L.P. line from West apron to 90° Ell (4').
Replaced apron drain on 4" L.P. line from east apron to tee (4').
Installed 6" butterfly valve at sump on north end of ODL-8" L12.
Replaced 2" line from air condensate tanks to 6" Mianline.
Replaced 6" clamp at tie-in from condensate line.



4" L.P.
SUMP
6" L.P
HOT WELLS
WASH HOSE
(Out of service)
Cut & Capped
2" NOT IN SER.
FIN FAN

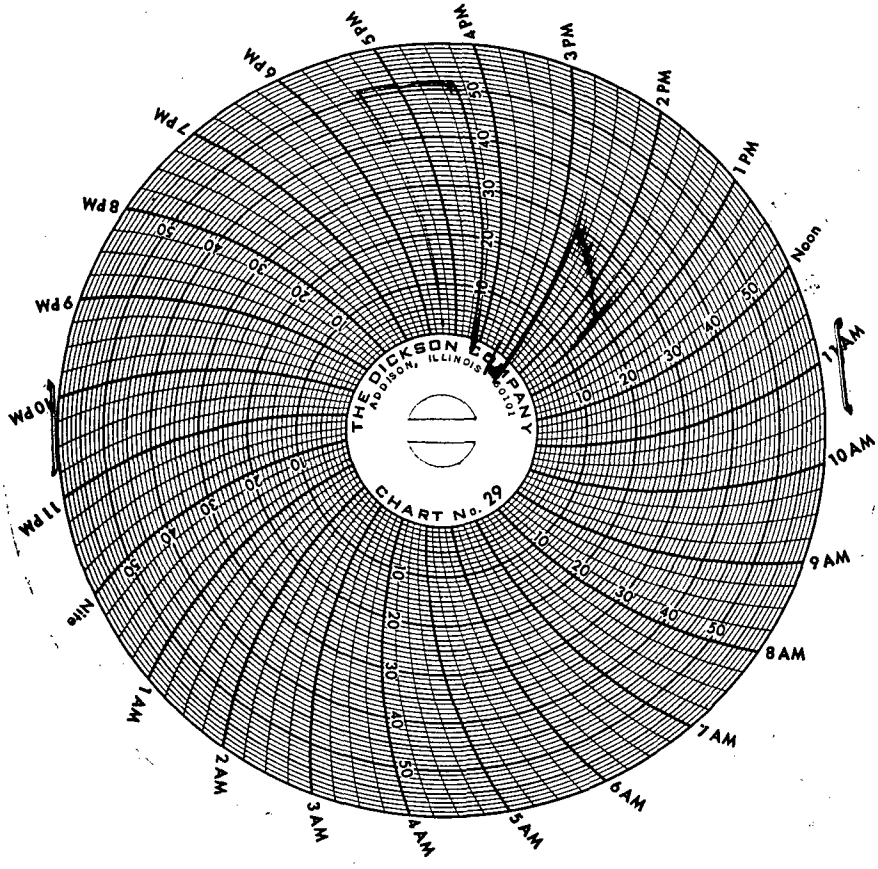
JAL # 3 DRAIN LINES

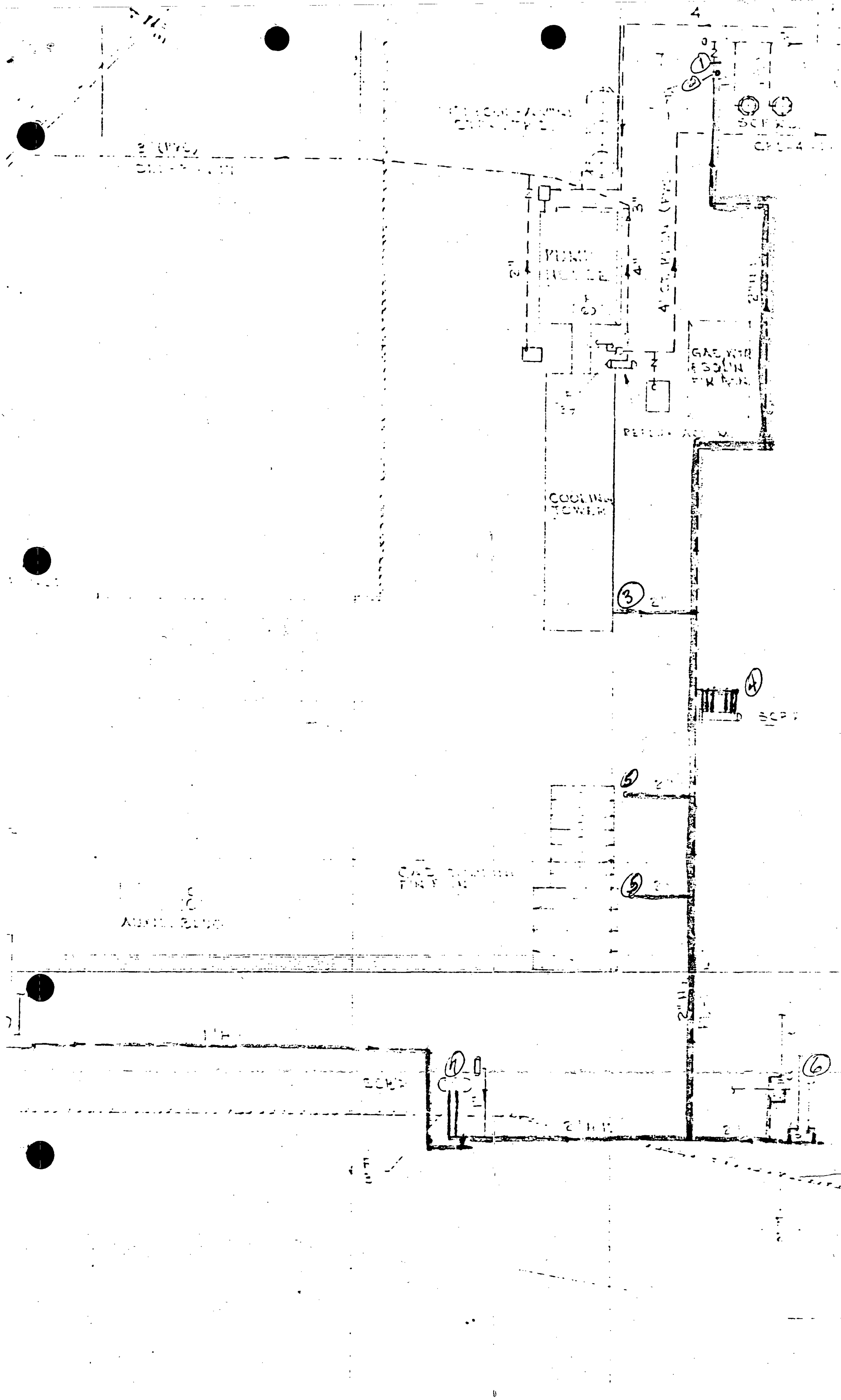
PD-2" H.P. - L8 - 50# Test

1. Blind two-inch (2") 150 Series flanges
2. Hook-up test header on 1" collar, fill through same collar
3. Close valve off cooling tower lead (valves should stay closed at all times)
4. Have operator from "A" Plant to blowdown scrubber and close all valves
5. Close two (2) 2" valves off fin fans
6. Close off drains from gas piping headers
7. Close off valves from scrubbers (have a plant operator blowdown scrubber before test)
8. Close off 1" under ground valve going to underground sump

REMARKS: All valves should be in a closed position as ordinary procedures during normal plant operations except for two (2) regulators on scrubber at location #4 on drawing.

Test Pressure: 50# for one hour
Date Tested: June 20, 1988
Tested By: Johnny M. Owen - E.P.N.G.
Mike Hall (Foreman) - Merryman Construction





1
2
COOLING TOWER
3
4
5
5
6
7

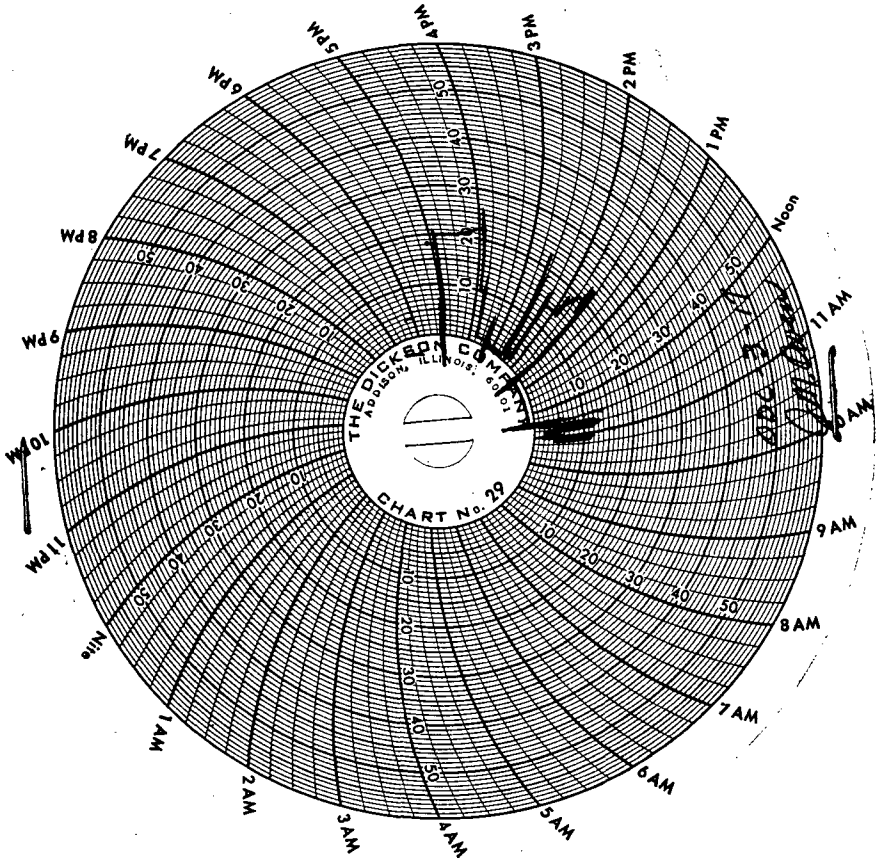
JAL #3 DRAIN LINES

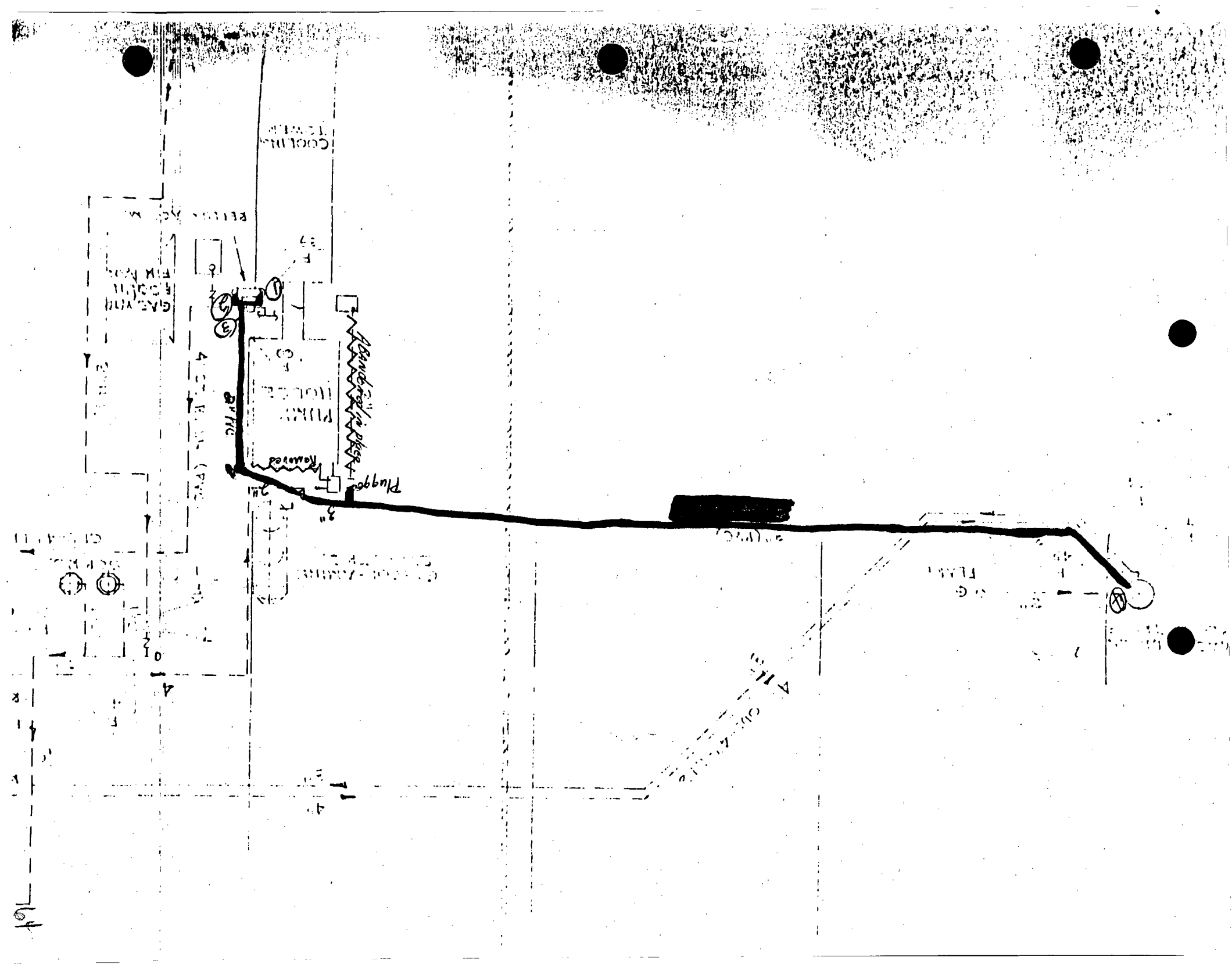
ODL-3-L17 **Drain Line from Reflux Accumulator Bottle to Steel Sump West of Treating Plant Flare**

1. Close 1½" Valve west end accumulator bottle (bottom)
2. Close 2" Valve on Regulator on bottle (down stream reg.)
3. Pull plug on clean-out tee (tee will be inside 8" plastic pipe box). This will be the only place to fill.
4. Install expandable plug in drain line in sump (this line will be the 3" line on south end of sump)

REMARKS: Approx. 80 ft. of 4" pipe was replaced with 2" PVC. The 2" PVC was inserted into the old 4" pipe running along east side of pump house. The 4" pipe running from 90° elbow to 2 x 3 bushing was taken out and junked. The 4" pipe running along north end of pump was removed and junked. The drain now drains into the solution sump on northwest corner of pump house. The apron drain on southwest corner of pump house is no longer in use. The drain line was disconnected and abandoned in place.

Test Pressure: 20# for One Hour
Date Tested: June 23, 1988
Tested By: Johnny M. Owen, E.P.N.G.
Mike Hall (Foreman), Merryman Construction



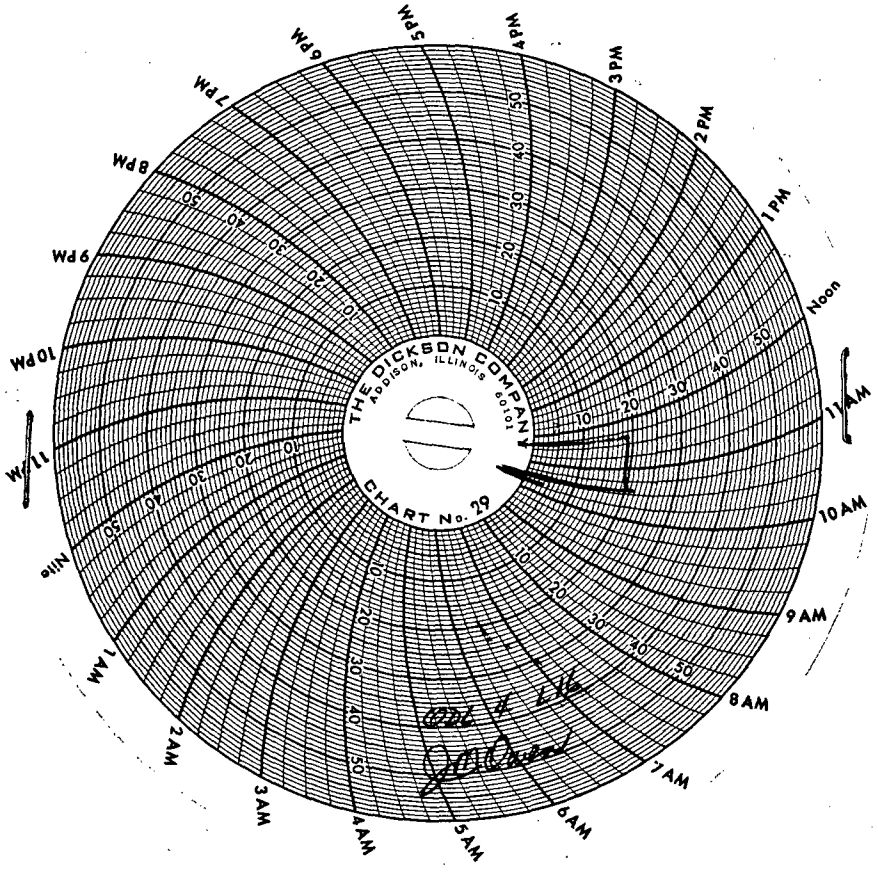


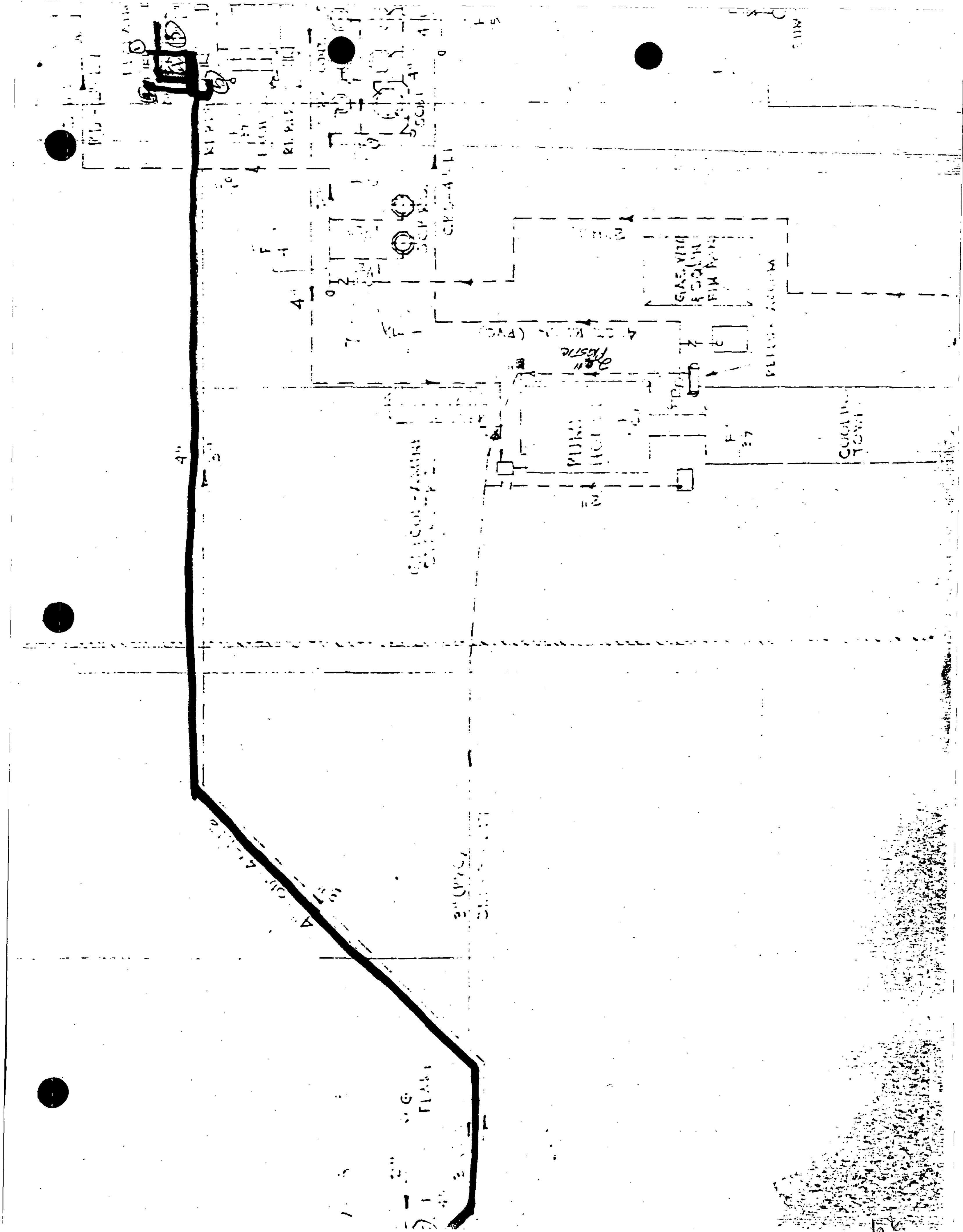
JAL #3 DRAIN LINES

ODL-4"-L16 Drains off MEA Reclaimer, MEA Reboiler, and Condensate Receiver to steel sump west of Treating Plant Flare.

1. Close 2" valve off at MEA Reclaimer (bottom of vessel)
2. Close ½ valve off coming out of sump
3. Close off 3/4" and 2" Valve coming off of condensate tank (use this to install chart and recorder, also for air vent)
4. Close 2" valve off pumps
5. Disconnect union off of reboiler drain (3/4" pipe), use this to fill from
6. Install expandable plug in steel sump west of flare

Test Pressure: 20# for One Hour
Date Tested: June 24, 1988
Tested By: Johnny M. Owen, E.P.N.G.
Mike Hall (Foreman), Merryman Construction





JAL #3 DRAIN LINES

ODL-4"-L9 4" Overflow from Sump -- 10" Boiler Blowdown

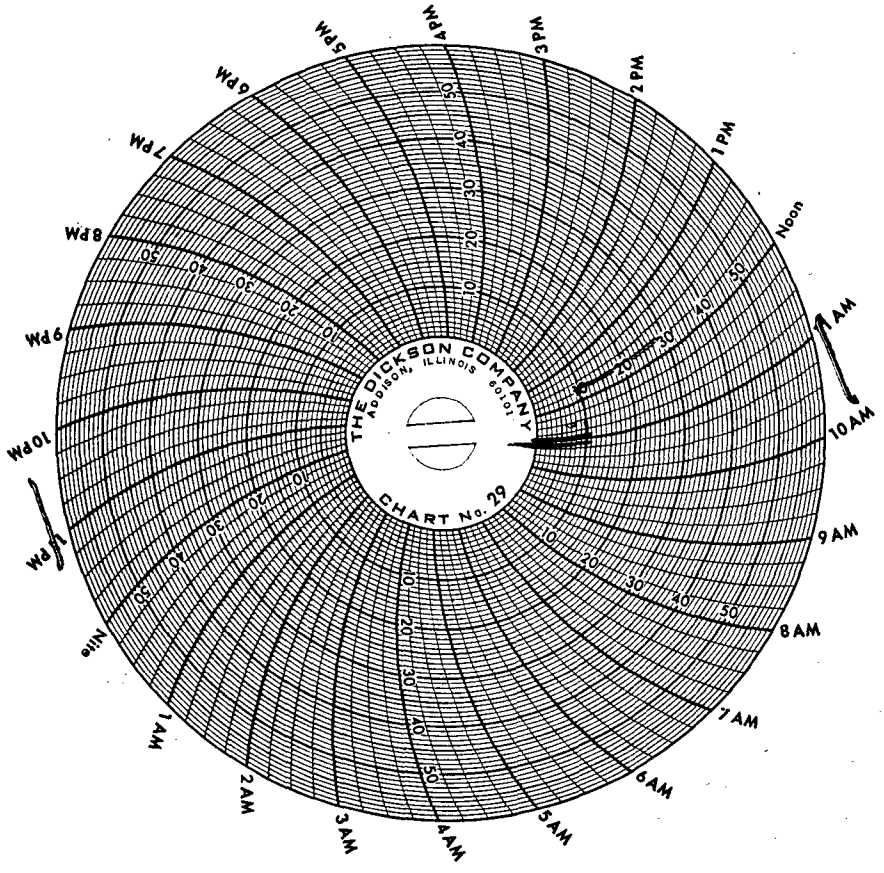
1. Plug apron drain on wash pad
2. Plug apron drain on barrel dock
3. Plug apron drain on varsol tank
4. Plug 4" drain into blowdown tank
5. Plug 6" drain into blowdown tank
6. Plug 8" drain into blowdown tank
7. Blind 4" overflow line into sump west of boiler plant
8. Plug drain at north end of boiler plant
9. Close valves on boiler blowdown

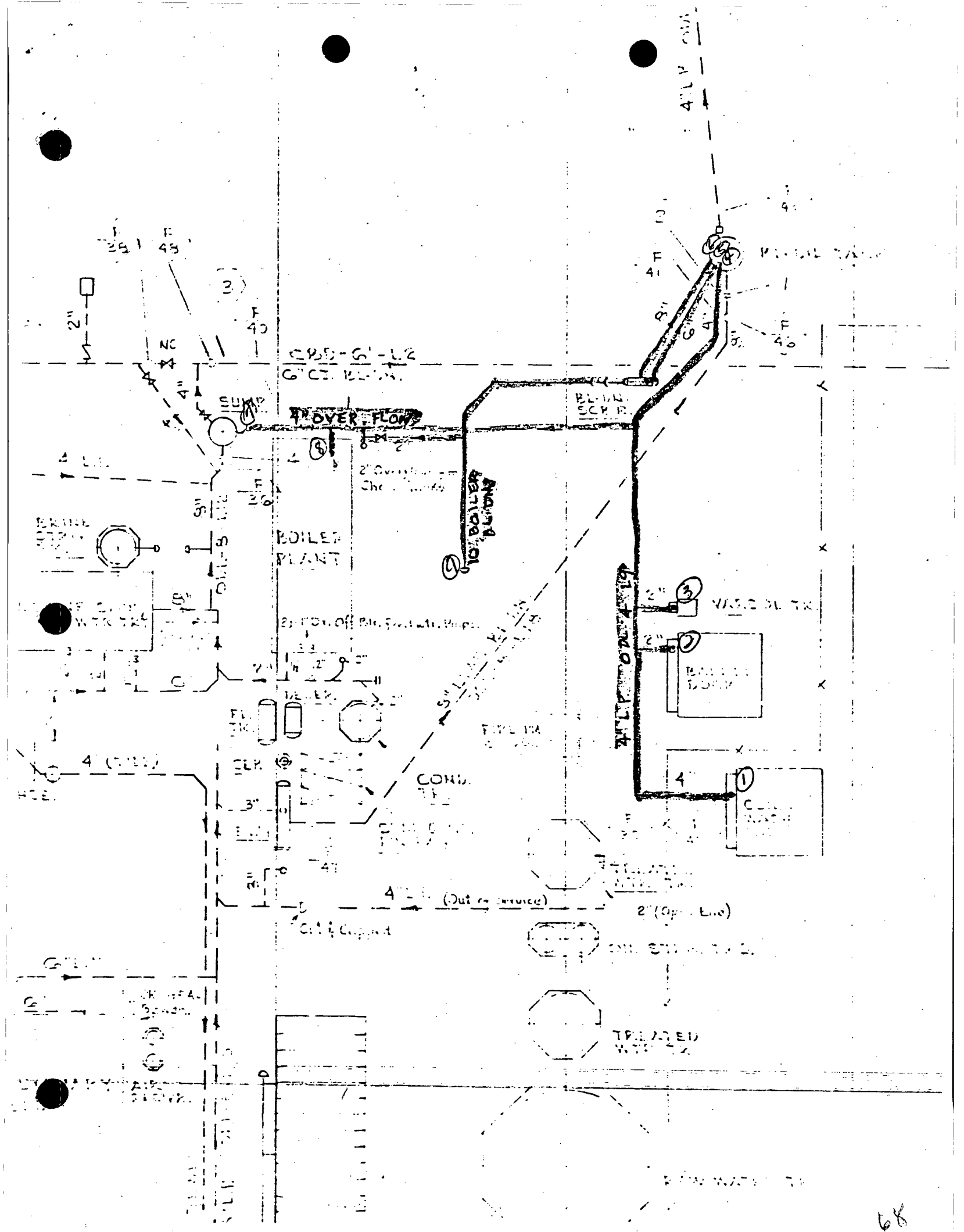
REMARKS: Tested line at 10# [redacted] pressure - clamped leak on 2" line at north end of boilers.

Tested on June 15, 1988

These three (3) lines were tested together.

Tested By: H. A. Martin - E.P.N.G.




OVER FLOW
10" BOILER BLOWN
BOILER PLANT
4" (Out of service)
2" (Open Line)

JAL #3 DRAIN LINES

ODL-4"-L9 4" Overflow from Sump -- 10" Boiler Blowdown

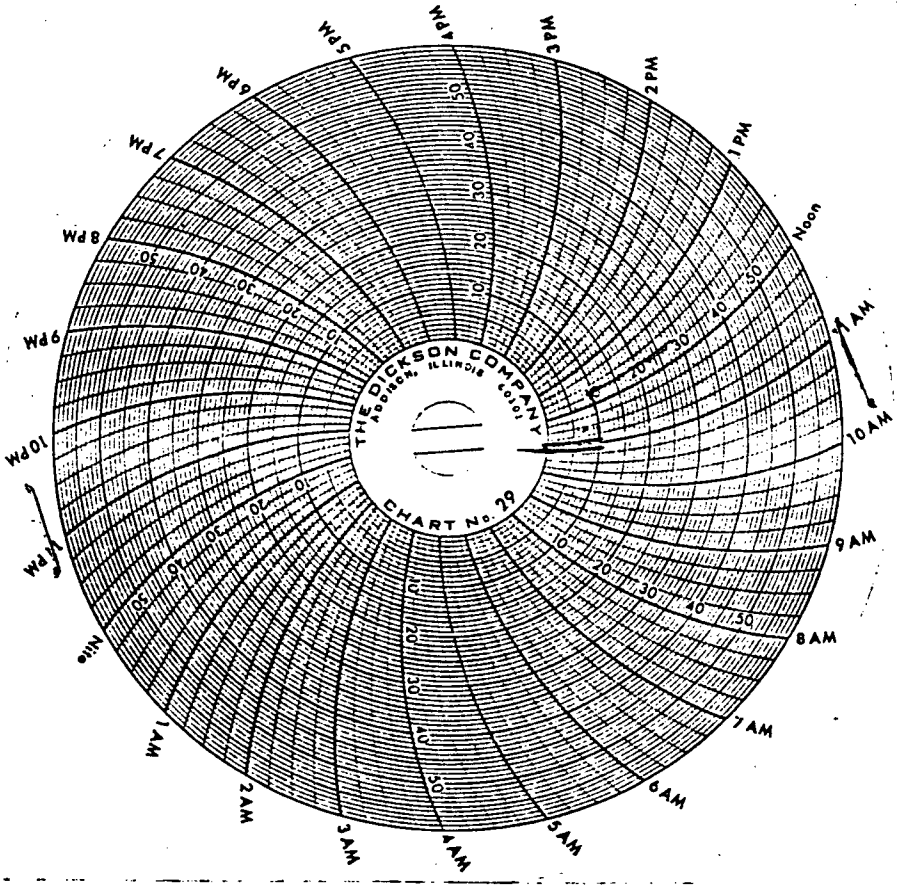
1. Plug apron drain on wash pad
2. Plug apron drain on barrel dock
3. Plug apron drain on varsol tank
4. Plug 4" drain into blowdown tank
5. Plug 6" drain into blowdown tank
6. Plug 8" drain into blowdown tank
7. Blind 4" overflow line into sump west of boiler plant
8. Plug drain at north end of boiler plant
9. Close valves on boiler blowdown

REMARKS: Tested line at 10# pressure - clamped leak on 2" line at north end of boilers.

Tested on June 15, 1988

These three (3) lines were tested together.

Tested By: H. A. Martin - E.P.N.G.



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

April 6, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. John C. Bridges, Manager
Environmental Engineering
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

RE: Discharge Plan GW-10
Jal #3 Gas Plant
Lea County, N.M.

Dear Mr. Bridges:

On November 21, 1983, the ground water discharge plan, GW-10, for the Jal #3 Gas Plant located in Lea County was approved by the Director of the Oil Conservation Division (OCD). This discharge plan was required and submitted pursuant to Water Quality Control Commission Regulations and it was approved for a period of five years. The approval will expire on November 21, 1988.

If your facility continues to have effluent or leachate discharges and you wish to continue discharging, please submit your application for renewal of plan approval as quickly as possible. The OCD is reviewing discharge plan submittals and renewals carefully and the review time can often extend for several months. Please indicate whether you have made, or intend to make, any changes in your discharge system, and if so, include an application for plan amendment with your application for renewal. To assist you in preparation of your renewal application, I have enclosed a copy of the OCD's guidelines for preparation of ground water discharge plans at natural gas processing plants. These guidelines will be used in review of your renewal application.

If you no longer have such discharges and discharge plan renewal is not needed, please notify this office.

If you have any questions, please do not hesitate to contact Roger Anderson at (505) 827-5885.

Sincerely,

David G. Boyer, Chief
Environmental Bureau

DGB:RA:sl

Enclosure

cc: OCD - Hobbs

Should you need further information please contact Howard Reiquam, Director of Environmental Affairs Department or myself at (915)541-3292 or 541-2869, respectively.

Very truly yours,

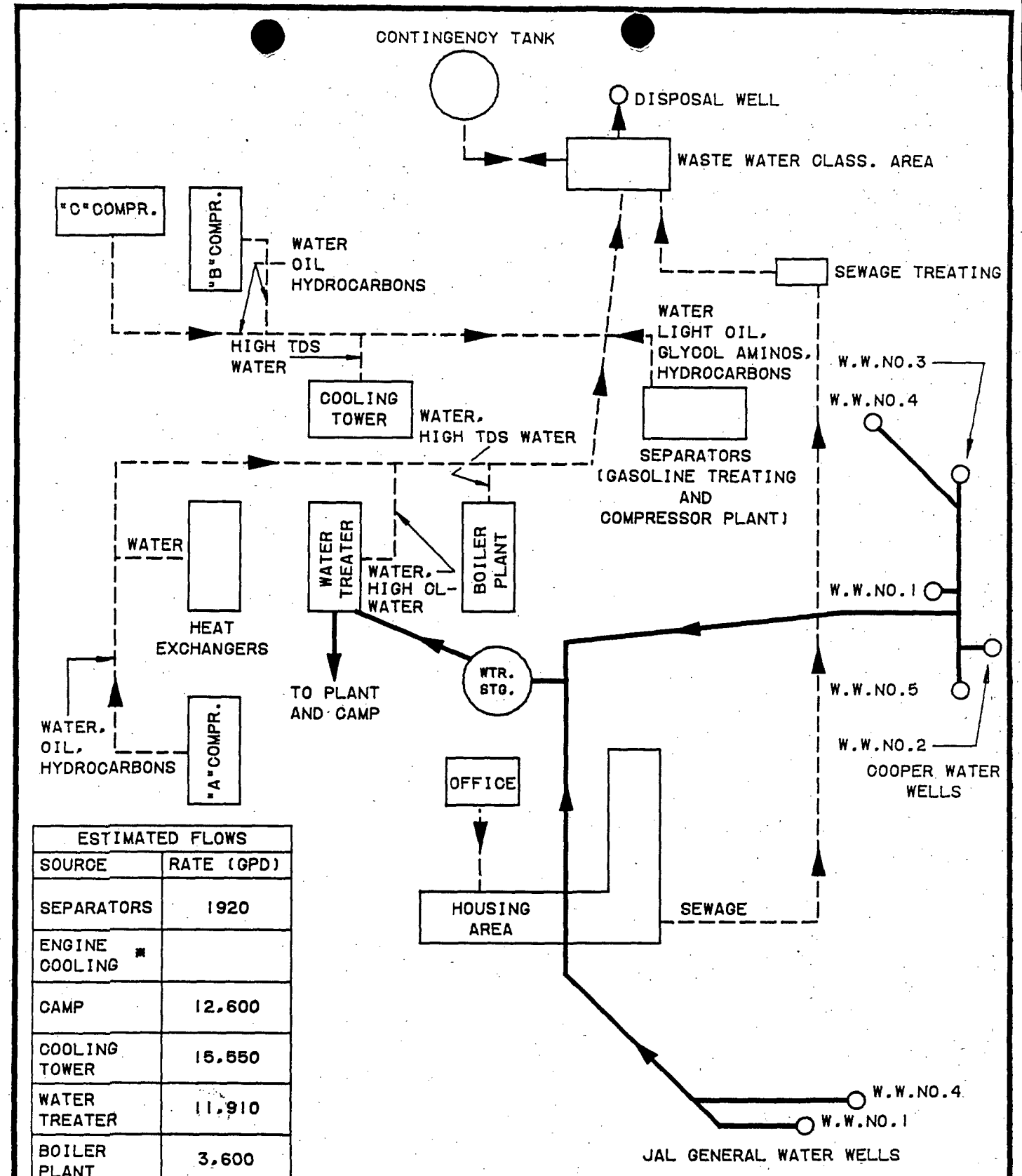
V.E. Dearhart for JCB

John C. Bridges
Manager, Environmental Engineering
Environmental Affairs Department

JCB:gb

Mtg with New Mexico OCD & EPA Representatives 3-24-88

Name	Position	Telephone
John Cunningham	Admin. EPLG	(915) 684-5701
John C Bridges	Mgr, Env. Engineering	(915) 541-2879
Carla Greathouse	EPA Contractor	(703) 750-3000
David Boyer NM OCD		(505) 827-5812
Jerry Sexton	OCD	393-6161
Chuck Stilwell	ARCO (Industry/API Rep.)	915 688-5651
Roger Anderson	NMOCD	(505) 827-5885
James C. Whitaff		505-375-2551
Jack R. Ward	Jal #3 Supt	505-395-2451



ESTIMATED FLOWS	
SOURCE	RATE (GPD)
SEPARATORS	1920
ENGINE COOLING *	
CAMP	12,600
COOLING TOWER	15,550
WATER TREATER	11,910
BOILER PLANT	3,600
HEAT EXCHANGERS	7,910
DRAINS	500

NOTE:
IRRIGATION SYSTEMS:
LAWN SPRINKLERS AND
GARDEN WATERING

*CLOSED SYSTEM DRAINAGE DISCONTINUED

El Paso NATURAL GAS COMPANY

FIGURE 18
JAL NO. 3 PLANT
WATER & WASTE WATER
FLOW SCHEMATIC

CERTIFIED/RETURN RECEIPT REQUESTED

El Paso
Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-541-2600

May 5, 1986

New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Reference: Underground Storage Tank Notifications

Dear Sirs:

Enclosed please find copies of completed underground storage tank (UST) notifications for those tanks located at El Paso Natural Gas (El Paso) locations in New Mexico. Only those forms containing information on tanks related to activities associated with the exploration, development, or production of oil, gas or geothermal resources are included.

As you are well aware, one of the categories of tanks which are not required to be registered and are excluded according to specific statutory language are those at pipeline facilities (including gathring lines) regulated under the Natural Gas Pipeline Safety Act of 1968.

On the advice of El Paso's Legal Counsel, notification forms have been completed for all tanks which might otherwise be subject to the notification requirements and have been sent to the appropriate office of the Department of Transportation (DOT). DOT regulates all facilities which are used in the transportation of gas. All the above mentioned tanks meet the definition of equipment used in the transportation of gas. As a courtesy, copies of the completed forms being sent to DOT are enclosed.

Please note that each form includes the following disclaimer:

> "The tank for which this registration is made is excluded from the registration requirement because it is a pipeline facility regulated under the Natural Gas Pipeline Safety Act of 1968. El Paso Natural Gas Company is providing this form to DOT as a courtesy with copies to the appropriate state agency."

Notification for Underground Storage Tanks

FORM APPROVED
OMB NO. 2050-0068
APPROVAL EXPIRES 8-30-88

FOR TANKS IN NM

RETURN COMPLETED FORM TO

New Mexico Environmental Improvement Division
Ground Water/Hazardous Waste Bureau
P.O. Box 968 (505) 827-2933
Santa Fe, NM 87504 (505) 827-2918

STATE USE ONLY

ID Number

Date Received

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means

(a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

(b) in the case of any underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who owned such tank immediately before the discontinuation of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: **1.** gasoline, used oil, or diesel fuel, and **2.** industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:
1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;
3. septic tanks;
4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow-through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Completed notification forms should be sent to the address given at the top of this page.

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. **2.** Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

INSTRUCTIONS

Please type or print in ink all items except "signature" in Section V. **This form must by completed for each location containing underground storage tanks.** If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

Indicate number of continuation sheets attached: 2 *

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
El Paso Natural Gas Company

Street Address
P. O. Box 1492

County
El Paso

City: El Paso | State: Texas | ZIP Code: 79978

Area Code: 915 | Phone Number: 541-2879

Type of Owner (*Mark all that apply* ☒)

- ☐ Current
- ☐ Former
- ☐ State or Local Gov't
- ☐ Federal Gov't (GSA facility I.D. no. _____)
- ☒ Private or Corporate
- ☐ Ownership uncertain

II. LOCATION OF TANK(S)

(If same as Section 1, mark box here ☐)

Facility Name or Company Site Identifier, as applicable
Jal #3

Street Address or State Road, as applicable
P.O. Box 1384

County
Lea

City (nearest): Jal | State: NM | ZIP Code: 88252

Indicate number of tanks at this location: 6

Mark box here if tank(s) are located on land within an Indian reservation or on other Indian trust lands ☐

III. CONTACT PERSON AT TANK LOCATION

Name (If same as Section I, mark box here ☒) | Job Title | Area Code | Phone Number

IV. TYPE OF NOTIFICATION

☐ Mark box here only if this is an amended or subsequent notification for this location.

V. CERTIFICATION (Read and sign after completing Section VI.)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative	Signature	Date Signed
John C. Bridges	John C Bridges	5/3/86

CONTINUE ON REVERSE SIDE

* See page 4 of 4

VI. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)

Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,2,3...)	Tank No. 5003-1 *	Tank No. 5003-2 *	Tank No. 5003-3 *	Tank No. 5003-4 *	Tank No. 5003-5 *
. Status of Tank (Mark all that apply ☒)					
Currently in Use	X	X	X	X	X
Temporarily Out of Use					
Permanently Out of Use					
Brought into Use after 5/8/86					
. Estimated Age (Years)	4	5	6	5	5
. Estimated Total Capacity (Gallons)	520	2100	3000	15750	43260
. Material of Construction (Mark one ☒)					
Steel	X	X	X	X	X
Concrete					
Fiberglass Reinforced Plastic					
Unknown					
Other, Please Specify					
. Internal Protection (Mark all that apply ☒)					
Cathodic Protection					
Interior Lining (e.g., epoxy resins)					X
None	X		X	X	
Unknown		X			
Other, Please Specify					
. External Protection (Mark all that apply ☒)					
Cathodic Protection	X	X	X	X	X
Painted (e.g., asphaltic)	X		X	X	X
Fiberglass Reinforced Plastic Coated					
None					
Unknown					
Other, Please Specify					
. Piping (Mark all that apply ☒)					
Bare Steel					
Galvanized Steel					
Fiberglass Reinforced Plastic					
Cathodically Protected	X	X	X	X	X
Unknown					
Other, Please Specify	coated steel	coated steel	coated steel	coated steel	coated steel
. Substance Currently or Last Stored in Greatest Quantity by Volume (Mark all that apply ☒)					
a. Empty					
b. Petroleum					
Diesel					
Kerosene		X	X		
Gasoline (including alcohol blends)					
Used Oil	X			X	X
Other, Please Specify					
c. Hazardous Substance					
Please Indicate Name of Principal CERCLA Substance					
OR Chemical Abstract Service (CAS) No.					
Mark box ☒ if tank stores a mixture of substances					
d. Unknown					
. Additional Information (for tanks permanently taken out of service)					
a. Estimated date last used (mo/yr)	/	/	/	/	/
b. Estimated quantity of substance remaining (gal.)					
c. Mark box ☒ if tank was filled with inert material (e.g., sand, concrete)					

VI. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)

		Tank No.	Tank No.	Tank No.	Tank No.	Tank No.
Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,2,3...)		5003-6 *				
1. Status of Tank (Mark all that apply ☒)	Currently in Use	X				
	Temporarily Out of Use					
	Permanently Out of Use					
	Brought into Use after 5/8/86					
2. Estimated Age (Years)		5				
3. Estimated Total Capacity (Gallons)		210000				
4. Material of Construction (Mark one ☒)	Steel	X				
	Concrete					
	Fiberglass Reinforced Plastic					
	Unknown					
	Other, Please Specify					
5. Internal Protection (Mark all that apply ☒)	Cathodic Protection					
	Interior Lining (e.g., epoxy resins)					
	None	X				
	Unknown					
	Other, Please Specify					
6. External Protection (Mark all that apply ☒)	Cathodic Protection	X				
	Painted (e.g., asphaltic)	X				
	Fiberglass Reinforced Plastic Coated					
	None					
	Unknown					
	Other, Please Specify					
7. Piping (Mark all that apply ☒)	Bare Steel					
	Galvanized Steel					
	Fiberglass Reinforced Plastic					
	Cathodically Protected	X				
	Unknown					
	Other, Please Specify	coated steel				
8. Substance Currently or Last Stored in Greatest Quantity by Volume (Mark all that apply ☒)	a. Empty					
	b. Petroleum					
	Diesel					
	Kerosene					
	Gasoline (including alcohol blends)					
	Used Oil					
	Other, Please Specify	Water & Oil				
	c. Hazardous Substance					
	Please Indicate Name of Principal CERCLA Substance					
	OR Chemical Abstract Service (CAS) No.					
	Mark box ☒ if tank stores a mixture of substances					
	d. Unknown					
9. Additional Information (for tanks permanently taken out of service)	a. Estimated date last used (mo/yr)	/	/	/	/	/
	b. Estimated quantity of substance remaining (gal.)					
	c. Mark box ☒ if tank was filled with inert material (e.g., sand, concrete)					

Jal #3

*Disclaimer

The tank for which this registration is made is excluded from the registration requirement because it is a pipeline facility regulated under the Natural Gas Pipeline Safety Act of 1968. El Paso Natural Gas Company is providing this form to DOT as a courtesy with copies to the appropriate state agency.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

March 4, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

El Paso Natural Gas Co.
One Petroleum Center/Building Two
3300 North "A" Street
Midland, Texas 79707

Attention: Mr. J. W. Cunningham

Re: EPNG Discharge Plans -
Lea County Plants Drain
Line Testing

Dear Mr. Cunningham:

We have reviewed the results of the drain line testing program which was conducted by EPNG as part of the discharge plan for the Jal No. 3 (GWR-10), Jal No. 4 (GWR-7), Eunice (GWR-9), and Monument (GWR-8) gas processing plants.

Upon analysis of the results and an estimation of the corrosion rates, we concur with your suggestion that yearly testing of the drain systems would be excessive. Therefore, by this letter, hydrostatic testing of the underground drain systems for the Jal No. 3, Jal No. 4, Eunice, and Monument gas processing plants will be required as part of the discharge plan renewal process. The testing program for each plant should be completed prior to the submittal of the discharge plan renewal. The discharge plan renewal shall include drawings of, and procedures for, the testing program as well as the results obtained from the testing program. A list of all piping replaced should also be included.

It should be noted that in the future, all gas processing plants and oil refineries in excess of twenty-five years of age will be required to submit plans for, or the results of, an underground drainage testing program as a requirement for discharge plan approval or renewal.

If you have any questions concerning this letter and the effect it may have on other EPNG plants, please feel free to call Phil Baca or Dave Boyer at (505) 827-5812.

Sincerely,

R. L. STAMETS
Director

RLS/PB/dp

cc: William F. Lorang, EPNG
OCD-Hobbs Office

P 505 905 861

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to El Paso Natural Gas	
Street and No. 3300 N. "A" St.	
P.O., State and ZIP Code Midland, Texas 79707	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return Receipt Showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, Feb. 1982

El Paso
Natural Gas Company

ONE PETROLEUM CENTER / BUILDING TWO
3300 NORTH "A" STREET
MIDLAND, TEXAS 79705

February 25, 1985

Mr. Philip L. Baca
Environmental Engineer
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Baca:

Per our telephone conversation of this date, enclosed are copies of our Jal No. 3 and Jal No. 4 Plant drain system drawings. I have placed a check mark by the lines that were replaced or repaired.

Items b, c, d and e, as noted in O. R. Dakan's memorandum to J. W. Cunningham dated February 15, 1985, for Jal No. 3 Plant were installed in 1950. Items a and f were installed in 1959.

Items a and b for Jal No. 4 Plant were installed in 1952.

Hopefully, this information, along with the information supplied to you last week, will enable OCD to relax the annual drain line testing requirements of our Discharge Plans and also enable you to develope testing intervals that are realistic and can be justified by companies in our industry.

If additional information is needed, please let me know.

Sincerely,

EL PASO NATURAL GAS COMPANY

J. W. Cunningham, Coordinator
Technical Operations Department

JWC:gfc

Enclosures

Plant Age: 34 yrs

Pipe Size	Sch. 40 Wall Thick.	Sch. 10 Wall Thick	Assumed C-Rate	Sch. 40 C-Rate	Sch. 10 C-Rate
3"	.216"	.120"	.02"/yr	.006"/yr	.003"/yr
4"	.237"	.120"		.007"/yr	.003"/yr
6"	.280"	.130"		.008"/yr	.004"/yr
8"	.322"	.148"		.009"/yr	.004"/yr
10"	.365	.165"		.011"/yr	.005"/yr
				$\bar{x}$ = .008"/yr	$\bar{x}$ = .004"/yr

Assume Corrosion Rate of .02 in/yr

Pipe Size	Sch. 40 Wall Thick	Sch. 10 Wall Thick	Life Sch. 40	Life Sch. 10
3"	.216"	.120"	11 yr	6 yr
4"	.237"	.120"	12 yr	6 yr
6"	.280"	.130"	14 yr	7 yr
8"	.322"	.148"	16 yr	7.4 yr
10"	.365"	.165"	18 yr	8.3 yr
			$\bar{x}$ = 14.2 yr	$\bar{x}$ = 6.9 yr.

Assume Corrosion Rate of .01 in/yr

Pipe Size	Life Sch. 40	Life Sch. 10
3"	22 yr	12 yr
4"	24 yr	12 yr
6"	28 yr	14 yr
8"	32 yr	15 yr
10"	36 yr	16 yr
	$\bar{x}$ = 28.4 yr.	$\bar{x}$ = 13.8 yr.

∴ Choose a 25 yr. life for pipes. Start inspecting when plants reach 25 yrs.

Pipe Replaced By EPNG

Jal #4

180' of 4" Pipe	32 yrs.	Old
110' of 8" Pipe	32 yrs.	Old
75' of 10" Pipe	32 yrs.	Old

Jal #3

40' of 3" Pipe	25 yrs	Old	(High Temp)
70' of 3" Pipe	32 yrs	Old	
10' of 6" Pipe	32 yrs	Old	
25' of 4" Pipe	32 yrs	Old	
9' of 6" Pipe	32 yrs	Old	

El Paso
Natural Gas Company

TWO PETROLEUM CENTER / SUITE 200
MIDLAND, TEXAS 79705
PHONE: 915-684-5701

February 19, 1985

Test Procedures in Brown Binder with Jal #4 File

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. R. L. Stamets, Director

RE: EPNG DISCHARGE PLANS - LEA COUNTY PLANTS
DRAIN LINE TESTING

Gentlemen:

This letter is to advise that El Paso Natural Gas Company has just recently completed the hydrostatic drain line testing of our Lea County Plants for the year 1984. This testing was done pursuant to our approved Discharge Plans for Eunice, Jal No. 3, Jal No. 4 and Monument. Drain lines in the Jal No. 1 Plant were not tested because the plant is currently shut down. There are no plans at the present time to reactivate the plant.

Attached for your information and to be considered as part of this report are two (2) memorandums from Mr. O. R. Dakan to J. W. Cunningham detailing the results of the tests, repairs or actions taken and cost information associated with the tests.

As you will note all lines not meeting the test requirements were either repaired, replaced, or taken out of service except for line No. TDL-15"-L1, which is a clay tile line running beneath the Jal No. 3 gasoline plant concrete drain aprons and a 4" low pressure drain line running beneath the concrete drain apron in the treating plant at Jal No. 3. It would be extremely expensive to repair or replace these lines.

Because of the extraordinary time and expense involved in annual testing of the drain lines and because of the remote possibility of ground water contamination from leaking drain lines, El Paso Natural Gas Company respectfully requests that the annual drain line testing provision of the Discharge Plans be rescinded or at least be extended to no more than once every five years. Also, as support for our request to rescind this provision is the fact that we have been advised by Phillips Petroleum Company and Northern Natural Gas Company, who also operate plants in the Lea County Area that they do not have these requirements in their approved Discharge Plans.

If there are any questions regarding the test results or our request to rescind the test requirements, please advise the undersigned at your earliest convenience.

Sincerely,

EL PASO NATURAL GAS COMPANY

J. W. Cunningham
Coordinator, Technical Operations

JWC:dc

El Paso Natural Gas Company

MEMORANDUM

TO: J. W. Cunningham

DATE: February 15, 1985

FROM O. R. Dakan

PLACE: Permian Division-Midland

RE: RESULTS OF DRAINLINE TESTING AT SOUTHEASTERN NEW MEXICO PLANTS

After checking available drawing information, it has been determined that the underground portion of the drain systems are as follows:

PLANT	LENGTH OF DRAIN LINES, ALL SIZES
Jal #4	33,045 ft.
Jal #3	26,115 ft.
Eunice	15,535 ft.
Monument	4,665 ft.

Currently, the status of the above drain systems is as follows:

I. Jal No. 4 Plant-Lines which would not hold test pressure were:

Installed 1952

a) 4" low pressure drain from reflux accumulator to 16" drain header (line has been rerouted and replaced).

b) 10"/8" boiler and evaporator blowdown header (line has been replaced).

II. Jal No. 3 Plant-Lines which would not hold test pressure were:

a) Line: ODL-6"-L3 Leaks in 3" drains from intercoolers were repaired. Line in service. (1959)

1950

b) Line: ODL-3"-L17 Opendrain from the reflux accumulator. This steel line (70') is being replaced with PVC line.

c) Line: 6" L.P. from hot wells to line ODL-8"-L10-10' section replaced and line retested.

d) Line: 4" L.P. drain from Solution exchangers to Line ODL-8"-L12 leaking under concrete apron. No repairs have been made.

e) Line: 6" L.P. drain to solution sump - 9' Section replaced and line retested.

1959

f) Line: TDL-15"-L1 Open Apron and storm water drain. This tile line would not pressure because of joint design (Mortar joints) and inability to get a tight seal with the expandable plugs. This drain handles liquids from the Aprons during bundle cleaning operations, steam condensate from the heat tracing line steam traps, and rain water. The discharge end of the line empties into an open distribution sump and has no pressure in the line during normal operations. Under these conditions any leakage at the joints will be minimal since the liquid will take the path of least resistance (i.e. the open end of the line). The line is located under all the concrete aprons North of the Gasoline Pump house and would be extremely expensive to replace. Considering the types of fluids that this

line transports and the cost of replacement, unless ordered otherwise, this line will be left as is.

At Eunice Plant, the lines which would not hold test pressures were:

a) Line: 6" from water treating building to 8" open drain header. A short section of this line has apparently been subjected to corrosion in a "Hot Spot" where cathodic protection was interrupted. This condition is to be corrected and the clamped section of line replaced. Fluid is water treater backwash water.

b) Line: 4" Drain from Mainline inlet scrubber area to 8" open drain header (Taps F43 and F28). This drain was found to be inactive and was permanently isolated at the 4" to 8" junction. Line is now inactive.

At Monument Plant, there were no leaks on the drain lines. All lines shown on Drainline drawing are in service.

Other than those lines, or sections, previously mentioned, all drain lines in these systems tested leak-free. Pressure charts are on file at the plant for verification of pressures and durations in accordance with the respective drain line test procedures previously published.

O. R. Dakan

ORD:cd

cc: L. E. Anderson
Harold Franklin
Bill Lorang
Charlie Mathis
G. T. Thurman
P. E. Wieland
File - 2

El Paso Natural Gas Company

MEMORANDUM

TO: J. W. CUNNINGHAM

DATE: FEBRUARY 7, 1985

FROM: O. R. DAKAN

PLACE: PERMIAN DIVISION-MIDLAND

RE: 1984 DRAINLINE TESTING COSTS

Listed below are the actual costs of Pressure Testing the drainlines at the southeastern New Mexico plants.

Monument			
	EPNG Labor	(402)	$2052.07
	EPNG Equipment	(420)	1333.37
	Material & Parts	(417)	530.19
	Contractor Charges	(429)	5279.00
		Total	$9194.63
Eunice			
	EPNG Labor	(402)	$3743.67
	EPNG Equipment	(420)	1610.25
	Materials & Supplies	(417)	1118.15
	Contractors Charges	(429)	6375.96
		Total	$12,848.03
Jal No. 3			
	EPNG Labor	(402)	$4646.74
	EPNG Equipment	(420)	1530.15
	Materials & Supplies	(417)	3948.18
	Contractor Charges	(429)	7414.60
		Total	$17,539.67
Jal No. 4			
	EPNG Labor	(402)	$10354.93
	EPNG Equipment	(420)	3741.80
	Materials & Supplies	(417)	6097.82
	Contractors Charges	(429)	6097.82
		Total	$26,292.37
	Total direct cost - 4 Plants -		$65,874.70

After discussions with Hardy Cook and personnel at the respective plants, it has been estimated that approximately $5000 additional EPNG labor and equipment charges were spent as indirect or unlabeled expenses. Plant personnel were involved in location of lines, valves and drains at various times during the testing procedure.

It is recommended that the Oil Conservation Division (OCD) be petitioned to extend the testing interval to 5 years instead of the present annual schedule. Although the next test will not be as expensive as this initial test, an annual outlay of approximately $40,000 to $50,000 for drain line testing is not warranted. Testing on a 5 year basis would serve the same purpose at a reduced average annual cost.

O. R. Dakan
Chief Division Project Engineer

ORD:jlr

cc: L. E. Anderson
Harold Franklin
Bill Lorang
Charlie Mathis
G. T. Thurman
P. E. Wieland
File - 2

NOTICE OF PUBLICATION

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

SANTA FE, NEW MEXICO

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following proposed discharge plan has been submitted for approval to the Director of the Oil Conservation Division, P. O. Box 2088, State Land Office Building, Santa Fe, New Mexico 87501, telephone (505) 827-5803.

EL PASO NATURAL GAS COMPANY, Jal No. 3 Plant (Sections 33 and 34, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico) P. O. Box 1384, Jal, New Mexico 88252, also P. O. Box 1492, El Paso, Texas 79978, telephone (915) 541-3292, proposes to discharge approximately 1320 barrels of waste water per day. The waste water is derived from plant process, boiler and cooling tower water, and domestic effluent. The waste water will be disposed of into an injection well operated by El Paso Natural Gas Company. The total dissolved solids content of the waste water is approximately 5410 mg/L.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

Notice Dates:
10/13/83 (HOBBS)
10/13/83 (ALB.)

STATE OF NEW MEXICO
OIL CONSERVATION
DIVISION
JOE D. RAMEY
Director
(SEAL)

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN Under the Seal of the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 13th day of October, 1983.

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION

JOE D. RAMEY

Director

S E A L

STATE OF NEW MEXICO
OIL CONSERVATION
DIVISION
JOE D. RAMEY
Director
(SEAL)

El Paso
Natural Gas Company

TWO PETROLEUM CENTER / SUITE 200
NORTH "A" AT WADLEY
MIDLAND, TEXAS 79701

PHONE: 915-684-5701

October 11, 1983

Mr. Joe Ramey, Director
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

Re: The Enclosed Discharge Plan for
El Paso Natural Gas Company's
Jal No. 3 Plant

Dear Mr. Ramey:

Please find enclosed the complete discharge plan for El Paso's Jal No. 3 Plant.

El Paso has set forth therein in detail the methods and techniques proposed to be used which will ensure compliance with the New Mexico Water Quality Act and the New Mexico Water Quality Control Commission regulations.

El Paso hereby requests that you act on the proposed plan pursuant to Sections 3-108 and 3-109 of the regulations.

Thank you for your consideration of this matter.

Very truly yours,

R. F. Cook

DISCHARGE PLAN FOR

EL PASO NATURAL GAS COMPANY'S

JAL NO. 3 PLANT

LEA COUNTY, NEW MEXICO

EL PASO NATURAL GAS COMPANY

EL PASO, TEXAS

JAL NO. 3 DISCHARGE PLANT

TABLE OF CONTENTS

Figures

Figures

Tables

Appendices

Executive Summary

The Jal No. 3 Plant has been in operation since the early 1940's to compress, treat and transport natural gas. Groundwater from the Ogallala formation has been produced for both domestic and industrial use at the Plant. Wastewater resulting from Plant operations which was previously discharged to evaporation ponds is now being routed through a classifier system to remove suspended solids and oil and disposed of in an approved onsite injection well. The Plant discharges approximately 38.5 gallons per minute of water characterized by a total dissolved solids concentration of approximately 5410 p.p.m.

This discharge plan demonstrates that all waste streams generated at the plant are now being disposed of properly. The Plan has been extensively revised to clarify the methods and procedures which El Paso Natural Gas Company is using, in accordance with the New Mexico Water Quality Control Commission Regulations, to ensure that groundwater quality in the general area of the Plant is not degraded. This report supersedes the previously submitted discharge plan and provides an update in accordance with New Mexico Oil Conservation Division (NMOCD) directions on developments that have taken place since the original plan was submitted.

It is El Paso's intent to sufficiently describe the treatment of all waste streams from the Plant to comply with each part of the regulation. Therefore, the format of this plan has been structured to identify each part of the regulation which is applicable to discharge plans and then to supply information sufficient to indicate compliance.

Discharge Plan For
El Paso Natural Gas Company's
Jal No. 3 Plant
Lea County, New Mexico

I. Introduction

This document describes a wastewater discharge plan (Plan) pertaining to El Paso Natural Gas Company (El Paso) Jal No. 3 Field Plant (Plant) and is directed to officials of the New Mexico Oil Conservation Division (NMOCD) of the Energy and Minerals Department who in this case are implementing the New Mexico Water Quality Control Commission (NMWQCC) Regulations. The purpose of this Plan is to describe the methods and processes which El Paso is using to ensure that the water quality in the general area is not degraded. Figure 1 shows the general area of the Plant and related El Paso activities in southern Lea County.

El Paso has assembled, evaluated and included in this Plan existing information from all known sources that could be used in defining the existing environment of the area. Much of the information presented herein is based on data previously published by the U.S. Geological Survey and New Mexico agencies, including the State Engineer, the NMOCD and the New Mexico Environmental Improvement Division (NMEID). Water sampling and analysis were conducted to characterize existing water quality in the general area of the Plant as well as the specific wastewater discharges.

The Plan is presented in Section III following the background information section, and has been formatted to respond directly to all applicable provisions of Part 3 of the NMWQCC regulations. Each regulation is identified by number and the text is reproduced and underlined for reference. The response to each regulation follows and is intended to directly answer the specific information requirement for that regulation.

II. Background Information

Historical

In the late 1920's Maljamar Oil and Gas Corporation made the first discoveries of oil and gas in Lea County (Mangan, 1977). These discoveries were soon followed by successful exploration to the north of Jal in the Eunice area. The communities of Jal, Eunice and Hobbs profited and grew with the Permian Basin boom and have continued to prosper to this day.

Originally, oil operations separated the oil and gas at the wellhead and burned the gas in thousands of huge flares that lit up the whole basin. In the Kendrick Field alone, oil operations flared 200 million cubic feet of gas daily simply because there was nothing else to do with it. In September 1928, surveys for a planned pipeline to El Paso, Texas were begun at Jal. Soon after completion of the pipeline the first treating plant, called Jal No. 1, was constructed near the

village of Jal. That plant initially treated up to three million cubic feet of gas per day. As the demand for natural gas increased, Jal Plant No. 2 was constructed in 1940, followed by Jal 3, Jal 4, Eunice and Monument during and after World War II.

The Jal No. 3 Plant became operational in 1950 with gas treating, gas compression, and product extraction facilities. In 1959 major modifications were made which included expansion of compression, treating and products extraction facilities and installation of a gas dehydration plant. A 16,800 horsepower turbine-driven gas compressor and two reciprocating compressor units were added in 1971 with corresponding expansion in gas treating and products extraction facilities. Current plant capabilities were reached in 1972 with the installation of two turbine-driven compressor units.

Liquid waste streams from the plant facilities and adjoining camp were discharged into several evaporation ponds. Use of these ponds was discontinued in mid-1982 when the wastewater disposal system was put into service.

The plant occupies 80 acres and can be seen in the 1981 photograph in Figure 2. It also has a 42-house camp occupied by Company employees. Information regarding ownership of tracts adjacent to the Plant site is contained in Figure 3. All Plant property is owned by El Paso. Three producing oil/gas wells exist within the plant confines which are also noted on Figure 3.

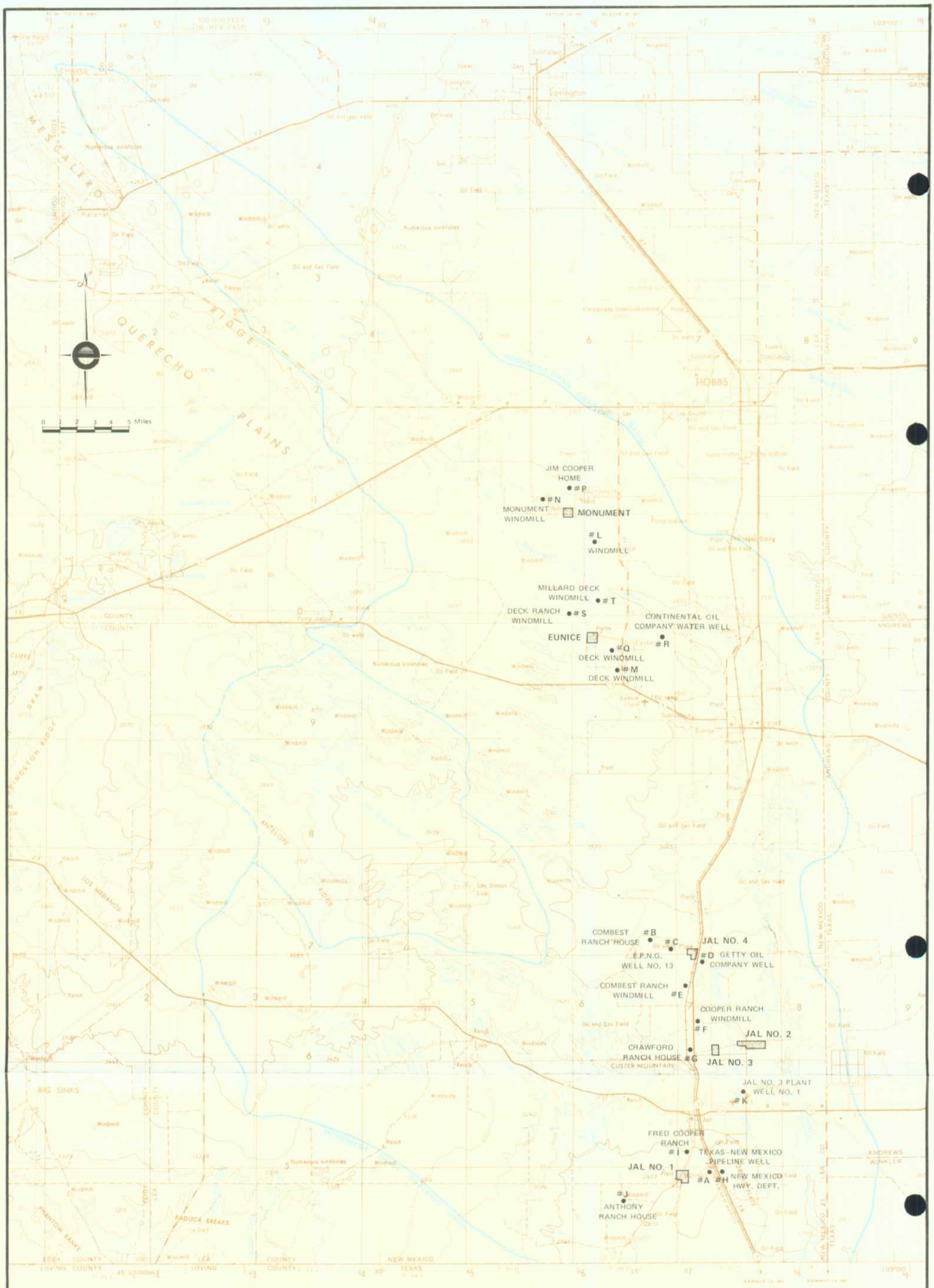
Water Supply

Groundwater from wells producing from the Ogallala formation is used to supply both industrial and domestic needs at the Plant. The Plant and its associated facilities use approximately 618.2 acre feet of water per year obtained from wells located southeast of the Plant in Sections 10, 11 and 12, Township 25 South, Range 37 East, NMPM. This consumption rate, the means of the yearly consumption rates for the years 1979 through 1982, includes water usage for the Jal general camp, located outside the plant confines, which utilizes the same water source but does not have separate metering facilities.

Water Use and Past Disposal Practices

A substantial amount of the water consumed at the plant is used by the cooling towers to cool compressed gas. The cooling towers require considerable make-up to replace water constantly being lost to evaporation. Water is also used for the domestic (home use and yard irrigation) needs of the employee camp facilities. Another use for water is in the closed cooling system for engine oil (oil cooling) and engine jackets (jacket cooling). This water is generally circulated to dry, external heat exchangers where ambient air is blown across heat exchanger surfaces by large vertical-axis fans (fin-fans).

The Plant previously used ponds for disposal of plant wastewater. These are referenced on Figure 4 (Map Pocket). In addition, between 1977 and 1982, the No. 1 pond at the Jal No. 2 Plant site, shown



El Paso Natural Gas Company

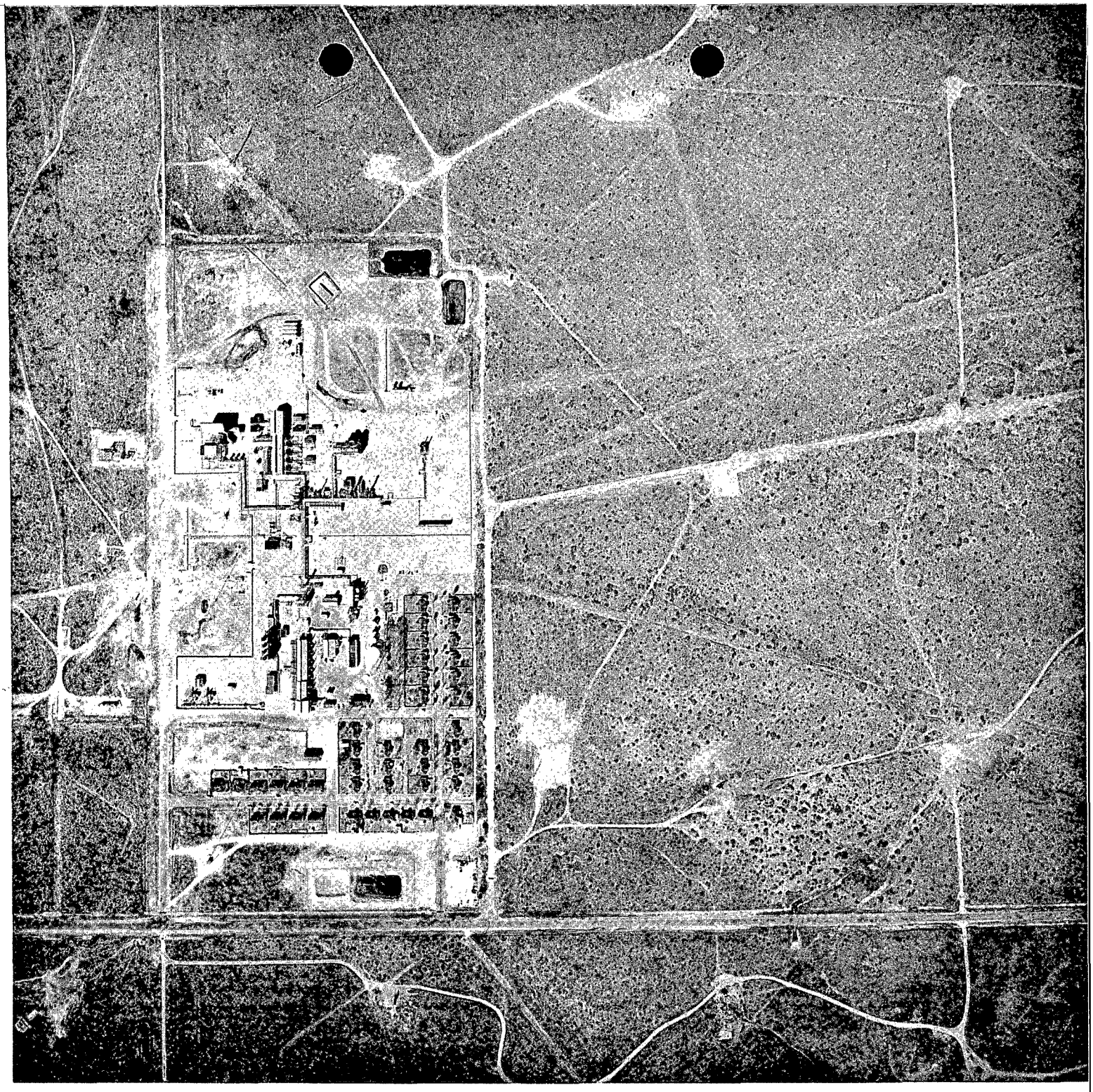
FIGURE 1

LOCATION OF EL PASO NATURAL GAS COMPANY PLANTS AND MONUMENT DRAW DRAINAGE BASIN

SOUTHERN LEA COUNTY, NEW MEXICO

F283 16038108

Prepared By
Pipeline Services Division



NOTE: ALL SOUTH PONDS RETIRED. ANGLED SQUARE PIT IN NORTH CENTRAL PLANT YARD WAS TEMPORARY MUD PIT USED IN DRILLING OF DISPOSAL WELL; IT NO LONGER EXISTS.

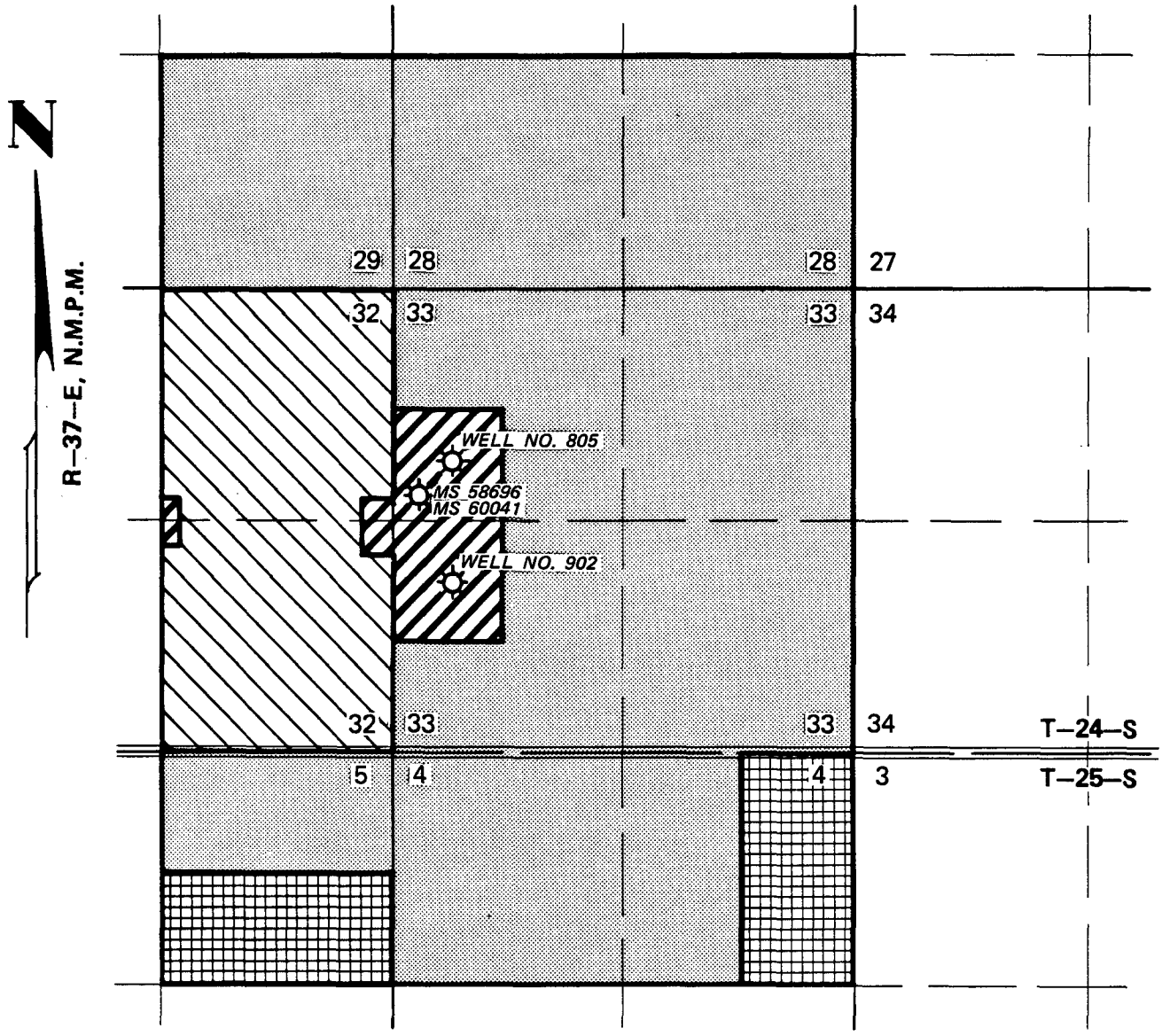
El Paso Natural Gas Company

FIGURE 2

1981 AERIAL VIEW OF
JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE



LEGEND

El Paso Natural Gas Company

J. J. Smith Estate, et al
c/o Rebecca Joan Doom

Trustees of Jal Public Library Fund

State of New Mexico/Henry H. Harrison
c/o J. T. Crawford

El Paso
NATURAL GAS
COMPANY

FIGURE 3

JAL NO. 3 PLANT SITE

SW¼ NW¼, NW¼ SW¼ OF SECTION 33
T–24–S, R–37–E
LEA COUNTY, NEW MEXICO

JAL NO. 3 PLANT SITE

SUBDIVISION	OWNER/OCCUPANT/ADDRESS
SW¼NW¼, NW¼SW¼ Section 33, T–24–S, R–37–E; South 165' of E½E½SE¼NE¼ Section 32, T–24–S, R–37–E; North 495' of E½E½NE¼SE¼ Section 32, T–24–S, R–37–E; and A Tract of land 292' X 660' in the E½ Section 32, T–24–S, R–37–E (Tract not a Part of Plant Site)	El Paso Natural Gas Company P. O. Box 1492 El Paso, Texas 79978
SE¼ Section 29, T–24–S, R–37–E; S½ Section 28, T–24–S, R–37–E; All Section 33 Except the SW¼NW¼ & the NW¼SW¼, T–24–S, R–37–E; N½NE¼ Section 5, T–25–S, R–37–E; and NW¼, W½NE¼ Section 4, T–25–S, R–37–E	Trustees of Jal Public Library Fund P. O. Box 178 Jal, New Mexico
S½NE¼ Section 5, T–25–S, R–37–E; and E½NE¼ Section 4, T–25–S, R–37–E	J. J. Smith Estate, et al c/o Rebecca Joan Doom Jal, New Mexico
E½ Except That Portion Owned by EPNG of Section 32, T–24–S, R–37–E	State of New Mexico/ Henry H. Harrison c/o J. T. Crawford Jal, New Mexico

JAL NO. 3 PLANT SITE
WELL NAMES & LOCATIONS

METER STATION NO.	LOCATION	WELL NAME	OPERATOR/ADDRESS
58696	2310' FNL & 330' FWL	Doyle Hartman Northshore – Woolworth No. 6	Doyle Hartman c/o Larry A. Nermyr P. O. Box 10426 Midland, Texas
60041 *Permanently Disconnected on 4–28–83	2310' FNL & 330' FWL	*Doyle Hartman Northshore – Woolworth No. 3 Meter Run in use for Doyle Hartman Northshore – Woolworth No. 6	Doyle Hartman c/o Larry A. Nermyr P. O. Box 10426 Midland, Texas
Unknown	Reportedly SW¼NW¼	Amerada Hess Corp. – Well No. 805	Amerada Hess Corporation P. O. Box 2040 Tulsa, Oklahoma 74102
Unknown	Reportedly NW¼SW¼	Amerada Hess Corp. – Well No. 902	Amerada Hess Corporation P. O. Box 2040 Tulsa, Oklahoma 74102

FIGURE 3
Sheet 2 of 2

on Figure 5 (Map Pocket), was used for disposal of effluent from the Jal No. 3 Plant. Table 1 shows analyses of composite samples taken from the evaporation ponds in 1981. No effluent is now being placed in any ponds.

The evaporation ponds covered a total of approximately 2 acres. The discharge pipes and ponds were constructed as the need arose with each pond embankment constructed using borrow material from the center of the pond and soils surrounding the pond site. There are no known contract specifications or drawings in existence describing the construction phase of the ponds.

Aerial Photo History of Ponds (Figures 6 through 15)

The Jal No. 2 Plant was constructed in 1940. In 1971 the entire plant was shut down and disconnected from the system. Liquid waste streams from the plant were discharged into several evaporation ponds west of the plant facilities between 1940 and 1971. The location of these ponds is shown in Figure 5 and the 1967 aerial views of the plant, Figures 6 and 7. These ponds were abandoned in 1971 and remained unused until 1977 when Pond No. 1 at Jal No. 2 was reactivated to receive effluent from Jal No. 3 Plant. This effluent was transported to Pond No. 1 via an abandoned oil line which formerly interconnected Jal No. 2 and Jal No. 3 product extraction.

Prior to installation of the present collection and classifier system at Jal No. 3, liquid wastes were also disposed of in several evaporation ponds as shown in Figure 4 and the accompanying aerial photographs. In 1978, two sewage effluent ponds in the southeast corner of the plant property were backfilled. These ponds and another overflow pond appear on aerial photographs prior to 1981. In late 1980, the drain lines into the two ponds in the south central area of the plant were revised to discontinue flow into these ponds and transfer all plant wastewater to Pond No. 1 at Jal No. 3. Also shown in Figures 9 through 11 are three ponds on the west central side of the plant property which were used for disposal and/or storage of produced water and waste oil. Periodically the oil was removed from the surface of these ponds with a vacuum truck and used for dust control on lease roads in the area. These ponds were dried and backfilled in 1969 and 1970.

Closure has begun on ponds at Jal No. 2 and Jal No. 3 in accordance with NMOCD instructions. Ponds No. 1 through No. 5 at Jal No. 2 have been back-filled. Ponds No. 5 and No. 6 at Jal No. 3 have also been back- filled. The remaining ponds have been pumped dry and are being allowed to dry in preparation for closing. These ponds will be closed in accordance with the pond closure plan, presented in Appendix A. Samples of sludges from similar ponds at another facility (Jal No. 4) have been analyzed for organic constituents and the Jal No. 3 Plant closure plan reflects the results of those analyses. Since processing and compression of gas is similar in many of El Paso's plants, the NMOCD agreed that the closure assumption from sludge sampling at Jal 4 could be applied at other Lea County Plants.

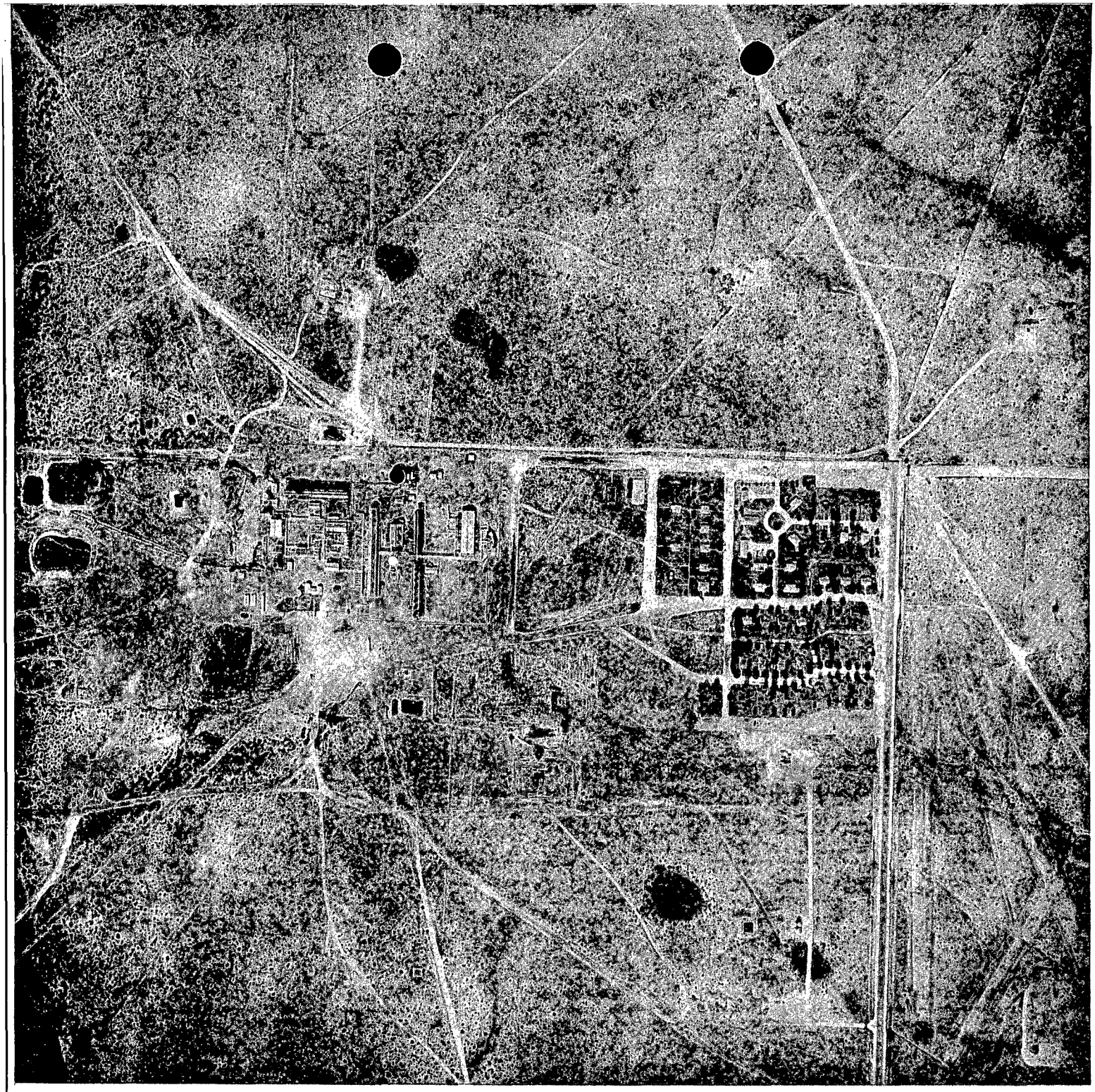
TABLE 1

Water Quality Analyses of Composite Samples from Evaporation Ponds*
at El Paso Natural Gas Company's Jal No. 2 and 3 Plants

Constituent	Sample Location[1/] Jal No. 3 #1	Jal No. 3 #2	Jal No. 3 #3	Jal No. 3 #4	Jal No. 2 #1
Sulfate (SO_4), mg/l	520	265	505	67	554
Chloride (Cl), mg/l	355	1703	298	35	2552
Nitrate (NO_3 as N), mg/l	2.5	0	0	3	3
Specific Conductance, mmhos/cm	2100	4700	2600	690	6390
pH	6.62	7.92	9.8	6.95	7.95
Total Dissolved Solids, mg/l	2047	4082	2010	175	5571
Chromium (Cr), mg/l	0.9	0.65	0.10	0.05	0.04
Copper (Cu), mg/l	0.10	0.05	0	0	0
Iron (Fe), mg/l	1.9	0.1	0.1	0.1	0.2
Manganese (Mn), mg/l	0.08	0.05	0.01	0.03	0.04
Zinc (Zn), mg/l	2.57	0.10	0	0	0.17

[1/] Pond designations are shown on Figure 4 and 5 (map pocket).

*The ponds at Jal No. 2 and Jal No. 3 are now dry and the ponds at Jal No. 2 have been backfilled.



El Paso Natural Gas Company

FIGURE 6

1967 AERIAL VIEW OF
JAL NO. 2 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE

NOTE: DETAIL OF DISPOSAL AREA.

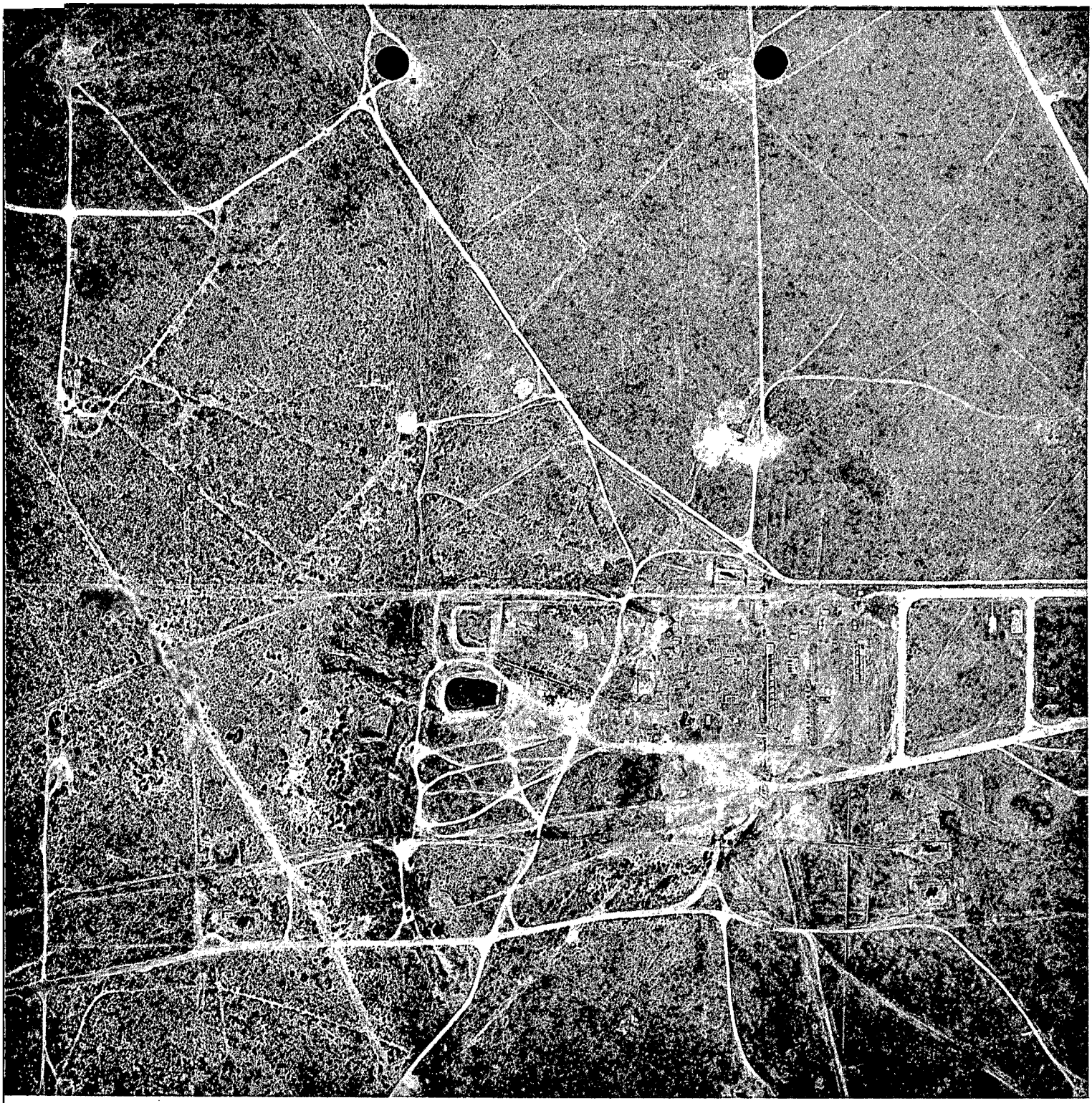
El Paso Natural Gas Company

FIGURE 7

1967 AERIAL VIEW OF
JAL NO. 2 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE



NOTE: POND NO. 1 BEING USED FOR JAL NO. 3 EFFLUENT.

El Paso Natural Gas Company

FIGURE 8

1981 AERIAL VIEW OF
JAL NO. 2 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE

NOTE: PONDS IN SOUTHWEST CORNER OUTSIDE PLANT PERIMETER ARE RELATED TO FIELD PRODUCTION AND WERE LATER REPLACED BY TANKS.

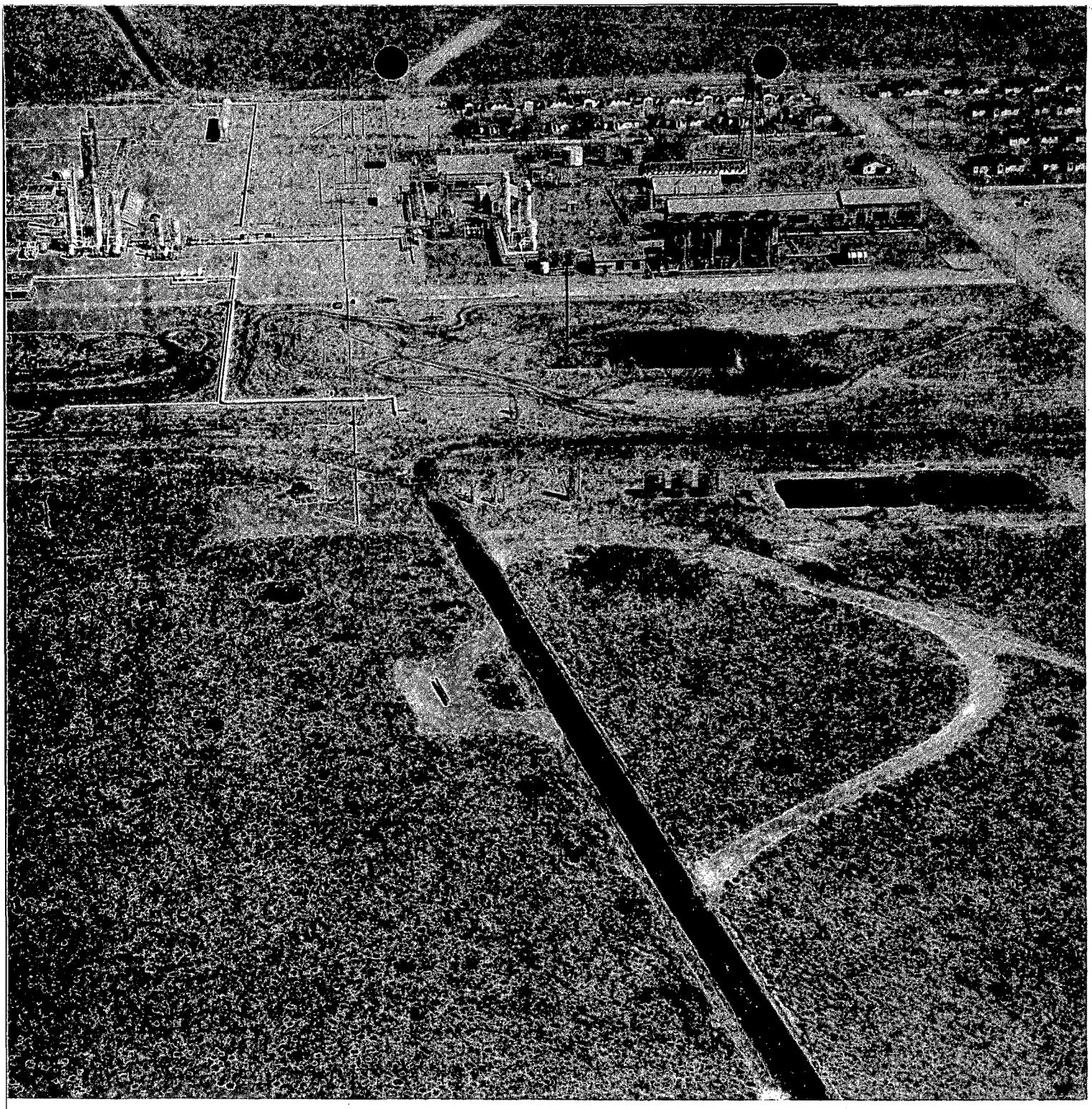
El Paso Natural Gas Company

FIGURE 9

1961 AERIAL VIEW OF JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE



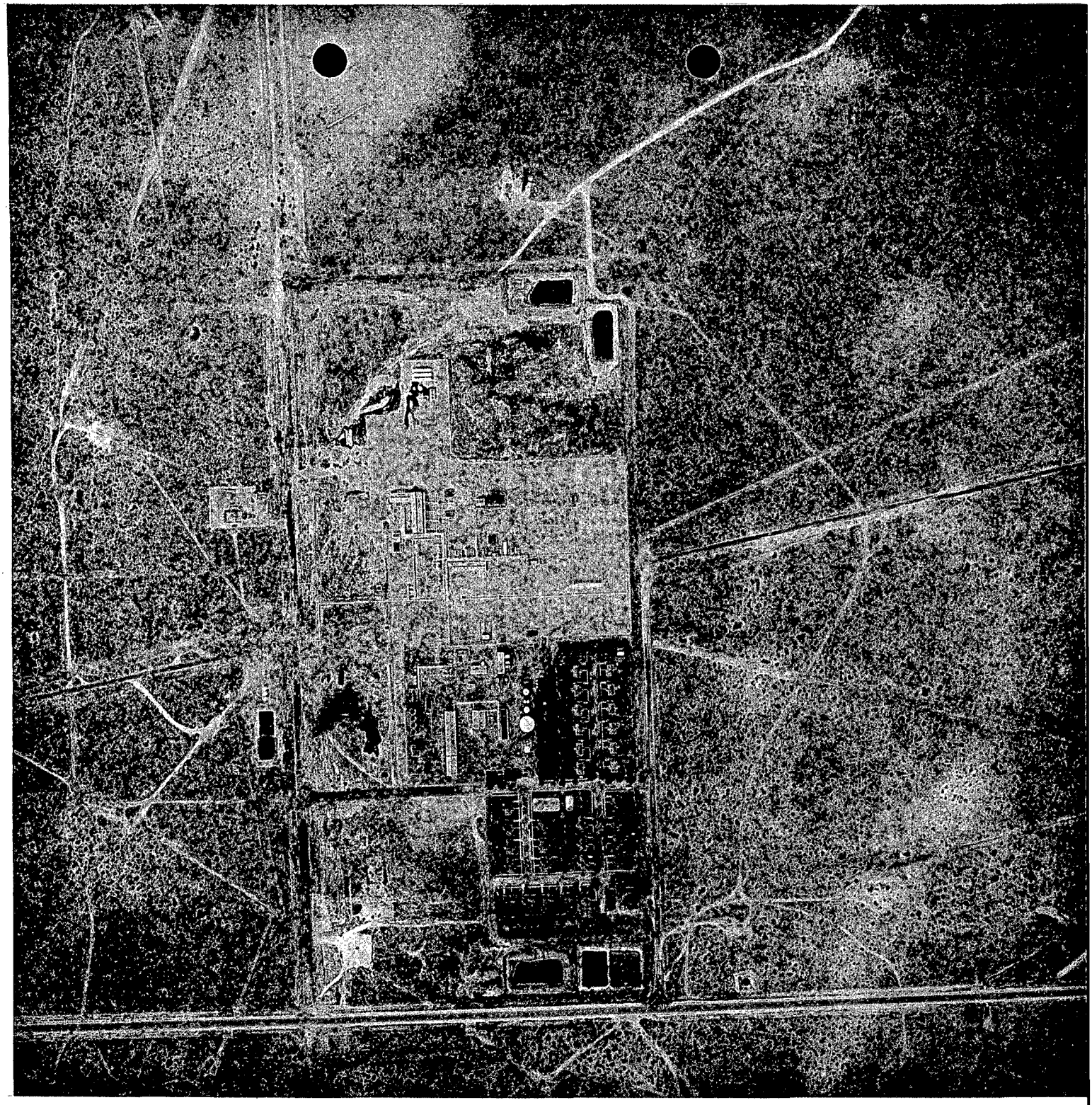
NOTE: PONDS IN FOREGROUND ARE RELATED TO FIELD PRODUCTION AND WERE LATER REPLACED BY TANKS.

El Paso Natural Gas Company

FIGURE 10

1961 OBLIQUE AERIAL VIEW OF JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

NO SCALE



NOTE: SHOWS PLANT DISPOSAL PONDS. FIELD OIL PITS ARE LOCATED ON WEST SIDE.

El Paso Natural Gas Company

FIGURE 11

1967 AERIAL VIEW OF
JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE

NOTE: SHOWS CLOSURE OF WEST OIL PITS, CAMP EXPANSION AND SOUTH POND ADDITION. NOTE OVERFLOW AREA TO WEST OF SOUTH PONDS.

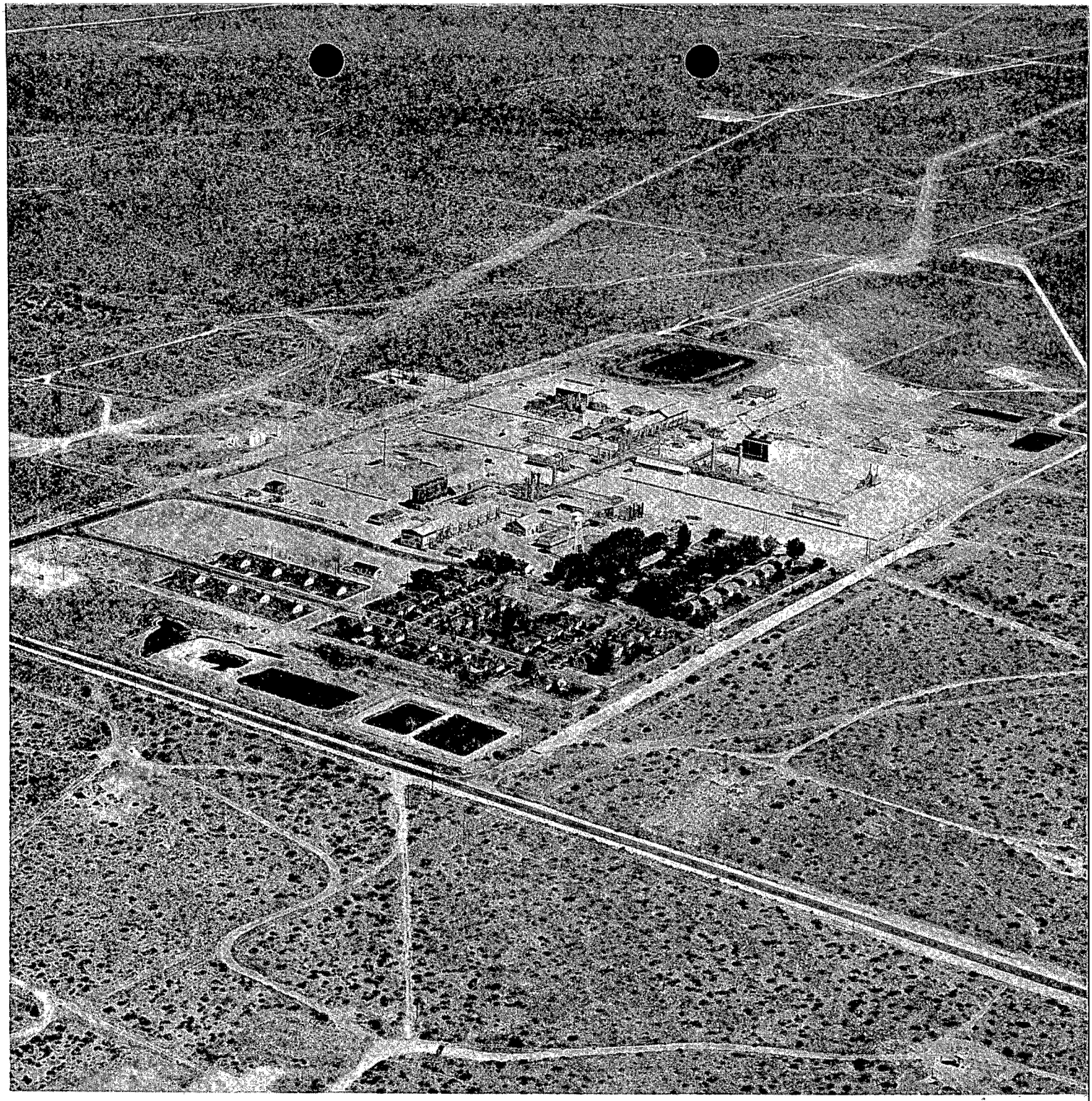
El Paso Natural Gas Company

FIGURE 12

1972 AERIAL VIEW OF
JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE



El Paso Natural Gas Company

FIGURE 13

1972 OBLIQUE AERIAL VIEW OF
JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

NO SCALE

NOTE: SHOWS FINAL CAMP EXPANSION AND VOLUME INCREASE IN SOUTH PONDS. FIELD OIL PITS ARE REMOVED. OVERFLOW AREA LESS PRONOUNCED.

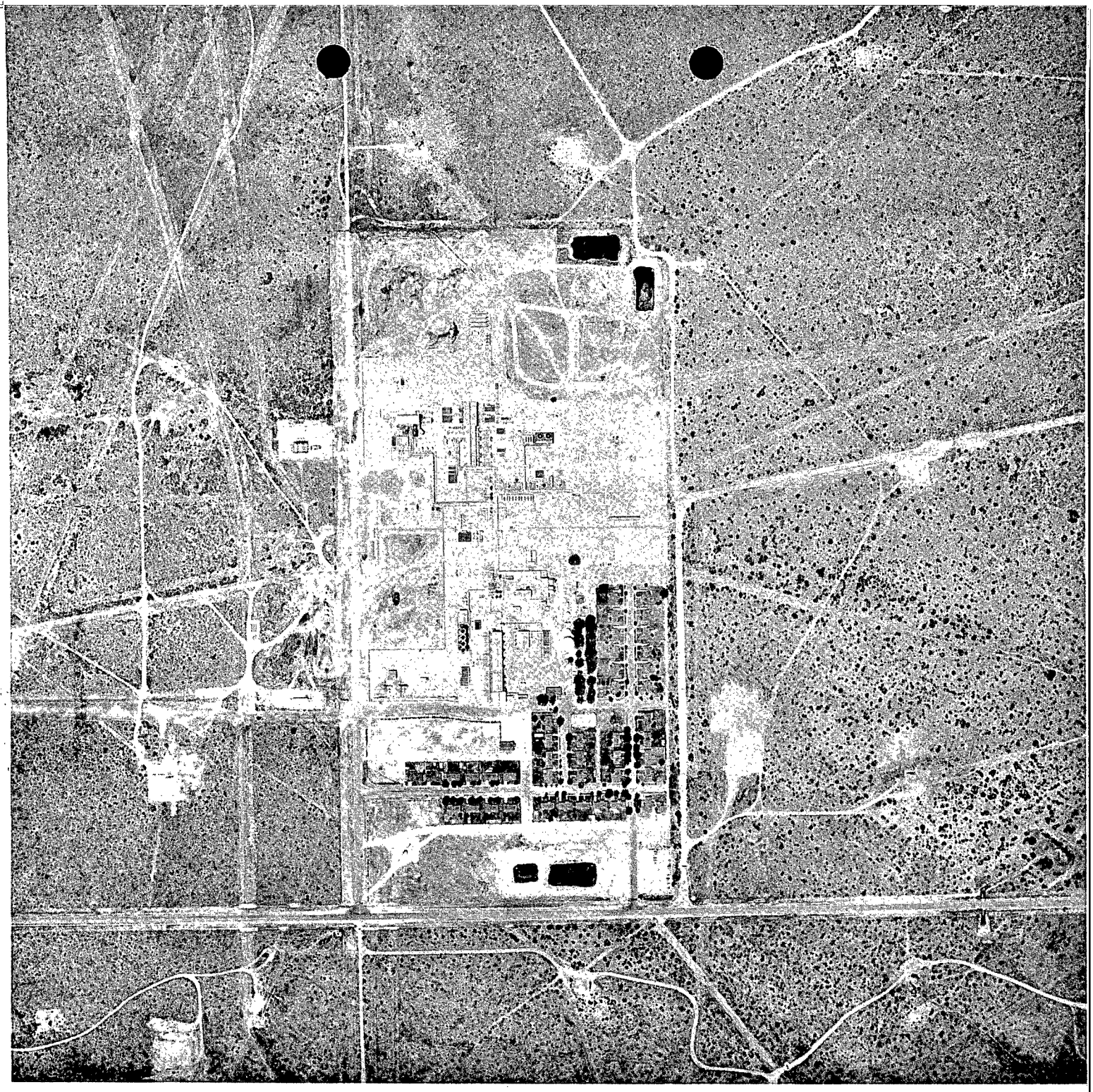
El Paso Natural Gas Company

FIGURE 14

1976 AERIAL VIEW OF
JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE



NOTE: SHOWS CLOSURE OF SEWAGE EFFLUENT PONDS AND REDUCTION IN SOUTH POND VOLUME.

El Paso Natural Gas Company

FIGURE 15

1979 AERIAL VIEW OF
JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

N

NO SCALE

There are no other known abandoned ponds at the Plant, and there are no known depressions in which water has ever collected. All rainwater which collects in abandoned ponds prior to actual pond closure will be pumped out as is practicable. The general approach to pond closure at Jal No. 3 Plant will entail covering the pond with dirt fill and then mounding the fill dirt over the former pond areas to preclude the possibility of producing a hydraulic head by ponding water.

Research has shown that petroleum residues can be degraded in a soil environment (Cresswell, 1977). The process usually involves the mixing of contaminated soil with fresh soil and harrowing to improve aeration, addition of fertilization to facilitate bacterial breakdown of the residue and the establishment of vegetation (Gudin and Syratt, 1975). Cresswell (1977) reports that healthy crops of wheat were grown on test plots in Oklahoma containing four to eight percent of oil in the upper six inches of soil. It was found that the oil, including oily waste from the bottoms of wastewater treatment ponds, was held in the shallow soil zone in which it was originally applied and did not move vertically or horizontally in the soil. Such reclamation steps would improve the closure process and will be utilized where time allows or necessity dictates.

Other Disposal Practices

In the past, solid wastes were disposed of in an area just west of the disposal ponds at Jal No. 2 Plant. These wastes included cooling tower basin sludge, water filter medium and solid residue from gas scrubbers and other process vessels. Septic tank sludge was spread in the northwest corner of the plant yard and allowed to dry.

In 1982, sludge samples were taken from the cooling tower basins and analyzed in accordance with the extraction procedure outlined in Appendix II of 40 CFR, Part 261 (U.S. Environmental Protection Agency, SW-846, 1980). The results of the analysis indicated the maximum chromium content to be less than 0.10 milligram per liter. This does not constitute a hazardous concentration. Results of these analyses are indicated in Appendix B.

A fairly common past disposal practice at the Plant also involved the draining of an engine's closed cooling water system (oil and jacket) whenever repairs were required. Also the back washing of side stream filters on the oil and jacket water cooling systems has been routinely performed. All of these activities have produced an effluent which contained chromium metal residual because chromium-based water treating chemicals have been used.

El Paso has accordingly evaluated wastewaters for hazardous waste properties according to the referenced sampling and analytical procedures found at 40 CFR Part 261 (Analyses in Appendix C.). In addition, those processes which might use products that may be either listed hazardous wastes or characteristic hazardous waste have been evaluated. The results verify that under no circumstances can a chromium concentration in excess of 5 ppm be identified in Jal No. 3 Plant wastewater.

El Paso has performed hazardous waste analyses because of the industry-wide recognized potential environmental impacts that come from the use of chromium-based water treating chemicals. These actions were taken in spite of the fact that the oil and gas industry is specifically exempt from the RCRA law.

The Plant is not involved in any hazardous waste activities. Nonetheless, El Paso has requested and received an EPA identification number pursuant to the Resource Conservation and Recovery Act, Section 3010. The identification number for Jal No. 3 is NMD 360 010 193. El Paso has specifically requested interpretations from EPA and NMEID for confirmation of probable statutory exemptions. See Appendix D for a copy of the notification and request. Absent further clarification from EPA, El Paso remains convinced that the NMOCD has jurisdiction over Jal No. 3 Plant and, pursuant to a recent resolution, reaffirms that the NMOCD shall approve or disapprove all discharge plans from facilities under their jurisdiction (see May 12, 1983 Minutes of OCD Meeting in Appendix E).

III The Plan

The following is formatted such that each part of the NMWQCC Regulations are reproduced for ease in reference, followed by a response which is directed specifically to the requirement.

> § 3-106: Application for Discharge Plan approval.
> C. A proposed discharge plan shall set forth in detail the methods or techniques the discharger proposes to use or processes expected to naturally occur which will ensure compliance with these regulations. At least the following information shall be included in the plan:
> 1. Quantity, quality and flow characteristics of the discharge;

All wastewater resulting from Plant operations is now routed through a classifier to remove suspended solids and oil and the classified water is then pumped into a disposal well system.

The total measured wastewater disposal into the system during January through May of 1983 varied from 43,669 gallons per day to 64,513 gallons per day. The average disposal rate for this time period was approximately 55,400 gallons per day. The classifier system is sized so that there is a 1.7-day contingency tank capacity.

Samples of the Plant's discharge water were collected by compositing samples from the waste stream. The composite samples included all industrial and domestic wastewater downstream of the classifier. The waste characteristics of each stream are shown in Table 2. Chemical analyses of two composite wastewater samples are shown in Table 3.

As can be seen from Table 3, composite samples were collected from August 31 through September 2, 1983 from the wastewater disposal

TABLE 2

Jal No. 3

Characteristics of Wastewater Streams

Source	Primary Effluent	Estimated Flow (GPD)	Additives to Stream: Materials Added	Additives to Stream: Purpose of Additive
Cooling Towers	High TDS Water	15,550	a) "Antipol 640" (Zinc Sulfate + Organic)	Corrosion Inhibitor
			b) "HTH (Calcium *Hypochlorite*)	Biocide
			c) "Hydrochem D-300"	Biocide
			d) "Soda Ash"	pH Adjustment
			e) "Sulfuric Acid"	pH Adjustment
			f) "Toxsene 35"	Biocide
			g) "Toxsene 37"	Biocide
Compressor Plant				
Engine/Compressor Cooling Water (Closed Systems)*	Water/Oil/Hydro-Carbon Liquids		a) "Chromine-T (Sodium Chromate)	Corrosion/Oxidizing Inhibitor
			b) "Citric Acid"	
Boiler Plant	Water/Steam/High TDS	3,600	a) Coravol	pH Adjustment/ Corrosion Inhibitor
			b) De-Ox-21	Deaerator
			c) Hymol-82	Sludge Conditioner
			d) Sodium Hydroxide	pH Adjustment
Separators				
Compressor Plants	Water/H.C. Liquids	1,420	None	----------
Treating & Gasoline Plants	Water/Glycol-Amine/Light Oil	500	None	----------
Heat Exchangers	Water	7,910	None	----------
Water Treater Regeneration	Water/High Chloride Water	11,910	Brine	Zeolite Regenerations
Camp	Sewage	12,600	Chlorine	Biocide
Open Drains & Building Drains	Oily Water	500	None	----------

* Closed systems containment is installed so that engine coolants are not disposed of in a waste stream.

TABLE 3

Characterization of Jal No. 3 Wastewater
Two (2) 24-hour Composite Analyses

Constituent	August/September 1983 Sample 1 (mg/l)[1/]	Sample 2 (mg/l)[2/]
Cyanide	0.038	0.005
Fluoride	7.75	6.15
Nitrate as N	1.17	0.28
COD	1380.0	545.0
TDS	5540.0	5280.0
Sulfate	1140.0	1070.0
Chloride	2340.0	2190.0
Phenol	0.326	<0.005
Benzene	0.3	<0.01
Toluene	0.56	<0.01
Carbon Tetrachloride	<0.01	<0.01
EDC	<0.01	<0.01
1-1DCE	<0.01	0.15
PCE	<0.01	<0.01
TCE	<0.01	<0.01
Aluminum	0.32	0.32
Arsenic	0.077	0.092
Barium	0.54	0.34
Boron	3.4	<0.5
Cadmium	0.0222	0.004
Chromium	0.085	0.05
Cobalt	0.033	0.04
Copper	0.15	0.12
Iron	6.39	2.77
Lead	0.022	0.006
Manganese	0.15	0.08
Mercury	0.002	<0.002
Molybdenum	0.13	0.12
Nickel	0.055	0.05
Selenium	<0.01	<0.01
Silver	0.0099	0.0051
Zinc	3.49	3.19

[1/] Sample collected 7:30 a.m. - 8/31 thru 7:30 a.m. - 9/1.

[2/] Sample collected 7:30 a.m. - 9/1 thru 7:30 a.m. - 9/2.

system for analyses to characterize the water according to indicated NMOCD requirements and regulations. This sampling evolution occurred approximately one week after a plant shutdown during which considerable routine maintenance such as heat exchanger cleaning was carried out. Hence, at the time sampling occurred some of the wastewater which had accumulated in the surge tank during the shutdown was being discharged. This accounts for minor differences in the levels of some constituents in the two composite samples. Composite samples were obtained by combining time-weighted volumes of the effluent collected. The sampling interval never exceeded one hour. The two composite samples were analyzed for all the constituents listed in the New Mexico Water Quality Control Commission Regulations Part 3.103 with the exception of radioactivity. Samples were obtained directly from the classifier. There can be no doubt that the composite analysis taken in July 1983 truly characterized the wastewater being discharged.

2. Location of the discharge and of any bodies of water, watercourses and ground water discharge sites within one mile of the outside perimeter of the discharge site, and existing or proposed wells to be used for monitoring;

The wastewater from the Jal No. 3 plant is injected into the San Andres Formation at a depth of approximately 4,700 feet. The injection well was completed in this formation in compliance with NMOCD administrative order No. SWD-231 (Appendix F). The formation water is known to be a brine containing sulfate and chloride salts in concentrations in excess of 10,000 mg./l. The formation water has been described as salty sulfur water (West Texas Geological Society, 1966).

There are no bodies of water or groundwater discharge sites within one mile of the plant site. Water courses in the area are generally ephemeral washes and are described in the section of this Plan concerning flooding potential.

3. Depth to and TDS concentration of the groundwater most likely to be affected by the discharge;

There are principally two separate aquifers to be considered when evaluating effect of wastewater discharges into the Permian formation. The most likely to be affected are the aquifers contained in the deeper Permian; secondarily, the shallow overlying Ogallala aquifer from which water is presently extracted for use might possibly be affected (however unlikely).

The Plant is located in an area underlain by clastic and chemical sedimentary rocks ranging in age from Ordovician through Triassic, and by alluvial sediments of Quaternary age. The sedimentary rocks consist predominantly of shale, sandstone, siltstone, dolomite, gypsum, anhydrite and salt. The deeper Permian formation is an important source of oil and gas. The alluvial cover over the area consists of sand, gravel, silt and clay and is called the Ogallala formation which is the principal source of potable groundwater in the area for both domestic and industrial uses. The Ogallala overlies the relatively

impermeable Chinle formation and slopes to the southeast, generally parallel to the underlying Pre-Ogallala and present clay subsurface (Table 4). The general hydraulic gradient of about 10-12 feet per mile imparts an easterly or southeasterly movement to the groundwater (Cronin, 1969). Pleistocene alluvium forms a continuous aquifer with the Ogallala formation. A general potentiometric surface map is shown on Figure 16. The lateral movement of ground water in this aquifer has been estimated to range from two inches per day (Cronin, 1969) to no more than one foot per day (Minton, n.d.).

The quality of water in southern Lea County in general is shown in Figure 17. Water samples were collected by El Paso in January 1981 from privately owned wells in the general area of but some distance from the Plant. To the best knowledge of the owners, these are shallow wells withdrawing water from the Ogallala. The analyses of these samples are shown in Table 5. The water quality of the Ogallala in the immediate Plant area is brackish (defined as water in which the total dissolved solids concentration ranges from 1,000 to 10,000 mg/l. According to the NM State Engineer, groundwater in this formation is deteriorating in quality (Boyer et al., 1980).

Groundwater from water bearing formations below the Ogallala contain higher concentrations of dissolved solids, primarily chloride and sulfate salts (Bureau of Reclamation, 1976). Triassic-age formations have also yielded acceptable potable water but in low to moderate quantities and of poorer quality than the Ogallala. The Permian formation contains water of saline to brine quality. Although these waters are generally not used for domestic purposes they may be used for injection into oil and gas fields for secondary recovery.

4. Flooding potential of the site;

The Plant is situated in the Pecos River Basin. The Basin in southern Lea County has no perennial streams, but there are a few ephemeral streams and broad shallow drainages that may flow following the thunderstorms which are common during July and August. Most precipitation quickly soaks into the soil or evaporates. The land surface in the Plant area has little relief, falling approximately 30 feet per mile. Runoff from the Plant flows west to provide water to Cheyenne Draw, a north to south trending tributary of Monument Draw located to the west of the Plant. The Monument Draw drainage basin, ending at the Texas-New Mexico boundary, encompasses 1,320 square miles. The Basin boundaries are shown on Figure 1 in the front of this report. San Simon Swale, a geologic sink, is also shown as a portion of the drainage basin; however, it is very unlikely that the swale area would contribute water to Monument Draw. The draw is partly filled, primarily by dune sand deposits, and is densely overgrown in many places with vegetation. Figure 4 shows the watershed and drainage system in and around the Plant (Map Pocket).

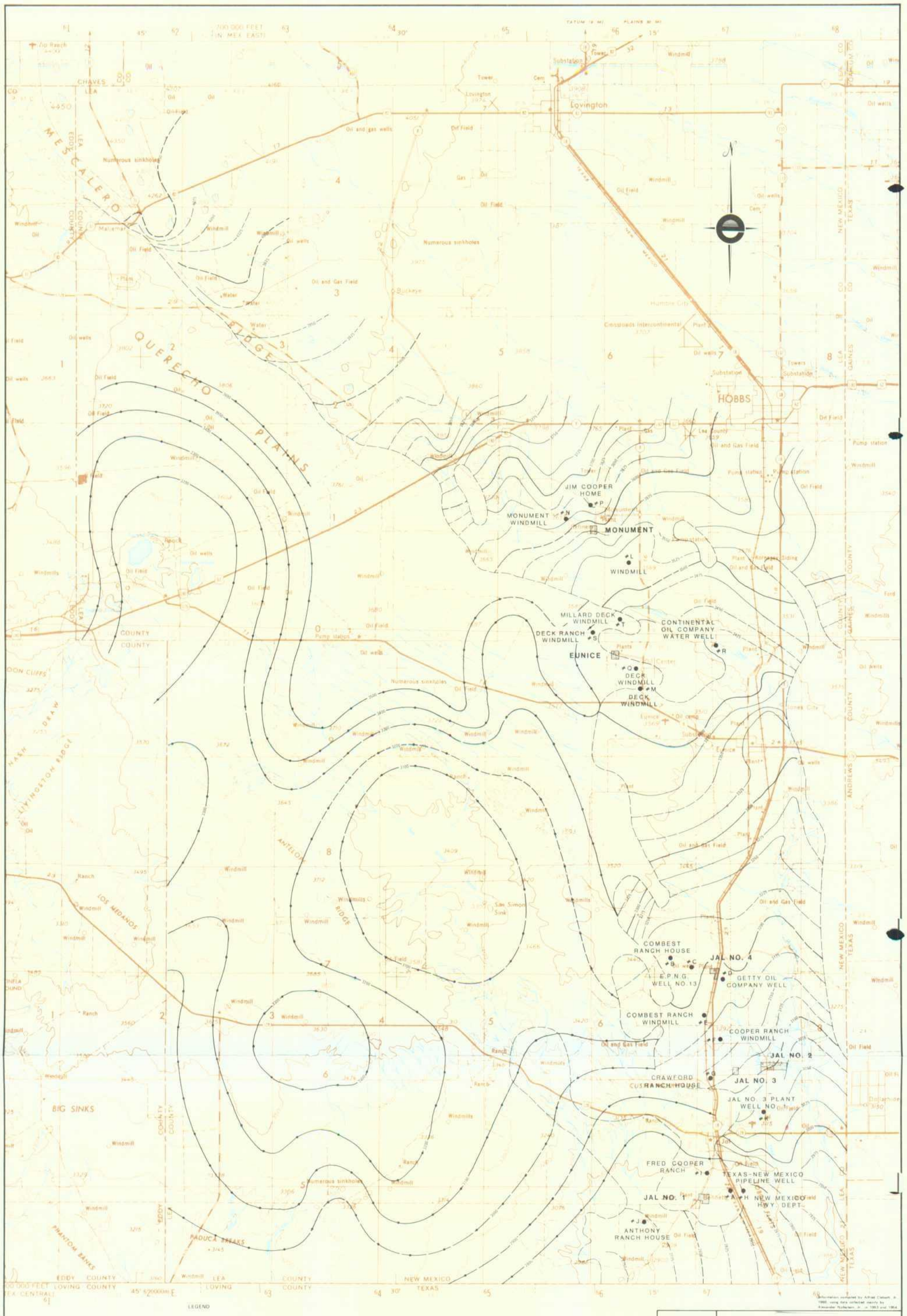
Monument Draw flows into west Texas near the southeastern corner of New Mexico. Here, Monument Draw enters a very irregular topographic area that does not have an integrated drainage. From available maps, it appears that the draw fans out and terminates a few miles

Table 4

Stratigraphic Units in
Southern Lea County, New Mexico

Geologic Age	Geologic Unit	Thickness (ft)	General Character	Water-Bearing Properties
Recent and Pleistocene	Sand	0-30±	Dune sand, unconsolidated stabilized to drifting, semiconsolidated at depth; fine-to medium-grained.	Above the zone of saturation, hence, does not yield water to wells. Aids recharge to underlying formations by permitting rapid infiltration of rainwater.
	Alluvium	0-400±	Channel and lake deposits; alternating thick bedded calcareous silt, fine sand, and clay; thickest in San Simon Swale; less than 100 feet thick in most places.	Saturated and highly permeable in places in east end of Laguna Valley. Forms continuous aquifer with Ogallala formation. Wells usually yield less than 30 gpm. Locally above the water table.
Pliocene	Ogallala	0-300±	Semiconsolidated fine-grained calcareous sand capped with thick layer of caliche; contains some clay, silt, and gravel.	Major water-bearing formation of the area. Unsaturated in many localities, such as north side of Grama Ridge, west side of Eunice Plain, Antelope Ridge area, and Rattlesnake Ridge. Greatest saturated thickness along east side of Eunice Plain, west of Monument Draw, where wells yield up to 30 gpm. Highest yields, up to 700 gpm, obtained from wells along south edge of Eunice Plain, east of Jal.
	Undifferentiated	35±	Small isolated and buried residual blocks of limestone, about 3 miles east of Eunice.	Possibly small isolated bodies of water locally.
	Chinle formation	0-1,270±	Claystone, red and green; minor fine-grained sandstones and siltstones; underlies all of eastern part of southern Lea County area; then westward; absent in extreme west.	Yields small quantities of water from sandstone beds. Yields are rarely over 10 gpm. Water has high sulfate content.
	Santa Rosa sandstone	140-300±	Sandstone, chiefly red but locally white, gray, or greenish-gray; fine-to coarse-grained; exposed in extreme west; underlies Cenozoic rocks in western part of area, and is present at depth in eastern part.	Yields small quantities of water over most of the area. Some wells are reported to yield as much as 100 gpm. Water has high sulfate content.
	Undifferentiated	90-400+	Siltstone, red, shale, and sandstone; present at depth under all of southern Lea County.	No wells are known to be bottomed in the red beds. Probably can yield very small quantities of high-sulfate water.
		6,500-17,000±	Thick basin deposits ranging in character from evaporites to coarse clastics; thinnest on the east side of the area over the Central basin platform, thickest toward the southwest.	No presently usable water supply available from these rocks. Source of highly mineralized oil-field waters.
			Granite, granodioritic and other igneous and metamorphic rocks; complex structure.	Not hydrologically significant.

Information from Nicholson, A. and A. Clebsch, Geology and Ground-Water Conditions in Southern Lea County, New Mexico Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology, Socorro, NM 1961.



LEGEND

- WATER-TABLE CONTOUR IN TERTIARY OR QUATERNARY ROCKS DASHED WHERE INFERRED OR UNCERTAIN
- WATER-TABLE OR PIEZOMETRIC CONTOUR ON WATER BODY IN TRIASSIC AQUIFERS DASHED WHERE INFERRED OR UNCERTAIN
- APPROXIMATE POSITION OF BOUNDARY BETWEEN TRIASSIC ROCKS AND SATURATED TERTIARY AND QUATERNARY ROCKS
- E.P.N.G. PLANTS
- WATER WELLS

0 5 MILES

Prepared By
Pipeline Services Division

El Paso Natural Gas Company

FIGURE 16

POTENTOMETRIC SURFACE OF GROUNDWATER
SOUTHERN LEA COUNTY, NEW MEXICO

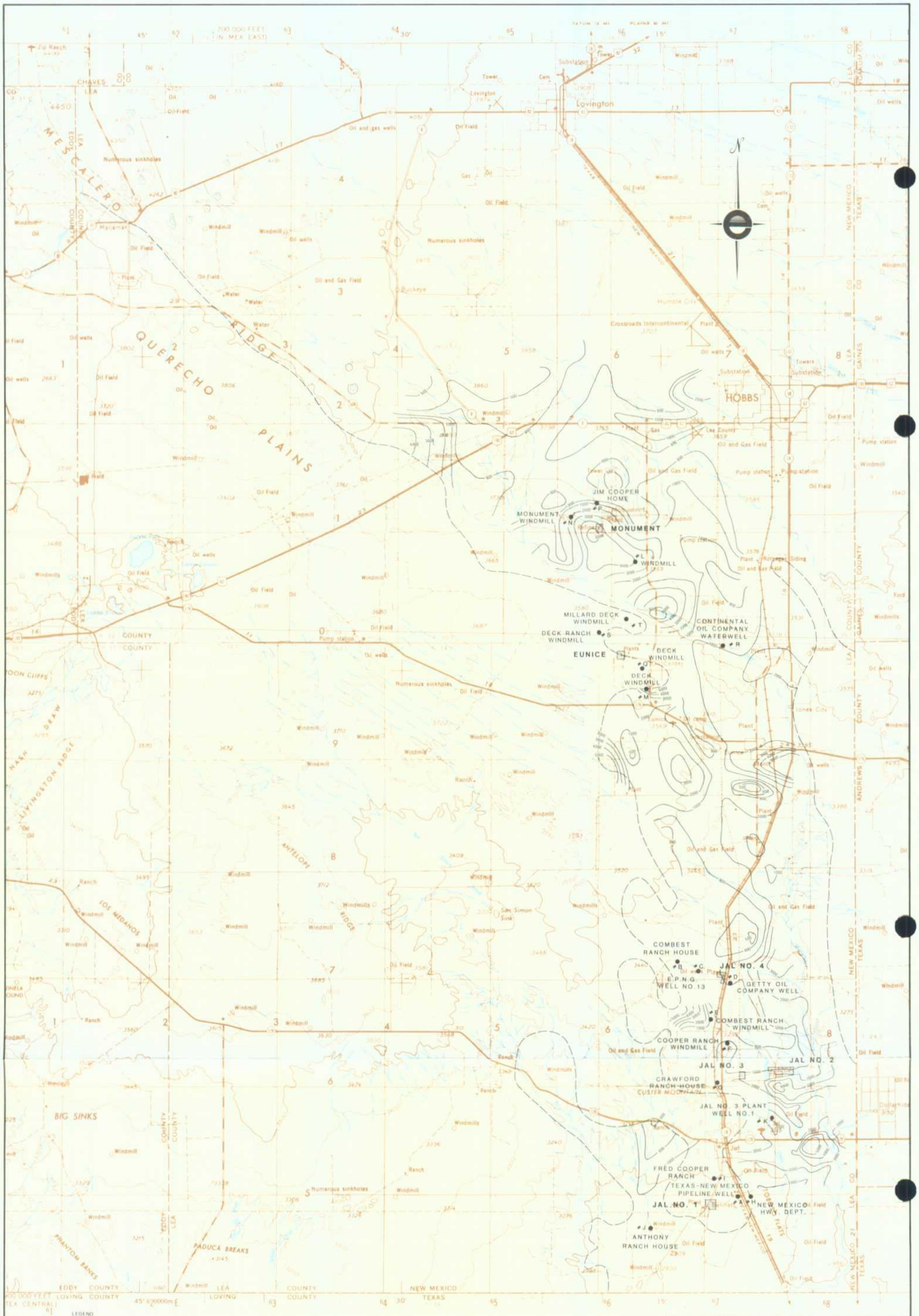

Lovington
HOBBS
EUNICE
MONUMENT
JIM COOPER HOME
MONUMENT WINDMILL
L WINDMILL
MILLARD DECK WINDMILL
DECK RANCH WINDMILL
CONTINENTAL OIL COMPANY WATERWELL
DECK WINDMILL
DECK WINDMILL
COMBEST RANCH HOUSE
JAL NO. 4
E.P.N.G. WELL NO. 13
GETTY OIL COMPANY WELL
COMBEST RANCH WINDMILL
COOPER RANCH WINDMILL
JAL NO. 3
JAL NO. 2
CRAWFORD RANCH HOUSE
JAL NO. 3 PLANT WELL NO. 1
FRED COOPER RANCH
TEXAS-NEW MEXICO PIPELINE WELL
JAL NO. 1
NEW MEXICO HWY. DEPT.
ANTHONY RANCH HOUSE
MESCALERO RIDGE
QUERECHO PLAINS
LIVINGSTON RIDGE
NASH DRAW
LOS MEDANOS
PHANTOM BANKS
PADUCA BREAKS
BIG SINKS
ANTELOPE RIDGE
SAN SIMON SINK
CHAVES COUNTY
EDDY COUNTY
LEA COUNTY
LOVING COUNTY
GAINES COUNTY
ANDREWS COUNTY
NEW MEXICO
TEXAS
Numerous sinkholes
Oil and gas wells
Oil Field
Oil and Gas Field
Windmill
Substation
Tower
Plant
Pump station
Crossroads Intercontinental Plant
Humble City
Jones City
Buckeye
Zip Ranch
Maljamar
LEGEND
APPROXIMATE POSITION OF BOUNDARY BETWEEN TRIASSIC ROCKS AND SATURATED TERTIARY AND QUATERNARY ROCKS
ELECTRICAL CONDUCTIVITY IN MILLIMHOS PER CENTIMETER
E.P.N.G. PLANTS
WATER WELLS
5 MILES
El Paso Natural Gas Company
FIGURE 17
ELECTRICAL CONDUCTIVITY ISOGRAMS
FOR THE OGALLAYA FORMATION
SOUTHERN LEA COUNTY, NEW MEXICO
Prepared By Pipeline Services Division

TABLE 5

Analyses of Well Water from the Ogallala Formation
Located near El Paso Natural Gas Company's Jal No. 2 and 3 Plants

Constituent	Well Designation[1] F[2]	G[3]	K[4]
Sulfate (SO_4), mg/l	200	135	222
Chloride (Cl), mg/l	111	92	181
Nitrate (NO_3 as N), mg/l	1.3	8.2	1.8
Specific Conductance, mmhos/cm	995	929	1216
pH	7.8	7.8	7.5
Total Dissolved Solids, mg/l	677	708	870
Chromium (Cr), mg/l	0	0	0
Copper (Cu), mg/l	0	0	0
Iron (Fe), mg/l	0.037	0.037	1.85
Manganese (Mn), mg/l	0.006	0	0.017
Zinc (Zn), mg/l	0.003	0	0.015
Sodium (Na), mg/l	93	60	100
Potassium (K), mg/l	6.0	4.9	5.2
Calcium (Ca), mg/l	64.8	89.6	98.9
Magnesium (Mg), mg/l	27	21.7	32.4
Fluoride (F), mg/l	0.90	1.44	2.36

[1] Source of the water samples was wells surrounding Jal No. 2 and 3 Plants noted on Figure 1.

[2] Cooper Ranch windmill located 3/4 mile northwest of Jal No. 3 Plant (sampled January 20, 1981).

[3] J. T. Crawford House located 1/2 mile west of Jal No. 3 Plant (sampled January 20, 1981).

[4] Jal No. 3 Plant Well No. 1 located 1-1/2 miles southeast of Jal No. 3 Plant (total depth 174 feet, S.W.L. 89 feet, sampled January 21, 1981).

south of the Texas state line. This area is essentially a closed sub-basin, where surface flows are generally toward the center of the basin to a series of intermittent playas. Cheyenne Draw, located between Jal No. 2 and Jal No. 3 plants, is well defined. The draw is partly filled, primarily by dune sand and alluvium and is densely overgrown by vegetation. The hydrologic characteristics of the Plant sites are shown in Tables 6A and 6B. Significant flooding of the Plant sites should not occur due to the relatively small quantity of runoff produced by the largest calculated value for the 100-year, 24-hour storm.

5. Location and design of site(s) and method(s) to be available for sampling, and for measurement or calculation of flow;

Description of Plant Processes and Chemicals

To adequately address the sampling, measurement or calculation of representative flows a discussion of waste generating processes is appropriate. Table 7 summarizes the chemicals used and the plant processes involved at Jal No. 3 Plant. Examples of Material Safety Data Sheets on most of these products are included in Appendix G, and are on file at the plant office and the Company's Permian Division Safety Department Office. These data sheets are provided, updated and catalogued by the Safety Department on a continuing basis. Types and quantities of chemicals used at the plant were obtained from plant records and supplier's invoices on file at the plant office.

Jal No. 3 Compressor Station has fifteen engine driven compressor units totaling 27,200 horsepower and three gas turbine-driven centrifugal compressor units totaling 22,800 horsepower having a designed gas handling capacity of 204 million cubic feet per day. Entrained liquids are removed from the gas steams prior to the various stages of compression by eighteen gas-liquid separators. The total estimated liquid discharge from the separators is 6,610 gallons per day of which 1,420 gallons is wastewater. Approximately 5,190 gallons per day are processed through the products extraction facilities as recoverable liquids and then pumped to Jal No. 4 for fractionation. The compressed gas streams are cooled through coil sections in nine aerial coolers, or fin-fans, and one mechanical draft cooling tower. The cooling tower has an estimated wastewater discharge, or blowdown, of 5,760 gallons per day (approximately four gallons per minute), which is required to keep the total dissolved solids in the cooling tower basin to four concentrations or less. Oil cooling water and engine jacket cooling water are cooled through coil sections in seven fin-fans. These cooling waters circulate through closed loop systems and evaporation accounts for almost all system water losses.

The Products Extraction Plant consists of four high pressure gas absorbers with a combined lean oil circulation rate of 634 gallons per minute. Liquids which may be dumped from these vessels are recovered in sumps, filtered and recycled. Infrequent carry-over or upset losses are transported in the drain system to the wastewater classifier where the oil or hydrocarbon liquid is skimmed into an oil holding tank. The stripped gas proceeds to the treating plant to pass

TABLE 6A

Hydrologic Characteristics of Jal No. 2 Plant
at Selected Prediction Points for the
2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour Storm

Prediction Point	Storm Year	Estimated Drainage Area (acres)	Slope (%)	Peak Flow (cfs)	Volume (acre-feet)
A	2	15	2.27	8.4	0.5
	5	15	2.27	19.1	1.2
	10	15	2.27	25.4	1.6
	25	15	2.27	41.9	2.7
	50	15	2.27	48.8	3.1
	100	15	2.27	58.5	3.8
B	2	11.9	2.20	12.6	0.8
	5	11.9	2.20	23.8	1.6
	10	11.9	2.20	29.8	2.0
	25	11.9	2.20	43.1	2.9
	50	11.9	2.20	52.1	3.5
	100	11.9	2.20	59.5	5.0
C	2	21.9	1.53	18.6	1.2
	5	21.9	1.53	36.9	2.5
	10	21.9	1.53	46.5	3.1
	25	21.9	1.53	71.2	4.7
	50	21.9	1.53	84.9	5.6
	100	21.9	1.53	101.3	6.8
D	2	17.8	1.24	15.7	1.0
	5	17.8	1.24	31.2	2.0
	10	17.8	1.24	39.3	2.5
	25	17.8	1.24	60.2	3.8
	50	17.8	1.24	71.7	4.6
	100	17.8	1.24	85.6	5.5

TABLE 6B

Hydrologic Characteristics of Jal No. 3 Plant
at Selected Prediction Points for the
2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour Storm

Prediction Point	Storm Year	Estimated Drainage Area (acres)	Slope (%)	Peak Flow (cfs)	Volume (acre-feet)
A	2	4.7	0.36	3.0	0.2
	5	4.7	0.36	6.9	0.4
	10	4.7	0.36	9.2	0.5
	25	4.7	0.36	15	0.8
	50	4.7	0.36	18	1.0
	100	4.7	0.36	21	1.2
B	2	14.2	0.55	8.1	0.7
	5	14.2	0.55	17	1.5
	10	14.2	0.55	22	2.0
	25	14.2	0.55	33	3.0
	50	14.2	0.55	40	3.5
	100	14.2	0.55	47	4.1
C	2	19.8	0.82	13	1.0
	5	19.8	0.82	27	2.1
	10	19.8	0.82	36	2.7
	25	19.8	0.82	53	4.0
	50	19.8	0.82	64	4.9
	100	19.8	0.82	76	5.8
D	2	21.5	0.40	15	1.4
	5	21.5	0.40	28	2.7
	10	21.5	0.40	35	3.4
	25	21.5	0.40	52	5.0
	50	21.5	0.40	63	6.1
	100	21.5	0.40	72	7.0
E	2	20.4	0.70	12	1.0
	5	20.4	0.70	26	2.1
	10	20.4	0.70	34	2.8
	25	20.4	0.70	50	4.2
	50	20.4	0.70	60	5.0
	100	20.4	0.70	71	6.0

Table 7
Jal #3 Plant
Chemicals Used in Plant Processes

Chemical	Location	Purpose	Quantity (Per Year)
Antipol 640	Cooling Tower	Scale Control	2,395 gal.
Brine (10#)	Water Treater	Zeolite Regeneration	28,590 gal.
Chevron Hydraulic Fluid	E.S.D. Valves	Valve Actuator Cylinders	15 gal.
Chromine-T	Closed Cooling Sys.	Corrosion Inhibitor	40 gal.
Citric Acid	Closed Cooling Sys.	pH Adjustment	210 lbs.
Coravol	Boiler-Stream Condensate	Corrosion Inhibitor, pH Adjustment	35 gal.
De Ox 21	Boiler-Feedwater	Deaerator	215 lbs.
Diethylene Glycol	Treating Plant	Gas Dehydration	910 gal.
HTH (Chlorine)	Cooling Tower	Biocide	300 lbs.
Hydrochem D-300	Cooling Tower	Dispersant	1,100 gal.
Hymol-82	Boiler-Feedwater	Sludge Conditioner	35 gal.
Hyvar-X	Plant Yard	Weed Killer	Unknown
Karmex	Plant Yard	Weed Killer	Unknown
Krovar II	Plant Yard	Weed Killer	Unknown
Marvel Mystery Oil	Engines - All	Lubricant/Detergent	820 gal.
Marvel Seal Oil	Gasoline Plt. Abs.	H.C. Product Removal	112,910 gal.
Molylube No. 90	Gear Boxes	Lubricant	55 gal.
Molylube #828-40	Disposal Plant	Lubrication/Pump Cyl.	45 gal.
Molylube #890-H	Air Compressors	Compressor Lubrication	110 gal.
Monoethanol Amine	Treating Plant	Hydrogen Sulfide Rem.	5,960 gal.
Mysella 30	Engines, Compr. & Aux.	Lubrication/Crankcase	22,180 gal.
Shell 8121	Engines, Compr.	Lubrication/Crankcase	28,600 gal.
Shell Carnea 32	Engines, All	Air Breather Oil	165 gal.
Shell Tellus 32	Engines, Compr.	Upper Cylinder Lube	500 gal.
Shell Tellus 68	Engine Governors, All	Lubrication	110 gal.
Shell Tellus 100	Air Compressors, All	Lubrication/Crankcase	440 gal.
Shell Turbo 32	Engines	Lubrication, Turbo-chargers	7,750 gal.
Shell Turbo 46	Turbine, Chiller	Lubrication, Crankcase	4,950 gal.
Shell Turbo 150	Cooling Tower	Lubrication, Angle Drives	25 gal.
Shell X-100	Plant, General	Lubrication/Engine, Vehicle	70 gal.
Sodium Hydroxide	Boiler-Feedwater	pH Adjustment	285 lbs.
Soda Ash (Anhydrous Sodium Carbonate)	Cooling Towers	pH Adjustment	50 gal.
Staco 4050	Plant, General	Degreaser/Detergent	825 gal.
Sulfuric Acid	Cooling Tower	pH Adjustment	5,830 gal.
Texaco Capella WF-68	Turbine, Chiller	Refrigerant Oil	25 gal.
Toxsene 35	Cooling Tower	Biocide	75 gal.
Toxsene 37	Cooling Tower	Biocide	110 gal.
Varsol	Plant, General	Cleaning,Solvent	5,985 gal.
Viscosine AAFCO	Turbine, Chiller	Air Breather	20 gal.

through two aqueous amine contactor vessels for removal of hydrogen sulfide (H_2S). As with the absorption oil, treating solution losses are recovered and reused. The solution losses reaching the wastewater system are not metered. The cooling tower associated with this plant has a blowdown rate of 9,790 gallons per day.

Prior to being discharged from the plant, the gas passes through the dehydration facilities consisting mainly of two vertical contactor vessels. Any remaining water which may be entrained in the gas stream is removed by the Glycol solution. An estimated 500 gallons of water per day are discharged into the drain system to the classifier.

The steam generation facilities at Jal No. 3 consist of one Vogt Class VV-S-55 and two Vogt Class ML-14 gas-fired boilers and a waste heat boiler which utilizes the turbine exhaust gases as the heat source. The two small gas-fired boilers have a capacity of 15,000 pounds of steam per hour and the larger boiler has a capacity of 55,000 pounds per hour; a total of 85,000 pounds per hour. The waste heat boiler is capable of producing 85,000 pounds per hour and is operated as the primary steam source. The boiler drums and evaporator vessels produce approximately 3,600 gallons of high solids concentration blowdown per day. Electrical generating facilities consist of three 300 kW generators driven by three 449 horsepower gas fueled engines.

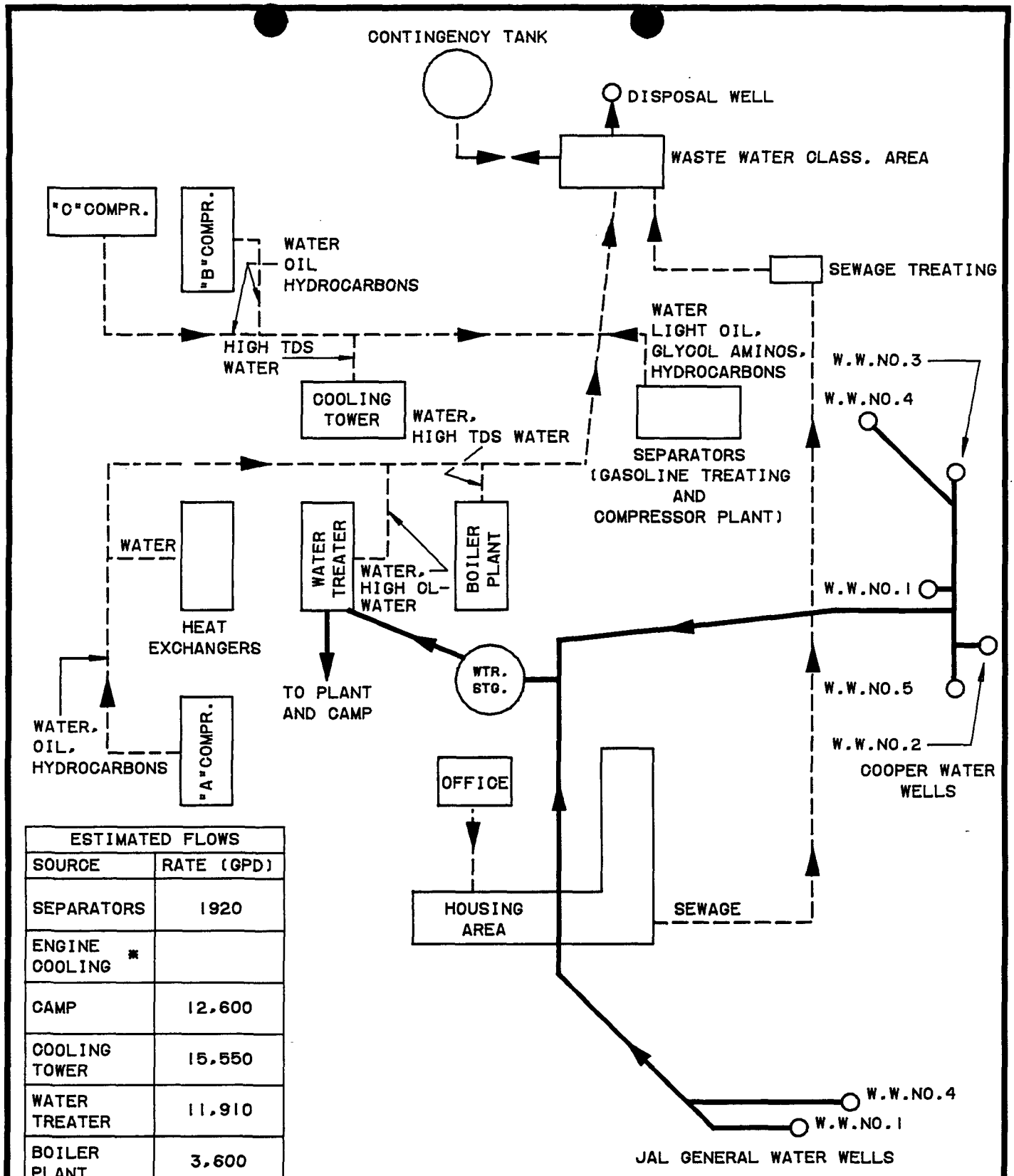
Water treating consists of chlorination of the water pumped into the storage tanks and treatment of water for process use through two Zeolite treaters. The Zeolite treaters have a capacity of 130 gallons per minute each, or a total of 260 gallons per minute. Regeneration of these zeolite beds requires a total of 11,910 gallons of water/brine per day. This effluent is discharged into the unpressured drain system to the classifier.

The plant complex includes a forty-two house camp. Approximately 12,600 gallons per day of sewage effluent is discharged from the camp septic tank. This effluent is chlorinated and then transferred into the disposal system.

All chemicals stored at the plant are kept in appropriate as-received containers and protected from damage, spillage or contamination. Outside storage is in the form of metal or plastic containers, tanks or drums which are placed on curbed concrete slabs. Any spills or leakage from these containers will be confined within these basins. This will minimize chemical spills on the ground. Any accidental spill will be chemically treated and/or disposed of in an environmentally acceptable manner.

Description of Wastewater Collection and Treatment

Figures 18 and 19 show the existing wastewater-producing processes in schematic form. The actual layout as it exists in the plant is shown on Figure 20 (Map Pocket). All drains and liquid discharges have been connected and routed to a recently installed twenty foot diameter below-grade steel, tank-type classifier located in the northeast part of the plant property. This two-compartment tank



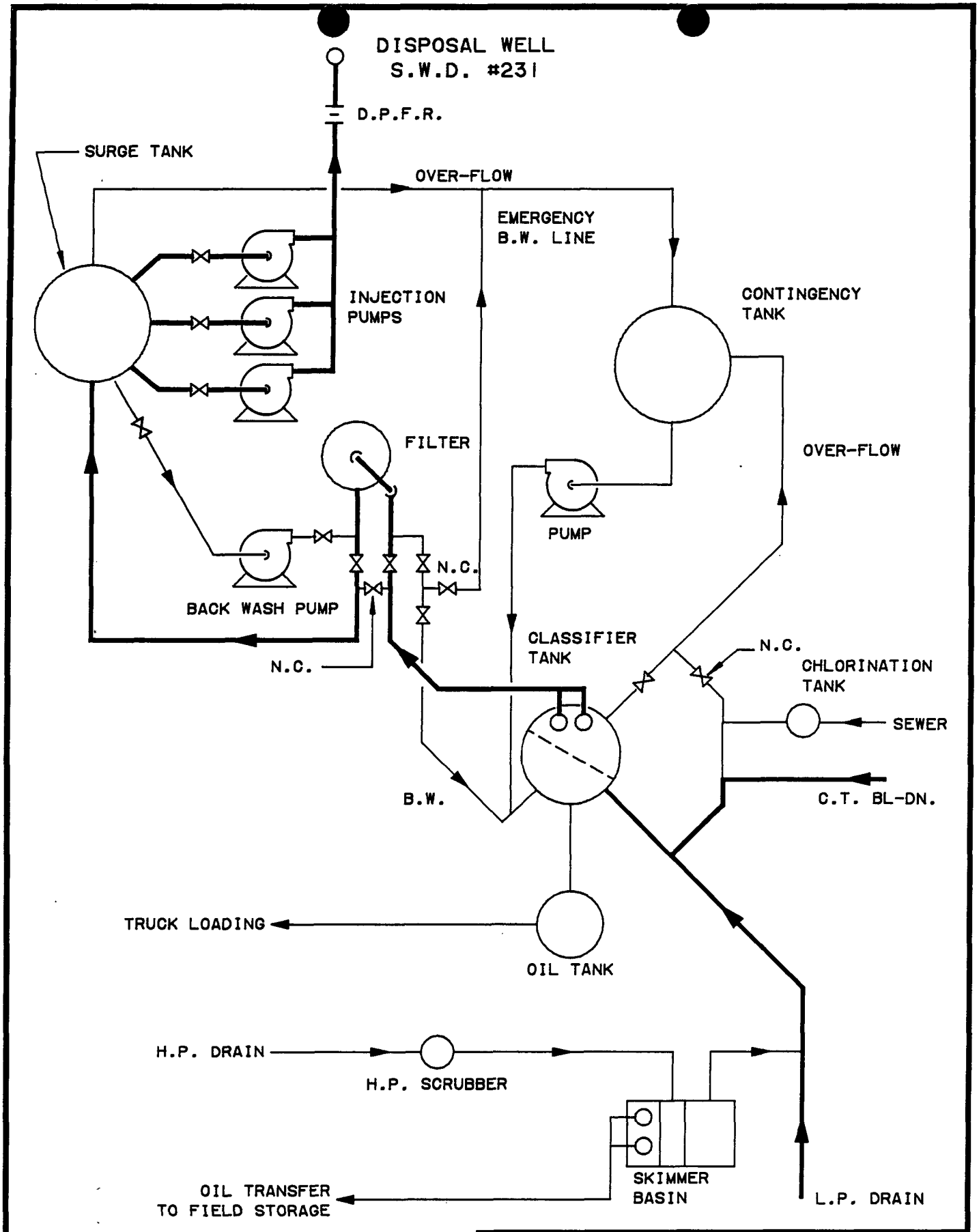
ESTIMATED FLOWS	
SOURCE	RATE (GPD)
SEPARATORS	1920
ENGINE COOLING *	
CAMP	12,600
COOLING TOWER	15,550
WATER TREATER	11,910
BOILER PLANT	3,600
HEAT EXCHANGERS	7,910
DRAINS	500

NOTE:
IRRIGATION SYSTEMS:
LAWN SPRINKLERS AND
GARDEN WATERING

*CLOSED SYSTEM DRAINAGE DISCONTINUED

El Paso NATURAL GAS COMPANY

FIGURE 18
JAL NO. 3 PLANT WATER & WASTE WATER FLOW SCHEMATIC



El Paso NATURAL GAS COMPANY

FIGURE 19
JAL NO. 3 PLANT
WASTEWATER CLASSIFIER
AREA FLOW DIAGRAM

classifies incoming liquids by gravity separation. The oil rises to the surface, the solids settle to the bottom and the water passes through an opening in the lower section of the partition. The lighter liquids (oil and hydrocarbons) are decanted by overflowing into a below-grade waste oil storage tank. Periodically, this oil is removed by means of a vacuum truck and sold to a local oil refiner for reclamation. The solids that collect in the classifier will be removed, as the need arises, and be disposed of in an approved landfill or in an acceptable manner on the plant property.

After separation, the wastewater is pumped from the classifier through an anthracite/rock filter into a 1,500 barrel surge tank; then by positive displacement pumps into the disposal well. This well, approximately 4,700 feet deep, is completed in the San Andres formation. The flow into the well is metered utilizing a Barton orifice with a differential pressure transmitter and chart recorder.

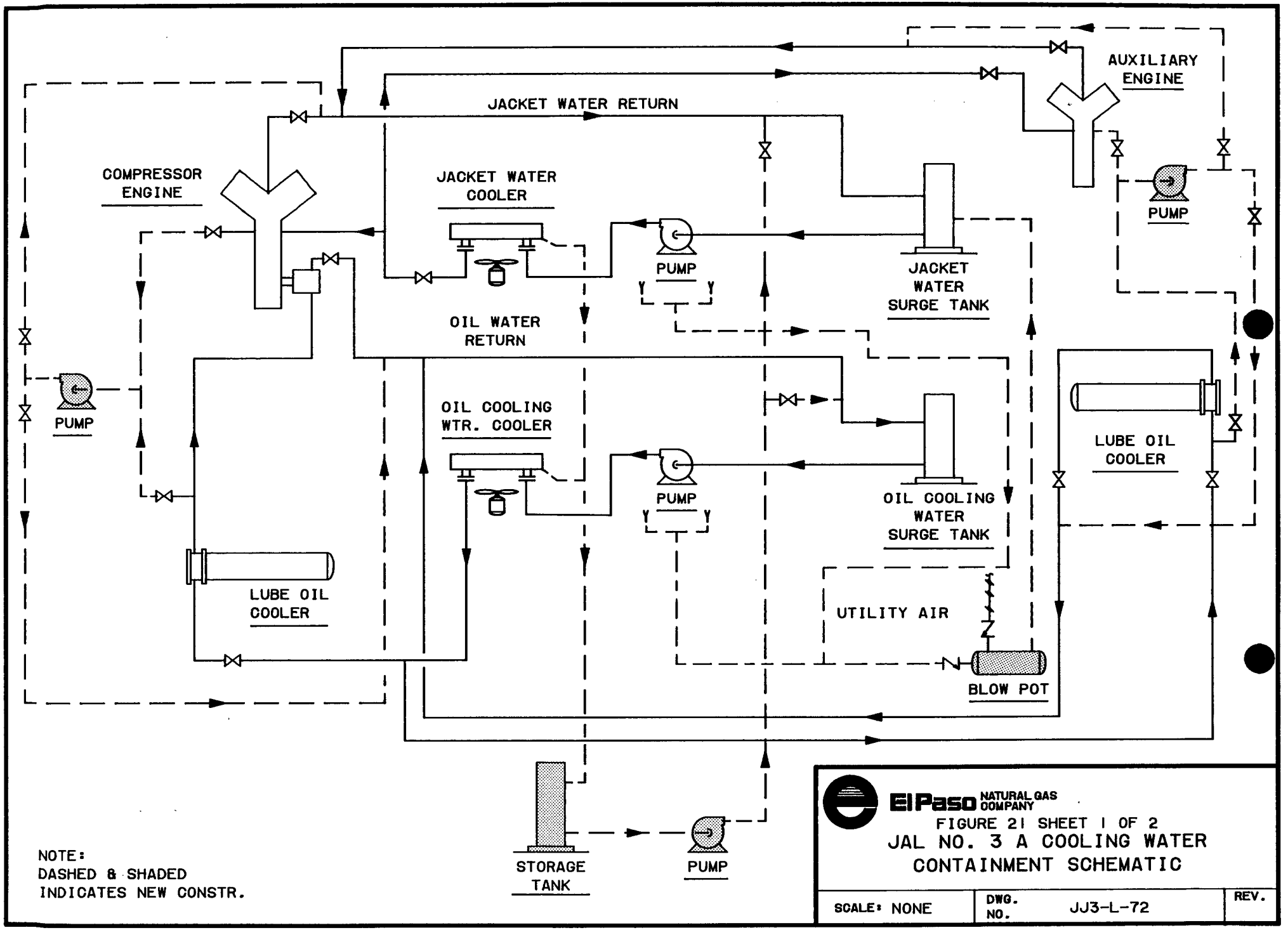
The below-grade tanks are protected from corrosion by a four coat epoxy paint system on all exterior surfaces. Additionally, the classifier tank is coated internally with the same material. All below grade piping is either plastic, coated and wrapped steel, or vitrified clay pipe. Equipment and piping are included in the plant cathodic protection system.

An epoxy-coated, forty-five foot diameter by sixteen foot deep open-top steel tank with a working capacity of approximately 95,000 gallons has been installed as a contingency reservoir. This tank has a 1.7-day retention capacity in the event of equipment failure, well problems or other system disabling occurrences. Wastewater will be pumped back into the classifier when normal operation can be resumed. If operation of the system is disrupted beyond contingency tank capacity, the wastewater will be transported by tank truck to the water disposal system at Jal No. 1 Plant until normal operation resumes.

The arrangement of the wastewater collection/classifier system precludes the possibility of stormwater run-off entering the system and appreciably changing the volume of discharge. No open drains which collect stormwater are connected to the system. Any solids which accumulate in the classifier or cooling tower will be evaluated by the same hazardous waste procedure previously discussed to ensure El Paso non-hazardous waste generator status, then disposed of in an approved manner.

Several changes have been made in the procedures and equipment involved in wastewater collection that require special explanation.

First, effective March 31, 1983 the routine back washing of side-stream filters on the oil and jacket water cooling systems has been discontinued (see letter V. D. Rheay to Plant Supts.) (Appendix H). Also, El Paso has, effective March 31, ceased draining any closed systems containing chromium-based chemicals. Any necessary drainings of such systems is now captured in vessels and recycled back into the closed system for reuse. The containment systems are shown on Figure 21.



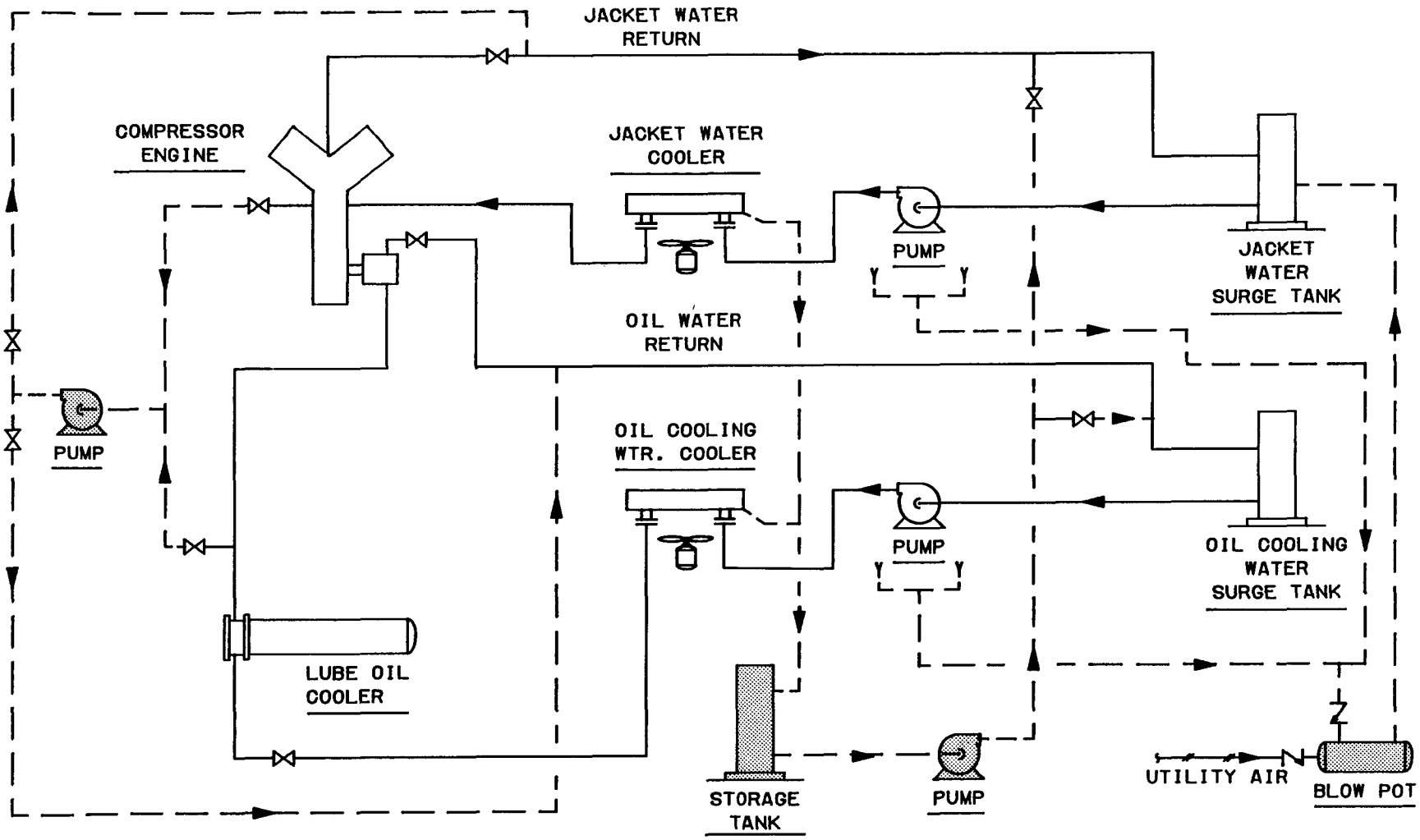
NOTE:
DASHED & SHADED
INDICATES NEW CONSTR.

El Paso NATURAL GAS COMPANY

FIGURE 21 SHEET 1 OF 2

JAL NO. 3 A COOLING WATER CONTAINMENT SCHEMATIC

SCALE: NONE	DWG. NO. JJ3-L-72	REV.



NOTE:
DASHED & SHADED
INDICATES NEW CONSTR.

El Paso NATURAL GAS COMPANY

FIGURE 21 SHEET 2 OF 2

JAL NO. 3 B COOLING WATER CONTAINMENT SCHEMATIC

SCALE: NONE	DWG. NO. JJ3-L-73	REV.

El Paso is also investigating the substitution of chromium-based water treating chemicals now used in the closed cooling systems with other chemicals. When and if a substitution is made, all systems containing chromium-bearing water will be flushed and the effluent captured and disposed of in an environmentally acceptable manner. The permanent capture and containment systems previously installed for the chromium-bearing cooling water used in the closed systems will be even more important given the greater costs of alternative treatments and the economic incentive to capture and reuse them when necessary.

6. Depth to and lithological description of rock at base of alluvium below the discharge site if such information is available;

Because the "discharge site" is actually far below the alluvium, this regulatory request is not entirely applicable in this instance. The following is presented, however, to provide a clearer understanding of the geologic setting involved.

The San Andres dolomites where El Paso injects the wastewater are of lower Guadalupe age (200 million years), range from 550 to 1600 feet in thickness and occur at a depth of 4100 feet to 5300 feet. A very substantial portion of the Permian oil of west Texas and southeastern New Mexico has been produced from these dolomites.

7. Any additional information that may be necessary to demonstrate that approval of the discharge plan will not result in concentrations in excess of the standards of Section 3-103 or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use. Detailed information on site geologic and hydrologic conditions may be required for a technical evaluation of the applicant's proposed discharge plan;

Physiography

The Plant is located in the Pecos Valley section of the Great Plains Physiographic Province in southeastern New Mexico and more specifically within the Eunice Plain Subdivision. The plain is a practically flat and featureless alluvial plain which slopes eastward toward Monument Draw. The altitude of the Plant is 3,575 feet above mean sea level. The total relief of the county is about 1,300 feet with relief of no more than 20 feet in the Plant area.

The Eunice Plain is bounded on the north by the Llano Estacado and on the southwest by San Simon Ridge and Antelope Ridge. The westward extension of the Plain is the Grama Ridge area. On the south the Eunice Plain is bounded by an irregular, low, south-facing scarp which is most prominent at Custer Mountain, where it attains a height of 60

feet. Monument Draw, the major drainageway in the area, traverses the east side of the Eunice Plain from north to south. The physiographic subdivisions of southern Lea County are shown in Figure 22.

Geomorphology

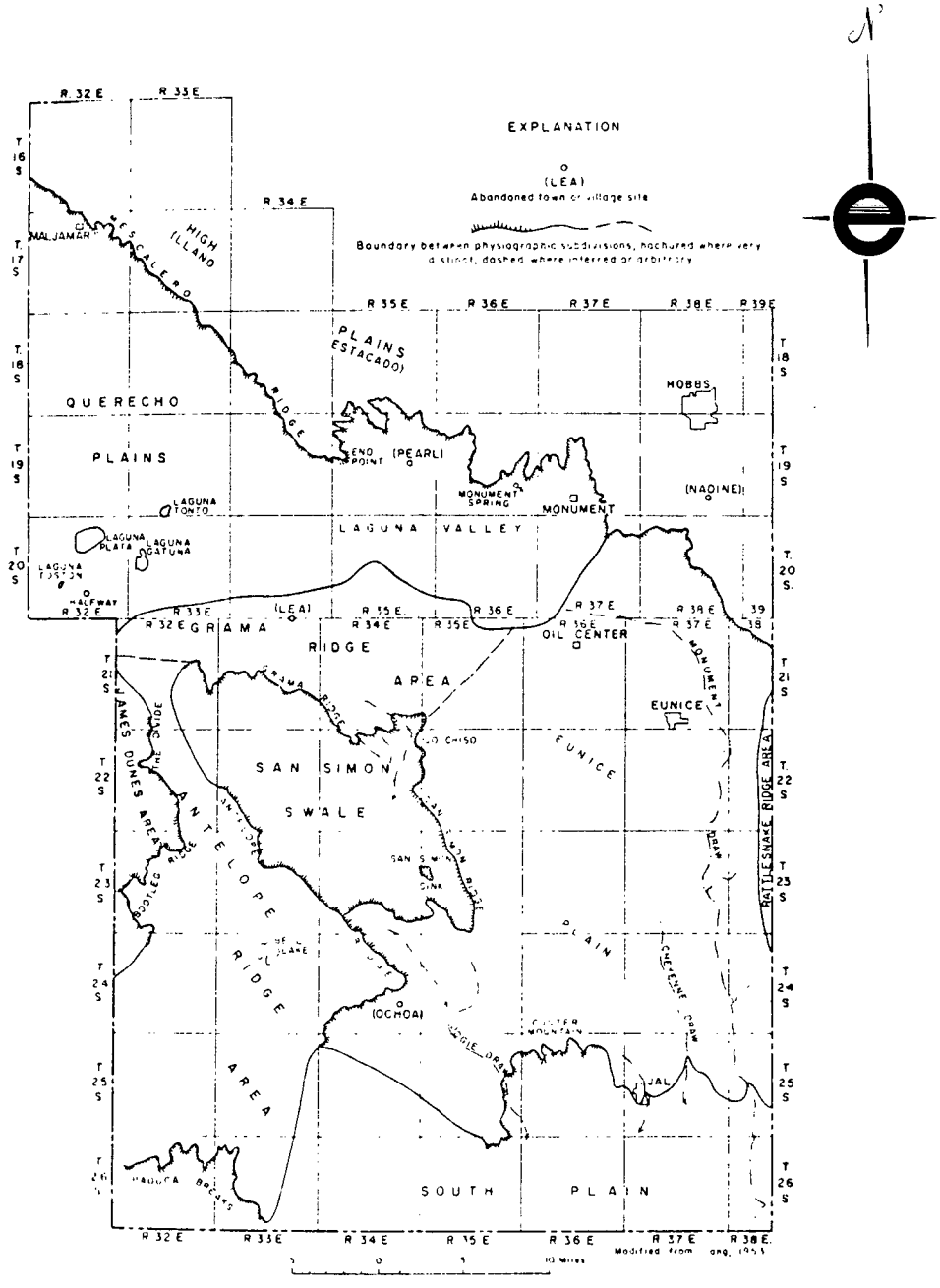
About 250 million years ago, during the Permian Period, a huge inland sea covered much of what is now Texas and southeastern New Mexico. Rising above the sea was a ridge approximately 150 miles long and 40 to 50 miles wide that divided the Permian Sea into two smaller basins, now known as the Midland Basin and the Delaware Basin. The ridge itself, which today is a subsurface feature underlying an area in southeastern New Mexico, extends from Hobbs south through Jal, New Mexico.

As millions of years passed, the sea gradually expanded to the north covering parts of present day Oklahoma, Kansas and Nebraska. The sea received huge quantities of sediments and organic matter which was the beginning of the formation of a great accumulation of oil and gas.

Toward the close of the Permian Period, the sea waters evaporated leaving various kinds of sediments. Thick layers of gypsum, salt, anhydrite and potash were formed, particularly in the area near Carlsbad, New Mexico, where the last remnant of the old Permian Basin Sea occurred.

By the end of Permian time, the basin received stream sediments from higher land areas surrounding the basin. These sediments accumulated in great thicknesses of non-marine sands and clays. Today, these layers are relatively shallow subsurface formations commonly referred to as the "Red Beds". Following the Permian Period, the Lea County area was emergent and subject to erosion during early Triassic time, then subject to deposition of sediments during late Triassic time. The deposits of this period are termed the Dockum Groups. In Jurassic time, the area was again subject to erosion. During Cretaceous time a large part of the interior of North America was submerged and southeast New Mexico was again the site of a large sea in which thick layers of rocks were deposited. These rocks, including some Triassic materials, were subsequently stripped off during the upthrusting of the Rocky Mountains. In Pliocene time terrestrial deposits of the Ogallala formation were laid down as a thick mantle which obliterated the irregular surface and replaced it with the even surface of the High Plains.

Subsequently, beginning in Quaternary time, a new cycle of erosion set in continuing to the present day. Monument Draw in early Quaternary time was probably a perennial stream fed by water from the Ogallala formation of the High Plains. Today, Monument Draw is ephemeral and does not have a throughgoing stream except during extreme floods. The climate became more arid in late Quaternary time, and the detrital materials were reworked by wind, creating vast deposits of dune sand that now cover large parts of Lea County.



NOTE: FIGURE OBTAINED FROM NICHOLSON AND CLEBSCH, GEOLOGY AND GROUND-WATER CONDITIONS IN SOUTHERN LEA COUNTY, NEW MEXICO, GW REPORT NO. 6, STATE BUREAU OF MINES AND MINERAL RESOURCES, SOCORRO, N.M., 1961.

El Paso Natural Gas Company

FIGURE 22

PHYSIOGRAPHIC SUBDIVISION
SOUTHERN LEA COUNTY,
NEW MEXICO

Climate

Today, the climate of southern Lea County is semiarid; average annual precipitation varies from about 8 inches in the southwest corner to 14 inches in the northeast corner (Reynolds, 1956). Most of the precipitation is received during May through October as thundershowers. Temperatures vary considerably, exceeding 100°F in summer and dropping below 0°F in the winter. The average monthly precipitation for Hobbs, New Mexico is shown on Figure 23 (NOAA, 1979).

Evaporation of water in southeastern New Mexico has been estimated using evaporation pan measurements. Due to differences between lake evaporation and experimental pan data, a reduction coefficient from 0.67 to 0.81 was selected to obtain an estimated lake evaporation value; an average coefficient of 0.75 usually provides an estimate of annual lake evaporation within about 15 percent. The average monthly pan evaporation is shown in Figure 23 for Lake McMillan, New Mexico (Reynolds, 1956). The average annual lake evaporation is 79 inches per year. This rate of evaporation is considered excellent for the use of evaporation ponds in typical wastewater disposal operations.

Drainage Basin Study

Stormwater runoff is that portion of precipitation which flows for a short time over the ground surface during and after a storm. In estimating storm water runoff in the Plant area, the relationship of precipitation to the local vegetal, soil, geologic and topographic characteristics were taken into consideration. The U.S.D.A. Soil Conservation Service (SCS) method for estimating peak rates of discharge for small watersheds (McDougal and Jackson, 1973) was used in this plan due to its wide use and acceptance in the engineering community.

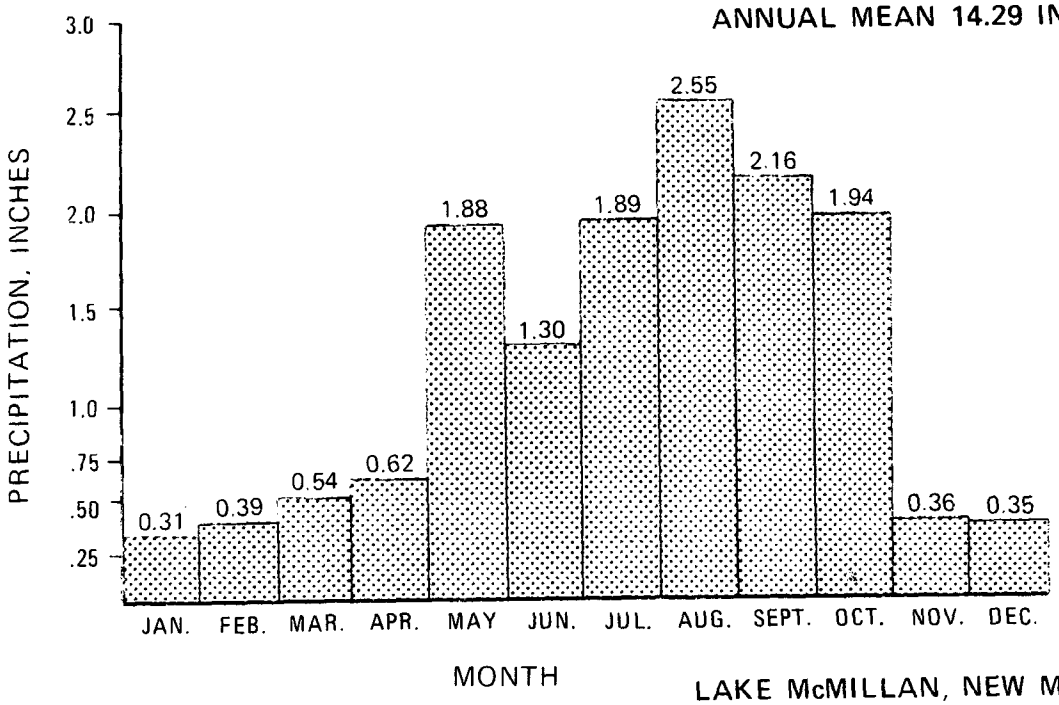
Recorded precipitation is a primary factor in estimating the surface runoff and peak discharge from ephemeral streams. The mean annual precipitation in the area is 11.67 inches (NOAA, 1980). Table 8 shows precipitation data for depth-frequency for the Plant area (Miller et al., 1973).

Hydrologic Conditions

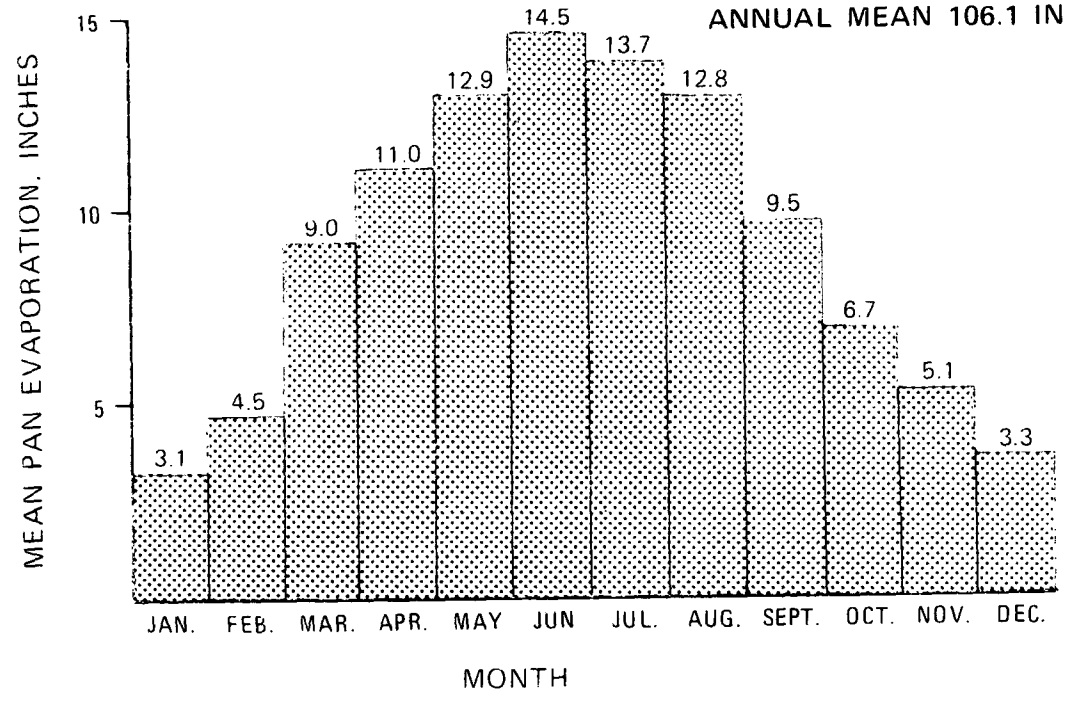
The following analysis shows that the evaporation ponds, when closed according to plan, will not be sources of leachate. Materials remaining in the pond bottoms will not be subject to a hydraulic head and therefore will not move.

The antecedent moisture condition in the area (the amount of precipitation occurring in the five days preceding a major rainfall) is typical of arid soils. The SCS Engineering Field Manual for Conservation Practices (McDougal and Jackson, 1973) defines curve numbers (CN) which are used to describe the hydrologic soil groups as well as the vegetation cover in relation to potential runoff. A CN of 85 was

HOBBS, NEW MEXICO [1]
ELEVATION 3615 FEET
32°42'N–103°08'W
PRECIPITATION DATA FROM 1951–1974
ANNUAL MEAN 14.29 INCHES



LAKE McMILLAN, NEW MEXICO [2]
MEAN MONTHLY PAN EVAPORATION DATA
FROM 1912–1954
ANNUAL MEAN 106.1 INCHES



1/ NOAA, CLIMATOGRAPHY OF THE UNITED STATES NO. 60, CLIMATE OF NEW MEXICO, NATIONAL CLIMATE CENTER, ASHVILLE, N.C., 1977.

2/ REYNOLDS, S.E., CLIMATOLOGICAL SUMMARY NEW MEXICO, NEW MEXICO STATE ENGINEER, SANTA FE, N.M., 1956.

El Paso Natural Gas Company

FIGURE 23
MEAN PRECIPITATION AND EVAPORATION SUMMARY
SOUTHERN LEA COUNTY, NEW MEXICO

TABLE 8

Precipitation Data for Depth-Frequency for El Paso
Natural Gas Company's Jal No. 2 & 3 Plants
32° 11'N, 103° 10'W

Recurrence Interval In Years	Storm Duration in Hours				
	1	2	3	6	24
	(P, values in inches)				
2	1.22	1.30	1.49	1.72	2.1
5	1.70	1.85	2.15	2.32	3.0
10	2.05	2.30	2.50	2.85	3.5
25	2.50	2.80	3.05	3.60	4.5
50	2.90	3.25	3.55	4.05	5.1
100	3.27	3.70	4.00	4.60	5.7

Equations used to estimate 1-hour values in Eastern New Mexico:

$$Y_2 = 0.218 + 0.709 \frac{(1.72 \times 1.72)}{2.1} = 1.22$$

$$Y_{100} = 1.897 + 0.439 \frac{(4.60 \times 4.60)}{5.7} - 0.008\ (32.00)^{1/} = 3.27$$

1/ Average elevation 3,200 feet mean sea level.

generally used to represent the poor residue cover, Hydrologic Rating B, of the area which produces the maximum expected runoff rate and is considered to be conservatively high.

$$q = \frac{\left[P - 0.2\ \frac{(1000-10CN)}{CN}\right]^2}{P + 0.8\ \frac{(1000-10CN)}{CN}} \qquad (1)$$

Using equation 1, q is estimated to equal an area-weighted average of 4.02 inches of rainfall-produced runoff for the Plant area from the 100-yr, 24-hour storm (P = 5.7 inches; CN=85).

A summary of the expected runoff volumes from the Plant area is presented in hydrologic data sheets in Appendix I.

Criteria for the selection of the prediction points were that they include all drainage from the plant site. The drainage sub-areas were defined using the 1" = 100' scale drawings shown in Figure 5.

The hydrologic soil grouping is generally determined by the surface texture. The grouping is a four step rating of how much of a given rain will enter the soil profile and not run off. A general guide for the hydrologic soils groups by texture is shown in Table 9.

Table 9
Hydrologic Soil Grouping Guide

Group	Description of the Soil
A	Sands - very little fines
B	Loamy sands and coarse sandy loams
C	Loams and fine sandy loams
D	Clays, silts and heavy clay and silt loams

The Jal No. 2 Plant site is located on the Simona-Upton soil association, with a small area on the western edge of the site extending onto Mixed Alluvial Land along Cheyenne Draw.

The Simona-Upton association, normally found on ridges, foot slopes and fans, consists of approximately 50% Simona gravelly fine sandy loam, 25% Upton gravelly loam and inclusions of Stegall, Slaughter and Kimbrough soils. The Simona soil is shallow, with depth to indurated caliche ranging from 10 to 20 inches. Permeability is moderately rapid and runoff slow to medium. Water intake is rapid. Upton

gravelly loam is mapped only with Simona soils and is quite similar in properties. Indurated caliche is found at a depth of 6 to 20 inches. Erosion potential is moderate.

Mixed Alluvial Land is a heterogeneous mixture of unconsolidated, stratified alluvium of various textures found primarily along Monument Draw and its tributaries. This soil is usually no deeper than 24 to 36 inches over either a buried soil profile or parent material of adjacent soils. The texture of the alluvium depends upon the texture of the adjacent slopes from which this soil is derived. Permeability is moderate to rapid, runoff is slow and water intake is moderate to rapid.

The majority of Jal No. 3 Plant is located on the Tonuco loamy fine sands soil series with the northeast corner of the site situated on the Pyote-Maljamar fine sands soil association.

Tonuco loamy fine sand is normally found on undulating uplands and ridges. Slopes are 0 to 3 percent. Permeability is very rapid, runoff is very slow and water intake is rapid. The soil is shallow (10-20 inches) to indurated caliche.

Pyote and Maljamar fine sands are well-drained soils with moderately rapid permeability formed in wind-deposited materials. The Pyote soil is fine sand over sandy loam subsoil to a depth of 48 to 60 inches where a fine sandy loam C horizon is encountered. The Maljamar fine sand soil series has a sandy clay loam subsoil with an indurated caliche horizon at approximately 50 inches.

A tabular presentation of engineering interpretation and limitations for the use of these soils as sites for ponds and sewage lagoons is shown in Table 10. These soils all have low to moderate shrink-swell potential.

A water balance prepared for the southern Lea County area is included in Table 13 and Figure 25 of the closure plan (Appendix A). This balance shows that, due to the low rainfall and high evaporation rate in southern Lea County, precipitation is not expected to infiltrate to the sludge layer in the closed ponds. Therefore, the likelihood of leaching of elements from the sludge is remote.

§ 3-107: Monitoring, reporting, and other requirements.
A. 1-7
8. A system of monitoring and reporting to verify that the plan is achieving the expected results;
9. Procedures for detecting failure of the discharge system;

Monitoring Plans

El Paso will perform the following evaluation to ensure that the wastewater collection systems operated by El Paso in the Plant do not also become "discharge sites." The Plant underground drain systems (shown in Figure 20, Map Pocket) will be tested to ensure the integrity

TABLE 10

Engineering Properties of Soils[1/]
in Jal No. 2 and Jal No. 3 Plant Area

Soil Series	Degree of Limitation[2/] for Sewage Lagoons	Soil Features Affecting[3/] Use as Ponds	Hydrologic[4/] Rating
Simona	Severe; shallow over indurated caliche.	Indurated caliche at a depth of 1-1 1/2 feet.	D
Upton	Severe; indurated caliche at a depth of 6-18 inches.	Indurated caliche at a depth of 6-18 inches.	C
Mixed Alluvial Land	Severe; moderately rapid permeability; slopes are 1-10%.	Moderate erosion hazard; permeability.	B
Tonuco	Severe; very rapid permeability; indurated caliche at a depth of 1-1 1/2 feet.	Indurated caliche at a depth of 1-1 1/2 feet.	C
Pyote	Severe; moderately rapid permeability.	Moderately rapid permeability.	A
Maljamar	Moderate; moderate permeability.	Moderate permeability below depth of 2 feet; moderate seepage.	B

1/ Obtained from Soil Conservation Service, 1974.

2/ Ratings for sewage lagoons based on soil permeability, slope, soil texture and depth to impervious material or groundwater.

3/ Features affecting use of soils for ponds are the amount of seepage expected and depth to inhibiting layer such as indurated caliche.

4/ McDougal, 1973.

of the drain system. Test procedures are structured so that each line is pressure tested for a specified time period to verify that no line is leaking. Any leaks identified will be repaired. The drain line test procedure is found in Appendix J. Well integrity will be ascertained by regularly monitoring the pressure of the annular fluid.

Annual sampling and analysis of the wastewater stream (classifier effluent) delivered to the disposal system will be conducted and a Plant file maintained. A monthly report to NMOCD on Form C 120-8, describing disposal volumes, is now being submitted. The wastewater flow records will be periodically reviewed to determine if any unexplained changes in disposal volume have developed. If any such anomalies occur, an inspection of the collection system will be conducted to identify the cause.

Any records related to integrity testing and waste characteristics will be retained by El Paso for five years.

Sludge will be removed from the cooling tower basin and the classifier as needed and will be evaluated and disposed of in an approved landfill or on the plant property in an acceptable manner. Any changes, anticipated or otherwise, to the disposal system will, of course, be reported to NMOCD.

Bibliography

1. Ash, S. R., Ground-Water Conditions in Northern Lea County, New Mexico Mexico, Hydrologic Investigations Atlas HA-62, U.S. Geological Survey, Washington, DC, 1963.

2. Blaney, H. F. and E. G. Hanson, Consumptive Use and Water Requirements in New Mexico, Technical Report 32, New Mexico State Engineer Office Santa Fe, NM, 1965.

3. Boyer, D. G., D. McQuillan, and M. S. Goad, New Mexico Surface Impoundment Assessment, Water Pollution Control Bureau New Mexico Environmental Improvement Division, Santa Fe, NM, 1980.

4. Clark, J. W., W. Viessman, Jr., and M. J. Hammer, Water Supply and Pollution Control, Third Edition, Harper and Row, Publishers, New York, NY, 1977.

5. Cresswell, L. W., The Fate of Petroleum in a Soil Environment, 1977 Oil Spill Conference Proceedings, American Petroleum Institute Publication No. 4284, pp. 479-482, 1977.

6. Cronin, J. G., Ground Water in the Ogallala Formation in the SouthernHigh Plains of Texas and New Mexico; Hydrologic Investigations, Atlas HA-330, U.S. Geological Survey, Washington, DC, 1969.

7. Gabin, V. L. and L. E. Lesperance, New Mexico Climatological Data - 1850-1975, W. K. Summers and Associates, Socorro, NM, 1977.

8. Gudin, C., and W. J. Syratt, Biological Aspects of Land Rehabilitation Following Hydrocarbon Contamination, Environmental Pollution, Volume 8: 107-117, 1975.

9. Hudson, J. D., Ground-Water Levels in New Mexico, 1977, New Mexico State Engineer, Santa Fe, NM, 1980.

10. Le Floic, John, Telephone Interview, May 4, 1983.

11. Mangan, F., The Pipeliners, Guynes Press, El Paso, TX, 1977.

12. McDougal, L. F. and C. M. Jackson, Peak Rates of Discharge for Small Watersheds, Chapter 2, Engineering Field Manual for Conservation Practices, U.S.D.A., Soil Conservation Service, Albuquerque, NM, 1973.

13. Miller, J. F., R. H. Frederick, and R. J. Tracey, NOAA Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume IV -New Mexico, U.S. Department of Commerce, National Weather Service, MD, 1973.

14. Minton, E. G., General Ground Water Supply on the High Plains of New Mexico, Lea County Ground Water Conservation, Lovington, NM, no date.

15. New Mexico Environmental Improvement Division, Progress Report on Climax Chemical Company Monument Plant Discharge Plan, 1981.

16. New Mexico Geological Society, Guidebook of Southeastern New Mexico, Fifth Field Conference, New Mexico Bureau of Mines and Mineral Resources, Socorro, NM, 1954.

17. New Mexico Water Quality Control Commission, Pecos River Basin Plan, Water Quality Control Commission, Santa Fe, NM, 1976.

18. NOAA, Climatography of the United States No. 60, Climate of New Mexico, National Climate Center, Ashville, N.C., 1977.

19. Nicholson, A. and A. Clebsch, Geology and Ground-Water Conditions in Southern Lea County, New Mexico, Ground Water Report No. 6, State Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology, Socorro, NM, 1961.

20. Reynolds, S. E., Climatological Summary New Mexico, Technical Report No. 5, New Mexico State Engineer, Santa Fe, NM, 1956.

21. Ruyan, J. W., Doom, Mathis and Owens Water Contamination Study, New Mexico Oil Conservation Division, Hobbs, NM, 1977.

22. Soil Conservation Service, Soil Survey Lea County, New Mexico, United States Department of Agriculture, Washington, DC, 1974.

23. State Engineer, Lea County - Water Resources Assessment for Planning Purposes, New Mexico State Engineer Office, Santa Fe, NM, 1975.

24. Todd, D. K., The Water Encyclopedia, Water Information Center, Port Washington, NY, 1970.

25. Tuan, Y., C. E. Everard, J. G. Widdison, and I. Bennett, The ClimateOf New Mexico, State Planning Office, Santa Fe, NM, 1973.

26. U.S. Bureau of Reclamation, Eastern New Mexico Water Supply Project, New Mexico, Final Environmental Statement, Department of the Interior, Washington, DC, 1976.

27. U.S. Environmental Protection Agency, Test Methods for Evaluations Solid Waste, SW-846, 1980.

28. West Texas Geological Society, Symposium-Oil and Gas Fields in West Texas, WTGS, Midland, Texas, 1966.

CLOSURE PLAN FOR
EL PASO NATURAL GAS COMPANY'S
JAL NO. 3 PLANT
LEA COUNTY, NEW MEXICO

El Paso Natural Gas Company

PREPARED BY:

EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

OCTOBER 1983

SUMMARY

This Closure Plan presents to the New Mexico Oil Conservation Division (NMOCD) the procedures chosen, and the justification for those procedures, for the closure of six wastewater evaporation ponds located within El Paso Natural Gas Company's Jal No. 3 Plant. These ponds include two ponds that have been closed under verbal authorization of the NMOCD. All five ponds at nearby abandoned Jal No. 2 Plant, one of which had previously received wastewater discharge from Jal No. 3 Plant, were also closed by NMOCD authorization. The ponds at Jal No. 3 Plant are being closed as a result of implementing the collection/separation system and disposal process detailed in the Discharge Plan for the Jal No. 3 Plant, of which this Closure Plan is a part.

Chemical analyses conducted on sludges collected from three of the ponds to be closed show that the wastes contained therein are not hazardous wastes as defined by EPA under RCRA. Sludge collected from pond No. 1 in 1981 qualified as hazardous waste due to ignitability. This pond was resampled in 1983 and it was determined that the petroleum residues contained therein have decomposed to the point whereby the sludge may be considered to not be ignitable and, therefore, non-hazardous. Therefore, the closure of the ponds is not subject to EPA regulations under RCRA for closure of disposal facilities containing hazardous wastes. Nevertheless, the closure of the ponds will be performed in such a way to protect human health and the environment in accordance with State and Federal guidelines.

TABLE OF CONTENTS

FIGURES

TABLES

SUPPORTING MATERIAL

INTRODUCTION

Regulatory Background

The New Mexico Water Quality Control Commission Regulations delegate the regulation of discharges from facilities for the production, refinement and pipeline transmission of oil and gas to the Oil Conservation Commission (Sec 1-201A). The New Mexico Oil Conservation Division (NMOCD) can request any additional information that is necessary to demonstrate that approval of a discharge plan will not result in groundwater concentrations in excess of the standards of Section 3-103 for present or reasonable foreseeable future use (Sec. 3-106 C.7). In addition, the Agency may require an explanation of measures to prevent groundwater contamination after the cessation of operation (Sec. 3-107 A.11).

The Agency has exercised their delegated authority with regard to the Discharge Plan for Jal Nos. 1, 2, 3 and 4, Eunice and Monument Plants; likewise, this Closure Plan is therefore submitted in response to a request made by NMOCD.

In the case of facilities treating, storing or disposing of hazardous wastes identified at 40 CFR Part 261 Subparts C and D as promulgated by the Environmental Protection Agency (EPA), there are specific Federal regulatory requirements for submittal of closure plans; 40 CFR §265.112 calls for a detailed closure plan to be developed and kept at each such facility. While the waste materials contained in abandoned wastewater evaporation ponds at Jal No. 3 Plant qualify as solid wastes under the Resource Conservation and Recovery Act of 1976 (RCRA), no wastes were encountered that qualify as hazardous wastes as defined by applicable EPA regulations under RCRA or by standards as agreed to by the NMOCD except for sludge from pond No. 1 which qualified as hazardous waste due to ignitability when analyzed in 1981. Subsequent resampling of sludge from pond No. 1 in 1983 and analysis for ignitability proved the sludge to not be ignitable, and therefore, non-hazardous.

Scope

The purpose of this document is to describe the proposed procedures for the closure of six ponds at El Paso Natural Gas Company's Jal No. 3 Plant, located in Lea County, New Mexico (see Figure 1, Discharge Plan). This document (the "Closure Plan") is presented as a companion document to the Discharge Plan for Jal No. 3 Plant of which this Closure Plan is a part. Certain information contained in the Jal No. 3 Plant Discharge Plan is either reproduced or incorporated by reference into this Closure Plan. As in the aforementioned Discharge Plan, much of the information included herein has been obtained from published sources. Chemical analyses of sludges were conducted by the Southern Division Laboratory of El Paso Natural Gas Company and ignitability determination of one sludge sample was conducted by the Research and Development Laboratory of the El Paso Products Company. Complete methodologies for sludge sampling and analyses are given.

This Closure Plan has been prepared to set forth the procedures by which six ponds located at Jal No. 3 Plant will be closed and the justification for those procedures. The reasoning for the methods proposed, including supportive analytical data, are presented and discussed in this report.

ENVIRONMENTAL FACTORS

A complete environmental description of the Jal No. 3 Plant area is included in the Discharge Plan. That description will not be duplicated here; however, the environmental factors important to the development and execution of this Closure Plan are summarized below.

Climate

Long-term annual precipitation for Jal, New Mexico, located approximately four miles to the south of the Eunice Plant, averages 11.67 inches (NOAA 1977), while evaporation averages approximately 79 inches per year

(Reynolds 1956). The estimated precipitation received in a 100-year, 1-hour storm is 3.27 inches for the Jal No. 3 Plant, while a 100-year, 24-hour storm is expected to produce 5.70 inches (Miller et al. 1973). Such a 100-year, 24-hour storm was estimated in the Discharge Plan to produce 4.02 inches of runoff for the Jal No. 3 Plant area, with the remaining rainfall infiltrating the soil to either percolate to groundwater or return to the atmosphere via evapotranspiration (see Discharge Plan for runoff calculations). However, the likelihood of precipitation percolating to groundwater in the Jal No. 3 Plant area is remote, as indicated by the water balance graphically presented in Table 13 and Figure 25 (this report) and discussed in a later section of this Closure Plan.

Hydrogeology

The Jal No. 3 Plant is underlain by clastic and chemical sedimentary rocks of Ordovician through Triassic age, and by Quaternary alluvial sediments. The alluvial cover over the sedimentary rocks consisting of sand, gravel, silt and clay contains the Ogallala formation, the principal source of potable groundwater in the area. The Ogallala aquifer slopes to the southeast in the area of the Jal No. 3 Plant and has a hydraulic gradient of 10 to 12 feet per mile toward the east or southeast (Cronin 1969). The soils of the Plant area are an integral component of the local hydrogeology due to the shallow nature of the Ogallala aquifer and the relatively high permeability of the predominantly sandy soils present.

The soils of Jal No. 3 Plant consist of the Tonuco loamy fine sands soil series and the Pyote-Maljamar fine sands association. These soils developed in wind-deposited sands over caliche. Ponds Nos. 1 through 4 are located on the Tonuco soil, while ponds Nos. 5 and 6 are located on the Pyote-Maljamar association.

Tonuco loamy fine sand is normally found on undulating uplands and ridges. Slopes are 0 to 3 percent. Permeability is very rapid, runoff is very slow and water intake is rapid. The soil is shallow (10-20 inches) to indurated caliche.

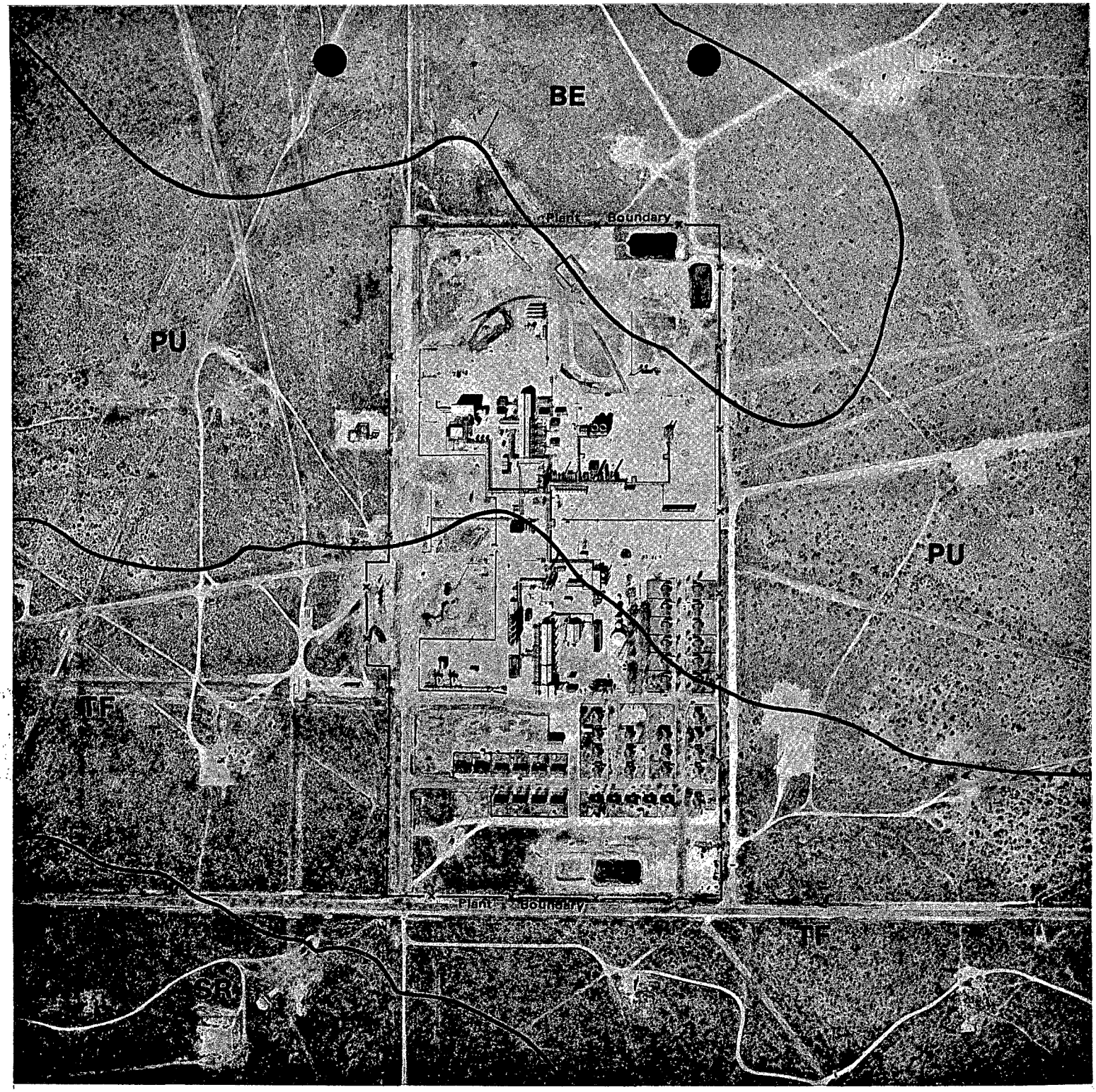
Pyote and Maljamar fine sands are well-drained soils with moderately rapid permeability formed in wind-deposited materials. The Pyote soil is fine sand over sandy loam subsoil to a depth of 48 to 60 inches where a fine sandy loam C horizon is encountered. The Maljamar fine sand soil series has a sandy clay loam subsoil with an indurated caliche horizon at approximately 50 inches. Figure 24 shows the soils found on and adjacent to the Jal No. 3 Plant as determined by the Soil Conservation Service (Turner, et al. 1974).

SLUDGE SAMPLING AND ANALYSES

Sampling Methodology

Sampling Strategy. Sludge samples were collected for chemical analysis in April 1981 from those ponds at Jal No. 3 Plant known to have received industrial or domestic wastewater discharges and, therefore, may have contained toxic wastes. The historic use of the ponds was determined by reviewing construction drawings, interviewing plant personnel and conducting an onsite evaluation prior to initiating the sample collection program. The sludge samples collected from ponds Nos. 1, 2 and 5 at the Jal No. 3 Plant therefore represent the entire spectrum of sludge types and characteristics for wastewater discharge from that plant.

The sludge may be described as a non-randomly distributed, uniformly heterogeneous waste. That is, the waste is not randomly distributed either vertically or horizontally within the ponds because of the nature of the storage or disposal process. As the wastewater was discharged into the ponds the heavier particles settled out first; thus, stratifying the waste. If samples were collected near the wastewater entrance point, the sludge would be of different density than at the furthest point of the pond. Therefore, the pond was divided into sections, a sludge sample taken from each and a composite sample formed as described below. The greater the number of sections sampled and combined into a composite sample from each pond the greater the accuracy of determination of the sludge characteristics. Therefore, the discussion of analytical results contained herein assumes representative sampling.



SOIL LEGEND:

- **BE** — Berino–Cacique Loamy Fine Sands Association
- **PU** — Pyote & Maljamar Fine Sands
- **TF** — Tonuco Loamy Fine Sand
- **SR** — Simona–Upton Association

El Paso Natural Gas Company

FIGURE 24

SOIL MAP
EL PASO NATURAL GAS COMPANY'S
JAL NO. 3 PLANT
AND ADJOINING AREAS
SOUTHERN LEA COUNTY, NEW MEXICO

N

SCALE: 1" = 535'±

Sampling Equipment and Methodology. At the time sludge samples were collected, most of the ponds were either full or partially full of wastewater. Due to the unknown depth and composition of wastewater and sludge in each pond prior to sampling, the method of collection was designed to take into consideration the safety of the personnel collecting the sample. A number of sampling devices, including a dredge, auger and dipper, were tried. The sampling equipment and technique finally selected for greatest safety and efficiency was a weighted, bottom-vented, five-gallon, steel bucket attached to a rope and dragged across the bottom of the ponds.

The bucket was cast from the bank of the pond as far toward the opposite side as possible. After allowing the bucket to sink, it was then dragged across the bottom accumulating wastewater and sludge. As much of the wastewater as possible was discarded and the sludge emptied into a plastic bucket.

This routine was followed at a minimum of one location on each of the four sides of each pond. The sludge amassed in the plastic bucket was then stirred to mix the sludge thoroughly in order to obtain a single composite sample for each pond. Prior to obtaining samples from another pond, the buckets were rinsed using the wastewater contained in the next pond to be sampled.

The temperature and pH of the sludge were taken immediately after collection and prior to transfer to sample containers. The temperature was obtained using a Fisher Scientific thermometer having a range of -50°C to 100°C. The pH of the sludge was obtained using a Cole-Parmer Digital pH meter, DigiSense LDE model 5986-10, calibrated prior to each test using standard pH buffer solutions. The measurements were noted on the sample bottle label and in a field notebook.

The composited sludge was then transferred to 500-milliliter (ml) sample bottles using a plastic funnel and steel dipper. Sample bottles were of either linear polyethylene (LPE) plastic or clear glass. These

containers were selected because they offered the best chemical resistance and low cost compared to other container materials. The LPE screw-type lid was made of the same material as the bottle and the glass bottle screw-type lid was made of rigid plastic with a polyethylene liner.

The sludge placed in LPE bottles was preserved with approximately 10 ml of sulfuric acid. This sample was taken for determination of oil and grease, phosphate and total phosphorous (EPA 1973). The sludge in glass containers was preserved with 10 ml of nitric acid. This sample was to be analyzed for heavy metals (EPA 1973) in accordance with 40 CFR §261.24. One unpreserved sludge sample was collected from pond No. 1 in June 1981 in order to conduct ignitability testing in accordance with 40 CFR §261.21. The sample was placed in a one-pint Mason canning jar with plastic-lined lid. Pond No. 1 sludge was resampled in September 1983 for ignitability analysis.

Sludge samples were collected in November 1982 from wastewater evaporation ponds at Jal No. 4 Plant for determination of organic constituents to represent the worst-case situation for the presence of organics for El Paso plants in Lea County. Those samples were collected with a hand auger and shovel, with a backhoe used to access deeper layers. Samples were collected in the deepest sludge layers encountered at the interface with the *in situ* soil; this is believed to be the optimal environment for volatile organics. Samples were placed in glass bottles, sealed with aluminum foil and packed in ice to maintain a constant temperature. The samples were transported to the El Paso office of Raba-Kistner Consultants, Inc., who transferred them to their San Antonio laboratory for analysis.

Chain of Custody. Documentation and control necessary to identify and trace the Jal No. 3 Plant sludge samples from collection to final analysis was accomplished in accordance with EPA recommendations (EPA 1980). This included labeling of sample containers, ensuring secure custody and completion of the necessary records to support potential litigation. A

field log book was used to record sufficient information so that the samples could be reconstructed without reliance on the collector's memory. Chain of custody records were used and are presented in Enclosure 1 for the sludge samples discussed in this report.

Analytical Methodology

The sludge samples from Jal No. 3 Plant were analyzed by El Paso Natural Gas Company's Southern Division Laboratory in El Paso, Texas. The laboratory is certified by the New Mexico Environmental Improvement Division for testing water and wastewater for inorganic and microbiological constitutents. The sludge sample collected for ignitability testing in 1981 was analyzed by the Research and Development Laboratory of the El Paso Products Company, Odessa, Texas, while the sludge sample collected for ignitability testing in 1983 was analyzed by Raba-Kistner Consultants, Inc., San Antonio, Texas.

The samples were extracted and/or analyzed in accordance with procedures described in EPA's Test Methods for Evaluating Solid Waste, SW-846, dated August 8, 1980.

Results and Discussion

The results of the chemical determinations of the sludge samples collected from ponds Nos. 1, 2 and 5 from Jal No. 3 Plant in 1981 are presented in Table 11. The results of the chemical analyses indicate that none of the sludges analyzed exhibit the characteristics of EP toxicity as defined in 40 CFR §261.24 except for sludge from pond No. 1 which qualified as hazardous waste (as defined by 40 CFR §261.10) due to its ignitability of 108°F. However, analysis of sludge collected from pond No. 1 in 1983 revealed the sludge to no longer be ignitable. Threshold values characteristic of EP toxicity for contaminants are also shown in Table 11 for purposes of comparison. These threshold values assume an attenuation factor of 100-fold as adopted by the EPA.

TABLE 11

Results of Chemical Analyses Conducted on Sludge Samples Collected from Ponds Nos. 1, 2 and 5, Jal No. 3 Plant; and Maximum Allowable Concentrations.

Constituent	Level of Constituents in Milligrams per Liter: Pond 1 Sludge	Pond 2 Sludge	Pond 5 Sludge[1]	Maximum Allowable Concentration[2] (mg/L)
Lead	<0.1	<0.1	<0.1	5.0
Cadmium	<0.02	<0.02	<0.02	1.0
Silver	<0.02	<0.02	<0.02	5.0
Mercury	<0.0005	<0.0005	<0.0005	0.2
Arsenic	0.010	0.09	<0.005	5.0
Selenium	<0.005	<0.005	<0.005	1.0
Barium	0.6	1.6	0.6	100.0
Chromium	0.05	0.10	1.0	5.0
Copper	<0.04	<0.04	<0.04	
Zinc	0.15	8.2	0.15	
Nickel	<0.2	<0.2	<0.2	
Manganese	-[3]	-	0.55	
Phosphate	1.7	0.3	1.5	
Total Phosphate	1.8	0.8	1.5	
Nitrate	0.18	0.24	0.12	
Chloride	-	-	227.	
Calcium	-	-	996.	
Magnesium	-	-	68.	
Boron	-	-	0.54	
Vanadium	0.1	<0.1	0.5	
pH	6.34	7.34	-	
%Oil & Grease	16.50	3.70	5.74	

[1] Dry Sludge.
[2] 40 CFR §261.24, 45 FR:33122.
[3] Analysis not conducted.

It is known that the pH of the wastewater affects solubility of metal salts. With regard to those heavy metals listed in 40 CFR Part 261, the lower the pH below a pH of 7 the more soluble those metals become. For example, the molar concentration of chromium (+3) is 10^{-8} at a pH of 6.5, $10^{-3.8}$ at a pH of 5.2 and 1 at a pH of 3.9. By preserving the samples in the manner previously described, the chemical analyses were more stringent than required by RCRA. The pH of all of the samples was lowered to or below 3.0 through the method of preservation. This caused the test results to show *total extractable* and not the *amount leachable* (or available) at a pH of 5.2 as required by RCRA (EPA 1980). Therefore, the method of preservation used in which pH was lowered below 5.2 caused essentially all of the chromium (+3) to be oxidized and go into solution.

The effect of pH on chromium solubility may be illustrated by examining results of a resample of pond No. 1 at Jal No. 3 Plant. The original HNO_3-preserved sample collected in April 1981 had a pH value of 2.0. This sample had a chromium value of 4.6 mg/L. Subsequently this pond was resampled in June 1981 and the unpreserved sludge sample extracted at a pH of 3.0. This reanalysis gave a chromium value of 0.05 mg/L.

Analyses of sludges from nearby Jal No. 4 Plant for organics, selected as being the worst-case situation due to depth of sludge, length of time of sludge accumulation and types of processes involved, showed no organic constituents present at levels exceeding standards agreed to by the NMOCD of 100 times the Human Health Standards as defined by New Mexico Water Quality Control Commission Regulation Part 3-103.A except for total phenols, which are believed will decompose as the sludge dries and becomes more aerated. The results of the organic analyses are presented in Enclosure 2.

Levels of oil and grease were determined for sludge collected in 1981 from ponds Nos. 1, 2 and 5 from Jal No. 3 Plant. These values are reported in Table 11. The ignitability of sludge from pond No. 1 was

determined to be 108°F, which qualified it as hazardous waste due to ignitability. It is believed that oily sludge will decompose with resultant rise in temperature of ignitability as the sludge dries and aeration increases. Soil may be mixed with such sludge to facilitate the degradation process, as discussed later in this report. Pond No. 1 sludge was resampled in September 1983 for ignitability testing to determine if the drying period decomposed the oily residue to the extent that the sludge would no longer be considered as hazardous waste due to ignitability. Results of that analysis (see Enclosure 3) show that the drying and resultant decomposition of the oily sludge in pond No. 1 did render the sludge not ignitable and, therefore, non-hazardous.

CLOSURE PLAN

The ponds to be closed under this plan are all six ponds at the Jal No. 3 Plant, consisting of six wastewater evaporation ponds, including one natural depression, and one freshwater storage pond. The closure of those ponds is described herein in as much detail as currently possible. Two ponds at Jal No. 3 Plant (Nos. 5 and 6) as well as all five ponds at nearby abandoned Jal No. 2 Plant, one of which previously received wastewater discharge from Jal No. 3 Plant, have previously been closed in accordance with authorization provided by the NMOCD.

Schedule

The procedures detailed in the Discharge Plan which have been incorporated entail the routing of all wastewater to an on-site classifier system to separate oil, settleable solids and some suspended solids from the wastewater. The wastewater from the separator is pumped to a surge tank and injection well facility where it will be disposed of into the San Andres formation at a depth of approximately 4,700 feet. This system has been in operation since mid-1982 and is more fully described in the Discharge Plan. No further wastewater input has been introduced into the ponds to be closed since inception of the disposal program. Dikes have been constructed to prevent surface runoff from entering the

ponds in order to allow drying. Rainwater which collects in the abandoned ponds prior to closure will be pumped out as is practicable. As of July 1983, all ponds at Jal No. 3 Plant were either dry (ponds 1 through 4) or were already closed (ponds Nos. 5 and 6) (July 5, 1983 letter from D. N. Bigbie to J. Ramey - see Enclosure 4). The length of time necessary for total drying of the ponds cannot be determined due to climatic vagaries, etc. The mixing of soil with sludges in order to facilitate drying and the breakdown of petroleum residues has been approved by the NMOCD (July 6, 1983 letter from J. D. Ramey to D. Bigbie - see Enclosure 4) and will be utilized where necessary. This mixing of soil and sludges to enhance degradation of oil and grease has been initiated on pond No. 2 and may be done on pond No. 1. Pond No. 1, which contained sludge determined to be hazardous waste based upon ignitability in June 1981, has since been resampled, analyzed for ignitability and found to be non-hazardous for closure purposes. The ponds will be inspected within six months after acceptance of the Discharge Plan to determine the progress of the drying of the ponds. The ability of the pond bottoms to support earthmoving equipment will be determined prior to beginning closure field activities.

Closure Procedures

After the ponds have dried to the extent that earthmoving equipment can be supported, closure activities can commence. The dried sludge will be leveled, if necessary, and fill material (soil) will be deposited to extend to the existing ground surface, with a slight convex shape effected of approximately one-half to one foot at the apex. This slight dome shape will accommodate natural settling of the fill material and provide enough relief to allow runoff of rainfall and to prevent ponding on the fill material. This fill material is expected to consist of the soil material in the existing berm as well as commercially obtained local earthen material of sandy loam or similar texture. This fill material ranging from approximately two feet to six feet in depth over the sludge layer will serve as a buffer zone for intercepting and holding infiltrating soil moisture. The natural topography of the immediate area will be approximated with the exception that a gently sloping knoll

will replace each pond with surrounding berm. Approximately 10,778 cubic yards of fill material are expected to be used to close the four remaining ponds (Table 12); of this amount, 10,660 cubic yards will be obtained elsewhere. The Site Grading Plans for Jal Plants Nos. 2 and 3 (Figures 4 and 5, Discharge Plan) indicate the topographic contours to be prior to closure of the ponds at the respective Plants and areas to be graded during closure.

TABLE 12

Estimated Fill Material (cubic yards)[1/] Necessary to Close Ponds at Jal No. 3 Plant.

Pond	Size (acres)	Fill Material Needed (yd^3)	Fill Material in Berms (yd^3)	Fill Material to be Obtained Elsewhere (yd^3)
1	0.33	3,461	--	3,461
2	0.40	6,776	--	6,776
3	0.03	266	96	170
4	0.02	275	22	253
5[2/]	0.50	--	--	--
6[2/]	0.23	--	--	--
Totals	1.51	10,778	118	10,660

[1/] Volumes assume material volume change (volume expansion during material handling and volume shrinkage due to compaction) is nil.

[2/] Ponds previously closed as authorized by the NMOCD.

The relatively small total acreage of the ponds (1.5 acres) and gentle slopes resulting from the knoll-like configuration of the closed ponds are not expected to appreciably increase runoff onto adjacent areas. The surface runoff originating from the closed ponds is expected to drain to discharge points for the Plant area as indicated in the Site Grading Plan (Figure 4, Discharge Plan). No earthmoving activities are proposed for the interior of the plant perimeter which contains the plant facilities, nor in the employee camp area.

Rationale for Closure Procedures

Meetings and correspondence with the NMOCD since the submittal of the original Discharge Plan in 1981, as well as results of additional sampling and analyses for priority pollutants have culminated in this Closure Plan.

The results of chemical analyses of sludges from ponds at Jal No. 3 Plant, as presented and discussed in this Closure Plan, show that the sludges present in the abandoned ponds to be closed under this plan do not exhibit any of the characteristics of EP toxicity as defined in 40 CFR §261.24. The analysis of sludge from Jal No. 4 Plant indicates no organic constituents except total phenols in excess of standards agreed to by the NMOCD. Because the processing and compression of gas is similar in many of El Paso's plants, the assumptions underlying the closure of ponds at Jal No. 4 Plant may be safely applied to the Jal No. 3 Plant; the NMOCD has agreed with this approach.

Infiltration of water is the principal mode of leachate generation from any disposal operation whether it is a landfill or disposal pond. The infiltration into the soil cover and any subsequent percolation down to the groundwater is determined by surface conditions and climatological characteristics of the area.

Specific retention of a soil is a measure of the water retaining capacity of the soil and is expressed quantitively as the percentage of the total volume of soil occupied by moisture that will be retained in interstices against the force of gravity (Walton 1970). Sand has a specific retention of 70-90 percent. Field capacity, analogous to specific retention of a typical fine sandy loam soil with grass cover, is approximately 2.45 inches of moisture per foot of soil depth (Lutton et al. 1979). Assuming the maximum root zone is within the uppermost four feet of soil (Weaver 1968), soil moisture storage would be 9.8 inches at field capacity. In the Jal, New Mexico area the soil has a low antecedent moisture content of about five percent. Therefore, the

soil has the capability to retain an additional 65 to 85 percent more moisture (1.6-2.1 inches/foot) to equal its maximum specific retention of 2.45 inches of moisture per foot of soil depth.

The amount of water expected to infiltrate into the soil from a 100-year, 24-hour storm (5.70 inches of precipitation) was estimated to range from 1.7 to 2.7 inches for the Jal No. 3 Plant in the Discharge Plan. Hence, most, if not all, of the moisture infiltrating the soil could conceivably be held in the first two feet of soil cover.

Until the field capacity of the soil is reached, the moisture in the soil is regarded as being a balance between what enters it as a result of precipitation and what leaves through evapotranspiration. Therefore, comparing the monthly moisture loss from the soil to monthly precipitation will obtain values that indicate either percolation of precipitation or water deficit. Evapotranspiration, representing total water loss from the soil to the atmosphere via evaporation and transpiration by plants, is an important factor in determining the feasibility of the proposed closure procedure. In order to quantitatively evaluate the leachate potential associated with the specific climate and proposed closure procedures, the method of Thornthwaite and Mather (1957) and Mather (1978) was used to determine the soil water balance for each month of the year using long-term precipitation data. This method also utilizes an annual heat index based on mean monthly temperature, mean daily duration of sunlight as related to latitude, the water-holding capacity of the soil root zone as related to vegetation type, as well as various tables developed by Thornthwaite and Mather (1957) for computing evapotranspiration and the water balance. The results of applying this method to southern Lea County, New Mexico are shown in Table 13 and in Figure 25; these results indicate that due to the fact that potential evaporation exceeds infiltration of precipitation by a total of 22.85 inches for the year the likelihood of percolation of precipitation causing leaching of the sludge layer is remote. Figure 25 shows that soil moisture recharge occurs in only two months, December and January, but the water holding capacity of the soil root zone is never exceeded.

TABLE 13
Water Balance Data for
Southern Lea County, New Mexico

Parameter [1]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Potential Evapotranspiration [2]	0.32	0.51	1.22	2.43	4.22	5.85	6.57	5.84	4.02	2.31	0.83	0.31	34.43
Rainfall [3]	0.51	0.30	0.48	0.65	1.52	1.31	1.63	1.60	1.48	1.39	0.38	0.42	11.67
Surface Runoff Coefficient [4]	0.1	0	0	0	0	0	0	0	0	0	0	0.1	-
Surface Runoff	0.05	0	0	0	0	0	0	0	0	0	0	0.04	0.09
Infiltration	0.46	0.3	0.48	0.65	1.52	1.31	1.63	1.60	1.48	1.39	0.38	0.38	11.58
Infiltration-Potential Evapotranspiration	+0.14	-0.21	-0.74	-1.78	-2.70	-4.54	-4.94	-4.24	-2.54	-0.92	-0.45	+0.07	-22.85
Accumulated Potential Water Loss	(-0.08)	-0.29	-1.03	-2.81	-5.51	-10.05	-14.99	-19.23	-21.77	-22.69	-23.14		
Soil Moisture Storage [5]	0.25	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.11	
Change in Soil Moisture Storage	+0.14	-0.21	0	0	0	0	0	0	0	0	0	+0.07	0
Actual Evapotranspiration	0.32	0.51	0.48	0.65	1.52	1.32	1.63	1.60	1.48	1.39	0.38	0.31	11.58
Percolation	0	0	0	0	0	0	0	0	0	0	0	0	0

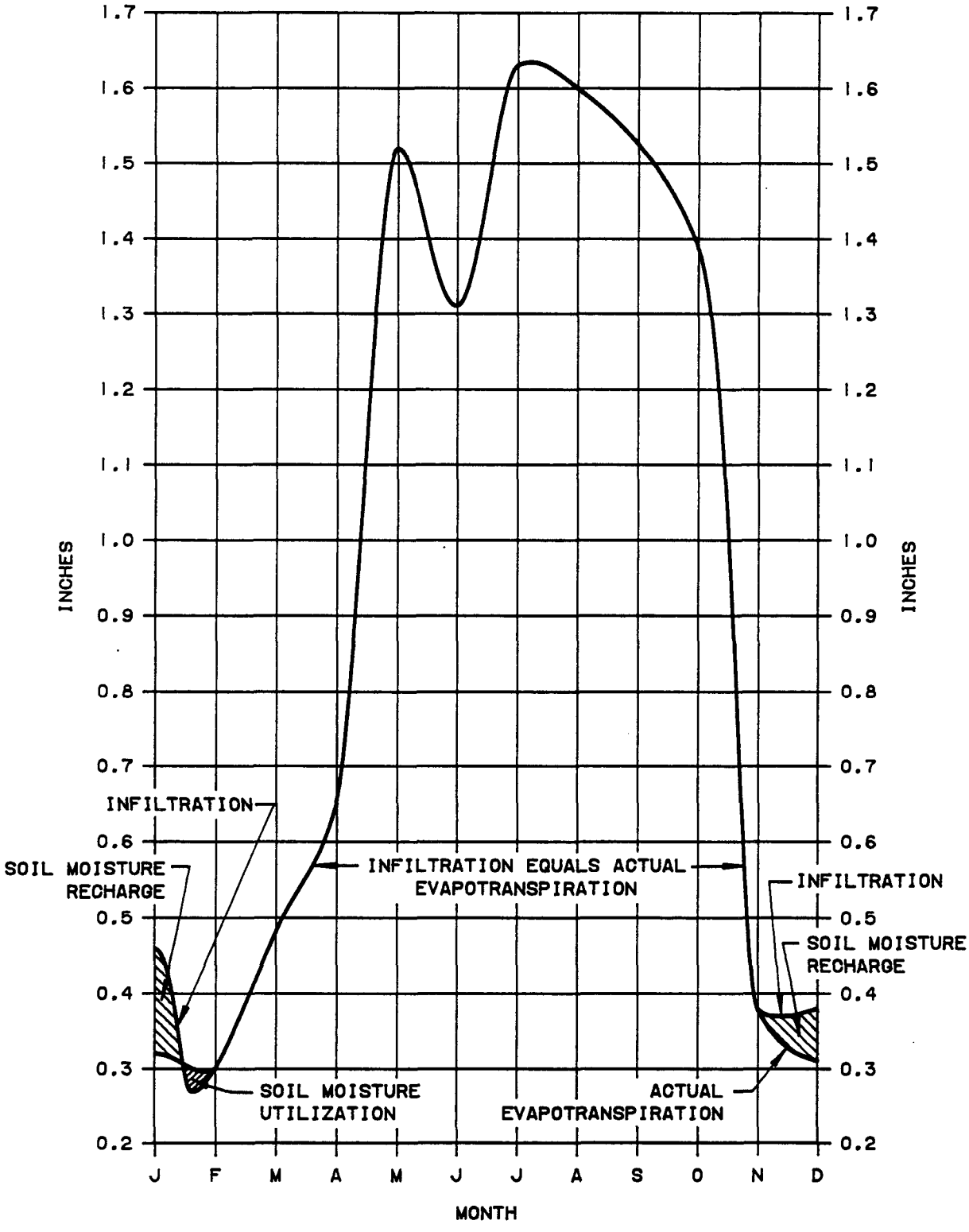
1/ All values in inches except surface runoff coefficient.

2/ As per Thornthwaite and Mather (1957).

3/ Period of record for Jal, New Mexico is 1937-1975 (NOAA 1977).

4/ Surface Runoff Coefficient is ∿0.1 if precipitation is greater than potential evapotranspiration, otherwise the value is zero.

5/ As per J. R. Mather (1978).



El Paso Natural Gas Company

FIGURE 25
WATER BALANCE FOR
SOUTHERN LEA COUNTY
NEW MEXICO

The Blaney and Criddle (1962) method for determining water loss from the soil by evaporation and plant use in response to climate and vegetation was also calculated as presented by Schulz (1976) for native vegetation receiving only precipitation. This method utilizes site-specific mean monthly values for temperature, precipitation and percent daylight as well as a monthly coefficient for water use by vegetation which reflects vegetation type and growth stage. While the monthly values are not presented for this method, the total yearly soil moisture deficit obtained by the Blaney and Criddle method correlates very well (within 10%) with the results of the soil water balance as determined by the Thornthwaite and Mather (1957) method. The two methods used to compute the water balance are very conservative, assuming that 100% of the precipitation infiltrates the soil (except for two months with the Thornthwaite and Mather method). The percentage precipitation infiltrating the soil as presented in the Discharge Plan is calculated to range from 30 to 48%. Therefore, the actual difference between precipitation and evapotranspiration is even greater than indicated here.

Based on the information presented in this report it is unlikely that the moisture holding capacity of the soil above the sludge layer will be exceeded by either low probability, high intensity precipitation events or normal precipitation during the year in most instances. These conclusions infer that the integrity of the sludge zone will not be significantly jeopardized due to infiltration of water through the soil profile.

Post-Closure Activities

Due to the location of the pond closure sites within the Plant, any problems such as excessive erosion, woody plant invasion, etc. will be readily observable and remedied. Nevertheless, El Paso proposes to institute an annual inspection of the closed ponds by a technical person qualified to evaluate the condition of the cover, whether it be vegetation, bare soil or gravel. Also, inspections will be conducted immediately after severe storms. These inspections will be designed to detect erosion

erosion of the cover above allowable limits as well as such anomalies as piping or subsidence of the cover, etc. Repairs of such potential damage to the integrity of the cover will be made as soon as possible.

LITERATURE CITED

Blaney, H. F., and W. D. Criddle. 1962. Determining Consumptive Use and Irrigation Water Requirements. U.S. Department of Agriculture Tech. Bull. 1275.

Cronin, J. G. 1969. Ground Water in the Ogallala Formation in the Southern High Plains of Texas and New Mexico. Hydrologic Investigations Atlas HA-330, U.S. Geological Survey, Washington, D.C.

EPA. 1973. Handbook for Monitoring Industrial Wastewater. U.S. Environmental Protection Agency Office of Technology Transfer, Washington, D.C.

EPA. 1980. Test Methods for Evaluating Solid Wastes-Physical/Chemical Methods SW-846. U.S. Environmental Protection Agency Office of Water and Waste Management, Washington, D.C.

Gabin, V. L., and L. E. Lesperance. 1977. New Mexico Climatological Data-Precipitation, Temperature, Evaporation, and Wind-Monthly and Annual Means, 1850-1975. W. K. Sommers and Associates, Socorro, New Mexico.

Lutton, R. J., G. L. Regan, and W. L. Jones. 1979. Design and Construction of Covers for Solid Waste Landfills. U.S. Environmental Protection Agency, Cincinnati, Ohio.

Mather, J. R. 1978. The Climatic Water Budget in Environmental Analysis. Lexington Books, Lexington, Massachusetts.

Miller, J. F., R. H. Frederick and R. J. Tracey. 1973. Precipitation-Frequency Atlas of the Western United States, NOAA Atlas 2, Vol. IV-New Mexico. U.S. Department of Commerce, National Weather Service, Maryland.

NOAA. 1977. Climatography of the United States No. 60, Climate of New Mexico. Dept. of Commerce, Asheville, North Carolina.

Reynolds, S. E. 1956. Climatological Summary-New Mexico. Tech. Rep. No. 5. New Mexico State Engineer, Santa Fe.

Schulz, E. F. 1976. Problems in Applied Hydrology. Water Resources Publications, Fort Collins, Colorado.

Thornthwaite, C. W., and J. R. Mather. 1957. Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance. Drexel Inst. of Technology, Publications in Climatology. Vol. X, No. 3. Centerton, New Jersey.

Turner, M. T., D. N. Cox, B. C. Mickelson, A. J. Roath and C. D. Wilson. 1974. Soil Survey of Lea County, New Mexico. U.S. Department of Agriculture, Soil Conservation Service, Washington, D.C.

Walton, W. C. 1970. Groundwater Resource Evaluation. McGraw-Hill Book Company, New York.

Weaver, J. E. 1968. Prairie Plants and Their Environment. University of Nebraska Press, Lincoln, Nebraska.

Enclosure 1

CHAIN OF CUSTODY RECORDS

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

Collector's Sample No. 82-107

CHAIN OF CUSTODY RECORD

Location of Sampling: ___ Producer ___ Hauler ✓ Disposal Site

___ Other: _____

Shipper Name: EL PASO NATURAL GAS COMPANY EAD

Address: P.O. Box 1492 (number) EL PASO (street) TEXAS (city) 79978 (state) (zip)

Collector's Name F.R. SPICESTER / O. Viele (signature) Telephone: (915) 541-6138 2407

Date Sampled Nov. 17, 1982 Time Sampled 1330 hours _____

Type of Process Producing Waste OIL/WASTEWATER DISCHARGE FROM NATURAL GAS PROCESS PLANT

Field Information QUART SIZE MASON JAR, GLASS WITH ALUMINUM FOIL COVER. SAMPLE TAKEN ONE FOOT BELOW SURFACE. ORGANICS

Sample Receiver:

1. RABA-KISTNER CONSULTANTS INC. 406 CHELSEA, EL PASO, (name and address of organization receiving sample)

2. _____

3. Raba-Kistner Consultants, Inc. 10526 Gulfdale, San Antonio

Chain of Possession:

1.	Osiris Viele (signature)	Environmental Tech. (title)	Nov. ~~22~~ 17-22, 1982 (inclusive dates)
2.	[signature]	Lab Manager	November 22, 1982
3.	Francis Y. Huang (signature)	Manager, Chemical R&D	November 23, 1982 Tue ~~December 21, 1982~~ Tue (Carolyn Co

PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

Collector's Sample No. 82-092
THRU
82-106
TOTAL OF 15

CHAIN OF CUSTODY RECORD

Location of Sampling: ___Producer ___Hauler ✓ Disposal Site

___Other: _____
Sample

Shipper Name: EL PASO NATURAL GAS COMPANY - ENVIRONMENTAL AFFAIRS DEPT

Address: P.O. Box 1492 (number) EL PASO (street) TEXAS (city) 79978 (state) (zip)

Collector's Name F.R. SPRESTER / O. White (signature) Telephone: (915) 541-6133
541-2407

Date Sampled Nov. 16, 1982 Time Sampled _____ hours _____

Type of Process Producing Waste WASTEWATER FROM INDUSTRIAL PROCESS

Field Information SAMPLES OBTAINED USING BACKHOE, AUGER & SHOVEL FOR SURFACE COMPOSITES.

Sample Receiver:

1. RABA-KISTNER CONSULTANTS, INC. 106 CHELSEA
name and address of organization receiving sample

2. _____

3. Raba-Kistner Consultants, Inc. 10526 Gulfdale, San Anton

Chain of Possession:

1. Orian White (signature)	ENVIRONMENTAL TECH. (title)	RABA-KISTNER	NOV. 18, 1982 THURSDAY (inclusive dates)
2. [signature] (signature)	[illegible] EL PASO		NOV 18, 1982 Thursday (inclusive dates)
3. Francis J. Huang (signature)	Manager, Chemical R&D. (title)		NOV. 22, 1982 Monday DEC. 21, 1982 Tuesday (inclusive dates)

Carolyns co

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS —
(915) 543-2600

ANALYSIS REQUEST

PART I: FIELD SECTION

COLLECTOR SPRESTER/URIBE DATE SAMPLED 11-16-82 TIME _____ HOUR

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION **
			BACK HOE
	82-092	SLUDGE	7'-1' TOP SOIL SAND, BROWN - 2' ORGANIC BLACK; 1.5' BROWN 2.5' LT. BR
	82-093	"	10'- 3.5'- SAND/CALICHE LIGHT BROWN; 1.5'- RED BROWN SAND, SOME CALICHE; 4.0 - ORGANICS BLACK MIXED SOIL; 1.0'- STAIN GREY CALICHE
	82-094	"	9'-1.5 BLOW BRN. SAND; 7.5' FILL MATERIAL MIXED ORGANIC 7.5' CALICHE WITH ORGANIC STREAKS.
	82-095	"	10'- FILL MATERIAL
	82-096	"	13'- ALL MIXED FILL MATERIAL WITH ORGANIC
	82-097	"	9'- 1.0' LAYERS/CALICHE MATERIAL MIXED SOIL; 2.0' RED SAND MIXED; 6.0' ORGANICS BLK., STREAKS OF RED.
	82-098	"	" " " " "
	82-099	"	SLUDGE SAMPLE AT TWO FEET DE
	82-100	"	" " " " " "

ANALYSIS REQUESTED ORGANIC CONSTITUENTS

SPECIAL HANDLING AND/OR STORAGE QUART SIZE MASON JAR GLASS, ALUMINUM FOIL COVERING OPENING.

PART II: LABORATORY SECTION **

RECEIVED BY Francis G. Hwang TITLE Manager, Chemical P.A.D. DATE Nov. 22, 19

ANALYSIS REQUIRED _____

* Indicate whether sample is soil, sludge, etc.
** Use back of page for additional information relative to sample location

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

ANALYSIS REQUEST

PART I: FIELD SECTION

COLLECTOR SPRESTER/URIBE DATE SAMPLED 11-16-82 TIME _____

LABORATORY SAMPLE NUMBER		COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION **
		82-101	SLUDGE	10' { 5' MIXED FILL MATERIAL WITH ORGANICS, 6" DARK BLK SOFT MATERIAL, STICKY CL 2.5' RED SOIL STREAKS OF BLACK 2.5' LT. COLOR CALICHE, HARD, STREAKS
		82-102	"	8'- 6' RED SOIL SAND, SOME STREAKS BLK, 6'- 8' GREY LT. ASH, VERY HARD
	*	82-103	"	COMPOSITE SURFACE SAMPLE - INORGA
		82-104	"	SLUDGE SAMPLE AT ONE FOOT DEPTH - C
	*	82-105	"	COMPOSITE SURFACE SAMPLE - INORGA
		82-106	"	SLUDGE SAMPLE AT ONE FOOT DEPTH

ANALYSIS REQUESTED ORGANIC CONSTITUENTS, NOTE SAMPLES 82-1 & 82-105 ARE FOR INORGANICS.

SPECIAL HANDLING AND/OR STORAGE ALL SAMPLES GLASS QUART SIZE MASON JAR ALUMINUM COVER.

PART II: LABORATORY SECTION **

RECEIVED BY Francis Y. Huang TITLE Manager, Chemical R & D DATE Nov. 22

ANALYSIS REQUIRED _____

* Indicate whether sample is soil, sludge, etc.
** Use back of page for additional information relative to sample location

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

ANALYSIS REQUEST

PART I: FIELD SECTION

COLLECTOR F.R. Sprester/O. Uribe DATE SAMPLED Nov. 16 & 17 TIME N/A HOUR

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION **
	82-092	Sludge	N/A
	82-093	Sludge	N/A
	82-094	Sludge	N/A
	82-095	Sludge	N/A
	82-096	Sludge	N/A
	82-097	Sludge	N/A
	82-099	Sludge	N/A
	82-101	Sludge	N/A
	82-104	Sludge	N/A
	82-107	Sludge	N/A

ANALYSIS REQUESTED General component extraction for the following; Benzene, Polychlorina Biphenyls (PCB's), Toluene, Carbon Tetrachloride, EDC, 1,1-DCE, PCE, TCE, Total Organic Carbon and Phenols.

SPECIAL HANDLING AND/OR STORAGE Quart size Mason Jars - Glass, with aluminum foil cover

PART II: LABORATORY SECTION **

RECEIVED BY Francis G. Hueso Jr. TITLE Manager, Chemical R.D. & P. DATE NOV. 22, 19[illegible]

ANALYSIS REQUIRED

* Indicate whether sample is soil, sludge, etc.
** Use back of page for additional information relative to sample location

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

ANALYSIS REQUEST

PART I: FIELD SECTION

COLLECTOR F. R. Sprester/O. Uribe DATE SAMPLED Nov. 16 & 17 TIME N/A HOU

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION **
	82-100	Sludge	N/A
	82-106	Sludge	N/A
	82-098	Sludge	N/A

ANALYSIS REQUESTED EPA Leachate Extraction; Benzene, Polychlorinated Biphenyls (PCB's), Toluene, Carbon Tetrachloride, EDC, 1,1-DCE, PCE, TCE, Total Organic Carbon, and Phenols.

SPECIAL HANDLING AND/OR STORAGE Quart size Mason Jars, glass, with aluminum foil cover.

PART II: LABORATORY SECTION **

RECEIVED BY Francis Y. Huang TITLE Manager, Chemical R.&D. DATE Nov. 20, 1

ANALYSIS REQUIRED

* Indicate whether sample is soil, sludge, etc.
** Use back of page for additional information relative to sample location

CONFIRMATION TESTING
FOR Cr only
NO PRESERVATIVE

+3

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

Priority #1

Collector's Sample No. 81-30

CHAIN OF CUSTODY RECORD

Location of Sampling: ___ Producer ___ Hauler ✓ Disposal Site

___ Other: Jal No. 3 Plant, Pond No. 1
Sample

Shipper Name: El Paso Natural Gas Co.

Address: P.O. Box 1492 / El Paso, TX 79978
number street city state zip

Collector's Name John A. Sproul, Jr. Telephone: (915) 543-2600
signature

Date Sampled 11 June 1981 Time Sampled 1320 hours

Type of Process Producing Waste Natural gas processing

Field Information Temp 39°C, 3 pints of sludge collected for confirmation testing for Cr and ignitability testing -- 1 pint preserved with HNO_3; pond thick with oil

Sample Receiver:

1. _____
name and address of organization receiving sample

2. _____

3. _____

Chain of Possession:

	signature	title	inclusive dates
1.	Ronnie Grant	Env. Eng	6-11-81 to 6-15-81
2.	Carl Murray	C.E. Chem., S, D	6-15-81 to 7-17-81
3.			

CONFIRMATION TESTING FOR Cr only

PRESERVERED WITH HNO_3

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

Priority #1

Collector's Sample No. 81-30

CHAIN OF CUSTODY RECORD

Location of Sampling: ___ Producer ___ Hauler ✓ Disposal Site

___ Other: Jal No. 3 Plant, Pond No. 1
Sample

Shipper Name: El Paso Natural Gas Co.

Address: P.O. Box 1492, El Paso TX 79978
number street city state zip

Collector's Name John A. Sproul, Jr. Telephone: (915) 543-2600
signature

Date Sampled 11 June 1981 Time Sampled 1320 hours ____

Type of Process Producing Waste Natural gas processing

Field Information Temp 39°C; 3 pints of sludge collected for confirmation Testing for Cr and ignitability Testing -- 1 pint preserved w/ HNO_3; pond thick with oil

Sample Receiver:

1. ____
name and address of organization receiving sample

2. ____

3. ____

Chain of Possession:

	signature	title	inclusive dates
1.	Donald M. Sprout	Env. Eng.	6-11-81 to 6-15-81
2.	Carl Murray	Ch. Chem., S.D	6-15-81 to 7-17-81
3.	____	____	____

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

IGNITABILITY TESTING

Collector's Sample No. 81-30

CHAIN OF CUSTODY RECORD

Location of Sampling: ___ Producer ___ Hauler ✓ Disposal Site

___ Other: JAL No.3 PLANT POND No. 1
Sample

Shipper Name: EL PASO NATURAL GAS CO.

Address: P.O. Box 1492 EL PASO, TX 79978
number street city state zip

Collector's Name Forrest R. Smith Telephone: (915) 543-2600
signature

Date Sampled JUNE 11, 1981 Time Sampled 1320 hours ____

Type of Process Producing Waste NATURAL GAS PROCESSING

Field Information TEMP 39°C, 3 PINTS OF SLUDGE COLLECTED FOR CONFIRMATION TESTING FOR Cr and IGNITABILITY TESTING, ONE PINT PRESERVED WITH HNO3, POND THICK WITH OIL

Sample Receiver:

1. _____
name and address of organization receiving sample

2. _____

3. _____

Chain of Possession:

	signature	title	inclusive dates
1.	Forrest R. Smith	Envir. Engr.	11/6/81 – 12/6/81
2.	Roy Sparks	Haz. Waste Cust.	12/6/81 – 12/6/81
3.	_____	_____	_____

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

Collector's Sample No. 81-5

CHAIN OF CUSTODY RECORD

Location of Sampling: ___ Producer ___ Hauler ✓ Disposal Site

___ Other: _____
Sample

Shipper Name: EL PASO NATURAL GAS COMPANY

Address: P.O. Box 1492 (number) EL PASO (street) TEXAS (city) 79978 (state) (zip)

Collector's Name Forrest N. Spruce (signature) Telephone: (915) 543-6138

Date Sampled APRIL 28, 1981 Time Sampled 1330 hours _____

Type of Process Producing Waste NATURAL GAS PROCESSING

Field Information POND NO. 5 LOCATED AT EPNG JAL NO. 3 PLANT, JAL, N.M. METHOD USED FOR SAMPLE IS AUGER.

Sample Receiver: Southern Division Laboratory, El Paso Natural Gas Co.

1. P O Box 1492, El Paso, Tx 79978
name and address of organization receiving sample

2. _____

3. _____

Chain of Possession:

1.	Forrest N. Spruce (signature)	Env. Eng. (title)	Apr 28 - May 1, 1981 (inclusive dates)
2.	Carl T. Murray (signature)	Chief Div. Chemist (title)	5-1-81 (inclusive dates)
3.	_____ (signature)	_____ (title)	_____ (inclusive dates)

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

No of Samples
1 - Glass HNO_3
1 - plastic H_2SO_4

Collector's Sample No. 81-6

CHAIN OF CUSTODY RECORD

Location of Sampling: ___ Producer ___ Hauler ✓ Disposal Site

___ Other: _____

Shipper Name: EL PASO NATURAL GAS Co.

Address: P.O. Box 1492 EL PASO, TX 79978
number street city state zip

Collector's Name Forrest N. Spruce Telephone: 915 543-6138
signature

Date Sampled April 28, 1981 Time Sampled 1345 hours _____

Type of Process Producing Waste Natural Gas Processing

Field Information PH 7.34, Temp 20°C Collected Sample using a bucket and dragging it across the bottom of Pond No. 2 at EPNG's JAL No. 3 Plant, JAL, N.M.

Sample Receiver: Southern Division Laboratory, El Paso Natural Gas Co, P.O. Box 1492, El Paso, TX 79978

1. _____
name and address of organization receiving sample

2. _____

3. _____

Chain of Possession:

	signature	title	inclusive dates
1.	Forrest N. Spruce	Env. Eng	Apr 28 - May 1, 1981
2.	Carl L. Downey	Chief Div Chemist	5-1-81
3.			

EL PASO NATURAL GAS COMPANY
ENVIRONMENTAL AFFAIRS DEPARTMENT
EL PASO, TEXAS
(915) 543-2600

No. 16 Samples

1 - glass HNO_3
1 - plastic H_2SO_4
2

Collector's Sample No. 81-8

CHAIN OF CUSTODY RECORD

Location of Sampling: ___ Producer ___ Hauler ✓ Disposal Site

___ Other: _____

Shipper Name: El Paso Natural Gas Company (Sample)

Address: P.O. Box 1492 (number, street) El Paso (city) TX (state) 79978 (zip)

Collector's Name Forrest R. Spruce (signature) Telephone: (915) 543-6138

Date Sampled April 28, 1981 Time Sampled 1500 hours _____

Type of Process Producing Waste Natural Gas Processing

Field Information Sample Collected using Dredge and Bucket from Pond No. 1 at JAL No. 3 Plant at JAL, New Mexico Temp 27°C, pH 6.34

Sample Receiver: Southern Division Laboratory, El Paso Natural Gas Co., P.O. Box 1492, El Paso, TX 79978

1. _____ (name and address of organization receiving sample)

2. _____

3. _____

Chain of Possession:

	signature	title	inclusive dates
1.	Forrest R. Spruce	Env. Eng.	Apr 28 - May 1, 1981
2.	Carl T. Murray	Chief Div. Chemist	5-1-81
3.	_____	_____	_____

Enclosure 2

RESULTS OF ORGANIC
CONSTITUENT TESTING OF
WASTEWATER POND SLUDGES

Results of Organic Constituent Testing
of Wastewater Pond Sludges

Sample	Plant	Pond No.	Unit	Benzene	PCB [1]	Toluene	Carbon Tetrachloride	EDC	1,1-DCE	PCE	TCE	TOC	Total Phenol	Sodium Pentachlorophenate
82-092	Jal No. 4	6	µg/g	<1.0	<0.1	<1.0	<0.07	<0.06	<0.04	<0.07	<0.05	0.19%wt	<0.25	
82-093	Jal No. 4	7	µg/g	<1.0	<0.1	<1.0	<0.07	<0.06	<0.04	<0.07	<0.05	0.22%wt	<0.25	
82-094	Jal No. 4	4	µg/g	<1.0	<0.1	<1.0	<0.07	<0.06	<0.04	<0.07	<0.05	0.19%wt	<0.25	
82-095	Jal No. 4	5	µg/g	<1.0	<0.1	<1.0	<0.07	<0.06	<0.04	<0.07	<0.05	0.27%wt	1.76	
82-096	Jal No. 4	7	µg/g	<1.0	<0.1	<1.0	<0.07	<0.06	<0.04	<0.07	<0.05	0.14%wt	<0.25	
82-097 [3]	Jal No. 4	8	µg/g	<1.0	<0.1	<1.79	<0.07	<0.06	<0.04	<0.07	<0.05	0.26%wt	<0.35	
82-098 [3]	Jal No. 4	8	µg/L	0.11	<5.0 [2]	<0.11	<0.007	<0.006	<0.004	<0.007	0.49	67 mg/L	91.3	<1.6
82-099 [3]	Jal No. 4	3	µg/g	378.4	0.16 [2]	15.70	<0.07	<0.06	<0.04	1.48	<0.05	7.98%wt	4.22	
82-100 [3]	Jal No. 4	3	µg/L	0.09	<5.0	<0.1	<0.007	<0.006	<0.004	<0.12	0.96	1830 mg/L	365	<1.6
82-101	Jal No. 4	14	µg/g	65.8	<0.1 [2]	<3.1	<0.07	<0.06	<0.04	<0.07	<0.05	6.53%wt	1.06	
82-104 [3]	Jal No. 3	A	µg/g	<1.0	3.6 [2]	<1.0	<0.07	<0.06	<0.04	<0.07	<0.05	25.26%wt	1.75	
82-106	Jal No. 3	B	µg/L	0.25	<5.0 [2]	<1.0	<0.007	<0.006	<0.004	<0.007	0.82	2050 mg/L	<0.91	
82-107	Jal No. 3	B	µg/g	260.7	4.1 [2]	7.4	<0.07	<0.06	<0.04	<0.44	<0.05	3.96%wt	<0.25	
OCD Standard	EPA Leachate		µg/L	1,000	100	1,500,000	100	2,000	500	2,000	10,000	-	5	
	Total Extraction [6]		µg/g	20	?	30,000	20	40	10	40	200	-		
Detection Limit	EPA Leachate [4]		µg/L [4]	0.1	5.0	0.1	0.007	0.006	0.004	0.007	0.005	1 mg/L	50	
	Total Extraction [5]		µg/g [5]	1.0	0.1	1.0	0.07	0.06	0.04	0.07	0.05	10µg/g	0.25	

1/ Analysis of PCB's included Arochlor Nos. 1016, 1221, 1232, 1242, 1248, 1254 and 1260.
2/ Value indicated is for Arochlor 1254 with the remaining Arochlor species <0.1 mg/L.
3/ One hundred (100) grams of the sludge were leached with 2 liters of deionized water in accordance with EPA-EP Toxicity Test Method.
4/ These limits are the lowest recognizable levels of each parameters leached in the water. They are determined by Purge/Trap GC/ED and GC/FID.
5/ The detection limits are based on the amount of individual parameter that can be detected per unit weight of dry sludge sample. These limits are determined by GC/EC and GC/FID.
6/ There is no standard established for constituents obtained using a total extraction method from sludge. The calculated values only indicate a concentration at which further testing using EPA leachate extraction should be accomplished.

Enclosure 3

RESULTS OF IGNITABILITY TESTING OF SLUDGE
COLLECTED FROM POND NO. 1 IN SEPTEMBER 1983

Consulting Geotechnical, Material and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner Consultants, Inc.
10526 Gulfdale/P.O. Box 32217/San Antonio, Texas 78216
(512) 342-4216

Carl F. Raba, Jr., Ph.D., P.E.
Richard W. Kistner, P.E.
Edward G. Miller, R.E.G.
Robert L. Smith, Ph.D.
Donald T. Fetzer
William T. Johnson, Jr., D.Eng., P.E.
Carlton R. Williams, P.E.
Garland L. Burch, P.E.
Richard W. Bullion, P.E.
E.A. Palaniappan, Ph.D., P.E.
Francis Y. Huang, Ph.D.
Mark A. Rugen
David L. Pickett, P.E.

Project No. 683-088
September 22, 1983

El Paso Natural Gas Company
Environmental Affairs Department
P.O. Box 1492
El Paso, Texas 79978

Attn: Mr. Kenneth E. Beasley

Re: Soil Sample Submitted by Mr. Vernon D. Rheay
from Jal, New Mexico (R-KCI 6-2343)

Gentlemen:

Reported herein is the analysis results for ignitiability for the above mentioned soil sample received in our Analytical Chemistry Laboratory on September 16, 1983. The sample was in solid granule form, black in color and contained in a glass container. We analyzed the chemical characteristics of the sample in accordance with the requirements in 40 CFR Part 261 and procedures documented in the EPA publication entitled "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods", SW-846, 1980.

Our findings revealed that this sample did not ignite through either friction or the contacting with water. No spontaneous chemical change of the sample was observed when the sample was exposed to the normal laboratory environment and this sample could not be ignited with an open flame source being applied.

We appreciate the opportunity to be of technical assistance to you on this project. If you have any questions or comments, please give us a call.

Very truly yours,

RABA-KISTNER CONSULTANTS, INC.

Francis Y. Huang

Francis Y. Huang, Ph.D., CPC
Manager, Chemical Research
and Development

FYH/ps

Enclosure 4

COMMUNICATIONS BETWEEN
D. BIGBIE AND J. RAMEY

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

July 6, 1983

Mr. Don Bigbie
El Paso Natural Gas Company
Box 1492
El Paso, Texas 79978

Dear Mr. Bigbie:

Pursuant to your letter of July 5, 1983, concerning status of pits, the Division has no objection to your proposal to mix sand with the oily sludge in pits to speed up the drying process.

Oscar Simpson mentioned that EPA had contacted him by telephone advising that you were approved to close all pits.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

cc: Oscar Simpson

cc
D. Reigner
D J M
K W C
J. Cunningham
B. J. Matthews
R. F. Cook 7/14/83

El Paso NATURAL GAS COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

July 5, 1983

Mr. Joe Ramey, Director
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: El Paso Natural Gas Company's Lea County Plants
Pond Closure Status Report

Dear Mr. Ramey:

El Paso Natural Gas Company continued dewatering efforts at its Lea County Plants during the month of June. The status of the ponds as of July 1, 1983 is summarized below:

Jal No. 1 Plant

All ponds at this location are completely empty except for the lined pond, Pond No. 2, which is approximately 75% full. The water from this pond will be used for secondary recovery operations.

Jal No. 3 Plant

There has been no change in the status of ponds 1 and 2 at this location since last month's report. The steel tanks which replaced ponds 3 and 4 were placed into operation during the past month and both ponds were completely dewatered as of July 1.

Jal No. 4 Plant

The engine on the pump which was being used to pump the sewage effluent from Pond No. 1 into the wastewater system is still under repair. The fluid level in the pond was slightly lower than that reported last month, due primarily to evaporation.

Eunice Plant

Pond No. 5 had only a very slight amount of liquid on the bottom surface and should be completely dry within a few days.

All sections of Pond No. 4 are empty except for the northwest section, which appears to contain approximately 6" of liquid, and the northern section, which has a small amount of liquid remaining in the deepest part (east end).

Monument Plant

All ponds at this location are either completely dry or have been pumped to the lowest possible levels with conventional pumping methods.

All ponds at El Paso's Lea County Plants, except for Pond No. 1 at the Jal No. 4 Plant, have been dewatered to the greatest degree possible by pumping and are now in a "drying" stage. The only means to expedite further drying would be to mix sand with the remaining oily sludge in some ponds and spread the mixture in a thin layer over the bottom surface of the ponds. We would propose, with the NMOCD's approval, to proceed with this effort.

If you should require further information concerning the subject of this report, please notify me.

Sincerely,

EL PASO NATURAL GAS COMPANY

D. N. Bigbie

D. N. Bigbie
Assistant Division Superintendent

cm

Distribution:

Messrs. B. J. Matthews
R. F. Cook
H. E. Reiquam
D. J. Mobbs
J. W. Cunningham
J. F. Eichelmann, Jr.
file

El Paso
Natural Gas Company

TWO PETROLEUM CENTER / SUITE 200
NORTH "A" AT WADLEY
MIDLAND, TEXAS 79701

PHONE: 915-684-5701

May 31, 1983

Mr. Joe Ramey, Director
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: El Paso Natural Gas Company's
Lea County Plants
Pond Closure Status Report

Dear Mr. Ramey:

The status of the subject wastewater ponds as of May 26, 1983 is as follows:

Jal No. 1 Plant

a) Ponds Numbers 1 and 3 are dry (free of any visible liquid). Pond Number 2, the lined pond, contains approximately 3 to 4 feet of liquid which will be used for secondary recovery operations.

b) Pond Number 9 is dry, and the liquid level in Pond Number 8 is down approximately 6 feet from the previous level.

c) As reported last month, Ponds Numbers 4, 5 and 7 are dry.

Jal No. 2 Plant

a) As reported last month, the Jal 2 site ponds were closed under the verbal authorization given by Mr. Simpson at the April 7, 1983 meeting. This plant will be deleted from future reports.

Jal No. 3 Plant

a) Sandy loam soil has been mixed with the heavy sludge in Pond Number 2 and the mixture will be spread over the bottom of the pond to expedite drying. The same procedure will be followed for Pond Number 1, although no sand had been added as of May 26th.

Jal No. 3 Plant - Cont'd

b) Steel tanks have been installed and partially backfilled at the Ponds Numbers 3 and 4 locations. Remaining work and tie-ins to the wastewater drain system will be completed by June 15, 1983, at which time the water in these two ponds will be pumped into the steel tanks and use of the ponds will be discontinued.

c) As reported last month, Ponds Numbers 5 and 6 were closed under the verbal authorization given by Mr. Simpson at the April 7, 1983 meeting. Reference to these ponds will be deleted from future reports.

Jal No. 4 Plant

a) The engine on the pump which was being used to pump the sewage effluent from Pond Number 1 into the wastewater system burned up and is presently being overhauled. The level of the effluent in the pond is approximately 1 to 2 feet below the level when we visited the site with EPA and EID personnel on May 3, 1983.

b) All other ponds at this site are dry and awaiting closure. In accordance with your verbal instructions of May 3, 1983, no further work will be done on closure of any ponds until written authorization is received from the NMOCD. We would request that requirements for closure be defined as soon as possible, however, so the "depression" type ponds (Numbers 4, 5, 6 and 7) at Jal No. 4 can be closed to prevent additional collection of water during the forthcoming summer rainy season.

Eunice Plant

a) The level of liquid (sewage effluent) in Pond Number 5 is down approximately 5 feet from previous levels and is evaporating rapidly.

b) Dewatering efforts have been underway at Pond Number 4 during May and only the 3 west-end containment sections and the northeast containment section have fluid remaining in them. The levels in the west-end containments are approximately 2 feet below last month's levels and appear to be near the bottom of the ponds.

c) All other ponds at this location are empty.

Monument Plant

a) Pumping was in progress on May 26 on Pond Number 1. The east side of the pond was almost empty at the time.

b) Ponds Numbers 2, 3 and 4 had been pumped to the lowest possible levels and each had only a small amount of liquid in the bottom.

c) Ponds Numbers 5 and 6 appear completely dry.

If you should have any questions concerning any of the information in this report, please call.

Sincerely,

EL PASO NATURAL GAS COMPANY

D. N. Bigbie

D. N. Bigbie
Assistant Division Superintendent

DNB:dc

CC: B. J. Matthews
R. F. Cook
H. Reiquam
J. W. Cronenberg
D. J. Mobbs

El Paso Natural Gas Company

MEMORANDUM

TO: Larry Anderson

DATE: January 3, 1983

FROM: Gregory Kardos

PLACE: Permian Division Lab - Jal

RE: CHROMIUM ANALYSES ON COOLING TOWER SLUDGE EXTRACTS FROM NEW MEXICO

Chromium Analyses were run by a Direct Aspiration Atomic Absorption on the following Cooling Tower Sludge Extracts which were digested with Nitric Acid. The results are as follows:

Cooling Tower Sludge Extract	mg/l Cr
Jal #1 Refrigeration	0.12
Jal #1 Gasoline	0.10
Jal #1 Treating Plant	Less than 0.10
Jal #1 Compressor	Less than 0.10
Jal #3 Gasoline	Less than 0.10
Jal #3 "A" Tower	Less than 0.10
Monument	0.21
Eunice #1 Field	0.12
Eunice #2 Field	0.38
Eunice #3 Field	0.12
Eunice Mainline	0.42
Eunice 1&2 Field	0.10
Eunice Treating Plant	0.49

Gregory C Kardos

Gregory C Kardos,
Chemist

GCK/sf
cc: R. T. Wright
File

FM 10-000

Report of Chemical Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company
Environmental Affairs Department
P.O. Box 1492
El Paso, Texas 79978

Attn: Mr. Kenneth E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-55, Wastewater, R-KCI 6-2295, 2296, 2299

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results (mg/L)	Miscellaneous
Cyanide	EPA 335.2[1]	0.038	
Fluoride	EPA 340.2	7.75	
Nitrate-N	EPA 352.1	1.17	
COD	HACH	1,380	
TDS	EPA 160.1	5,540	Sp. Cond. (µmho/cm) 8,900
Sulfate	EPA 375.3	1,140	
Chloride	EPA 325.3	2,340	
Phenolics	EPA 420.1	0.326	

Special Comments: 1 of 4 pages

1. "Methods for Chemical Analysis of Water and Waste", EPA 600/4-79-020, March 1979.
2. "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulation", Federal Register, Vol. 44, Dec. 1979.
3. "Standard Methods for the Examination of Water and Wastewater", 15th Edition, 1980.

Report of Chemical Analysis

Consulting Geotechn[illegible] Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company

Attn: Mr. Kenneth E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-55, Wastewater, R-KCI 6-2295, 2296, 2299

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results	Miscellaneous
Benzene	EPA 624[2]	0.30	
Toluene	EPA 624	0.56	
CCl_4	EPA 624	<0.01	
EDC	EPA 624	<0.01	
1,1 - DCE	EPA 624	<0.01	
PCE	EPA 624	<0.01	
TCE	EPA 624	<0.01	
Alumium	EPA 202.2	0.32	

Special Comments: 2 of 4 pages

Report of Chemical Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company

Attn: Mr. Kenneth, E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-55, Wastewater, R-KCI 6-2295, 2296, 2299

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results (mg/L)	Miscellaneous
Arsenic	EPA 206.3	0.077	
Barium	EPA 208.2	0.54	
Boron	SM 404 B[3]	3.4	
Cadmium	EPA 213.2	0.0022	
Chromium	EPA 218.2	0.085	
Cobalt	EPA 219.2	0.033	
Copper	EPA 220.1	0.15	
Iron	EPA 236.1	6.39	

Special Comments: 3 of 4 pages

Report of Chemical Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company

Attn: Mr. Kenneth E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-55, Wastewater, R-KCI 6-2295, 2296, 2299

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results (mg/L)	Miscellaneous
Lead	EPA 239.2	0.022	
Manganese	EPA 243.2	0.15	
Mercury	EPA 245.1	0.002	
Molybdenum	EPA 246.2	0.13	
Nickel	EPA 249.2	0.055	
Selenium	EPA 270.3	<0.01	
Silver	EPA 272.2	0.0099	
Zinc	EPA 289.1	3.49	

Special Comments: 4 of 4 pages

Raba-Kistner Consultants, Inc.
by Francis Y. Huang
Francis Y. Huang, Ph.D., CPC

Report of Chemical Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company
Environmental Affairs Department
P.O. Box 1492
El Paso, Texas 79978

Attn: Mr. Kenneth E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-56, Wastewater, R-KCI 6-2297, 2298, 2300

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results (mg/L)	Miscellaneous
Cyanide	EPA 335.2[1]	0.005	
Fluoride	EPA 340.2	6.15	
Nitrate-N	EPA 352.1	0.28	
COD	HACH	545	
TDS	EPA 160.1	5,280	Sp. Cond. (µmho/cm) 9,400
Sulfate	EPA 375.3	1,070	
Chloride	EPA 325.3	2,190	
Phenolics	EPA 420.1	<0.005	

Special Comments: 1 of 4 pages

1. "Methods for Chemical Analysis of Water and Waste", EPA 600/4-79-020, March 1979.
2. "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulation", Federal Register, Vol. 44, Dec. 1979.
3. "Standard Methods for the Examination of Water and Wastewater", 15th Edition, 1980.

Report of Chemical Analysis

Consulting Geotechn[illegible], Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company

Attn: Mr. Kenneth E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-56, Wastewater, R-KCI 6-2297, 2298, 2300

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results (mg/L)	Miscellaneous
Benzene	EPA 624[2]	<0.01	
Toluene	EPA 624	<0.01	
CCl_4	EPA 624	<0.01	
EDC	EPA 624	<0.01	
1,1 - DCE	EPA 624	0.15	
PCE	EPA 624	<0.01	
TCE	EPA 624	<0.01	
Alumium	EPA 202.2	0.32	

Special Comments: 2 of 4 pages

Report of Chemical Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company

Attn: Mr. Kenneth, E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-56, Wastewater, R-KCI 6-2297, 2298, 2300

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results (mg/L)	Miscellaneous
Arsenic	EPA 206.3	0.092	
Barium	EPA 208.2	0.34	
Boron	SM 404 B^3	<0.5	
Cadmium	EPA 213.2	0.004	
Chromium	EPA 218.2	0.05	
Cobalt	EPA 219.2	0.04	
Copper	EPA 220.1	0.12	
Iron	EPA 236.1	2.77	

Special Comments: 3 of 4 pages

Report of Chemical Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.
10526 Gulfdale/P.O. Box 32217
San Antonio, Texas 78216
(512) 342-4216

To: El Paso Natural Gas Company

Attn: Mr. Kenneth E. Beasley

Project No: 683-088
Date Received: 9-2-83
Date Reported: 9-14-83
Submitted By: Mr. Rheay

Sample Description/Code: J83-56, Wastewater, R-KCI 6-2297, 2298, 2300

SUMMARY OF ANALYSIS

Determination	Analytical Method	Results (mg/L)	Miscellaneous
Lead	EPA 239.2	0.006	
Manganese	EPA 243.2	0.08	
Mercury	EPA 245.1	<0.002	
Molybdenum	EPA 246.2	0.12	
Nickel	EPA 249.2	0.05	
Selenium	EPA 270.3	<0.01	
Silver	EPA 272.2	0.0051	
Zinc	EPA 289.1	3.19	

Special Comments: 4 of 4 pages

Raba-Kistner Consultants, Inc.
by Francis Y. Huang
Francis Y. Huang, Ph.D., CPC

U. S. Environmental Protection Agency Region VI
1201 Elm Street
First International Bldg.
Dallas, TX 75720

Attention: 6AEP

NMT, 360.010.193

Subject: § 3010 Notification
El Paso Natural Gas Company
Jal No. 3 Field Plant

Gentlemen:

This is to advise that the above referenced plant does not presently conduct any hazardous waste activity. In spite of that, El Paso desires that an identification number be assigned to the facility so that it will be available should the need for an EPA identification number arise at some future time. This method of requesting an EPA identification number for non-hazardous waste activity is purusant to verbal recommendations from your office, eventhough the regulations do not explicitly provide for the procedure. A formal request for a policy decision on notification of non-hazardouds waste activity in order to obtain an EPA identification number has been submitted to your office.

Very truly yours,

E. F. Smythe

E. F. Smythe, P.E.
Chief, Permits & Inventories
Environmental Affairs

EFS:gb

Use print or type with ELITE type (12 characters/inch) in the unshaded areas only.

Form Approved OMB No. 158 S79016
GSA No. 0246-EPA-01

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

INSTALLATION'S EPA I.D. NO.	
I. NAME OF INSTALLATION	
II. INSTALLATION MAILING ADDRESS	PLEASE PLACE LABEL IN THIS SPACE
III. LOCATION OF INSTALLATION	

INSTRUCTIONS: If you received a preprinted label, affix it in the space at left. If any of the information on the label is incorrect, draw a line through it and supply the correct information in the appropriate section below. If the label is complete and correct, leave items I, II, and III below blank. If you did not receive a preprinted label, complete all items. "Installation" means a single site where hazardous waste is generated, treated, stored and/or disposed of, or a transporter's principal place of business. Please refer to the INSTRUCTIONS FOR FILING NOTIFICATION before completing this form. The information requested herein is required by law *(Section 3010 of the Resource Conservation and Recovery Act).*

DETACH

FOR OFFICIAL USE ONLY

COMMENTS

INSTALLATION'S EPA I.D. NUMBER	APPROVED	DATE RECEIVED (yr., mo., & day)
F 1		

I. NAME OF INSTALLATION

JAL NO. 3 FIELD PLANT

II. INSTALLATION MAILING ADDRESS

STREET OR P.O. BOX

3 PO BOX 1492

CITY OR TOWN	ST.	ZIP CODE
4 EL PASO	TX	79978

III. LOCATION OF INSTALLATION

STREET OR ROUTE NUMBER

5 5 MI NO OF JAL AND 2 MI EAST

CITY OR TOWN	ST.	ZIP CODE
6 OF STATE HWY NO 18	NM	88252

IV. INSTALLATION CONTACT

NAME AND TITLE (last, first, & job title)	PHONE NO. (area code & no.)
12 SMYTHE E F CHIEF-PERMITS	915-543-2668

V. OWNERSHIP

A. NAME OF INSTALLATION'S LEGAL OWNER

18 EL PASO NATURAL GAS COMPANY

B. TYPE OF OWNERSHIP (enter the appropriate letter into box)

F = FEDERAL
M = NON-FEDERAL

M

VI. TYPE OF HAZARDOUS WASTE ACTIVITY (enter "X" in the appropriate box(es))

(X)

- [X] A. GENERATION
- [ ] B. TRANSPORTATION (complete item VII)
- [ ] C. TREAT/STORE/DISPOSE
- [ ] D. UNDERGROUND INJECTION

VII. MODE OF TRANSPORTATION (transporters only - enter "X" in the appropriate box(es))

- [ ] A. AIR
- [ ] B. RAIL
- [ ] C. HIGHWAY
- [ ] D. WATER
- [ ] E. OTHER (specify):

VIII. FIRST OR SUBSEQUENT NOTIFICATION

Mark "X" in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your installation's EPA I.D. Number in the space provided below.

(X)

- [X] A. FIRST NOTIFICATION
- [ ] B. SUBSEQUENT NOTIFICATION (complete item C)

C. INSTALLATION'S EPA I.D. NO.

IX. DESCRIPTION OF HAZARDOUS WASTES

Please go to the reverse of this form and provide the requested information

Use print or type with ELITE type (12 characters/inch) in the unshaded areas only.

Form Approved OMB No. 158-S79016
GSA No. 0246-EPA-01

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

INSTALLATION'S EPA I.D. NO.

I. NAME OF INSTALLATION

II. INSTALLATION MAILING ADDRESS

III. LOCATION OF INSTALLATION

PLEASE PLACE LABEL IN THIS SPACE

INSTRUCTIONS: If you received a preprinted label, affix it in the space at left. If any of the information on the label is incorrect, draw a line through it and supply the correct information in the appropriate section below. If the label is complete and correct, leave items I, II, and III below blank. If you did not receive a preprinted label, complete all items. "Installation" means a single site where hazardous waste is generated, treated, stored and/or disposed of, or a transporter's principal place of business. Please refer to the INSTRUCTIONS FOR FILING NOTIFICATION before completing this form. The information requested herein is required by law *(Section 3010 of the Resource Conservation and Recovery Act).*

DETACH A

FOR OFFICIAL USE ONLY

COMMENTS

INSTALLATION'S EPA I.D. NUMBER | APPROVED | DATE RECEIVED (yr., mo., & day)

F | F/A | C | 1

I. NAME OF INSTALLATION

JAL NO. 3 FIELD PLANT

II. INSTALLATION MAILING ADDRESS

STREET OR P.O. BOX

3 PO BOX 1492

CITY OR TOWN | ST. | ZIP CODE

4 EL PASO | TX | 79978

III. LOCATION OF INSTALLATION

STREET OR ROUTE NUMBER

5 5 MI NO OF JAL AND 2 MI EAST

CITY OR TOWN | ST. | ZIP CODE

6 OF STATE HWY NO 18 | NM | 88252

IV. INSTALLATION CONTACT

NAME AND TITLE (last, first, & job title) | PHONE NO. (area code & no.)

7 SMYTHE E F CHIEF-PERMITS | 915-543-2468

V. OWNERSHIP

A. NAME OF INSTALLATION'S LEGAL OWNER

8 EL PASO NATURAL GAS COMPANY

B. TYPE OF OWNERSHIP (enter the appropriate letter into box)

F = FEDERAL
M = NON-FEDERAL

M

VI. TYPE OF HAZARDOUS WASTE ACTIVITY (enter "X" in the appropriate box(es))

(X)

- [X] A. GENERATION
- [ ] B. TRANSPORTATION (complete item VII)
- [ ] C. TREAT/STORE/DISPOSE
- [ ] D. UNDERGROUND INJECTION

VII. MODE OF TRANSPORTATION (transporters only - enter "X" in the appropriate box(es))

- [ ] A. AIR
- [ ] B. RAIL
- [ ] C. HIGHWAY
- [ ] D. WATER
- [ ] E. OTHER (specify):

VIII. FIRST OR SUBSEQUENT NOTIFICATION

Mark "X" in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your installation's EPA I.D. Number in the space provided below.

(X)

- [X] A. FIRST NOTIFICATION
- [ ] B. SUBSEQUENT NOTIFICATION (complete item C)

C. INSTALLATION'S EPA I.D. NO.

IX. DESCRIPTION OF HAZARDOUS WASTES

Please go to the reverse of this form and provide the requested information.

I.D. – FOR OFFICIAL USE ONLY

W

IX. DESCRIPTION OF HAZARDOUS WASTES *(continued from front)*

A. HAZARDOUS WASTES FROM NON–SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.31 for each listed hazardous waste from non–specific sources your installation handles. Use additional sheets if necessary.

	1	2	3	4	5	6
(X)						
	7	8	9	10	11	12

B. HAZARDOUS WASTES FROM SPECIFIC SOURCES. Enter the four–digit number from 40 CFR Part 261.32 for each listed hazardous waste from specific industrial sources your installation handles. Use additional sheets if necessary.

	13	14	15	16	17	18
(X)						
	19	20	21	22	23	24
	25	26	27	28	29	30

C. COMMERCIAL CHEMICAL PRODUCT HAZARDOUS WASTES. Enter the four–digit number from 40 CFR Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

	31	32	33	34	35	36
(X)						
	37	38	39	40	41	42
	43	44	45	46	47	48

D. LISTED INFECTIOUS WASTES. Enter the four–digit number from 40 CFR Part 261.34 for each listed hazardous waste from hospitals, veterinary hospitals, medical and research laboratories your installation handles. Use additional sheets if necessary.

	49	50	51	52	53	54
(X)						

E. CHARACTERISTICS OF NON–LISTED HAZARDOUS WASTES. Mark "X" in the boxes corresponding to the characteristics of non–listed hazardous wastes your installation handles. *(See 40 CFR Parts 261.21 – 261.24.)*

(X) ☐ 1. IGNITABLE (D001) ☐ 2. CORROSIVE (D002) ☐ 3. REACTIVE (D003) ☐ 4. TOXIC (D000)

X. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE	NAME & OFFICIAL TITLE *(type or print)*	DATE SIGNED
Billy J. Matthews	Billy J. MATTHEWS VICE PRESIDENT	8-12-80

EPA Form 8700-12 (6-80) REVERSE

(X) See Attached letter

MONTGOMERY & ANDREWS
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS AT LAW

J. O. Seth (1883-1963)
Frank Andrews (1914-1981)

A. K. Montgomery
Seth D. Montgomery
Frank Andrews III
Victor R. Ortega
John E. Conway
Jack M. Morgan
Jeffrey R. Brennen
John B. Pound
Gary R. Kilpatric
Thomas W. Olson
William C. Madison
Walter J. Melendres
Bruce L. Herr
Michael W. Brennan
Robert P. Worcester
John B. Draper

Nancy M. Anderson
Rudolph B. Sacks, Jr.
R. Thomas Dailey
Janet McL. McKay
Edward F. Mitchell III
Carrie L. Parker
Maureen A. Sanders
Mark F. Sheridan
Joseph E. Earnest
Phyllis A. Dow
Wm. Alan Wright
Brad V. Coryell
Candice M. Will
Wesley B. Howard, Jr.
Thurman W. Moore III
Jack L. Fortner

REPLY TO SANTA FE OFFICE

May 25, 1983

SANTA FE OFFICE
325 Paseo de Peralta
Post Office Box 2307
Santa Fe, New Mexico 87504-2307

Telephone (505) 982-3873
Telecopy (505) 982-4289

ALBUQUERQUE OFFICE
Suite 325
500 Copper Avenue, N.W.
Post Office Box 1396
Albuquerque, New Mexico 87103-1396

Telephone (505) 242-9677

FARMINGTON OFFICE
Suite 325
First National Bank of Farmington
One First Place
Post Office Box 2700
Farmington, New Mexico 87499-2700

Telephone (505) 327-5074

Robert H. Lovell
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Re: Validity of Discharge Plan Approvals

Dear Bob:

As you know, there has been some concern whether the Oil Conservation Division has authority to approve discharge plans under the constituent agency status of the Oil Conservation Commission. I raised this question with the general counsel of the OCD, Perry Pearce. The result of this inquiry is the enclosed resolution of the Oil Conservation Commission ratifying previous approvals by the Division.

I understand from Perry that in the future all discharge plans will be formally approved by the Oil Conservation Commission.

Sincerely yours,

John B. Draper

JBD:dr
cc: D. A. Larson (w/enclosure)
J. Eichelmann (w/enclosure)

MINUTES OF THE MEETING
OF THE OIL CONSERVATION COMMISSION
HELD ON MAY 12, 1983

The Oil Conservation Commission met at 9:15 a.m. on May 12, 1983, in the Oil Conservation Commission Conference Room, State Land Office Building, Santa Fe, New Mexico.

PRESENT: ED KELLEY, Member
JOE D. RAMEY, Member

The following resolution was read:

RESOLUTION

WHEREAS The New Mexico Oil Conservation Commission is named by the New Mexico Water Quality Act, §74-6-1 et. seq. NMSA 1978, as a constituent agency; and

WHEREAS the reorganization of New Mexico State Government in 1978 transferred responsiblities for regulation of the oil and gas producing industry to the Oil Conservation Division of the Energy and Minerals Department; and

WHEREAS Section 70-2-6 NMSA 1978 assigns jurisdiction and authority over oil and gas operations to the Oil Conservation Division; and

WHEREAS Section 70-2-12(15) assigns the Oil Conservation Division the specific responsibility for regulating the disposition of water produced in conjunction with oil and gas operations in such a manner as to afford reasonable protection of fresh water supplies; and

WHEREAS the staff of the Oil Conservation Division of the Energy and Minerals Department has exercised functional responsibility for water quality matters assigned to the Commission because of its constituent agency status; and

WHEREAS all actions relating to Commission responsibilities have been performed by the Division under the direct supervision of a member of the Commission who is Director of the Oil Conservation Division; and

WHEREAS the Director of the Division has after extended review and consideration approved the following discharge plans:

Refinery or Gasoline Plants

GWR-1	Plateau Inc.
GWR-2	Phillips Petroleum
GWR-3	Getty Oil (Eunice 1)
GWR-4	Getty Oil (Eunice 2)
GWR-5	Warren Petroleum (Gulf)
GWR-6	El Paso Natural Gas (Washington Pla
GWR-7	El Paso Natural Gas (Jal 4)

Brine Extraction Facilities

GWB-1	Wasserhund, Inc.
GWB-2	Brunson & McKnight
GWB-3	Conoco, Inc.
GWB-4, 5, 6	Permian Brine Sales, Inc.
GWB-7	P & S Brine Sales
GWB-8	Salado Brine Sales
GWB-9, 10, 11, 12	Unichem International
GWB-13	Sims-McCasland Water Sales

WHEREAS in each of these cases there is a possibility that discharges are made which are not exclusively within the jurisdiction of the Oil Conservation Division under the terms of the Oil and Gas Act, Section 70-2-1 et. seq. NMSA, but instead are within the jurisdiction of the Oil Conservation Commission as a constituent agency of the Water Quality Act, Section 74-6-1 et. seq. NMSA, 1978; and

NOW THEREFORE, the Oil Conservation Commission meeting after proper notice to the public hereby adopts and ratifies the action taken by the Division in approving each of these plans on the dates such approval was given.

Mr. Kelley made a motion to elect Mr. Ramey as Chairman and Secretary of the Commission. The motion was seconded and it carried unanimously.

Mr. Ramey made a motion that the Oil Conservation Commission adopt the notice requirements set forth in the Oil and Gas Act as the appropriate notice procedures for all Oil Conservation Commission and Division hearings and meetings. The motion was seconded and passed unanimously.

The meeting was adjourned at 9:30 a.m.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOE D. RAMEY, Chairman and Secretary

SUBJECT: SALT WATER DISPOSAL WELL ORDER NO. SWD-231

THE APPLICATION OF EL PASO NATURAL GAS COMPANY FOR A SALT WATER DISPOSAL WELL

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701 (C), El Paso Natural Gas Company made application to the New Mexico Oil Conservation Division on October 10, 1980, for permission to complete for salt water disposal its Woolworth Estate - SWD No. 1E located in Unit E of Section 33, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico.

The Division Director finds:

(1) That application has been duly filed under the provisions of Rule 701 (C) of the Division Rules and Regulations;

(2) That satisfactory information has been provided that all offset operators and surface owners have been duly notified; and

(3) That the applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 (C) will be met.

(4) That no objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED:

That the applicant herein, El Paso Natural Gas Company, is hereby authorized to complete its Woolworth Estate - SWD No. 1E located in Unit E of Section 33, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico, in such a manner as to permit the injection of salt water for disposal purposes into the San Andres formation at approximately 4700 feet to approximately 4800 feet through 2 7/8" inch plastic lined tubing set in a packer located at approximately 4700 feet.

IT IS FURTHER ORDERED:

That the operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

That the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

That that injection pressure shall not exceed 940 pounds per square inch as measured at the surface.

That the operator shall notify the supervisor of the Division's Hobbs District Office before injection is commenced through said well;

That the operator shall immediately notify the Supervisor of the Division Hobbs District Office of the failure of the tubing, casing, or packer in said well or the leakage of water from or around said well and shall take such steps as may be timely or necessary to correct such failure or leakage.

PROVIDED FURTHER: That jurisdiction of this cause is hereby retained by the Division for such further order or orders as may seem necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of applicant to comply with any requirement of this

order after notice and hearing, the Division may terminate the authority hereby granted in the interest of conservation. That applicant shall submit monthly reports of the disposal operations in accordance with Rule 704 and 1120 of the Division Rules and Regulations.

APPROVED at Santa Fe, New Mexico, on this 6th day of November, 1980.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Division Director

SEAL

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
American Air Filter Company, Inc.	502-368-3381

ADDRESS (Number, Street, City, State, and ZIP Code)
P.O. Box 21127 Standiford Station, Louisville, Ky. 40221 (6200 Strawberry Ln. 40214)

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
Viscosine VIA	N/A
CHEMICAL FAMILY: Ethylene Oxide	FORMULA: $C_9H_{19}C_6H_4(OC_2H_4)OH_{9-10}$

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	0		BASE METAL		
CATALYST	0		ALLOYS		
VEHICLE	100	N/A	METALLIC COATINGS		
SOLVENTS	0		FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES	0		OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Non hazardous according to Dept. of Transportation regulations.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H_2O=1)	1.06
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT, VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1)	N/A
SOLUBILITY IN WATER	Appreciable		
APPEARANCE AND ODOR: Mild			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
> 140°F Closed Cup	N/A		

EXTINGUISHING MEDIA
Water

SPECIAL FIRE FIGHTING PROCEDURES
CO and CO_2 emitted upon burning.

UNUSUAL FIRE AND EXPLOSION HAZARDS
N/A

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
N/A

EFFECTS OF OVEREXPOSURE
None under normal conditions of use.

EMERGENCY AND FIRST AID PROCEDURES
Wash eyes with tap water.

SECTION VI - REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	XX	

INCOMPATABILITY *(Materials to avoid)*
Avoid strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
CO & CO_2 emitted.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	XX	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Use inert absorbent material or flush area with water.

WASTE DISPOSAL METHOD
Landfill or incinerate in accordance with applicable local, state and federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*
None required unless allergies present.

VENTILATION	LOCAL EXHAUST	SPECIAL
	Use normal ventilation.	
	MECHANICAL *(General)* Not required.	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Recommended.	Recommended.

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Normal warehousing procedures.

OTHER PRECAUTIONS

GPO 934-810

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

MATERIALS · INFORMATION · SERVICES

No. 470

DIESEL FUEL OIL NO. 2-D

Date October 1981

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: DIESEL FUEL OIL NO. 2-D

DESCRIPTION: Mixture of petroleum hydrocarbons; a distillate oil of low sulfur content

OTHER DESIGNATIONS: ASTM D975, CAS # 068 476 346

MANUFACTURER: Available from many suppliers

mineral Seal
#2 Diesel

SECTION II. INGREDIENTS AND HAZARDS

	%	HAZARD DATA
Diesel Fuel Oil No. 2-D		
Complex mixture of paraffinic, olefinic, naphthenic and aromatic hydrocarbons**	>95	8-hr TWA 5mg/m^3* (mineral oil mist)
Sulfur content	<0.5	
Benzene***	<100 ppm	

*Current OSHA standard and ACGIH (1981) TLV

**Diesel fuels tend to be low in aromatics and high in paraffinics. A min. Cetane No. of 40 is required (ASTM D613).

***A low benzene level reduces carcinogenic risk. Fuel oils can be exempted under the benzene standard (29 CFR 1910.1028)

SECTION III. PHYSICAL DATA

Boiling point range, deg F, ------- Ca 340-675 Specific gravity (H_2O=1) ---- <0.86

Solubility in water ---------- negligible Cloud point (wax), deg C --- Ca 0

Viscosity at 40 C, cSt ---------- 1.9-4.1

Appearance and Odor: Clear, bright liquid with a mild petroleum odor.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
125F min (PM)	>500F	% by volume	0.6	7.5

Extinguishing Media: Dry chemical, carbon dioxide, foam, water spray. Use a water spray to cool fire exposed containers. Use a smothering technique for extinguishing fire of this combustible liquid. Do not use a forced water stream directly on oil fire as this will only scatter the fire. Material is a OSHA Class II combustible liquid.

Firefighters should wear self-contained breathing apparatus and full protective clothing.

SECTION V. REACTIVITY DATA

This is a stable material in closed containers at room temperature under normal storage and handling conditions. It does not undergo hazardous polymerization.

Incompatible with strong oxidizing agents; heating greatly increases fire hazard.

Thermal -oxidative degradation may yield various hydrocarbons and hydrocarbon derivatives (partial oxidation products), CO_2 and CO and SO_2.

GENERAL ELECTRIC

No. 470

SECTION VI. HEALTH HAZARD INFORMATION

TLV 5 mg/m^3 oil (mist) (See Sect II)

Inhalation of excessive concentrations of vapor or mist can be irritating to the respiratory passages and can cause the following symptoms: headache, dizziness, nausea, vomiting, and loss of coordination. Prolonged or repeated skin contact may cause irritation of the hair follicles and block the sebaceous glands. This produces a rash of acne pimples and spots, usually on the arms and legs. (Good personal hygiene will prevent this).

Chemical pneumonitis may result when ingestion occurs and oil is aspirated in the lungs.

FIRST AID:

Eye Contact: Flush thoroughly with running water for 15 min. including under eyelids.

Skin Contact: Remove contaminated clothing. Wipe excess oil off with a dry cloth. Wash affected area well with soap and water.

Inhalation: Remove to fresh air. Restore and/or support breathing as required.

Ingestion: Do not induce vomiting.

Seek medical assistance for further treatment, observation and support.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel of leaks or spills. Remove sources of heat or ignition.

Provide adequate ventilation. Clean-up personnel to use protection against liquid contact and vapor or mist inhalation. Contain spill by diking. Small spills can be contained by using absorbants, such as rags, straw, polyurethane foam, activated carbon, and sand. Clean up spills promptly to reduce fire or vapor hazards.

DISPOSAL: May be disposed of by a licensed waste disposal company, or by controlled incineration or burial in an approved landfill.

Follow Federal, State and Local regulations. Report large oil spills.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide adequate ventilation where operating conditions (heating or spraying) may create excessive vapors or mists. Use explosion-proof equipment. Provide approved respiratory apparatus for nonroutine or emergency use. Use an approved filter & vapor respirator when vapor/mist concentrations are high. Wear protective rubber gloves and chemical safety glasses where contact with liquid or high mist conc. may occur. Additional suitable protective clothing may be required depending on working conditions. An eye-wash fountain and washing facilities to be readily available near handling and use areas.

Launder soiled or contaminated clothing before reuse (at least weekly laundering of work clothes is recommended) .

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store in closed containers in a cool, dry, well-ventilated area away from sources of open flame, heat, strong oxidizing agents, and ignition. Protect containers from physical damage. Use non sparking tools and explosion-proof electrical equipment. Prevent static electric sparks.

Avoid prolonged skin contact and breathing of vapors or mists.

No smoking in areas of use. Follow good hygienic practice in the use of this material. Do not wear oil contaminated clothing. Do not put oily rags into pockets. Wash exposed skin areas several times a day with soap and warm water when working with this material. DOT Classification: COMBUSTIBLE LIQUID

DATA SOURCE(S) CODE: 1,6,7,12

APPROVALS: MIS CRD J. M. Miller

Industrial Hygiene and Safety 10-12-81

MEDICAL REVIEW: 21 October 1981

GENERAL ELECTRIC

Form Approved
Budget Bureau No. 44-R1387
Approval Expires April 30, 1971

Form No. LSB-005-4
May 1969

U.S. DEPARTMENT OF LABOR

WORKPLACE STANDARDS ADMINISTRATION

Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: Marvel Oil Company, Inc.	EMERGENCY TELEPHONE NO.: 914-937-4000
ADDRESS (Number, Street, City, State, and ZIP Code): 331 N. Main St., Port Chester, N.Y. 10573	
CHEMICAL NAME AND SYNONYMS: Not applicable	TRADE NAME AND SYNONYMS: Marvel Mystery Oil
CHEMICAL FAMILY: Petroleum Hydrocarbon	FORMULA: Mixture of Petroleum Products

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS	30		FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	313	SPECIFIC GRAVITY (H_2O=1)	.9
VAPOR PRESSURE (mm Hg.)	2 mm Hg. @ 68°	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____=1)	
SOLUBILITY IN WATER	negligible		
APPEARANCE AND ODOR			

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): 140° F.	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA: Water spray - foam dry chemical - CO_2			
SPECIAL FIRE FIGHTING PROCEDURES: None			
UNUSUAL FIRE AND EXPLOSION HAZARDS: Do not store or mix with strong oxidants.			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

Mild irritation to skin and eyes.

EMERGENCY AND FIRST AID PROCEDURES

In case of skin contact wash with soap and water.
If splashed in eyes flush with clear water until irritation subsides.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATIBILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Recover free liquid. Add absorbent to spill area.

WASTE DISPOSAL METHOD

Incinerate absorbed material under safe conditions.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*

Normally not needed.

VENTILATION	LOCAL EXHAUST	Not needed	SPECIAL
	MECHANICAL *(General)*	Not needed	OTHER

PROTECTIVE GLOVES: Normally not needed	EYE PROTECTION: Normally not needed

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep away from heat and open flame.

OTHER PRECAUTIONS

Contains refined petroleum distillates. If swallowed, do not induce vomiting.

MATERIAL SAFETY DATA SHEET
FOR

ED. MATHIS

KROVAR® II WEED KILLER

MANUFACTURER: E. I. DU PONT DE NEMOURS & CO. (INC.)
BIOCHEMICALS DEPARTMENT
WILMINGTON, DE 19898

EMERGENCY TELEPHONE: Phone CHEMTREC toll free, day or night (800)424-9300 or call Du Pont (302)774-1000

DATE: August 1977

CHEMICAL NAME:	5-bromo-3-sec-butyl-6-methyluracil (bromacil) 3-(3,4-dichlorophenyl)-1,1-dimethylurea (diuron) + inerts
TRADE NAME:	"Krovar" II Weed Killer

SECTION I - PHYSICAL DATA

PHYSICAL FORM:	Light brown powder
VAPOR PRESSURE:	Negligible
SOL. IN WATER:	Dispersible
SPECIFIC GRAVITY:	

SECTION II - HAZARDOUS INGREDIENT(S)

	WT %	Acute Oral LD_{50} (Rats)	TLV
Bromacil	53	5200 mg/kg	10 mg/m^3
Diuron	27	3400 mg/kg	10 mg/m^3

SECTION III - HEALTH HAZARDS

STATEMENT OF HAZARDS: Caution! May irritate eyes, nose, throat and skin.

PRECAUTIONARY MEASURES: Avoid breathing dust or spray mist. Avoid contact with skin, eyes, and clothing.

SPILL OR LEAK PROCEDURE: Clean up promptly. Do not flush with water, pick up dry by sweeping or other effective means. If spill area is on ground near trees or other valuable plants, remove top 2 inches of soil after initial cleanup.

Material Safety Data Sheet
For
Krovar® II Weed Killer

SECTION IV - FIRE HAZARDS

Statement of Hazard: May be ignited by heat or open flame. Fine dust dispersed in air (particularly in confined spaces) may ignite if exposed to high temperature ignition source. These conditions are unlikely to occur in normal, outdoor use of this product.

FIRE FIGHTING/EXTINGUISHING MEDIA: On small fire use dry chemical, CO_2, foam or water spray. If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water amy increase the contamination hazard. If conditions do not permit, extinguish with water spray. If conditions permit, cool containers with water if exposed to fire. Wear self-contained breathing apparatus.

SECTION V - REACTIVITY

UNDER NORMAL CONDITIONS: Stable

SECTION VI - TRANSPORTATION, STORAGE AND DISPOSAL

SUGGESTED DISPOSAL METHOD: Dispose of in accordance with applicable (LOCAL, STATE and/or FEDERAL) regulations. If buried, use area away from roots, trees, turf or other desirable plants; disposal site should be on level ground and not close to streams, ponds, lakes, wells or ditches. Do not re-use container. Bury when empty.

SPECIAL PRECAUTIONS: Keep from contact with fertilizers, insecticides, fungicides and seeds. Keep out of reach of children.

SECTION VII - SPECIAL PROTECTION INFORMATION

None required

ED mathis

MATERIAL SAFETY DATA SHEET
FOR
KARMEX® WEED KILLER

MANUFACTURER: E. I. DU PONT DE NEMOURS & CO. (INC.)
BIOCHEMICALS DEPARTMENT
WILMINGTON, DE 19898

EMERGENCY TELEPHONE: Phone CHEMTREC toll free day or night (800)424-9300 or call Du Pont (302)774-1000

DATE: June 1977

CHEMICAL NAME: 3-(3,4-dichlorophenyl)-1,1-dimethylurea (diuron)
TRADE NAME: Karmex® weed killer

SECTION I - PHYSICAL DATA

PHYSICAL FORM: Tan powder
VAPOR PRESSURE: Negligible SOL. IN WATER: Dispersible
SPECIFIC GRAVITY: 28-30 lbs/ft^3 (loose); 31-33 lbs./ft^3 (packed)

SECTION II - HAZARDOUS INGREDIENT(S)

	WT %	Acute Oral LD_{50} (Rats)	TLV
Diuron	80	3400 mg/kg	10 mg/m^3

$C_9H_{10}Cl_2N_2O$

SECTION III - HEALTH HAZARDS

STATEMENT OF HAZARDS: May irritate eyes, nose, throat and skin.
PRECAUTIONARY MEASURES: Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing.
SPILL OR LEAK PROCEDURE: Clean up promptly. Do not flush with water, pick up dry by sweeping or other effective means.

Material Safety Data Sheet
For
Karmex® Weed Killer

SECTION IV - FIRE HAZARDS

FLASH POINT: Not found	AUTO DECOMPOSITION TEMPERATURE: 180-190°C
AUTO IGNITION TEMPERATURE: 380°C	
MIN. IGNITION ENERGY: 0.075±0.01 joule	MAX. PRESSURE RISE: 2750 psi/sec @ 0.41 g/l
LOWER EXPLOSIVE LIMIT: 0.07 g/liter	
UPPER EXPLOSIVE LIMIT: Not found	
STATEMENT OF HAZARD: May be ignited by heat or open flame. Fine dust dispersed in air (particularly in confined spaces) may ignite if exposed to high temperature ignition source. These conditions are unlikely to occur in normal, outdoor use of this product.	
FIRE FIGHTING/EXTINGUISHING MEDIA: On small fire use dry chemical, CO_2, foam or water spray. If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the contamination hazard. If conditions do not permit, extinguish with water spray. If conditions permit, cool containers with water if exposed to fire. Wear self-contained breathing apparatus.	

SECTION V - REACTIVITY

UNDER NORMAL CONDITIONS: (Stable)

SECTION VI - TRANSPORTATION, STORAGE AND DISPOSAL

SUGGESTED DISPOSAL METHOD: Dispose of in accordance with applicable (LOCAL, STATE and/or FEDERAL) regulations. If buried, use area away from roots, trees, turf or other desirable plants; disposal site should be on level ground and not close to streams, ponds, lakes, wells or ditches. Do not re-use container. Bury when empty.
SPECIAL PRECAUTIONS: Do not apply (except as recommended for crop use) or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not contaminate any body of water. Keep from contact with fertilizers, insecticides, fungicides and seeds. Keep out of reach of children.

SECTION VII - SPECIAL PROTECTION INFORMATION

None indicated

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
Imperial Oil & Grease Company	312 478-3577
ADDRESS (Number, Street, City, State, and ZIP Code) 10960 Wilshire Blvd., Los Angeles, CA 90024	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYMS MOLUB-ALLOY 90
CHEMICAL FAMILY N/A	FORMULA N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
This is a petroleum base lubricating oil which has no TLV		
under normal use, but if steadily misted or sprayed into		
workplace atmosphere, TLV is 5mg/cubic meter		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.) Above	700°F	SPECIFIC GRAVITY (H_2O=1)	0.914
VAPOR PRESSURE (mm Hg.) Less than	0.05	PERCENT, VOLATILE BY VOLUME (%)	Trace
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1) N/A except at	
SOLUBILITY IN WATER	Slight	temperatures above 700°F	
APPEARANCE AND ODOR	Dark, opaque liquid, mild aromatic odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
ASTM D92 450°F		N/A	N/A

EXTINGUISHING MEDIA: Foam, CO_2

SPECIAL FIRE FIGHTING PROCEDURES: Standard for heavy petroleum fires

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	N/A
EFFECTS OF OVEREXPOSURE	N/A

EMERGENCY AND FIRST AID PROCEDURES

Rinse material from eyes with warm water; treat eyes with proprietary eye wash solution. Toxic potential if ingested, do not induce vomiting

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Exposure to metallic red heat & open flame

INCOMPATABILITY *(Materials to avoid)*: Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS: None in normal use

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Clean up promptly with proprietary oil - drying compound

WASTE DISPOSAL METHOD

Mixing with No. 5 or No. 6 oil, use as road oil, dust and weed control

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*: N/A

VENTILATION	LOCAL EXHAUST: N/A	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES: For highly sensitive skin only	EYE PROTECTION: Only if oil is being sprayed

OTHER PROTECTIVE EQUIPMENT: none in normal use

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Maintain storage arrangement so that any leakage of containers will be readily detected.

OTHER PRECAUTIONS

Keep container dry and clean when handling in order to minimize slippage and possible injuries.

GPO 934-190

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
IMPERIAL OIL & GREASE COMPANY	213 478-3577

ADDRESS (Number, Street, City, State, and ZIP Code): 10960 Wilshire Blvd., Los Angeles, California 90024

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
N/A	MOLUB-ALLOY 828-40
CHEMICAL FAMILY: N/A	FORMULA: N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
This is a petroleum base lubricating oil which has no		
TLV under normal use, but if steadily misted or		
sprayed into workplace atmosphere, TLV is 5 mg/cubic meter.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	Above 600°F	SPECIFIC GRAVITY (H_2O=1)	0.917
VAPOR PRESSURE (mm Hg.)	Less than 0.05	PERCENT, VOLATILE BY VOLUME (%)	Trace
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____=1)	N/A except at
SOLUBILITY IN WATER	Slight	temperatures above 600° F	
APPEARANCE AND ODOR	Dark, opaque liquid, slight chemical odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
ASTM D 92 - 400° F		N/A	N/A

EXTINGUISHING MEDIA: Foam, CO_2

SPECIAL FIRE FIGHTING PROCEDURES: Same as for petroleum fires

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

(Continued on reverse side)

SECTION V · HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: N/A

EFFECTS OF OVEREXPOSURE: N/A

EMERGENCY AND FIRST AID PROCEDURES: Rinse material from eyes with warm water; treat eyes with proprietary eye wash solution. Toxic potential if ingested, do not induce vomiting.

SECTION VI · REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	Exposure to metallic red heat & open flame

INCOMPATABILITY (*Materials to avoid*): Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS: None in normal use

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII · SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Clean up promptly with proprietary oil- drying compound

WASTE DISPOSAL METHOD: Mixing with No. 5 or No. 6 fuel oil, use as road oil, dust and weed control

SECTION VIII · SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (*Specify type*): N/A

VENTILATION		
	LOCAL EXHAUST: N/A	SPECIAL
	MECHANICAL (*General*)	OTHER

PROTECTIVE GLOVES: For highly sensitive skin only

EYE PROTECTION: Only if oil is being sprayed

OTHER PROTECTIVE EQUIPMENT: None

SECTION IX · SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Maintain storage arrangement so that any leakage of containers will be readily detected.

OTHER PRECAUTIONS: Keep container dry and clean when handling in order to minimize slippage and possible injuries.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
IMPERIAL OIL & GREASE COMPANY	213 478-3577
ADDRESS (Number, Street, City, State, and ZIP Code): 10960 Wilshire Blvd., Los Angeles, CA 90024	
CHEMICAL NAME AND SYNONYMS: N/A	TRADE NAME AND SYNONYMS: MOLUB-ALLOY A 890 HEAVY
CHEMICAL FAMILY: N/A	FORMULA: N/A

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
This is a diester synthetic base lubricating fluid which has		
no TLV under normal conditions and is considered non-hazardous		
by the U. S. Department of Labor definition.		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.) Above	600° F	SPECIFIC GRAVITY (H_2O=1)	0.952
VAPOR PRESSURE (mm Hg.) Less than	0.05	PERCENT, VOLATILE BY VOLUME (%)	Trace
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ =1) N/A except at	
SOLUBILITY IN WATER	Slight	temperatures above 600° F	
APPEARANCE AND ODOR	Light yellow fluid, mild odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
ASTM D 92 490°F		N/A	N/A

EXTINGUISHING MEDIA
CO_2 dry chemical or foam

SPECIAL FIRE FIGHTING PROCEDURES
Do not use water - normal for petroleum fire

UNUSUAL FIRE AND EXPLOSION HAZARDS
None

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
N/A

EFFECTS OF OVEREXPOSURE
Oral - Slightly toxic; Eye - Slightly irritating;

Skin - May be slightly irritating

EMERGENCY AND FIRST AID PROCEDURES
Oral ingestion - Do not induce vomiting, consult physician.

Eye - Flush with warm water, treat with proprietary eye wash solution

Skin - Remove by wiping followed by washing with soap water.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID	Exposure to metallic red
	STABLE	X		heat and open flame

INCOMPATABILITY (*Materials to avoid*)
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
None in normal use

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Clean up promptly with proprietary oil drying compound.

WASTE DISPOSAL METHOD
Mixing with No. 5 or No. 6 fuel oil, use as road oil, dust and weed control.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (*Specify type*)
N/A

VENTILATION	LOCAL EXHAUST N/A	SPECIAL
	MECHANICAL (*General*)	OTHER

PROTECTIVE GLOVES For highly sensitive skin only	EYE PROTECTION Only if fluid is misted or sprayed

OTHER PROTECTIVE EQUIPMENT
None

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Maintain storage arrangement so that container leakage is readily detected.

OTHER PRECAUTIONS
Keep container dry and clean when handling in order to minimize slippage and possible injuries.

GPO 934-110

ADAPTED FROM USDL
FORM NO L59-005-4-MAY 1959

SHELL OIL COMPANY
SHELL CHEMICAL COMPANY MSDS 60,970
SHELL DEVELOPMENT COMPANY
SHELL PIPE LINE CORPORATION

HAZARD RATING

MATERIAL SAFETY DATA SHEET

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.

SECTION I

MANUFACTURER'S NAME: Shell Oil Company	EMERGENCY TELEPHONE NO: 713-473-9461
ADDRESS (Number, Street, City, State, and ZIP Code): P. O. Box 2463, One Shell Plaza, Houston, TX 77001	
CHEMICAL NAME AND SYNONYMS: Lubricating Oil	TRADE NAME: MYSELLA® Oil 40
CHEMICAL FAMILY: Hydrocarbon	FORMULA: Code 67184

SECTION II HAZARDOUS INGREDIENTS*

COMPOSITION	Approx. %	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Petroleum Hydrocarbons	99	Rat	>5 g/kg			
		Rabbit		>2 g/kg		
Hindered Phenol	1		>24 g/kg			
Oxidation & Corrosion Inhibitor Containing P and S	0.5		>10 g/kg			
Polymethacrylate Additive	<.5					
This formulation calls for special precautions						
SEE ATTACHED PAGE						

SECTION III PHYSICAL DATA

BOILING POINT (°F)	N.A.	SPECIFIC GRAVITY (H_2O=1)	0.88
VAPOR PRESSURE (mmHg)	N.A.	PERCENT VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR=1)	N.A.	EVAPORATION RATE (_____=1)	N.A.
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Dark liquid. Slight odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
455°F, PMCC	N.A.		

EXTINGUISHING MEDIA
Dry chemical type preferred.

SPECIAL FIRE FIGHTING PROCEDURES
None special.

UNUSUAL FIRE AND EXPLOSION HAZARDS
CO, SO_x, PO_x, and oxygenates may be formed during combustion.

*Modified by Shell

MSDS 60,970

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Vapor - not established. Oil mist - 5 mg/m^3

EFFECTS OF OVEREXPOSURE Pulmonary irritation possible. Defatting action on skin. Prolonged or repeated contact may cause skin disorders such as dermatitis, folliculitis, oil acne or even skin cancer.

EMERGENCY AND FIRST AID PROCEDURES Eyes-flush with water for at least 15 minutes. Skin-remove oil by wiping or applying waterless hand cleaner, followed by washing with soap & water. Remove all contaminated clothing. Ingestion-induce vomiting if conscious & consult medical personnel.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Mist formation.
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Absorb with clay, diatomaceous earth, or other inert material.

WASTE DISPOSAL METHOD Controlled burning in compliance with local regulations or bury in approved landfill.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
NIOSH approved respirator to avoid exposure to hot vapors or mist.

VENTILATION		
	LOCAL EXHAUST: As required if mist is being generated.	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES Oil resistant (rubber)

EYE PROTECTION: Goggles if oil is being sprayed or splashed.

OTHER PROTECTIVE EQUIPMENT Appropriate clothing to avoid skin contact.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Avoid breathing oil mist & vapors. Avoid skin contact. Airborne mist should be kept substantially below the nuisance TLV for oil mist.

OTHER PRECAUTIONS Launder contaminated clothing before using. Discard leather goods when contaminated. Wash before eating or smoking.

Shell Oil Company
Product Safety & Compliance
Oil & Chemical Products

Date March, 1979

The petroleum hydrocarbons in this product contain a mixture of paraffinic, naphthenic, aromatic, and small amounts of heterocyclic hydrocarbons. As with other petroleum oils, the aromatics contain polycyclic compounds of various concentrations and structures. Some of these polycyclics may be those which have been shown to induce cancer in animals under laboratory conditions. Epidemiologic studies have suggested the possibility of skin cancer induction in man after prolonged and repeated contact with oils containing these materials under conditions of poor personal hygiene. Inhalation of mists arising from oils containing these materials may also present a cancer hazard.

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

VARSOL 1
Form No. OSHA-20
091-0004C

U.S. DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
MATERIAL SAFETY DATA SHEET

9/25/79
Supersedes issue of 8/10/79
DG-1P

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
EXXON COMPANY, U.S.A.	(713) 656-3424

ADDRESS (Number, Street, City, State and ZIP Code)
P. O. Box 2180 Houston, Texas 77001

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
Petroleum Solvent	VARSOL-1
CHEMICAL FAMILY	**FORMULA**
Petroleum Hydrocarbon	Complex mixture of petroleum hydrocarbons

SECTION II HAZARDOUS INGREDIENTS

	%	TLV (UNITS)
VARSOL 1	100	SEE NOTE

NOTE:
The Threshold Limit Value (TLV) of 100 ppm vapor in air has been established by the American Conference of Governmental Industrial Hygienists for Stoddard solvent, and is thus applicable to VARSOL 1. In a recent study by Exxon Corporation Medical Research with laboratory animals (rats) exposed to vapors in air of a solvent similar to VARSOL 1, kidney damage was noted in male rats at this concentration. The recent study suggests that this occupational exposure limit may have to be lowered for this product. Work is continuing to validate these findings and determine whether a revised occupational exposure limit should be recommended for VARSOL 1.

SECTION III PHYSICAL DATA

BOILING RANGE		SPECIFIC GRAVITY (H_2O=1)	
IBP-Dry Pt. (313-400°F)	156-204°C	15.6°/15.6°C	0.79
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	
@ 25°C	< 10		100
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (n - BUTYL ACETATE=1)	
	4.8		< 0.1
SOLUBILITY IN WATER			
	Negligible		

APPEARANCE AND ODOR
Water-white liquid. Mineral spirits odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method Used)	FLAMMABLE OR EXPLOSIVE LIMITS Approximate (PERCENT BY VOLUME IN AIR)	LOWER LIMIT	UPPER LIMIT
Tag Closed Cup 42°C (108°F)		0.9%	6.0%

EXTINGUISHING MEDIA
Foam, dry chemical, CO_2, or water fog or spray.

SPECIAL FIRE FIGHTING PROCEDURES
Use air-supplied breathing equipment for enclosed areas.
Cool exposed containers with water spray. Avoid breathing vapor or fumes.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Do not mix or store with strong oxidants like liquid chlorine or concentrated oxygen.

COMBUSTIBLE LIQUID.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

ppm for 8 hour workday recommended by ACGIH for Stoddard solvent. See also Section I

EFFECTS OF OVEREXPOSURE

Inhalation of high vapor concentrations may have results ranging from dizziness and headaches to unconsciousness. Prolonged or repeated liquid contact with the skin will dry and defat the skin, leading to irritation and dermatitis.

EMERGENCY AND FIRST AID PROCEDURES

If overcome by vapor, remove from exposure immediately; call a Physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. If ingested, DO NOT induce vomiting; call a Physician. In case of skin contact, remove any contaminated clothing, and wash skin with soap and warm water. If splashed into the eyes, flush eyes with clear water for 15 minutes or until irritation subsides.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*

Strong oxidants like: liquid chlorine, concentrated oxygen, sodium or calcium hypochlorite.

HAZARDOUS DECOMPOSITION PRODUCTS

Fumes, smoke and carbon monoxide, in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Remove all ignition sources. Keep people aw[illegible] Recover free liquid. Add absorbent (sand, earth, sawdust, etc.) to spill area. Avoid breathing vapors. Ventilate confined spaces. Open all windows and doors. Keep petroleum products out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.

WASTE DISPOSAL METHOD

Assure conformity with applicable disposal regulations. Dispose of absorbed material at an approved disposal site or facility.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)* Use hydrocarbon vapor canister or supplied-air respiratory protection in confined or enclosed spaces if needed.

VENTILATION	LOCAL EXHAUST	SPECIAL
	Face velocity > 60 fpm	Use only with adequate* ventilation.
	MECHANICAL *(General)*	OTHER
	Use explosion-proof equipment	No smoking or open lights.

PROTECTIVE GLOVES Use chemical-resistant gloves, if needed to avoid repeated or prolonged skin contact

EYE PROTECTION Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT Use chemical-resistant apron or other clothing if needed to avoid repeated or prolonged skin contact.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING

Keep containers closed when not in use. Do not handle or store near heat, sparks, flame or strong oxidants. Adequate* ventilation required.

*Adequate means equivalent to outdoors.

OTHER PRECAUTIONS Avoid breathing vapors. Avoid prolonged or repeated contact with skin. Remove contaminated clothing and launder before reuse. Remove contaminated shoes and thoroughly dry before reuse. Wash skin thoroughly with soap and water after contact.

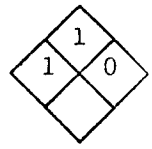
FOR ADDITIONAL INFORMATION ON HEALTH EFFECTS CONTACT:

Director of Industrial Hygiene
(713) 656-2443

FOR OTHER PRODUCT INFORMATION CONTACT:

Manager, Marketing Technical Services
(713) 656-4929

HAZARD RATING



Shell

Material Safety Data Sheet

MSDS 71470-1

S-11764-2 (2-79)

SECTION I

MANUFACTURER'S NAME: Shell Oil Company	EMERGENCY TELEPHONE NO.: 713-473-9461
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE): One Shell Plaza, P. O. Box 2463, Houston, TX 77001	
CHEMICAL NAME AND SYNONYMS: Lubricating Oil	TRADE NAME: Shell X-100® Motor Oil 30
CHEMICAL FAMILY: Hydrocarbon	FORMULA: Code 51003

SECTION II — INGREDIENTS

COMPOSITION	Approx. %	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Petroleum Hydrocarbons	93	Rat	>5 g/kg			
		Rabbit		>2 g/kg		
Ashless Dispersant	5	Rat	10 g/kg			
Calcium Sulfonates	1	Rat	20 g/kg			
Organic Zinc Dithiophosphate	1	Rat	3.2 g/kg			
Oxidation Inhibitor						
containing Sulfur	<0.5					
Polymethacrylate	<0.1					
This formulation calls for special precautions.						
		SEE ATTACHED PAGE				

SECTION III — PHYSICAL DATA

BOILING POINT (°F)	N.A.	SPECIFIC GRAVITY (H_2O = 1)	0.90
VAPOR PRESSURE (mmHg)	N.A.	PERCENT VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR = 1)	N.A.	EVAPORATION RATE (_____ = 1)	N.A.
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Amber colored oil. Slight odor.		

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
415°F PMCC	N.A.		

EXTINGUISHING MEDIA: Dry chemical type preferred.

SPECIAL FIRE FIGHTING PROCEDURES: None special.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None unusual.

SECTION V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Vapor - not established. Oil mist - 5 mg/m^3.

EFFECTS OF OVEREXPOSURE
Pulmonary irritation possible. Defatting action on skin. Prolonged or repeated contact may cause skin disorders such as dermatitis, folliculitis, oil acne or even skin cancer.

EMERGENCY AND FIRST AID PROCEDURES
Eyes-flush with water for at least 15 minutes. Skin-remove oil by wiping or applying waterless hand cleaner, followed by washing with soap and water. Remove all contaminated clothing. Ingestion-consult medical personnel.

SECTION VI — REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Mist formation.
	STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID)

HAZARDOUS DECOMPOSITION PRODUCTS
CO and other unidentified oxygenated can be formed upon combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Absorb with clay, diatomaceous earth or other inert material.

WASTE DISPOSAL METHOD
Controlled burning in compliance with local regulations or bury in approved landfill.

SECTION VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)
NIOSH approved respirator to avoid exposure to hot vapor or mist.

VENTILATION		
	LOCAL EXHAUST: As required if mist is being generated.	SPECIAL
	MECHANICAL (GENERAL)	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Oil resistant (rubber)	Goggles if oil is being sprayed or splashed.

OTHER PROTECTIVE EQUIPMENT
Appropriate clothing to minimize skin contact.

SECTION IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid breathing oil mist and vapors. Minimize skin contact. Airborne mist should be kept substantially below the nuisance TLV for oil mist.

OTHER PRECAUTIONS
Launder contaminated clothing before using. Discard leather goods when contaminated. Wash before eating or smoking.

Shell Oil Company
Product Safety & Compliance
Oil & Chemical Products

DATE August, 1979

The petroleum hydrocarbons in this product are a complex mixture of paraffinic, naphthenic and aromatic hydrocarbons. As with other petroleum oils the aromatics contain polycyclic compounds of various concentrations and structures. Some of these polycyclics may be those which have been shown to induce cancer in animals under laboratory conditions. Epidemiologic studies on other petroleum products containing polycyclic aromatics suggested the possibility of skin cancer induction in man after prolonged and repeated contact. Inhalation of mists arising from oils containing these materials may also present a cancer hazard.

The concentration of polycyclic aromatics in this product requires that the handling procedures and safety precautions in this MSDS be strictly followed to minimize employee exposure.

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

Phone: (518) 385-4085 DIAL COMM 8*235-4085

MATERIALS INFORMATION SERVICES

NO. 418

MONOETHANOLAMINE

Date June 1979

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: MONOETHANOLAMINE

OTHER DESIGNATIONS: Ethanolamine, 2-Aminoethanol, β-Aminoethyl Alcohol, Ethylolamine, Colamine, Glycinol, MEA, $NH_2CH_2CH_2OH$, CAS # 000 141 435

MANUFACTURER: Available from several sources, including:

Union Carbide Corporation
270 Park Avenue
New York, NY 10017 Telephone: (212)551-3763

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Monoethanolamine	99	8-hr TWA 3 ppm* or 6 mg/m^3 (sic) Rat, oral LD_{50} 2.1 g/kg Rabbit, skin LD_{50} 1 g/kg
*Current OSHA permissible exposure level. ACGIH (1978) 8-hr TWA is 3 ppm or 8 mg/m^3, with STEL of 6 ppm or 15 mg/m^3.		

SECTION III. PHYSICAL DATA

Boiling point at 1 atm, deg C	ca 170	Specific gravity 20/4 C	1.02
Vapor pressure at 20 C, mm Hg	0.4	Melting point, deg C	10.3
Vapor density (Air=1)	2.1	Molecular weight	61.1
Water solubility	Miscible	Viscosity at 25 C, cps	19
pH at 20 C, 1% solution in water	11.5		

Appearance & Odor: A colorless, hygroscopic liquid with a mild ammoniacal odor. The odor threshold (50% of test panel) has been reported as 3-4 ppm.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
185 F (CC)				

Extinguishing Media: Water spray, carbon dioxide, "alcohol" foam, or dry chemical. Use water spray to cool fire-exposed containers, to dilute liquid to less flammable solutions, and to flush non-ignited material away from hazardous exposures.

This combustible liquid is a moderate fire hazard when exposed to heat or flames.

Firefighters should wear self-contained breathing apparatus and protective clothing when fighting fires involving this material.

SECTION V. REACTIVITY DATA

This material is stable in closed containers at room temperature. It does not polymerize.

It is a combustible material and is incompatible with oxidizing agents and sources of heat or ignition. Products of oxidation can include nitrogen oxides and CO.

It is a primary amine which generates heat upon reaction with acidic materials, such as sulfuric, hydrochloric, and acetic acids. It reacts with CO_2 from the air.

It is corrosive to copper, copper alloys, galvanized iron and, for heat flux conditions above 100 C metal temperature or for aqueous solutions (except below 15% concentration at/below room temperature), aluminum.

GENERAL ELECTRIC

SECTION VI. HEALTH HAZARD INFORMATION

TLV 3 ppm (See Sect. II)

Contact with liquid can seriously injure the eyes and will moderately irritate the skin. Prolonged or repeated contact with the skin can be highly irritating, but the material is not believed to be a sensitizer. It can penetrate the skin as shown in tests with rabbits. Contacts with a 10% solution in water can be damaging.

Mist or vapors from heated liquid are irritating to the eyes and upper respiratory tract and may be harmful. Ingestion can damage the mouth, throat, and digestive tract and produce nausea and chemical irritant effects. FIRST AID:

Eye Contact: Flush eyes thoroughly with plenty of running water for at least 15 minutes including under the eyelids; then get immediate medical help (see ophthalmologist if possible).

Skin Contact: Remove contaminated clothing. Wash exposed areas of skin well with soapy water. If large areas of skin were contacted or if irritation persists, get medical help.

Inhalation: Remove to fresh air. Get medical help.

Ingestion: Give fruit juice, diluted vinegar, milk or water to drink. Induce vomiting. Get medical help.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel when large spills occur. Those involved in clean up need protection against vapor or mist inhalation and contact with liquid. Provide ventilation. Eliminate sources of ignition. Contain and pick up spill as a liquid or with an inert absorbent solid. Neutralize trace residues or small spills with sodium bisulfate and flush to the drain with lots of water to dilute.

DISPOSAL: Scrap or a solution in a flammable solvent can be burned in an approved incinerator with afterburner and scrubber (to reduce nitrogen oxide emissions). Follow Federal, State and local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide general and local exhaust ventilation to meet TLV requirements. Use additional local exhaust ventilation or a hood where material is heated or misted. Approved chemical cartridge or canister respirators with fullface protection should be available for emergency or nonroutine use above the TLV.

Protect workers from contact with liquid by use of impervious gloves, safety goggles, and clean body-covering clothing; where splashing is possible, face shield, apron, etc may be required.

A safety shower and an eyewash station are needed where this material is used or handled.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store in closed containers in a well ventilated area, preferably at 65-95 F. Protect containers from physical damage. Store away from sources of heat and ignition, oxidizing agents, acidic materials

Monoethanolamine is generally stored and handled in plain steel equipment. Aluminum can be used, but do not use aluminum in contact with aqueous solutions of monoethanolamine without careful evaluation.

Prevent eye and skin contact with this material. Do not inhale vapors. Follow good hygienic practice; chronic effects not fully established.

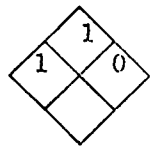
DATA SOURCE(S) CODE: 1-12, 18, 20, 23

APPROVALS: MIS, CRD J. M. Nielsen

Industrial Hygiene and Safety

MEDICAL REVIEW: 12/79

HAZARD RATING



Shell

Material Safety Data Sheet

MSDS 60210-1

S-11764-2 (2-79)

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.

SECTION I

MANUFACTURER'S NAME: Shell Oil Company	EMERGENCY TELEPHONE NO.: (713) 473-9461
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE): One Shell Plaza, P. O. Box 2463, Houston, TX 77001	
CHEMICAL NAME AND SYNONYMS: Lubricating Oil	TRADE NAME: SHELL TURBO® Oil 46
CHEMICAL FAMILY: Hydrocarbon	FORMULA: CODE 65603

SECTION II — INGREDIENTS

COMPOSITION	Approx. %	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Petroleum Hydrocarbons	99	Rat	>5 g/kg			
		Rabbit		>2 g/kg		
Hindered Phenol Antioxidant	0.5	Rat	1.7 g/kg			
Polymethacrylate	0.1					
Aromatic Amine	0.1	Rat	1.6 g/kg			
Sulfurized Fatty Acid	<0.1					
Succinic Acid Derivative	<0.1	Rat	>2.5 g/kg			
Modified Benzotriazole	<0.1	Rat	11.5 ml/kg			
This formulation calls for special precautions.						
	SEE ATTACHED PAGE					

SECTION III — PHYSICAL DATA

BOILING POINT (°F)	N.A.	SPECIFIC GRAVITY (H_2O = 1)	0.88
VAPOR PRESSURE (mmHg)	N.A.	PERCENT VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR = 1)	N.A.	EVAPORATION RATE (_____ = 1)	N.A.
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Light colored oil. Slight odor.		

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
390°F PMCC	N.A.		

EXTINGUISHING MEDIA: Dry chemical type preferred.

SPECIAL FIRE FIGHTING PROCEDURES: None special.

UNUSUAL FIRE AND EXPLOSION HAZARDS: CO, NOx, SOx, and other unidentified oxygenates can be formed during combustion.

SECTION V MSDS 60210-1 HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Vapor - not established. Oil mist - 5 mg/m^3

EFFECTS OF OVEREXPOSURE
Pulmonary irritation possible. Defatting action on skin. Prolonged or repeated contact may cause skin disorders such as dermatitis, folliculitis, oil acne or even skin cancer.

EMERGENCY AND FIRST AID PROCEDURES
Eyes - flush with water for at least 15 minutes. Skin - remove oil by wiping or applying waterless hand cleaner, followed by washing with soap and water. Remove all contaminated clothing. Ingestion - induce vomiting if conscious and consult medical personnel.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Mist formation
	STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Absorb with clay, diatomaceous earth, or other inert material.

WASTE DISPOSAL METHOD
Controlled burning in compliance with local regulations or bury in approved landfill.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)
NIOSH approved respirator to avoid exposure to hot vapor or mist.

VENTILATION		
	LOCAL EXHAUST: As required if mist is being generated.	SPECIAL
	MECHANICAL (GENERAL)	OTHER

PROTECTIVE GLOVES: Oil resistant (rubber)

EYE PROTECTION: Goggles if oil is being sprayed or splashed

OTHER PROTECTIVE EQUIPMENT
Appropriate clothing to avoid skin contact.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid breathing oil mist and vapors. Avoid skin contact. Airborne mist should be kept substantially below the nuisance TLV for oil mist.

OTHER PRECAUTIONS
Launder contaminated clothing before using. Discard leather goods when contaminated. Wash before eating or smoking.

Shell Oil Company
Product Safety and Compliance
Oil and Chemical Products

DATE April, 1979

The petroleum hydrocarbons in this product are a complex mixture of paraffinic, naphthenic and aromatic hydrocarbons. As with other petroleum oils the aromatics contain polycyclic compounds of various concentrations and structures. Some of these polycyclics may be those which have been shown to induce cancer in animals under laboratory conditions. Epidemiologic studies on other petroleum products containing polycyclic aromatics suggested the possibility of skin cancer induction in man after prolonged and repeated contact. Inhalation of mists arising from oils containing these materials may also present a cancer hazard.

The concentration of polycyclic aromatics in this product is low. Nevertheless, it is recommended that the handling procedures and safety precautions in this MSDS be strictly followed to minimize employee exposure.

TOXSENE 35

ACTIVE INGREDIENTS:	
Alkyl (C_{12}, 61%; C_{14}, 23%; C_{16}, 11%; C_8 & C_{10}, 2.5%; C_{18}, 2.5%) dimethyl benzyl ammonium chloride	9.0%
Tributyltin neodecanoate	5.0%
Alkyl (C_{14}, 58%; C_{16} 28%; C_{12}, 14%) dimethyl benzyl ammonium chloride	4.5%
Alkyl (C_{14}, 90%; C_{16}, 5%; C_{12}, 5%) dimethyl ethyl ammonium bromide	1.5%
Total Active Ingredients	20.0%
INERT INGREDIENTS	80.0%
Total Ingredients	100.0%

TOXSENE 35 is a product formulated to provide control of the growth of algae in recirculating water cooling towers and evaporative condensers.

DIRECTIONS

If heavy algae slime growths are present, clean the system before initial treatment. If algae growth is absent or just noticeable, proceed with the initial dose. Add all treatments directly to the sump.

INITIAL DOSE: When the system is fouled, apply a dose of 4 fluid ounces per 100 gallons water in the system. Repeat daily until control is achieved.

SUBSEQUENT DOSE: When algae control is evident, add 2 fluid ounces per 100 gallons water in the system every 7 days (weekly), or as needed to to maintain control. Badly fouled systems may be manually or chemically cleaned before treatment is begun.

CAUTION

Do not allow water that contains this algicide to come in contact with grass or plants. Do not use in drinking water or in swimming pools.

DANGER

KEEP OUT OF REACH OF CHILDREN

Corrosive. Causes eye damage and skin irritation. Do not get in eyes, on skin or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. Avoid contamination of food.

FIRST AID

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. For eyes, call a physician. Remove and wash contaminated clothing before re-use. If swallowed, drink **promptly** a large quantity of milk, egg whites, gelatin solution or if these are not available, drink large quantities of water. Avoid alcohol. Call a physician immediately.

NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed. This product is toxic to fish. Keep out of lakes, streams or ponds. Treated effluent should not be discharged where it will drain into lakes, streams, ponds or public water. Do not contaminate water by cleaning of equipment or disposal of wastes. Apply this product only as specified on this label. Rinse empty container **thoroughly** with water and discard it.

EPA REG. NO. 5185—168—12471

PACKAGED FOR:

Continental Products Of Texas

100 INDUSTRIAL — ODESSA, TEXAS 79760

EPA ESTABLISHMENT NO. 14805-TX-1

TOXSENE 35

PRECAUTIONARY STATEMENTS

KEEP OUT OF REACH OF CHILDREN

WARNING

TOXSENE-37 IS HARMFUL OR FATAL IF SWALLOWED OR ABSORBED THROUGH THE SKIN. CAUSES EYE DAMAGE AND SKIN IRRITATION. In case of contact remove contaminated clothing and immediately wash skin with soap and water. If irritation persists get medical attention. In case of contact with the eyes, immediately flush with water and get medical attention. Wash contaminated clothing before reuse. The use of goggles or face shield and rubber gloves is recommended.

DO NOT USE OR STORE NEAR HEAT OR OPEN FLAME

TOXSENE 37

(FOR INDUSTRIAL USE ONLY)

ACTIVE INGREDIENT:
Methylene bis (thiocyanate) ..... 10 %
INERT INGREDIENTS: 90%
TOTAL 100%

8.3 lbs. per gallon

manufactured for

CONTINENTAL PRODUCTS OF TEXAS

100 Industrial Ave., Odessa, Texas 79760
Phone: 915/337-4681

E.P.A. Establishment No. 14805-Tx-1
E.P.A. Registration No. 9386-4

Net Contents: Liquid
See Markings on Top of Drum for Net Weight

SEE SIDE PANELS FOR PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

FISH AND WILDLIFE ENVIRONMENTAL WARNING:

This pesticide is toxic to fish. Do not apply in marine and/or estuarine oil fields. Do not discharge treated effluent into lakes, streams, ponds or public waters unless in accordance with NPDES permit. For guidelines contact your regional office of the Environmental Protection Agency.

STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food, or feed by storage or disposal. Open dumpings prohibited.

CONTAINER DISPOSAL: Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling, reconditioning, or disposal in approved landfill, or bury in a safe place.

GENERAL: Consult Federal, State or Local Disposal Authorities for approved alternative procedures.

DIRECTIONS FOR USE - It is a violation of Federal Law to Use the product in a manner inconsistent with its labeling.

FOR THE CONTROL OF SLIME-FORMING AND/OR SPOILAGE BACTERIA: Toxsene-37 is added at a point in the system (raw stock chest; beater and/or refiner chest or machine chest-wirepit) where it will be uniformly mixed. Application may be continuous or intermittent for a certain number of hours/day or per shift, depending upon system characteristics. Add 2 to 5 fluid ounces of Toxsene-37 per ton of paperboard produced. INTERMITTENT FEED METHOD: Apply 3.5 to 5 fluid ounces of Toxsene-37 per ton (dry basis) of pump or paper for 2 hours every 8 hours. Badly fouled process systems must be cleaned before initial treatment. CONTINUOUS FEED METHOD: Apply 2 to 4 fluid ounces of Toxsene-37 per ton (dry basis) of pump or paper produced on a continuous basis. Badly fouled process systems must be cleaned before initial treatment. Consult your CONTINENTAL PRODUCTS representative for technical advice concerning certain site problems. **RECIRCULATING COOLING WATER SYSTEM: FOR CONTROL OF SLIME-FORMING BACTERIA (COOLING TOWERS, EVAPORATIVE CONDENSERS) BACTERIAL CONTROL:** Use of 1.6 to 7.9 fluid ounces per 1000 gallons water (1.25 to 6.20 ppm), actual, of Toxsene-37 as a continuous treatment, one to three times a week or as required to maintain control. When the system is just noticeable fouled, use 5.8 to 12.5 fluid ounces per 1000 gallons water (4.5 to 9.8 ppm), actual, of Toxsene 37 as a continuous treatment daily or as required to obtain control. Badly fouled systems must be cleaned before treatment is begun. Apply at a point in the system where uniform mixing and even distribution will occur, such as the cooling tower basin or sump.

OILFIELD DRILLING MUDS AND WORKOVER OR COMPLETION FLUIDS: FOR CONTROL OF SLIME-FORMING AND/OR SPOILAGE BACTERIA: Determine the total volume of the circulating system. Calculate the number of gallons of Toxsene-37 needed to produce a concentration of 5000 ppm (1.75 lb/bbl) of Toxsene-37 in the drilling mud circulating system. For example, 211 gallons of Toxsene-37 per 1000 barrels of drilling fluid will produce the proper concentration. For best results add Toxsene-37 in a thin stream to the mud pit while the drilling fluid is circulating. As the total volume increases, due to greater well depth, add additional Toxsene-37 to maintain the proper concentration. **OILFIELD WATER TREATMENT AND WATER FLOODS: FOR CONTROL OF SLIME-FORMING AND/OR SPOILAGE BACTERIA:** Calculate the total volume of water to be treated. Using this volume, calculate the number of gallons of Toxsene-37 needed to produce concentration of approximately 750 ppm Toxsene-37. For Example, 0.75 Gallons of Toxsene-37 per each 1000 gallons of total volume will produce this dilution. 50 ppm Toxsene-37, added each week, is recommended to maintain bacterial control. This may be accomplished by adding 0.05 gallons of Toxsene-37 to each 1000 gallons of total volume.

HAZARD RATING

1
1 0

Shell

Material Safety Data Sheet

MSDS 60270-1

S-11764-2 (2-79)

SECTION I

MANUFACTURER'S NAME: Shell Oil Company	EMERGENCY TELEPHONE NO.: 713-473-9461
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE): P. O. Box 2463, One Shell Plaza, Houston, TX 77001	
CHEMICAL NAME AND SYNONYMS: Lubricating Oil	TRADE NAME: Shell TELLUS® Oil 68
CHEMICAL FAMILY: Hydrocarbon	FORMULA: Code 65211

SECTION II — INGREDIENTS

COMPOSITION	Approx. %	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Petroleum Hydrocarbons	99	Rat	>5 g/kg			
		Rabbit		>2 g/ kg		
Zinc Dithiophosphate	0.9					
Polymethacrylate	0.3					
This formulation calls for special precautions.						
		SEE ATTACHED PAGE				

SECTION III — PHYSICAL DATA

BOILING POINT (°F)	N.A.	SPECIFIC GRAVITY (H_2O = 1)	0.88
VAPOR PRESSURE (mmHg)	N.A.	PERCENT VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR = 1)	N.A.	EVAPORATION RATE (_____ = 1)	N.A.
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Light colored oil. Slight odor.		

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
410°F PMCC	N.A.		

EXTINGUISHING MEDIA: Dry chemical type preferred.

SPECIAL FIRE FIGHTING PROCEDURES: None special.

UNUSUAL FIRE AND EXPLOSION HAZARDS: SO_x, PO_x, CO and other unidentified oxygenates can be formed during combustion.

SECTION V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Vapor - not established. Oil mist - 5 mg/m^3.

EFFECTS OF OVEREXPOSURE
Pulmonary irritation possible. Defatting action on skin. Prolonged or repeated contact may cause skin disorders such as dermatitis, folliculitis, oil acne or even skin cancer.

EMERGENCY AND FIRST AID PROCEDURES
Eyes-flush with water for at least 15 minutes. Skin-remove oil by wiping or applying waterless hand cleaner, followed by washing with soap & water. Remove all contaminated clothing. Ingestion-induce vomiting if conscious & consult medical personnel.

SECTION VI — REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID: Mist formation.
	STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Absorb with clay, diatomaceous earth, or other inert material.

WASTE DISPOSAL METHOD
Controlled burning in compliance with local regulations or bury in approved landfill.

SECTION VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)
NIOSH approved respirator to avoid exposure to hot vapor or mist.

VENTILATION	LOCAL EXHAUST: As required if mist is being generated.	SPECIAL
	MECHANICAL (GENERAL)	OTHER

PROTECTIVE GLOVES: Oil resistant (rubber)

EYE PROTECTION: Goggles if oil is being sprayed or splashed.

OTHER PROTECTIVE EQUIPMENT
Appropriate clothing to avoid skin contact.

SECTION IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid breathing oil mist & vapors. Avoid skin contact. Airborne mist should be kept substantially below the nuisance TLV for oil mist.

OTHER PRECAUTIONS
Launder contaminated clothing before using. Discard leather goods when contaminated. Wash before eating or smoking.

Shell Oil Company
Product Safety & Compliance
Oil & Chemical Products

DATE April, 1979

The petroleum hydrocarbons in this product are a complex mixture of paraffinic, naphthenic and aromatic hydrocarbons. As with other petroleum oils the aromatics contain polycyclic compounds of various concentrations and structures. Some of these polycyclics may be those which have been shown to induce cancer in animals under laboratory conditions. Epidemiologic studies on other petroleum products containing polycyclic aromatics suggested the possibility of skin cancer induction in man after prolonged and repeated contact. Inhalation of mists arising from oils containing these materials may also present a cancer hazard.

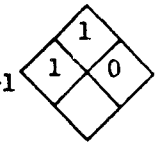
The concentration of polycyclic aromatics in this product is low. Nevertheless, it is recommended that the handling procedures and safety precautions in this MSDS be strictly followed to minimize employee exposure.

Shell

Material Safety Data Sheet

MSDS 60650-1

HAZARD RATING



S-11764-2 (2-79)

SECTION I

MANUFACTURER'S NAME: Shell Oil Company	EMERGENCY TELEPHONE NO.: 713-473-9461
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE): P. O. Box 2463, One Shell Plaza, Houston, TX 77001	
CHEMICAL NAME AND SYNONYMS: Lubricating Oil	TRADE NAME: Shell TELLUS® Oil 100
CHEMICAL FAMILY: Hydrocarbon	FORMULA: Code 65214

SECTION II — INGREDIENTS

COMPOSITION	Approx. %	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Petroleum Hydrocarbons	99	Rat	>5 g/kg			
		Rabbit		>2 g/kg		
Zinc Dithiophosphate	0.7					
Polymethacrylate	0.1	Rat	60 g/kg			
Calcium Alkyl Salicylate	<0.1	Rat	8 g/kg			
This formulation calls for special precautions						
		SEE ATTACHED PAGE				

SECTION III — PHYSICAL DATA

BOILING POINT (°F)	N.A.	SPECIFIC GRAVITY (H_2O = 1)	0.88
VAPOR PRESSURE (mmHg)	N.A.	PERCENT VOLATILE BY VOLUME (%)	N.A.
VAPOR DENSITY (AIR = 1)	N.A.	EVAPORATION RATE (_____ = 1)	N.A.
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR	Light colored oil. Slight odor.		

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
430°F PMCC	N.A.		

EXTINGUISHING MEDIA: Dry chemical type preferred.

SPECIAL FIRE FIGHTING PROCEDURES: None special.

UNUSUAL FIRE AND EXPLOSION HAZARDS: PO_x, SO_x, CO and other unidentified oxygenates can be formed during combustion.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Vapor - not established. Oil mist - 5 mg/m^3.

EFFECTS OF OVEREXPOSURE
Pulmonary irritation possible. Defatting action on skin. Prolonged or repeated contact may cause skin disorders such as dermatitis, folliculitis, oil acne or even skin cancer.

EMERGENCY AND FIRST AID PROCEDURES
Eyes-flush with water for at least 15 minutes. Skin-remove oil by wiping or applying waterless hand cleaner, followed by washing with soap & water. Remove all contaminated clothing. Ingestion-induce vomiting if conscious & consult medical personnel.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Mist formation.
	STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Absorb with clay, diatomaceous earth, or other inert material.

WASTE DISPOSAL METHOD

Controlled burning in compliance with local regulations or bury in approved landfill.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)
NIOSH approved respirator to avoid exposure to hot vapor or mist.

VENTILATION		
	LOCAL EXHAUST: As required if mist is being generated.	SPECIAL
	MECHANICAL (GENERAL)	OTHER

PROTECTIVE GLOVES: Oil resistant (rubber)

EYE PROTECTION: Goggles if oil is being sprayed or splashed.

OTHER PROTECTIVE EQUIPMENT
Appropriate clothing to avoid skin contact.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid breathing oil mist & vapors. Avoid skin contact. Airborne mist should be kept substantially below the nuisance TLV for oil mist.

OTHER PRECAUTIONS
Launder contaminted clothing before using. Discard leather goods when contaminated. Wash before eating or smoking.

Shell Oil Company
Product Safety & Compliance
Oil & Chemical Products

DATE April, 1979

The petroleum hydrocarbons in this product are a complex mixture of paraffinic, naphthenic and aromatic hydrocarbons. As with other petroleum oils the aromatics contain polycyclic compounds of various concentrations and structures. Some of these polycyclics may be those which have been shown to induce cancer in animals under laboratory conditions. Epidemiologic studies on other petroleum products containing polycyclic aromatics suggested the possibility of skin cancer induction in man after prolonged and repeated contact. Inhalation of mists arising from oils containing these materials may also present a cancer hazard.

The concentration of polycyclic aromatics in this product is low. Nevertheless, it is recommended that the handling procedures and safety precautions in this MSDS be strictly followed to minimize employee exposure.

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

Phone: (518) 385-4085 DIAL COMM 8*235-4085

MATERIALS INFORMATION SERVICES

NO. 9

SULFURIC ACID, CONCENTRATED

REVISION B

Date October 1980

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: SULFURIC ACID, CONCENTRATED
OTHER DESIGNATIONS: Oil of Vitriol, Hydrogen Sulfate, H_2SO_4, GE Material D4A2, CAS #007 664 939
DESCRIPTION: Material consists of about 93-98% H_2SO_4 with water and traces of impurities.
MANUFACTURER: Available from many suppliers.

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Hydrogen Sulfate (H_2SO_4) Water	93-98 Balance*	TLV 1 mg/m^3 for sulfuric acid† Human, mist inhal. TCLo 3 mg/m^3, 24 wk (Toxic Mouth Effects) Rat, Oral LD_{50} 2140 mg/kg

*Material is obtained by the reaction of SO_3 and water. Can contain low impurity levels, such as 0.02% max of iron as Fe. Properties vary with H_2SO_4 content.

†Current OSHA standard and ACGIH (1980) TLV. NIOSH has a 10-hr-TWA, 40 hr work week, of 1 mg/m^3.

SECTION III. PHYSICAL DATA

	93.19% H_2SO_4	98.33% H_2SO_4	100% H_2SO_4
Boiling point, 1 atm, deg C	ca 281	ca 338	ca 330 (dc)
Specific gravity (60/60 F)	1.8354	1.84	1.84
Deg. Baume	66	--	--
Volatiles, % at 340 C	ca 100	ca 100	ca 100
Melting point, deg C	ca -34	ca 3	10.4
Vapor press, mm Hg @ 100 F	<1	--	--

Water solubility: Completely miscible.
Appearance & Odor: Clear, colorless, hygroscopic oily liquid with no odor.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
None - nonflammable	N/A	N/A	N/A	N/A

Even though sulfuric acid is nonflammable, it is hazardous when present in a fire area. Small fires may be smothered with suitable dry chemical. Cool exterior of storage tanks of H_2SO_4 with water to avoid rupture if exposed to fire. Do not add water or other liquid to the acid! The acid, especially when diluted with water, can react with metals to liberate flammable hydrogen gas.
Sulfuric acid mists and vapors from a fire area are corrosive. (See Sect. V.)
Firefighters to wear self-contained breathing equipment and full protective clothing.

SECTION V. REACTIVITY DATA

Sulfuric acid is stable under normal conditions of use and storage. It does not undergo hazardous polymerization.
It is a strong mineral acid reacting with bases and metals. The concentrated acid is a strong oxidizing agent and can cause ignition of combustible materials on contact. The concentrated aid is also a dehydrating agent, picking up moisture readily from the air or other materials.
Reacts exothermically with water. (Acid should always be added slowly to water. Water added to acid can cause boiling and uncontrolled splashing of the acid.)
Sulfur oxides can result from decomposition and from oxidizing reactions of sulfuric acid.

GENERAL ELECTRIC

SECTION VI. HEALTH HAZARD INFORMATION

TLV 1 mg/m^3

Concentrated sulfuric acid is a strong mineral acid, an oxidizing agent, and a dehydrating agent that is rapidly damaging to all human tissue with which it comes in contact. Ingestion may cause severe injury or death. Eye contact gives severe or permanent injury. Inhalation of mists can damage both the upper respiratory tract and the lungs.

FIRST AID:

Eye Contact: Immediately flush eyes with plenty of running water for at least 15 minutes (including under the eyelids). Speed in diluting and rinsing out acid with water is extremely important if permananet eye damage is to be avoided. Obtain medical help as soon as possible.

Skin Contact: Immediately flush affected areas with water, removing contaminated clothing under the safety shower. Continue washing with water and get medical attention.

Inhalation: Remove to fresh air. Restore breathing. Call a physician immediately.

Ingestion: Dilute acid immediately with large amounts of milk or water, then give milk of magnesia to neutralize. Do not induce vomiting; if it occurs spontaneously, continue to administer fluid. Obtain medical attention as soon as possible.

Maintain observation of patient for possible delayed onset of pulmonary edema.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Prevent contact with the acid. Provide adequate ventilation to control workplace concentrations. Minor leaks or spills can be diluted with plenty of water and neutralized with soda ash or lime. If water is not available, cover contaminated area with sand, ashes, or gravel and neutralize with soda ash or lime.

Major spills must be handled by a predetermined plan. Contact supplier for assistance in this planning and to meet local requirements and disposing of large amounts.

DISPOSAL: Follow Federal, State, and Local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide general ventilation to meet current TLV requirements in the workplace. Where mists are up to 50 mg/m^3, a high efficiency particulate respirator with full facepiece is warranted; a Type C supplied air respirator with full facepiece operated in pressure demand mode is used to 100 mg/m^3. Avoid eye contact by use of chemical safety goggles or face shield where splashing may occur. Imperious protective clothing, such as rubber gloves, aprons, boots, and suits are recommended to avoid body contact with this acid.

Eyewash fountain and safety showers with deluge type heads should be readily available where this material is handled or stored.

Comprehensive preplacement and annual medical examinations with emphasis on dental erosion, cardiopulmonary system, and mucous membrane irritation and cough.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Sulfuric acid in carboys or drums should be stored in clean ventilated storage areas having acid resistant floors with good drainage. Keep out of direct sunlight, do not store above 32 C. Storage facilities to be separate from metallic powders, chromates, chlorates, nitrates, carbides, oxidizables, etc. Soda ash, sand or lime should be kept in general storage or work areas for emergency use. Protect containers against physical damage. Glass bottles need extra protection. Sulfuric acid is highly corrosive to most metals especially below 77% H_2SO_4. Avoid breathing mist or vapors. Avoid contact with skin or eyes. Do not ingest. Do not add water to concentrated acid. Do not smoke. Use nonsparking tools and vapor-proof type electrical fixtures.

DATA SOURCE(S) CODE: 2-12,19,20,24,26,31, 37-39

APPROVALS: MIS CRD J.M. Nielsen

Industrial Hygiene and Safety 10-14-80

MEDICAL REVIEW: Oct. 26, 1980

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

Phone: (518) 385-4085 DIAL COMM 8*235-4085

MATERIALS INFORMATION SERVICES

NO. 48

SODIUM CARBONATE, ANHYDROUS

Date December 1978

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: SODIUM CARBONATE, ANHYDROUS *
OTHER DESIGNATIONS: Soda Ash, Na_2CO_3, ASTM D458, GE Material D4D5, CAS # 000 497 198
MANUFACTURER: Material available from several suppliers, including Allied Chemical Corp., Industrial Chemicals Div., Ashland Chemical Company, and BASF Wyandotte Corp., Industrial Chemicals Group.

*Other forms are available: Monohydrate, $Na_2CO_3 \cdot H_2O$; Decahydrate, $Na_2CO_3 \cdot 10H_2O$, which is also called Sal Soda or Washing Soda.

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Sodium Carbonate, Anhydrous	ca 99	No TLV established* Rat, oral LDLo 4000 mg/kg
*Control at least as a nuisance particulate: OSHA 15 mg/m^3 (total dust) or 5 mg/m^3 (respirable dust); ACGIH (1978) 10 mg/m^3 (total dust) or 5 mg/m^3 (respirable dust).		

SECTION III. PHYSICAL DATA

Melting point, deg C ---------- 851
Boiling point ----- Begins slow decomposition at 400 C
Water solubility at 8 C, Wt.% --------- 7.1
Specific gravity ---------- 2.53
Molecular weight ---------- 106
pH aqueous solution ---------- 11.6

Appearance & Odor: Odorless, white, hygroscopic powder or granular solid.

Note: The decahydrate begins to lose water at or below its melting point (34 C) and the monohydrate at about 50 C. Both will become anhydrous sodium carbonate when when heated at 100 C.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
N/A	N/A	N/A		

This is a noncombustible material. Use extinguishing media appropriate for the surrounding fire.
No unusual fire or explosion hazards; no special firefighting procedures.
Firefighters must wear full protective gear and use self-contained breathing apparatus with a full facepiece when this material is involved in a fire.

SECTION V. REACTIVITY DATA

This is a stable material in closed containers at room temperature. It begins to decompose slowly at 400 C on heating to give carbon dioxide and NaO.
It will react with fluorine gas at room temperature, generating incandescent temperatures
It can produce an explosion if it contacts red-hot aluminum metal.
It is an alkaline material that is incompatible with strong acids.

SECTION VI. HEALTH HAZARD INFORMATION

TLV None established (See Sect. II)

Exposure to airborne dust or mist (from solutions) of this alkaline material can cause irritation of eyes, skin, or upper respiratory tract on contact. Excessive contact is known to have caused "soda ulcers" on hands and perforation of the nasal septum. Sensitivity reactions may occur from prolonged and repeated contact. It is only slightly toxic by ingestion, but ingestion of large amounts can be corrosive to the GI tract and produce abdominal pains, vomiting, diarrhea, and circulatory collapse. Concentrated solutions in prolonged contact with skin or eyes can destroy tissue.

FIRST AID:

Eye Contact: Promptly flush eyes with plenty of running water for 15 minutes or more including under eyelids. Consult a physician if irritation persists.

Skin Contact: Wash affected area of skin well with soap and water. Get medical help if irritation persists. Remove contaminated clothing. Launder before reuse.

Inhalation: Remove to fresh air. Consult physician for observation and treatment.

Ingestion: Contact physician promptly for gastric lavage. Give 2-3 glasses of water to drink to dilute. Do not induce vomiting.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel if spill is large. Avoid producing dusty conditions. Scoop up solid for recovery or disposal. Flush residues and liquid spills to holding area for neutralization before discharge. Those involved in clean-up should use protection against skin contact or inhalation of dust or mist.

Disposal - Follow Federal, State, and local regulations for disposal. After neutralization with, for example, dilute HCl, and further dilution, liquid wastes can usually be flushed to drain with much water.

Solid scrap can be reserved for neutralization of acidic wastes.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Use general ventilation and local exhaust ventilation to meet TLV for nuisance dust and to prevent irritating concentrations of dust or mist in the workplace. Ventilation requirements will depend on the process. An approved self-contained respirator with full facepiece is recommended for nonroutine or emergency conditions for inhalation protection. (OSHA allows use of other approved respirators.)

Use protective rubber gloves and use protective apron and other clothing as needed where splashing may occur with alkaline solutions. Use safety glasses with side shields or safety goggles. Provide an eyewash station near areas of use; a safety shower is needed where large amounts of material (especially as solutions) are handled.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store in a tightly closed container in a clean, well-ventilated place away from strong acids. Protect container from physical damage.

Avoid contact with skin and inhalation of dust or alkaline mist. Follow good hygienic practice.

DATA SOURCE(S) CODE: 1,2,4-8,12,14

APPROVALS:	
MIS, CRD	J. M. Nielsen
Industrial Hygiene and Safety	O. G. Webster
Corporate Medical Staff	George F. Mattioli M.D.

MATERIAL SAFETY DATA SHEET

U. S. DEPARTMENT OF LABOR "ESSENTIALLY SIMILAR " TO FORM LSB-OOS-4

SECTION I

MANUFACTURER'S NAME: State Chemical Company	EMERGENCY TELEPHONE NO.: (806) 373-4253
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE): 100 South Houston - Amarillo, TX 79105	
CHEMICAL NAME AND SYNONYMS: STACO 4050	TRADE NAME AND SYNONYMS: Same
CHEMICAL FAMILY: Alkaline Cleaner	FORMULA: Proprietary

SECTIONS II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (UNITS)	ALLOYS AND METALLIC COATINGS	%	TLV (UNITS)
PIGMENTS — SOME PARTS OF SEC. II			BASE METAL		
CATALYST — DO NOT APPLY.			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (UNITS)
Concentrated Mineral Acids		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	212	SPECIFIC GRAVITY (H_2O=1)	1.0548
VAPOR PRESSURE (MM HG.)	---	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR = 1)	---	EVAPORATION RATE (Water = 1)	1
SOLUBILITY IN WATER	Infinite		
APPEARANCE AND ODOR	Fluorescent Yellow Liquid		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): NONE	FLAMMABLE LIMITS: ---	LEL	UEL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES: NONE			
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE			

NOTE:

All information furnished on this form is from the manufacturers specifications for the material or product.

2-77

STATE CHEMICAL COMPANY

SECTION V HEALTH HAZARD DATA

D LIMIT VALUE	Not Established
OF OVEREXPOSURE	Defatting action on skin ; irritation to mucous membranes.
NCY AND FIRST AID PROCEDURES	If swallowed, give milke, followed by dilute

r, or fruit juice. Induce vomiting, and get medical attention.

SECTION VI REACTIVITY DATA

UTY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	

MPATABILITY (MATERIALS TO AVOID) Strong Acids

ARIOUS DECOMPOSITION PRODUCTS

ARDOUS YMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII SPILL OR LEAK PROCEDURES

O BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

ke up with absorbant material

ASTE DISPOSAL METHOD Consult Federal, State,and LOCAL guidelines

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE) NONE

VENTILATION	LOCAL EXHAUST XX	SPECIAL
	MECHANICAL (GENERAL)	OTHER

PROTECTIVE GLOVES Rubber	EYE PROTECTION Safety goggles

OTHER PROTECTIVE EQUIPMENT Apron

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

DO NOT store next to strong acids

OTHER PRECAUTIONS

MATERIAL SAFETY DATA SHEET

U. S. DEPARTMENT OF LABOR "ESSENTIALLY SIMILAR" TO FORM LSB-005-4

SECTION I

MANUFACTURER'S NAME	Continental Products of Texas	EMERGENCY TELEPHONE NO.	(915) 337-4681
ADDRESS	Box 3627 - Odessa, Texas 79760		
CHEMICAL NAME AND SYNONYMS	Sodium TriPolyPhosphate	TRADE NAME AND SYNONYMS	HYMOL-82
CHEMICAL FAMILY	Inorganic Phosphate	FORMULA	$(Na)x(PO_3)x$

SECTIONS II HAZARDOUS INGREDIENTS

INGREDIENT	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
None		Human	LDLo 500			
		Rat	6500			

POTENTIALLY TOXIC INGREDIENTS	%	TLV (UNITS)
None		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	220	SPECIFIC GRAVITY (H_2O=1)	1.2
VAPOR PRESSURE (MM HG.)	760	PERCENT VOLATILE BY VOLUME (%)	None
VAPOR DENSITY (AIR = 1)	1	EVAPORATION RATE (~~water~~ = 1)	1
SOLUBILITY IN WATER	100		
APPEARANCE AND ODOR	Dark amber liquid		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	COC None	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA	None			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	None
EFFECTS OF OVEREXPOSURE	
EMERGENCY AND FIRST AID PROCEDURES	
Wash with clear water. Should be treated as mildly alkaline liquid.	

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	None
INCOMPATABILITY (MATERIALS TO AVOID)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
None
WASTE DISPOSAL METHOD Usual

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	None	
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (GENERAL)	OTHER
PROTECTIVE GLOVES	EYE PROTECTION	Safety glasses
OTHER PROTECTIVE EQUIPMENT		

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
None
OTHER PRECAUTIONS

DATE ISSUED: R-6-30-82

Continental Products of Texas

J. D. Crawford

J. D. CRAWFORD, VICE PRESIDENT

MATERIAL SAFETY DATA SHEET
FOR

Ed Mathis

HYVAR® X WEED KILLER

MANUFACTURER: E. I. DU PONT DE NEMOURS & CO. (INC.)
BIOCHEMICALS DEPARTMENT
WILMINGTON, DE 19898

EMERGENCY TELEPHONE: Phone CHEMTREC toll free day or night (800)424-9300 or call Du Pont (302)774-1000

DATE: June 1977

CHEMICAL NAME: 5-bromo-3-sec-butyl-6-methyluracil (bromacil) + inerts

TRADE NAME: Hyvar® X weed killer

SECTION I - PHYSICAL DATA

PHYSICAL FORM: Beige powder

VAPOR PRESSURE: Negligible

SOL. IN WATER: Water Suspendable

SPECIFIC GRAVITY:

SECTION II - HAZARDOUS INGREDIENT(S)

	WT %	Acute Oral LD_{50} (Rats)	TLV
Bromacil	80	5200 mg/kg	10 mg/m^3

TLV - 1ppm
STEL - 2ppm

SECTION III - HEALTH HAZARDS

STATEMENT OF HAZARDS: Caution: May irritate eyes, nose, throat and skin.

PRECAUTIONARY MEASURES: Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing.

Material Safety Data Sheet
For
Hyvar® X Weed Killer

SPILL OR LEAK PROCEDURE: Clean up promptly. Do not flush with water, pick up dry by sweeping or other effective means. If spill area is on ground near trees or other valuable plants, remove top 2 inches of soil after initial cleanup.

SECTION IV - FIRE HAZARDS

MIN. IGNITION ENERGY: 4.25 joule MAX. PRESSURE RISE: 1450 psi/sec

LOWER EXPLOSIVE LIMIT: 0.91 g/liter

STATEMENT OF HAZARD: May be ignited by heat or open flame. Fine dust dispersed in air (particularly in confined spaces) may ignite if exposed to high temperature ignition source. These conditions are unlikely to occur in normal, outdoor use of this product.

FIRE FIGHTING/EXTINGUISHING MEDIA: On small fire use dry chemical, CO_2, foam or water spray. If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the contamination hazard. If conditions do not permit, extinguish with water spray. If conditions permit, cool containers with water if exposed to fire. Wear self-contained breathing apparatus.

SECTION V - REACTIVITY

UNDER NORMAL CONDITIONS: Stable

SECTION VI - TRANSPORTATION, STORAGE AND DISPOSAL

SUGGESTED DISPOSAL METHOD: Bury in area away from roots, trees, turf or other desirable plants. Disposal site should be on level ground and not close to streams, ponds, lakes, wells or ditches.

SPECIAL PRECAUTIONS: Do not apply (except as recommended for crop use) or drain or flush equipment on or near desirable trees or other plants, or on areas where the chemical may be washed or moved into contact with their roots. Do not contaminate domestic waters. Keep from contact with fertilizer, insecticides, fungicides, and seeds. Do not re-use container. Bury when empty. Keep out of reach of children.

SECTION VII - SPECIAL PROTECTION INFORMATION

None Indicated

MATERIAL SAFETY DATA SHEET

U. S. DEPARTMENT OF LABOR "ESSENTIALLY SIMILAR " TO FORM LSB-005-4

SECTION I

MANUFACTURER'S NAME	CONTINENTAL PRODUCTS OF TEXAS	EMERGENCY TELEPHONE NO.	
ADDRESS	Box 3627, Odessa, Texas 79760		(915) 337-4681
CHEMICAL NAME AND SYNONYMS	Sodium Acrylamide	TRADE NAME AND SYNONYMS	HYDROCHEM D-300
CHEMICAL FAMILY	Acrylic Polymer	FORMULA	Not applicable

SECTIONS II HAZARDOUS INGREDIENTS

INGREDIENT	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Acrylamide		Rat	170			
		Rabbit		LDLo 1000		

POTENTIALLY TOXIC INGREDIENTS	%	TLV (UNITS)
None		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	215	SPECIFIC GRAVITY (H_2O=1)	1.1
VAPOR PRESSURE (MM HG.) 275°F	260	PERCENT VOLATILE BY VOLUME (%)	75%
VAPOR DENSITY (AIR = 1)	1	EVAPORATION RATE (Water = 1)	1
SOLUBILITY IN WATER	100%		
APPEARANCE AND ODOR	Light amber, odorless		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED) SOS None	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA	None		
SPECIAL FIRE FIGHTING PROCEDURES	None		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None		

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	Acrylamide Air: 0.3 mg/m3 (skin)
EFFECTS OF OVEREXPOSURE	None
EMERGENCY AND FIRST AID PROCEDURES	None

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	None

INCOMPATABILITY (MATERIALS TO AVOID)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wash with water.

WASTE DISPOSAL METHOD Dispose as waste water

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE) None

VENTILATION	LOCAL EXHAUST	None	SPECIAL None
	MECHANICAL (GENERAL)	None	OTHER None

PROTECTIVE GLOVES None	EYE PROTECTION Safety glasses or goggles

OTHER PROTECTIVE EQUIPMENT None

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

None

OTHER PRECAUTIONS None

DATE ISSUED: R-6-30-82

Continental Products of Texas

J. D. Crawford

J. D. CRAWFORD, VICE PRESIDENT

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

Phone: (518) 385-4085 DIAL COMM 8*235-4085

MATERIALS INFORMATION SERVICES

NO. 68

CALCIUM HYPOCHLORITE (Dry)

Date July 1980

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: CALCIUM HYPOCHLORITE (Dry)
OTHER DESIGNATIONS: Calcium Oxychloride, $Ca(OCl)_2$, CAS #007 778 543, HTH (Trade name)
MANUFACTURER: Available from several sources, including:

Canadian Industries Limited
Chemicals
Box 10
Montreal, Quebec, Canada H3C 2R3

Olin Corporation
120 Long Ridge Road
Stamford, CT 06904
Phone: (203) 356-2345

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Calcium Hypochlorite	*	No TLV Established
*Concentration usually stated in terms of weight % of available chlorine. (See ASTM D2022) HTH (high-test hypochlorite) contains about 70% available chlorine. Solid materials with less than 39% available chlorine include chloride of lime and bleaching powder; these contain much chloride ion and water and possibly other impurities, for example: $Ca(OCl)Cl \cdot 2H_2O$. The presence of magnesium hypochlorite in material of high available chlorine level may reduce its stability.		Rat, Oral LD_{50} 850 mg/kg

SECTION III. PHYSICAL DATA

Boiling point, deg C	N/A	Specific gravity	2.35
Vapor pressure, mm Hg	N/A	Melting point, deg C	decomposes @ 100
Solubility in water, 20 C, % by wt	14	Molecular weight	142.98

Appearance and Odor: White non-hygroscopic granules or tablets having a strong chlorine odor.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
N/A	N/A	N/A		

Use a water spray to cool fire-exposed containers of this material and drench area with large amounts of water from a safe position. When containers are heated in a fire situation, they are subject to violent rupture! Contamination or mixing with foreign materials (combustibles, grease, chemicals, etc.) can cause fires of great intensity.

Firefighters need to use self-contained breathing apparatus and full protective clothing for fires involving this material, especially in enclosed areas.

SECTION V. REACTIVITY DATA

Calcium hypochlorite is stable at room temperature in suitable closed containers when kept dry and free from contamination. It does not polymerize.

It is a powerful oxidizing agent which can readily ignite combustibles. Violent reactions or explosions can occur, for example with amines, carbon tetrachloride, charcoal, ethyl alcohol, metal oxides, mercaptans, organic sulfides, sulfur, turpentine, and strong reducing agents. A mixture with glycerine can ignite spontaneously. Material containing over 60% available chlorine will ignite on contact with lubricating oil (addition of about 20% or more of water will prevent this).

In the absence of combustibles and other chemicals, when heated above 100 C, it can undergo exothermic decomposition, evolving oxygen. On contact with acids it forms hypochlorous acid and liberates Cl_2.

GENERAL ELECTRIC

NO. 68

SECTION VI. HEALTH HAZARD INFORMATION

TLV None Established

All tissue contacted can be irritated and/or damaged by this strong oxidizing agent, the degree of injury depending on the dose, available chlorine level, and exposure time. Skin contact can produce vesicular eruptions and eczematoid dermatitis. Eye contact can result in severe eye damage. Inhalation of dust irritates the respiratory tract and may cause pulmonary edema. Ingestion irritates mouth, throat and stomach, and gastric acid will liberate hypochlorous acid. Fatalities can result from severe complications of local injury, shock, toxemia, hemorrhage, wall perforation & obstruction.

FIRST AID:

Eye Contact: Immediately flush with lots of running water for 15 minutes. Call physician.

Skin Contact: Immediately remove contaminated clothing. Flush affected area with water. Get medical help if contact area was large or if symptoms persist.

Inhalation: Remove to fresh air. Support breathing if needed. Get medical help.

Ingestion: Promptly rinse mouth with water and then give large amounts of milk or water to drink, followed by milk of magnesia. Contact physician or hospital. Do not induce vomiting unless instructed by physician.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel of spills. Remove combustibles and ignition sources. Those involved in clean up need protection against contact with solid or inhalation of dust. Prevent generation of dust. Prevent direct discharge into sewers or waterways.

Recover uncontaminated solid material in clean, dry containers. Other spilled material is covered with weak reducing agent, slurried with water, and then flushed with water to a suitable holding tank. Wash spill site well with soap solution containing a weak reducing agent.

DISPOSAL: Use reducing agents to destroy "available chlorine." Adjust pH of reduced liquid to neutral and decant. Discharge neutral liquid, diluting with much water. Dispose of neutral sludge (if any) in a landfill. Follow Federal, State, and Local regulations. (Contact supplier for detailed procedures.)

SECTION VIII. SPECIAL PROTECTION INFORMATION

Suppliers indicate no ventilation requirements in handling this material, but do suggest a dust mask be used for respiratory protection.

It is recommended that sufficient ventilation be provided to prevent any irritation from dust inhalation and to disperse any hypochlorite decomposition products. An approved respirator with a dust filter and cartridge or canister for chlorine absorption should be available.

Use neoprene rubber gloves, chemical goggles, and protective outer wear to prevent contact with the eyes, skin or clothing.

Eyewash stations, safety showers and washing facilities should be available to handling and use areas.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store in closed containers in a cool, dry, well-ventilated low fire-risk area, away from combustible and incompatible materials (see Sect. V). Prevent contamination of material. Protect containers from physical damage. Do not drop, roll, or skid containers.

This material is a powerful oxidizing agent; use with caution! Mix only with water.

Water solutions are not stable, but undergo a slow decomposition.

Prevent contact with eyes, skin, mucous membranes, and clothing. Do not ingest.'

DOT Classification (for over 39% available chlorine) - OXIDIZER

DATA SOURCE(S) CODE: 1,4-11,20,25,26,34

APPROVALS: MIS CRD J.M. Nielsen

Industrial Hygiene and Safety 7-25-80

MEDICAL REVIEW: 5 August 1980

Form Approved
Budget Bureau No. 44-R1387
Approval Expires April 30, 1971

Form No. CSHA-174
May 1968

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: PPG Industries, Incorporated	EMERGENCY TELEPHONE NO.
ADDRESS (Number, Street, City, State, and ZIP Code): One Gateway Center, Pittsburgh, Pa. 15222	
CHEMICAL NAME AND SYNONYMS: Flake and Solid Sodium Hydroxide	TRADE NAME AND SYNONYMS: Flake, Beads & Solid Caustic Soda
CHEMICAL FAMILY: Alkali	FORMULA: NaOH

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	2534	SPECIFIC GRAVITY (H_2O = 1)	2.130
VAPOR PRESSURE (mm Hg.) 1 mm @	739°C	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR = 1)	NA	EVAPORATION RATE (_____ = 1)	NA
SOLUBILITY IN WATER	Appreciable		
APPEARANCE AND ODOR	White to slightly colored solid, no odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): Noncombustible	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
2 Mg/M^3 (Dust) (1969)

EFFECTS OF OVEREXPOSURE
Solid caustic soda is destructive to tissues, producing severe burns. Dust inhalation can injure respiratory tract.

EMERGENCY AND FIRST AID PROCEDURES
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get immediate medical attention. Contaminated clothing and shoes should be removed and washed before re-use.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid contact with some organic materials

INCOMPATABILITY *(Materials to avoid)* NA

HAZARDOUS DECOMPOSITION PRODUCTS NA

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Spilled flake or solid caustic soda may be shoveled up, followed by flushing with water. Dilute Acetic Acid may be used to neutralize final traces of caustic immediately after flushing.

WASTE DISPOSAL METHOD
Waste caustic soda solution should not be discharged directly into sewers or streams. Caustic should first be neutralized with dilute acid and then well diluted with water.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*
Bureau of Mines approved filter-type dust respirators

VENTILATION	LOCAL EXHAUST: Must prevent dust accumulation	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES: Rubber Gloves	EYE PROTECTION: Close-fitting safety goggles

OTHER PROTECTIVE EQUIPMENT
Rubber boots with safety toes, rubber aprons, PVC clothing, "hard" hat, safety shower, eye-washing fountain.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Do not get in eyes, on skin or clothing. Avoid breathing dust. Do not take internally. Wear safety equipment when handling caustic.

OTHER PRECAUTIONS

Chevron U.S.A. Inc.

Material Information Bulletin

(Approved – "Essentially Similar" to Form OSHA 20, Material Safety Data Sheet)

CHEVRON AVIATION HYDRAULIC FLUID A

CMS 247707

DANGER!

HARMFUL OR FATAL IF SWALLOWED
MAY CAUSE SKIN IRRITATION
COMBUSTIBLE
KEEP OUT OF REACH OF CHILDREN

TYPICAL COMPOSITION

Hydrocarbon base oils	84.0%
Additive	15.5%
Tricresylphosphate*	0.5%

*Contains less than 0.1% ortho isomer.

EXPOSURE STANDARD

The suggested Threshold Limit Value is 5 mg/m^3 (milligrams of material per cubic meter of air) for a daily 8-hour exposure. This is the OSHA exposure standard and the Threshold Limit Value for mineral oil mists.

PHYSIOLOGICAL & HEALTH EFFECTS

Expected to cause no more than minor eye irritation. Application into the eyes of rabbits produced slight membrane irritation.

This material is a primary skin irritant. Application onto the skin of rabbits produced severe erythema and edema. See Additional Health Data.

Not expected to be acutely toxic by inhalation but inhalation of oil mists at levels above the exposure standard can cause respiratory irritation or discomfort.

Not expected to be acutely toxic by ingestion. The acute oral LD_{50} (rat) was greater than 5 g/kg. **Note to Physician:** Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid which can cause pneumonitis.

EMERGENCY & FIRST AID PROCEDURES

Eyes

Wash eyes with fresh water for at least 15 minutes. If irritation continues, see a doctor.

Skin

Wash skin thoroughly with soap and water. See a doctor if any of the signs and symptoms described in this bulletin develop or if any skin irritation occurs. Launder contaminated clothing.

Inhalation

If respiratory irritation or discomfort occur when breathing the dust or mist, move the person to fresh air. If irritation or discomfort continue or if any other signs or symptoms occur, see a doctor.

Ingestion

If swallowed, DO NOT make person vomit. Call a doctor immediately.

ADDITIONAL HEALTH DATA

Not expected to be toxic by skin absorption. The acute dermal LD_{50} for rabbits was greater than 5 g/kg.

SPECIAL PROTECTIVE INFORMATION

Eye Protection: No special eye protection is necessary.

Skin Protection: Avoid contact with skin or clothing. Skin contact can be minimized by wearing impervious protective clothing including rubber gloves.

Respiratory Protection: If operating conditions create airborne concentrations which exceed the exposure standard, the use of an approved respirator is recommended.

Ventilation: Use this material only in well ventilated areas.

Other: If skin contact can occur, washing facilities for skin should be available nearby.

FIRE PROTECTION

Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 85°F.

Flash Point: (P-M) 80°C (Min.)
Autoignition Temp.: NDA
Flammability Limits: NDA

Extinguishing Media: CO_2, Dry Chemical, Foam, Water Spray.

Special Fire Fighting Procedures: For fires involving this material, do not enter any enclosed or confined fire space without proper protective eqiupment. This may include self-contained breathing apparatus to protect against the hazardous effects of normal products of combustion or oxygen deficiency. Read the entire bulletin.

SPECIAL PRECAUTIONS

See Page 3.

ENVIRONMENTAL PROTECTION

Environmental Impact: This material is not expected to present any environmental problems other than those associated with oil spills.

Precautions if Material is Released or Spilled: Eliminate all open flames in vicinity of spill or released vapor. Clean up spills as soon as possible, observing precautions in Special Protective Information. Absorb large spills with absorbent clay, diatomaceous earth, or other suitable material. A fire or vapor hazard may exist since these cleanup materials will only absorb liquid; they will not absorb vapor.

Waste Disposal Methods: Place contaminated materials in disposable containers and bury in an approved dumping area.

REACTIVITY DATA

Stability (Thermal, Light, etc.): Stable.

Incompatibility (Materials to Avoid): May react with strong oxidizing materials.

Hazardous Decomposition Products: Normal combustion forms carbon dioxide and water vapor; incomplete combustion can produce carbon monoxide.

Hazardous Polymerization: Will not occur.

PHYSICAL PROPERTIES

Solubility: Miscible in hydrocarbons; insoluble in water.

Appearance (Color, Odor, etc.): Clear red liquid.

Boiling Point: NDA
Melting Point: n/a
Specific Gravity: 0.85
Vapor Pressure (mm Hg & Temp.): NDA
Vapor Density (Air = 1): NDA
Percent Volatile (Volume %): NDA
Evaporation (= 1): NDA
Pour Point: -60°C (Max.)
Viscosity: 14 cSt @ 40°C

n/a = Not Applicable
NDA = No Data Available

SUPPLEMENT

Material Information Bulletin

CHEVRON Aviation Hydraulic Fluid A **CMS 247707**

SPECIAL PRECAUTIONS

READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

Contains Petroleum Distillate.
DO NOT USE OR STORE near flame, sparks or hot surfaces.
USE ONLY IN WELL VENTILATED AREA.
Keep container closed.
DO NOT weld, heat or drill container. Replace cap or bung. Emptied container still contains hazardous or explosive vapor or liquid.

CAUTION! Do not use pressure to empty drum or explosion may result.

CRR-6745(C)(10M-9-79) Printed in U.S.A.
No. 818 - Rev. 12/80

MATERIAL SAFETY DATA SHEET

U. S. DEPARTMENT OF LABOR "ESSENTIALLY SIMILAR" TO FORM LSB-OOS--4

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
Western Chemical Company	(816) 842-0560
ADDRESS (NUMBER, STREET, CITY, STATE, AND ZIP CODE)	
1345 Taney, North Kansas City, Mo. 64116	
CHEMICAL NAME AND SYNONYMS	TRADE NAME
Volatile, neutralizing amines	CORAVOL
CHEMICAL FAMILY	FORMULA
	HS-48

SECTION II HAZARDOUS INGREDIENTS

	TLV	(UNITS)
N, N-Diethylethanolamine $(C_2H_5)_2 NC_2H_4OH$	None est.	
Morpholine $CH_2CH_2 O CH_2 CH_2 NH$	20 ppm	(skin)

SECTION III PHYSICAL DATA

BOILING POINT (°F.) $212^{\circ}F.$		SPECIFIC GRAVITY (H_2O=1)	1.02
VAPOR PRESSURE (MM HG.) 7 mm Hg	@ $68^{\circ}F.$	PERCENT VOLATILE (%)	100
VAPOR DENSITY (AIR = 1) 3		EVAPORATION RATE (=1) Not known	
SOLUBILITY IN WATER Complete			

APPEARANCE AND ODOR Slightly amber liquid, ammonia type odor

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS
Tag. Closed Cup $>209^{\circ}F$	Not known

EXTINGUISHING MEDIA Carbon dioxide or dry chemical fire extinguisher

SPECIAL FIRE FIGHTING PROCEDURES Use respiratory protection when fighting fires where exposure to vapors or gases is possible.

UNUSUAL FIRE AND EXPLOSION HAZARDS When heated to decomposition, emits toxic fumes.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 20 ppm (skin)

EFFECTS OF OVEREXPOSURE: Liquid can cause severe eye injury and mild skin irritation.

EMERGENCY AND FIRST AID PROCEDURES: Flush eyes or skin contact with plenty of water for at least 15 min. Get medical attention for eye contact.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID: None
	STABLE	X	

INCOMPATABILITY (MATERIALS TO AVOID): Avoid mixing with strong acids or strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may produce carbon monoxide and nitrogen oxides.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID: None
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Flush heavily with water.

WASTE DISPOSAL METHOD: Flush minor spills to drain. For large quantity disposal, consult state and local regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): Use air supplied mask in confined areas.

VENTILATION	LOCAL EXHAUST: Preferred		SPECIAL
	MECHANICAL (GENERAL): Acceptable		OTHER

PROTECTIVE GLOVES: Rubber

EYE PROTECTION: Chemical Safety Goggles

OTHER PROTECTIVE EQUIPMENT: Eye bath and safety shower

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep away from sparks and heat. Keep container closed when not in use.

OTHER PRECAUTIONS:

AUG 26 1980

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1327

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MALLINCKRODT, INC.	606/987-7000

ADDRESS (Number, Street, City, State, and ZIP Code)
P.O. Box M, Paris, Kentucky 40361

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
CITRIC ACID, MONOHYDRATE	B-Hydroxytricarballylic Acid
CHEMICAL FAMILY: Carboxylic Acid	FORMULA: $H_3C_6H_5O_7 \cdot H_2O$

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	Decomposes	SPECIFIC GRAVITY (H_2O=1)	1.54
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	133g/100g	Melting Point	153°C

APPEARANCE AND ODOR: Colorless, odorless crystals

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	LEL	UEL
--		--	--

EXTINGUISHING MEDIA
Any media suitable for extinguishing the supporting fire.

SPECIAL FIRE FIGHTING PROCEDURES
Wear self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Fire Hazard: Slight, when heated.

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
None indicated. LD_{50} Oral (Rat) = 11,700mg/Kg.

EFFECTS OF OVEREXPOSURE
Toxicity moderate via oral and inhalation routes. A moderate irritant with some allergenic properties.

EMERGENCY AND FIRST AID PROCEDURES
SKIN: Wash thoroughly with plenty of water. Check for irritation.

EYES: Flush with plenty of water and consult physician.

INGESTION: Give water by mouth (2 glasses) and induce vomiting. Call physician.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS
CO_2

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Scoop up material and dilute with water. Neutralize with soda ash or sodium bicarbonate. Wash down drain with excess water.

WASTE DISPOSAL METHOD
1. See above.
2. Send to an approved landfill.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*
Dust Mask (NIOSH approved)

VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL *(General)*	X	OTHER

PROTECTIVE GLOVES: Rubber	EYE PROTECTION: Goggles

OTHER PROTECTIVE EQUIPMENT
Lab coat or coveralls

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in a cool, dry place.

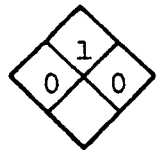
OTHER PRECAUTIONS

ADAPTED FROM USDL
FORM NO LSB-005-4-MAY 1969

SHELL OIL COMPANY
SHELL CHEMICAL COMPANY
SHELL DEVELOPMENT COMPANY
SHELL PIPE LINE CORPORATION

MSDS 60070-2

HAZARD RATING



NFPA

MATERIAL SAFETY DATA SHEET

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.

SECTION I

MANUFACTURER'S NAME: Shell Oil Company	EMERGENCY TELEPHONE NO.: (713) 473-9461
ADDRESS (Number, Street, City, State, and ZIP Code): One Shell Plaza, Houston, Texas 77002	
CHEMICAL NAME AND SYNONYMS: Lubricating Oil	TRADE NAME: SHELL CARNEA® OIL 33 (31)
CHEMICAL FAMILY: Hydrocarbon	FORMULA: Code 64518

SECTION II HAZARDOUS INGREDIENTS*

COMPOSITION	Approx. %	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Petroleum hydrocarbons	100	Rat	>5g/kg			
		Rabbit		>2g/kg		
This formulation calls for special precautions						
	SEE ATTACHED PAGE					

SECTION III PHYSICAL DATA

BOILING POINT (°F)		SPECIFIC GRAVITY (H_2O=1)	0.92
VAPOR PRESSURE (mmHg)		PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____=1)	
SOLUBILITY IN WATER	Insol.		

APPEARANCE AND ODOR: Light brown liquid, slight odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
385°F PMCC	N.A.		

EXTINGUISHING MEDIA: Dry chemical type preferred

SPECIAL FIRE FIGHTING PROCEDURES: None special

UNUSUAL FIRE AND EXPLOSION HAZARDS: None unusual

*Modified by Shell Oil Company

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Vapor - not established. Oil mist - 5 mg/m^3

EFFECTS OF OVEREXPOSURE
Pulmonary irritation possible. Defatting action on skin. Prolonged or repeated contact may cause skin disorders such as dermatitis, folliculitus, oil acne or even skin cancer.

EMERGENCY AND FIRST AID PROCEDURES
Eye - flush with water for at least 15 minutes. Skin - remove oil by wiping or applying waterless hand cleaner, followed by washing with soap and water. Remove all contaminated clothing. Ingestion - induce vomiting if conscious and consult medical personnel.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Heat and mist formation; excessive heat
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS
CO, CO_2 and oxygenates can be formed during combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Absorb with clay, diatomaceous earth, or other inert material.

WASTE DISPOSAL METHOD
Controlled burning in compliance with local regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
NIOSH-approved respirator to avoid exposure to hot vapor or mist.

VENTILATION		
	LOCAL EXHAUST As required to prevent exposure to vapor or mist.	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Oil resistant (rubber)	Goggles if oil is being sprayed or splashed.

OTHER PROTECTIVE EQUIPMENT
Appropriate clothing to avoid skin contact.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid breathing oil mist and vapors. Avoid skin contact.

OTHER PRECAUTIONS
Launder contaminated clothing before using. Discard leather goods when contaminated. Wash before eating or smoking.

Product Safety and Compliance
Oil and Chemical Products
Shell Oil Company
DATE July 1978

The petroleum hydrocarbons in this product contain a mixture of paraffinic, naphthenic, aromatic, and small amounts of heterocyclic hydrocarbons. As with other petroleum oils, the aromatics contain polycyclic compounds of various concentrations and structures. Some of these polycyclics may be those which have been shown to induce cancer in animals under laboratory conditions. Epidemiologic studies have suggested the possibility of skin cancer induction in man after prolonged and repeated contact with oils containing these materials under conditions of poor personal hygiene. Inhalation of mists arising from oils containing these materials may also present a cancer hazard.

MATERIAL SAFETY DATA SHEET

U. S. DEPARTMENT OF LABOR "ESSENTIALLY SIMILAR " TO FORM LSB--OOS--4

SECTION I

MANUFACTURER'S NAME	Continental Products of Texas	EMERGENCY TELEPHONE NO. (915) 337-4681
ADDRESS	Box 3627 - Odessa, Texas 79760	
CHEMICAL NAME AND SYNONYMS	Sodium Sulfite	TRADE NAME AND SYNONYMS DEOX-21
CHEMICAL FAMILY	Sulfur	FORMULA Na_2SO_3

SECTIONS II HAZARDOUS INGREDIENTS

INGREDIENT	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Sulfurous Acid		Human	LDLo 500 mg/Kg			

POTENTIALLY TOXIC INGREDIENTS	%	TLV (UNITS)
Sodium Sulfite	99	
Cobalt Sulfate	1	

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	None	SPECIFIC GRAVITY (H_2O=1)	2.63
VAPOR PRESSURE (MM HG.)	None	PERCENT VOLATILE BY VOLUME (%)	None
VAPOR DENSITY (AIR = 1)	None	EVAPORATION RATE (_____ = 1)	None
SOLUBILITY IN WATER	100		
APPEARANCE AND ODOR	White powder - No odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	COC None	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA	None			
SPECIAL FIRE FIGHTING PROCEDURES	None			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None - will emit sulfur dioxide fumes when heated dry above 500°F.			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	
EFFECTS OF OVEREXPOSURE	None
EMERGENCY AND FIRST AID PROCEDURES	None

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (MATERIALS TO AVOID)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Sweep or wash with water.
WASTE DISPOSAL METHOD Regular

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	None		
VENTILATION	LOCAL EXHAUST	None	SPECIAL None
	MECHANICAL (GENERAL)	None	OTHER
PROTECTIVE GLOVES	None	EYE PROTECTION	Glasses
OTHER PROTECTIVE EQUIPMENT			

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid excess heat - over 250°F.
OTHER PRECAUTIONS

DATE ISSUED: R-6-30-82

Continental Products of Texas

J. D. Crawford mo

J. D. CRAWFORD, VICE PRESIDENT

MATERIAL SAFETY DATA SHEET

U. S. DEPARTMENT OF LABOR "ESSENTIALLY SIMILAR" TO FORM LSB-005-4

SECTION I

MANUFACTURER'S NAME	Continental Products of Texas	EMERGENCY TELEPHONE NO.	(915) 337-4681
ADDRESS	Box 3627 - Odessa, Texas 79760		
CHEMICAL NAME AND SYNONYMS	Sodium Bichromate	TRADE NAME AND SYNONYMS	CHROMINE-T
CHEMICAL FAMILY	Organic Chromates	FORMULA	$Na_2Cr_2O_7$ + water

SECTIONS II HAZARDOUS INGREDIENTS

INGREDIENT	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
		Human	LDLo 50 mg/Kg			
		Guinea Pig		LDLO 335		
Sodium Bichromate	40					

POTENTIALLY TOXIC INGREDIENTS	%	TLV (UNITS)
None		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	212	SPECIFIC GRAVITY (H_2O=1)	1.4
VAPOR PRESSURE (MM HG.) 212°F	760	PERCENT VOLATILE BY VOLUME (%)	60
VAPOR DENSITY (AIR = 1)		EVAPORATION RATE (water = 1)	1
SOLUBILITY IN WATER	100%		
APPEARANCE AND ODOR	Dark amber - no odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	COC None	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA	None			
SPECIAL FIRE FIGHTING PROCEDURES	None			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	
EFFECTS OF OVEREXPOSURE	Corrosive action on skin and mucous membranes.
EMERGENCY AND FIRST AID PROCEDURES	Wash with water.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (MATERIALS TO AVOID)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Wash with water.
WASTE DISPOSAL METHOD As water.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE) None		
VENTILATION	LOCAL EXHAUST None	SPECIAL
	MECHANICAL (GENERAL) None	OTHER
PROTECTIVE GLOVES None	EYE PROTECTION Glasses	
OTHER PROTECTIVE EQUIPMENT None		

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Prevent prolonged skin contact.
OTHER PRECAUTIONS

DATE ISSUED: R-6-30-82

Continental Products of Texas

J. D. Crawford

J. D. CRAWFORD, VICE PRESIDENT

MATERIAL SAFETY DATA SHEET

U. S. DEPARTMENT OF LABOR "ESSENTIALLY SIMILAR " TO FORM LSB-005-4

SECTION I

MANUFACTURER'S NAME	Continental Products of Texas	EMERGENCY TELEPHONE NO.	(915) 337-4681
ADDRESS	Box 3627 - Odessa, Texas 79760		
CHEMICAL NAME AND SYNONYMS	Zinc sulfate	TRADE NAME AND SYNONYMS	ANTIPOL-640
CHEMICAL FAMILY	Metal organic Combination	FORMULA	Not applicable compounded.

SECTIONS II HAZARDOUS INGREDIENTS

INGREDIENT	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
		Human	LDLo 50			
		Rat	LDLo 2200			

POTENTIALLY TOXIC INGREDIENTS	%	TLV (UNITS)

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	None	SPECIFIC GRAVITY (H_2O=1)	No
VAPOR PRESSURE (MM HG.)	None	PERCENT VOLATILE BY VOLUME (%)	No
VAPOR DENSITY (AIR = 1)	None	EVAPORATION RATE (_____ = 1)	No
SOLUBILITY IN WATER	100		
APPEARANCE AND ODOR	White powder		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	COC	None	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA		None			
SPECIAL FIRE FIGHTING PROCEDURES		None			
UNUSUAL FIRE AND EXPLOSION HAZARDS		None			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	
EFFECTS OF OVEREXPOSURE	None
EMERGENCY AND FIRST AID PROCEDURES	None

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (MATERIALS TO AVOID)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
	None
WASTE DISPOSAL METHOD	Regular Waste

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)			
VENTILATION	LOCAL EXHAUST	SPECIAL	
	MECHANICAL (GENERAL)	OTHER	
PROTECTIVE GLOVES	No	EYE PROTECTION	Safety Glasses
OTHER PROTECTIVE EQUIPMENT	Dust Respirator		

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	None
OTHER PRECAUTIONS	None

DATE ISSUED: R-6-30-82

Continental Products of Texas

J. D. Crawford

J. D. CRAWFORD, VICE PRESIDENT

MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

Phone: (518) 385-4085 DIAL COMM 8*235-4085

MATERIALS INFORMATION SERVICES

NO. 53

CHLORINE

Date July 1979

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: CHLORINE
OTHER DESIGNATIONS: Cl_2, CAS # 007 782 505
DESCRIPTION: A gas shipped in steel cylinders as a liquid under its own vapor pressure.
MANUFACTURER: Available from many suppliers.

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Chlorine *Current OSHA ceiling limit. ACGIH TLV (1978) is 1 ppm with a STEL of 3 ppm for up to 15 minutes exposure. NIOSH (1976) proposed a ceiling limit of 0.5 ppm (15 minute sampling time). (Controversy going on whether OSHA standard should include ceiling limit or not.)	> 99	8-hr TWA 1 ppm (C) or 3 mg/m^3 *

SECTION III. PHYSICAL DATA

Boiling point at 1 atm, deg C --------- -34
Vapor pressure at 20 C, mm Hg --------- 4800
Vapor density (Air=1) ---------- 2.49
Water solubility at 20 C, 1 atm, g/l -- 7.3

Density at 0 °C:
Gas at 1 atm, g/liter ---- 3.214
Liquid at 3.65 atm, g/cc -- 1.47
Molecular weight ----------70.91

Appearance & Odor: A greenish-yellow gas or clear, amber-colored liquid with a suffocating, pungent, irritating odor. The odor recognition threshold (100% of test panel, unfatigued) is reported at 0.314 ppm. The odor is easily noticed at 1.9-3.5 ppm and has been reported as intolerable at 2.6-41 ppm, depending on the observer.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
Non-flammable				

Use extinguishing media that is appropriate for the surrounding fire. Use water spray to cool intact, fire-exposed containers (one ton tanks and cylinders will release chlorine when a fusible metal safety plug melts at 158-165F.) If possible, have specially trained personnel remove intact cylinders from fire area.

Chlorine will support the burning of most combustible materials, just as oxygen does. Flammable gases and vapors can form explosive mixtures with chlorine.

Firefighters must use self-contained breathing equipment, eye protection, and full protective clothing when fighting fires in which chlorine is involved.

SECTION V. REACTIVITY DATA

Chlorine is stable in steel containers at room temperature when dry. [Intense local heat (above 215°C) on steel walls can cause steel to ignite in chlorine.]

It is a powerful oxidizing agent which reacts violently with reducing agents and combustible materials. Materials such as acetylene, turpentine, other hydrocarbons, ammonia, hydrogen, ether, powdered metals, etc. must be kept away from chlorine.

It reacts with H_2S and H_2O forming HCl; it combines with CO and SO_2 to form phosgene and sulfuryl chloride (toxic and corrosive materials).

Wet chlorine (150 ppm water) corrosively attacks most common metals. Handling chlorine requires special materials technology.

GENERAL ELECTRIC

SECTION VI. HEALTH HAZARD INFORMATION

TLV 1 ppm or 3 mg/m^3 (C)

Chlorine believed to damage the body by local corrosive effects only; no systemic effects. 5-8 ppm in air will be severely irritating to eyes, nose, and respiratory tract of most individuals in a few minutes (10 ppm intolerable for avg. person). Higher level exposures produce coughing, dyspnea, burns of the skin, conjunctivitis, pulmonary edema (may be delayed) and death, depending on concentration and time of exposure (35-51 ppm, lethal in an hour; a few deep breaths fatal at 1000 ppm). Reduced respiratory capacity (especially among smokers) and dental erosion can result from chronic low level exposure. Any contact with liquid chlorine causes burns, blistering and tissue destruction.

FIRST AID: Call physician IMMEDIATELY for any person overexposed to chlorine!

Eye Contact: Flush eyes with water for at least 15 minutes, holding eyelids open. If medical help is not readily available, continue flushing with water.

Skin Contact: (Treat for inhalation exposure first!) Remove contaminated clothing under a safety shower. Wash exposed skin areas thoroughly with water.

Inhalation: Remove to fresh air. Restore breathing when required. Have trained person administer oxygen until victim breathes easily on his own. Keep warm and at rest! In mild cases, give milk to relieve throat irritation.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Establish written emergency plans and special training of personnel where chlorine is used.

Notify safety personnel. Provide ventilation. Exclude from area all except specially trained, assigned personnel with approved self-contained breathing equipment and appropriate protective clothing. Find and stop leak. (Large uncontrollable leaks require environmental consideration and possible evacuation of surrounding area.)

Move leaking container to isolated area. Position to release gas not liquid.

When possible draw off chlorine to process or to disposal system.

DISPOSAL: Bubble through a large volume of 15% aqueous NaOH or other alkali. Suitably dispose of resulting solution. Follow Federal, State and local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide general and local exhaust ventilation to meet TLV requirements. Provide suitable venting for low lying areas. Use enclosed, isolated processing and handling whenever possible. Full face-piece respirators must be available for non-routine and emergency use: canister gas mask below 5000 ppm in air and self-contained breathing equipment for other conditions.

Workers should be provided with chemical safety goggles and impervious gloves. Full protective clothing must be used when needed to prevent exposure to chlorine, liquid or gas. Daily change of work clothes and showering after work shift are recommended.

Eyewash stations and chemical safety showers must be available in areas of handling and storage of chlorine.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store chlorine containers in well-ventilated areas of low fire potential, away from incompatible materials (see Sec. V) and away from sources of heat and ignition. Protect containers from weather and physical damage; follow standard safety procedures for containers of compressed, corrosive gases. Provide special training to workers handling chlorine. Regularly inspect (and test) piping and containment used for chlorine service. Liquid levels should be less than 85% of tank or cylinder capacity.

Use preplacement and periodic medical exams; preclude from workplace exposure to chlorine those with cardiac, pulmonary or chronic respiratory problems.

Special Ref: "Chlorine and Hydrogen Chloride", Chapter 5, National Academy of Science, Washington, DC (1976).

DATA SOURCE(S) CODE: 2-12, 17, 19, 24, 26

APPROVALS: MIS, CRD J. M. Nielsen

Industrial Hygiene and Safety O. G. Wolcott

MEDICAL REVIEW: 12/79

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 18 SEP 78 PRODUCT CODE: 21148

PRODUCT NAME: DIETHYLENE GLYCOL (REGULAR GRADE) MSD: 0070

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
DIETHYLENE GLYCOL	99

SECTION 1 PHYSICAL DATA

BOILING POINT: 472.6F : SOL. IN WATER: COMPLETELY MISCIBLE
VAP PRESS: 0.01 MMHG @ 20C : SP. GRAVITY: 1.118 @ 20/20C
VAP DENSITY (AIR=1): 2.14 : % VOLATILE BY VOL: NOT APPLICABLE
APPEARANCE AND ODOR: COLORLESS, MILD, LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 255F : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: PMCC : LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE.

SECTION 3 REACTIVITY DATA

STABILITY: IGNITES IN AIR AT 444F.
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): DAM TO PREVENT WATER POLLUTION. SOAK UP WITH ABSORBENT MATERIAL. USE VACUUM TRUCK TO RECOVER. RETURN TO PLANT FOR REPROCESSING.
DISPOSAL METHOD: BURN ACCORDING TO LOCAL, STATE, AND FEDERAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY FOR LAB ANIMALS; MODERATE FOR HUMANS.
EYE CONTACT: UP TO MILD IRRITATION.
SKIN CONTACT: ESSENTIALLY NON-IRRITATING.
SKIN ABSORPTION: ABSORBED THROUGH SKIN BUT LOW IN TOXICITY BY THIS ROUTE.
INHALATION: NO GUIDE FOR CONTROL KNOWN. NOT LIKELY A PROBLEM

(CONTINUED ON PAGE 2)

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 18 SEP 78 PRODUCT CODE: 21148
PRODUCT (CONT'D): DIETHYLENE GLYCOL (REGULAR GRADE) MSD: 0070

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

INHALATION: (CONTINUED)
BECAUSE OF LOW VOLATILITY. A LEVEL OF 100 PPM HAS BEEN SUGGETED AS A GUIDE IF MATERIAL IS HANDLED HOT.
EFFECTS OF OVEREXPOSURE: DEGENERATION OF THE KIDNEY AND TO A LESSER EXTENT THE LIVER.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR 5 MINUTES IS GOOD SAFETY PRACTICE. CONSULT MEDICAL.
SKIN: WASH OFF IN FLOWING WATER. DECONTAMINATE CLOTHING AND ACCESSORIES BEFORE REUSE. GOOD PERSONAL HYGIENE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR.
INGESTION: TOXIC BY INGESTION. INDUCE VOMITING IMMEDIATELY. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY.
NOTE TO PHYSICIAN: STAIN FOR EVIDENCE OF CORNEAL ABRASION OR INJURY. MAY CAUSE NEUROLOGIC SIGNS AND SYMPTOMS. MAY CAUSE KIDNEY DAMAGE. MAY CAUSE ELECTROLYTE IMBALANCE. SUGGEST BASELINE CBC, UA, AND 12 TEST. SUGGEST BASELINE ELECTROLYTES. CONSULT STANDARD LITERATURE. USE OF ALCOHOL MAY BE HELPFUL.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: IF HANDLING HOT MATERIAL, CONTROL VAPORS TO 100 PPM OR LESS. NONE NORMALLY NEEDED.
PROTECTIVE CLOTHING: CLEAN CLOTHING.
EYE PROTECTION: NOT NORMALLY NECESSARY.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: PRACTICE REASONABLE CAUTION TO AVOID SKIN AND EYE CONTACT. AVOID BREATHING VAPORS FROM HOT MATERIAL.

ADDITIONAL INFORMATION: ----

LAST PAGE

El Paso Natural Gas Company

MEMORANDUM

TO: New Mexico Plants Listed Below

FROM: Vernon D. Rheay

DATE: March 24, 1983

PLACE: Permian Division - Laboratory

RE: Discontinuance Of Side-Stream Filter Backwashing On Closed Systems.

To further improve our efforts to eliminate any discharging of waste water containing hazardous metals and to comply with New Mexico environmental standards, we recommend that the following steps be taken immediately to bring this about:

1. Discontinue <u>any</u> scheduled or occasional backwashing of side-stream filters on the engine jacket and oil cooling systems. These systems contain Chromium which is listed as a hazardous waste when consumed in drinking water. This does not include cooling tower side-stream filters.
2. Should the draining of an engine become necessary because of work-over, this water must no longer be allowed to go to drain. A suitable tank or an accumulation of drums should be arranged for to store this water. Following the repairs this water, of course, should be added back into the system.
3. An inspection for possible leaking valves into the drain system should be undertaken and repaired if necessary. We are looking for zero loss of Chromium containing water to the waste water system.
4. Extra care should be taken to avoid any spillage of chemicals during addition to the systems or during transfer of coolant for engine workover reasons.

We are already monitoring the Chromium content of the wastewater and should be able to advise you of an improvement in this area.

We do not anticipate serious problems from this change, but close observation of the systems should be maintained and detected sour gas leaks and/or leaks should be repaired as soon as possible.

Please advise if you would like to dicuss this change or if there are questions.

Vernon D. Rheay,
Chief Chemist

VDR/sf

cc: J. W. Cronenberg
Ken Corder
R. T. Wright
Charlie Mathis
C. E. Goin
L. T. McRae - Eunice
Bill Kemper - Eunice
M. E. Webb - Monument
Willie Harbin - Jal #3
Elmo Daniels - Jal #3
Loyd McWhorter - Jal #1
Bill Tuttle - Jal #4 Roy Hess Jal #4

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "A" at Jal No. 2 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 15 (Acres)

LENGTH: (Longest waterway) L = 1150 (Ft)

ELEVATION DIFFERENCE: H = 26.1 (Ft)

3191.5 ft. minus 3165.4 ft

S = 2.27 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 75

TIME OF CONCENTRATION: Figure 2-2 1/ (large gullies) Tc = 0.13

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P = 2.10	(In.)
	5	P = 3.00	(In.)
	10	P = 3.50	(In.)
DIRECT RUNOFF: Figure 2-4 1/	2	Q = 0.43	(In.)
	5	Q = 0.98	(In.)
	10	Q = 1.30	(In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65=(Southern Desert valleys and Plains)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.30 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	2	q = 8.4	(CFS)
	5	q = 19.1	(CFS)
	10	q = 25.4	(CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V = 0.5	(Ac.Ft)
	5	V = 1.2	(Ac.Ft.
	10	V = 1.6	(Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "A" at Jal No. 2 Plant

Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 15 (Acres)

LENGTH: (Longest waterway) L = 1150 (Ft)

ELEVATION DIFFERENCE: H = 26.1 (Ft)

3191.5 ft. minus 3165.4 ft

S = 2.2 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 75

TIME OF CONCENTRATION: Figure 2-2 1/ Tc = 0.13

(large gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P = 4.5	(In.)
	50	P = 5.1	(In.)
	100	P = 5.7	(In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q = 2.15	(In.)
	50	Q = 2.50	(In.)
	100	Q = 3.00	(In.)
DISTRIBUTION CURVE NO.: Exhibit 2-3 1/		DC = 65=(Southern Desert valleys and Plains)	
RATE OF RUNOFF: Figure 2-5 1/		I = 1.30	(CFS/AC In.)
PEAK DISCHARGE: q = AxQxI	25	q = 41.9	(CFS)
	50	q = 48.8	(CFS)
	100	q = 58.5	(CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V = 2.7	(Ac.Ft)
	50	V = 3.1	(Ac.Ft.
	100	V = 3.8	(Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "B" at Jal No. 2 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 11.9 (Acres)

LENGTH: (Longest waterway) L = 2000 (Ft)

ELEVATION DIFFERENCE: H = 36.4 (Ft)

3204 ft. minus 3167.6 ft

S = 1.82 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 85

TIME OF CONCENTRATION: Figure 2-2 1/ Tc = 0.21
(large gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P =	2.10 (In.)
	5	P =	3.00 (In.)
	10	P =	3.50 (In.)
DIRECT RUNOFF: Figure 2-4 1/	2	Q =	0.85 (In.)
	5	Q =	1.60 (In.)
	10	Q =	2.00 (In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65=(Southern Desert valleys and Plains)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.25 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	2	q =	12.6 (CFS)
	5	q =	25.8 (CFS)
	10	q =	29.8 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V =	0.8 (Ac.Ft)
	5	V =	1.6 (Ac.Ft.
	10	V =	2.00 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "B" at Jal No. 2 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 11.9 (Acres)

LENGTH: (Longest waterway) L = 2000 (Ft)

ELEVATION DIFFERENCE: H = 36.4 (Ft)

3204 ft. minus 3167.6 ft

S = 1.82 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 85

TIME OF CONCENTRATION: Figure 2-2 1/ (large gullies) Tc = 0.21

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P = 4.5	(In.)
	50	P = 5.1	(In.)
	100	P = 5.7	(In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q = 2.90	(In.)
	50	Q = 3.50	(In.)
	100	Q = 4.00	(In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65=(Southern Desert valleys and Plains)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.25 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	25	q = 43.1	(CFS)
	50	q = 52.1	(CFS)
	100	q = 59.5	(CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V = 2.9	(Ac.Ft)
	50	V = 3.5	(Ac.Ft.
	100	V = 4.0	(Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "C" at Jal No. 2 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 21.9 (Acres)

LENGTH: (Longest waterway) L = 1600 (Ft)

ELEVATION DIFFERENCE: H = 24.5 (Ft)

3204 ft. minus 3179.5 ft

S = 1.53 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 82

TIME OF CONCENTRATION: Figure 2-2 1/ Tc = 0.195
(large gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P = 2.10	(In.)
	5	P = 3.00	(In.)
	10	P = 3.50	(In.)
DIRECT RUNOFF: Figure 2-4 1/	2	Q = 0.68	(In.)
	5	Q = 1.35	(In.)
	10	Q = 1.70	(In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65=(Southern Desert valleys and Plains)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.25 (CFS/Ac In.)

PEAK DISCHARGE: q = AxQxI	2	q = 18.6	(CFS)
	5	q = 36.9	(CFS)
	10	q = 46.5	(CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V = 1.2	(Ac.Ft)
	5	V = 2.5	(Ac.Ft.
	10	V = 3.1	(Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "C" at Jal No. 2 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 21.9 (Acres)

LENGTH: (Longest waterway) L = 1600 (Ft)

ELEVATION DIFFERENCE: H = 24.5 (Ft)

3204 ft. minus 3179.5 ft

S = 1.53 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 82

TIME OF CONCENTRATION: Figure 2-2 1/ Tc = 0.195
(large gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P =	4.5 (In.)
	50	P =	5.1 (In.)
	100	P =	5.7 (In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q =	2.60 (In.)
	50	Q =	3.10 (In.)
	100	Q =	3.70 (In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65=(Southern Desert valleys and Plains)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.25 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	25	q =	71.2 (CFS)
	50	q =	84.9 (CFS)
	100	q =	101.3 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V =	4.7 (Ac.Ft)
	50	V =	5.6 (Ac.Ft.
	100	V =	6.8 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET [1]

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: [2] Drainage Area "D" at Jal No. 2 Plant
Lea County, New Mexico

DRAINAGE AREA: [3] (by planimeter) A = 17.8 (Acres)

LENGTH: (Longest waterway) L = 950 (Ft)

ELEVATION DIFFERENCE: H = 11.8 (Ft)

3204 ft. minus 3192.3 ft

S = 1.24 %

RUNOFF CURVE NUMBER: Table 2-1 [1] CN = 82

TIME OF CONCENTRATION: Figure 2-2 [1] Tc = 0.14
(large gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P = 2.10	(In.)
	5	P = 3.00	(In.)
	10	P = 3.50	(In.)
DIRECT RUNOFF: Figure 2-4 [1]	2	Q = 0.68	(In.)
	5	Q = 1.35	(In.)
	10	Q = 1.70	(In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 [1] DC = 65=(Southern Desert valleys and Plains)

RATE OF RUNOFF: Figure 2-5 [1] I = 1.30 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	2	q = 15.7	(CFS)
	5	q = 31.2	(CFS)
	10	q = 39.3	(CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V = 1.0	(Ac.Ft)
	5	V = 2.0	(Ac.Ft.
	10	V = 2.5	(Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

Checked by

CALCULATED BY: O. Uribe/F. R. Sprester

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "D" at Jal No. 2 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 17.8 (Acres)

LENGTH: (Longest waterway) L = 950 (Ft)

ELEVATION DIFFERENCE: H = 11.8 (Ft)

3204.1 ft. minus 3192.3 ft

S = 1.24 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 82

TIME OF CONCENTRATION: Figure 2-2 1/ Tc = 0.14
(large gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P = 4.5	(In.)
	50	P = 5.1	(In.)
	100	P = 5.7	(In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q = 2.60	(In.)
	50	Q = 3.10	(In.)
	100	Q = 3.70	(In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65=(Southern Desert valleys and Plains)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.30 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	25	q = 60.2	(CFS)
	50	q = 71.7	(CFS)
	100	q = 85.6	(CFS)

VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft

	25	V = 3.8	(Ac.Ft)
	50	V = 4.6	(Ac.Ft.
	100	V = 5.5	(Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ Some of the old pond structures located in Cheyanne Draw will retain storm runoff along with sinks and depressions in and around the site.

3/ See Figure 5A (Map Pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester Checked by

DATE: April 8, 1981

AREA DESCRIPTION: 2/Drainage Area "A" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/(by planimeter) A = 4.7 (Acres)

LENGTH: (Longest waterway) L = 550 (Ft)

ELEVATION DIFFERENCE: H = 2 (Ft)

3269.5 ft. minus 3267.5 ft

S = 0.36 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 75

TIME OF CONCENTRATION: Figure 2-3 1/ Tc = 0.2
(Small Gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P =	2.10 (In.)
	5	P =	3.00 (In.)
	10	P =	3.50 (In.)
DIRECT RUNOFF: Figure 2-4 1/	2	Q =	0.43 (In.)
	5	Q =	0.98 (In.)
	10	Q =	1.30 (In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65 (SD-3)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.5 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	2	q =	3.0 (CFS)
	5	q =	6.9 (CFS)
	10	q =	9.2 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V =	0.17 (Ac.Ft)
	5	V =	0.38 (Ac.Ft.
	10	V =	0.51 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "A" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/(by planimeter) A = 4.7 (Acres)

LENGTH: (Longest waterway) L = 550 (Ft)

ELEVATION DIFFERENCE: H = 2 (Ft)

3269.5 ft. minus 3267.5 ft

S = 0.36 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 75

TIME OF CONCENTRATION: Figure 2-3 1/ Tc = 0.2

	(Small Gullies) Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P = 4.5	(In.)
	50	P = 5.1	(In.)
	100	P = 5.7	(In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q = 2.1	(In.)
	50	Q = 2.50	(In.)
	100	Q = 3.00	(In.)
DISTRIBUTION CURVE NO.: Exhibit 2-3 1/		DC = 65 (SD-3)	
RATE OF RUNOFF: Figure 2-5 1/		I = 1.5	(CFS/AC In.)
PEAK DISCHARGE: q = AxQxI	25	q = 14.8	(CFS)
	50	q = 17.6	(CFS)
	100	q = 21.2	(CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V = 0.82	(Ac.Ft)
	50	V = 0.98	(Ac.Ft.)
	100	V = 1.2	(Ac.Ft.)

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "B" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 14.2 (Acres)

LENGTH: (Longest waterway) L = 1100 (Ft)

ELEVATION DIFFERENCE: H = 6 (Ft)

3269.5 ft. minus 3263.5 ft

S = 0.55 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 80

TIME OF CONCENTRATION: Figure 2-3 1/ (Small Gullies) Tc = 0.44

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P =	2.10 (In.)
	5	P =	3.00 (In.)
	10	P =	3.50 (In.)
DIRECT RUNOFF: Figure 2-4 1/	2	Q =	0.60 (In.)
	5	Q =	1.25 (In.)
	10	Q =	1.65 (In.)
DISTRIBUTION CURVE NO.: Exhibit 2-3 1/		DC =	65 (SD-3)
RATE OF RUNOFF: Figure 2-5 1/		I =	0.95 (CFS/Ac In.)
PEAK DISCHARGE: q = AxQxI	2	q =	8.1 (CFS)
	5	q =	16.9 (CFS)
	10	q =	22.2 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V =	0.71 (Ac.Ft)
	5	V =	1.48 (Ac.Ft.
	10	V =	1.95 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "B" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/(by planimeter) A = 14.2 (Acres)

LENGTH: (Longest waterway) L = 1100 (Ft)

ELEVATION DIFFERENCE: H = 6 (Ft)

3269.5 ft. minus 3263.5 ft

S = 0.55 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 80

TIME OF CONCENTRATION: Figure 2-3 1/ Tc = 0.44
(Small Gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P =	4.5 (In.)
	50	P =	5.1 (In.)
	100	P =	5.7 (In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q =	2.45 (In.)
	50	Q =	2.95 (In.)
	100	Q =	3.50 (In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65 (SD-3)

RATE OF RUNOFF: Figure 2-5 1/ I = 0.95 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	25	q =	33.0 (CFS)
	50	q =	39.8 (CFS)
	100	q =	47.2 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V =	2.9 (Ac.Ft)
	50	V =	3.5 (Ac.Ft.)
	100	V =	4.1 (Ac.Ft.)

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "C" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/ (by planimeter) A = 19.8 (Acres)

LENGTH: (Longest waterway) L = 925 (Ft)

ELEVATION DIFFERENCE: H = 7.6 (Ft)

3271.1 ft. minus 3263.5 ft

S = 0.82 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 80

TIME OF CONCENTRATION: Figure 2-3 1/ Tc = 0.28
(Small Gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P =	2.10 (In.)
	5	P =	3.00 (In.)
	10	P =	3.50 (In.)
DIRECT RUNOFF: Figure 2-4 1/	2	Q =	0.60 (In.)
	5	Q =	1.25 (In.)
	10	Q =	1.65 (In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 1/ DC = 65 (SD-3)

RATE OF RUNOFF: Figure 2-5 1/ I = 1.1 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	2	q =	13.1 (CFS)
	5	q =	27.2 (CFS)
	10	q =	35.9 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V =	0.99 (Ac.Ft)
	5	V =	2.1 (Ac.Ft.)
	10	V =	2.7 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "C" at Jal No. 3 Plant

DRAINAGE AREA: 3/ (by planimeter) A = 19.8 (Acres)

LENGTH: (Longest waterway) L = 925 (Ft)

ELEVATION DIFFERENCE: H = 7.6 (Ft)

3271.1 ft. minus 3263.5 ft

S = 0.82 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 80

TIME OF CONCENTRATION: Figure 2-3 1/ Tc = 0.28

(Small Gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P = 4.5	(In.)
	50	P = 5.1	(In.)
	100	P = 5.7	(In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q = 2.45	(In.)
	50	Q = 2.95	(In.)
	100	Q = 3.50	(In.)
DISTRIBUTION CURVE NO.: Exhibit 2-3 1/		DC = 65 (SD - 3)	
RATE OF RUNOFF: Figure 2-5 1/		I = 1.1	(CFS/AC In.)
PEAK DISCHARGE: q = AxQxI	25	q = 53.4	(CFS)
	50	q = 64.2	(CFS)
	100	q = 76.2	(CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V = 4.04	(Ac.Ft)
	50	V = 4.88	(Ac.Ft.)
	100	V = 5.78	(Ac.Ft.)

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET [1]

CALCULATED BY: O. Uribe/E. B. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: [2] Drainage Area "D" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: [3] (by planimeter) A = 21.5 (Acres)

LENGTH: (Longest waterway) L = 1400 (Ft)

ELEVATION DIFFERENCE: H = 5.6 (Ft)

3265.7 ft. minus 3260.1 ft

S = 0.40 %

RUNOFF CURVE NUMBER: Table 2-1 [1] CN = 84

TIME OF CONCENTRATION: Figure 2-3 [1] Tc = 0.56
(Small Gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P =	2.10 (In.)
	5	P =	3.00 (In.)
	10	P =	3.50 (In.)
DIRECT RUNOFF: Figure 2-4 [1]	2	Q =	0.80 (In.)
	5	Q =	1.50 (In.)
	10	Q =	1.90 (In.)

DISTRIBUTION CURVE NO.: Exhibit 2-3 [1] DC = 65 (SD-3)

RATE OF RUNOFF: Figure 2-5 [1] I = 0.86 (CFS/AC In.)

PEAK DISCHARGE: q = AxQxI	2	q =	14.8 (CFS)
	5	q =	27.7 (CFS)
	10	q =	35.1 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V =	1.43 (Ac.Ft)
	5	V =	2.69 (Ac.Ft.
	10	V =	3.40 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "D" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/(by planimeter)		A =	21.5 (Acres)
LENGTH: (Longest waterway)		L =	1400 (Ft)
ELEVATION DIFFERENCE:		H =	5.6 (Ft)
3265.7 ft. minus 3260.1 ft		S =	0.40 %
RUNOFF CURVE NUMBER: Table 2-1 1/		CN =	84
TIME OF CONCENTRATION: Figure 2-3 1/ (Small Gullies)		Tc =	0.56
RAINFALL, 24 HR. Table 1 this report	25 Yr. Freq.	P =	4.5 (In.)
	50	P =	5.1 (In.)
	100	P =	5.7 (In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q =	2.80 (In.)
	50	Q =	3.40 (In.)
	100	Q =	3.90 (In.)
DISTRIBUTION CURVE NO.: Exhibit 2-3 1/		DC =	65 (SD-3)
RATE OF RUNOFF: Figure 2-5 1/		I =	0.86 (CFS/AC In.)
PEAK DISCHARGE: q = AxQxI	25	q =	51.8 (CFS)
	50	q =	62.9 (CFS)
	100	q =	72.1 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V =	5.02 (Ac.Ft)
	50	V =	6.09 (Ac.Ft.
	100	V =	6.99 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "E" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/(by planimeter) A = 20.4 (Acres)

LENGTH: (Longest waterway) L = 1150 (Ft)

ELEVATION DIFFERENCE: H = 8 (Ft)

3265.5 ft. minus 3257.5 ft

S = 0.70 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 80

TIME OF CONCENTRATION: Figure 2-3 1/ Tc = 0.38
(Small Gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	2	P =	2.10 (In.)
	5	P =	3.00 (In.)
	10	P =	3.50 (In.)
DIRECT RUNOFF: Figure 2-4 1/	2	Q =	0.60 (In.)
	5	Q =	1.25 (In.)
	10	Q =	1.65 (In.)
DISTRIBUTION CURVE NO.: Exhibit 2-3 1/		DC =	65 (SD-3)
RATE OF RUNOFF: Figure 2-5 1/		I =	1.0 (CFS/AC In.)
PEAK DISCHARGE: q = AxQxI	2	q =	12.2 (CFS)
	5	q =	25.5 (CFS)
	10	q =	33.6 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	2	V =	1.02 (Ac.Ft)
	5	V =	2.13 (Ac.Ft.)
	10	V =	2.80 (Ac.Ft.)

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

EL PASO NATURAL GAS COMPANY

HYDROLOGY DATA SHEET 1/

CALCULATED BY: O. Uribe/F. R. Sprester (Checked by)

DATE: April 8, 1981

AREA DESCRIPTION: 2/ Drainage Area "E" at Jal No. 3 Plant
Lea County, New Mexico

DRAINAGE AREA: 3/(by planimeter) A = 20.4 (Acres)

LENGTH: (Longest waterway) L = 1150 (Ft)

ELEVATION DIFFERENCE: H = 8 (Ft)

3265.5 ft. minus 3257.5 ft

S = 0.70 %

RUNOFF CURVE NUMBER: Table 2-1 1/ CN = 80

TIME OF CONCENTRATION: Figure 2-3 1/ Tc = 0.38
(Small Gullies)

	Yr. Freq.		
RAINFALL, 24 HR. Table 1 this report	25	P =	4.5 (In.)
	50	P =	5.1 (In.)
	100	P =	5.7 (In.)
DIRECT RUNOFF: Figure 2-4 1/	25	Q =	2.45 (In.)
	50	Q =	2.95 (In.)
	100	Q =	3.50 (In.)
DISTRIBUTION CURVE NO.: Exhibit 2-3 1/		DC =	65 (SD-3)
RATE OF RUNOFF: Figure 2-5 1/		I =	1.0 (CFS/AC In.)
PEAK DISCHARGE: q = AxQxI	25	q =	50.0 (CFS)
	50	q =	60.2 (CFS)
	100	q =	71.4 (CFS)
VOLUME OF RUNOFF: Vol = (QxA) ÷ 12 in/ft	25	V =	4.16 (Ac.Ft)
	50	V =	5.02 (Ac.Ft.
	100	V =	5.95 (Ac.Ft.

COMMENTS:

1/ McDougal, 1973

2/ There are no structures used to retain storm runoff. The existing ponds in and around the site were constructed with dikes to prevent inflow of storm runoff.

3/ See Figure 5B (map pocket) for area topography.

Summary

This drain line testing plan sets forth the methods and procedures which El Paso proposes to use to verify the integrity of the underground drain system at Jal No. 3 Plant.

The purpose of this testing is to ensure that waste water flowing through this piping system is contained and does not contribute to the degradation of groundwater quality in the general area of Jal No. 3 Plant.

The plan has attempted to allow the flexibility of testing some smaller, low-volume sections of drain piping without a total plant shutdown. This will decrease the amount of time required for testing during a shutdown.

Record keeping air reporting have been addressed in the General Instructions section. All charts, worksheets and resulting reports will be retained for a minimum of five years.

Detailed instructions are given for testing each major section of drain line. As each section is tested, all laterals (smaller drains) which flow into the main header will be subjected to the same test pressure. This will assure that all underground piping is tested.

El Paso Natural Gas Co.
Jal Plant #3

Status

1	10-28-80	OCD notified El Paso to submit a discharge plan
2	1-12-81	El Paso requested a 90 day extension
3	1-16-81	OCD granted a 90 day extension
4	4-16-81	El Paso requested a extension of time To 5-3-81
5	4-20-81	OCD granted a extension To 5-28-81
6	5-19-81	OCD- El Paso meeting
7	5-22-81	El Paso cover letter for submittal of discharge plan Jal #3
8	5-26-81	OCD received El Paso's discharge plan for Jal #3
9	6-81	OCD rereived discharge plan
10	10-81	OCD inspected Jal Plant #3
11	~~?~~	OCD needs to submit technical comments on plan
12	10-13-83	OCD sent advertisement of Public notice To newspapers for Jal #3

6/16/78

El Paso Natural Gas Co. Plant #3

4 mi. NE Jal

Pit 100 x 150 x 4± Approx

H_2O

Pit NE Plant

Eddie Seay

AU 1570 1

6/16/58

El Paso Natural Gas Co. Plant #3

4 mile NE Jal

Pit 75 x 100 x 2 approx

H_2O

NE of Plant

Eddie Seay

AUG 1958

NEW MEXICO OIL CONSERVATION COMMISSION
Hobbs, New Mexico

WATER ANALYSIS

~~Well~~ Ownership: El Paso Natural Gas ~~Well~~ No. #3

Land Status: ☐ State ☐ Federal ☐ Fee

Well Location: Unit ___, Section ___, T ___ S - R ___ E Plant #3

Type ~~Well~~: NE Pit Depth: ___ feet.

Well Use: ___

Sample Number: #1 Date Taken: 6/14/78

Specific Conductance: 5500 m/ɔ

Total dissolved Solids: 5115 ± PPM.

Chlorides: 4,848 PPM.

Sulfates: — PPM.

Ortho-phosphates: ☐ V. low ☐ Low ☐ Med. ☐ High

Sulfides: ☐ None ☐ Low ☐ Med. ☒ High

___ : ___

Date Analized: 6/15/78 By: John W. Runyan
N.M.O.C.C.

Remarks: ___

25 ml Sample = 142.0 factor X 34.4 titrations = 4,848 PPM

EPNG Jal #3 "A" Cooling Tower 8811291525

pH = 7

Sp. 3400 @ 23.5°C

① Salt leakage - E side "A" Cooling tower & Valve on NW side

② Various liquid storage tanks need berms!

"B" & Gas Plant Tower 8811291540

Sp. cond. 3550 @ 23.5

pH = 6.5

③ Cooling towers show no leakage - Vanes OK except at SW end. small leak onto ground

Notes of Boyd DPR

JAL NO. 3

POND NUMBER	DIMENSIONS	DEPTH	LINING
1	95' x 185'	8'	NONE
2	70' x 180'	5'	NONE
3	85' x 120'	4'	NONE
4	95' x 195'	6'	NONE
6	40' Diameter	3'	NONE

JAL NO. 2

5	SEE DRAWING	4'	NONE

Total Annual Volume to all pits:

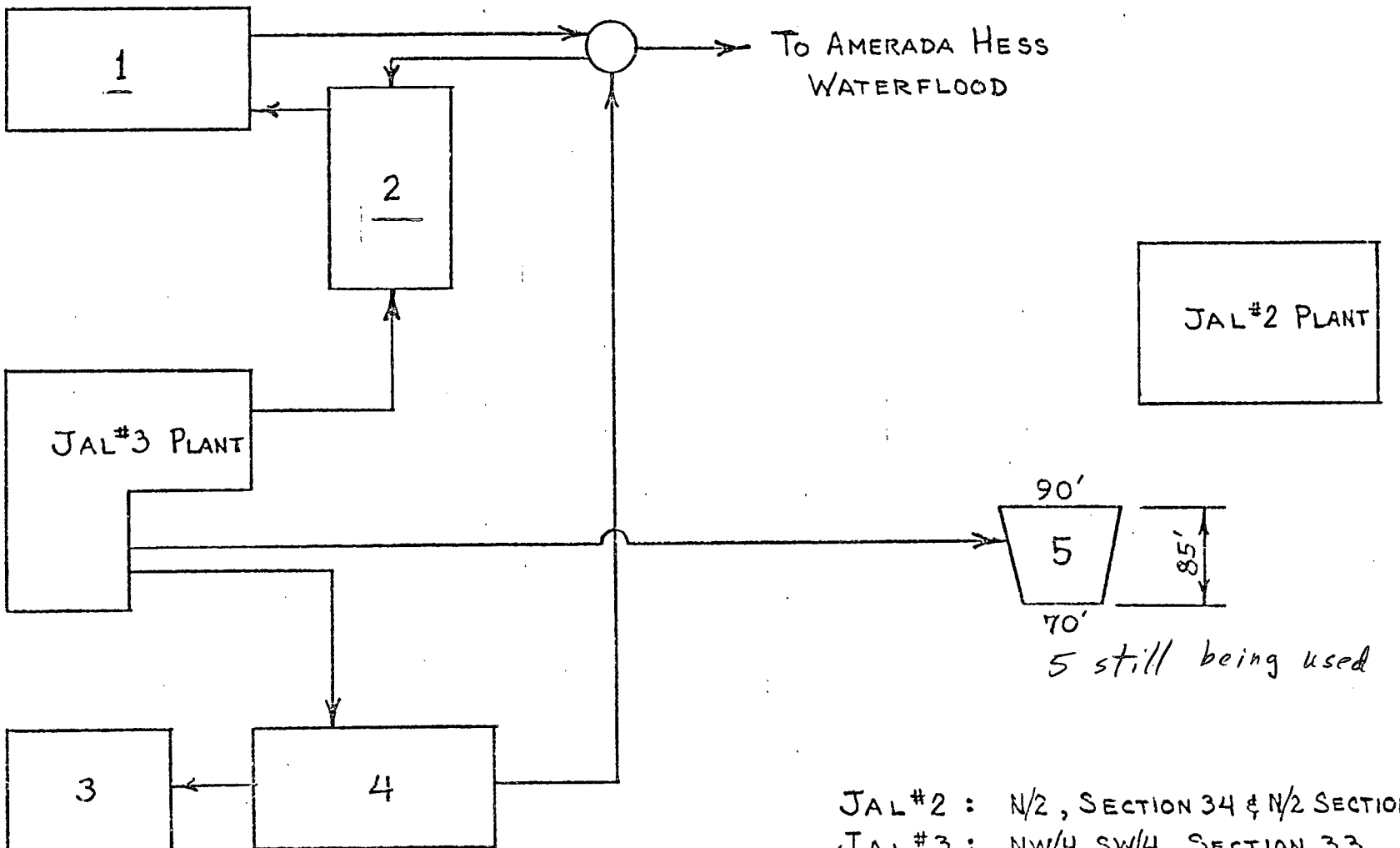
76.3 million gallons per year

Amount to Amerada Hess Waterflood:

11.0 million gallons per year

Posted 2/12/79

El Paso



Jal#2 : N/2, Section 34 & N/2 Section 35
Jal#3 : NW/4, SW/4, Section 33
Both in T-24-S, R-37-E, Lea Co.

Form 15-65 (Rev. 12-62)

EL PASO NATURAL GAS COMPANY
WATER ANALYSIS

Report date 7-24-78

Sample Location _____ Sample date 7-24-78

Sample source →			JAL NO. 2 POND NO. 5	JAL NO. 3 PONDS 1 & 2		
CATIONS	Calcium (Ca)	as ppm $CaCO_3$	126	328		
	Magnesium (Mg)	as ppm $CaCO_3$	84	238		
	Sodium (Na)	as ppm $CaCO_3$	2020	808		
TOTAL CATIONS		as ppm $CaCO_3$	2230	1374		
ANIONS	Bicarbonate (HCO_3)	as ppm $CaCO_3$	110	310		
	Carbonate (CO_3)	as ppm $CaCO_3$	0	0		
	Hydroxide (OH)	as ppm $CaCO_3$	0	0		
	Sulfate (SO_4)	as ppm $CaCO_3$	780	364		
	Chloride (Cl)	as ppm $CaCO_3$	1340	700		
TOTAL ANIONS		as ppm $CaCO_3$	2230	1374		
TOTAL HARDNESS		as ppm $CaCO_3$	210	566		
ALKALINITY		as ppm $CaCO_3$				
	Phenolphthalein		0	0		
	Total		110	310		
IRON ppm Fe			2.8	2.8		
SILICA ppm Si			144	128		
TURBIDITY			205	212		
TOTAL DISSOLVED SOLIDS (Mmhos)			4700	7500		
CAUSTICITY ppm (OH) as $CaCO_3$						
pH			7.5	6.7		
SULFITE (SO_3) ppm						
PHOSPHATES (PO_4) ppm						
	Poly		1.36	.37		
	Ortho		.87	.15		
CHROMATE as ppm			0	0.3		
Zinc as ppm Zinc			4.63	1.70		

Tests By _____

Remarks: _____

cc: J. W. Cronenberg

Form 15-56 (Rev. 12-62)

EL PASO NATURAL GAS COMPANY
WATER ANALYSIS

Report date 1-25-79

Sample Location Jal #3

Sample date

Sample source →			Pond 3 & 4	Pond #6		
CATIONS	Calcium (Ca)	as ppm $CaCO_3$	460	30		
	Magnesium (Mg)	as ppm $CaCO_3$	334	60		
	Sodium (Na)	as ppm $CaCO_3$	3118	1468		
TOTAL CATIONS		as ppm $CaCO_3$	3912	1558		
ANIONS	Bicarbonate (HCO_3)	as ppm $CaCO_3$	58	0		
	Carbonate (CO_3)	as ppm $CaCO_3$	136	240		
	Hydroxide (OH)	as ppm $CaCO_3$	0	50		
	Sulfate (SO_4)	as ppm $CaCO_3$	468	468		
	Chloride (Cl)	as ppm $CaCO_3$	3250	800		
TOTAL ANIONS		as ppm $CaCO_3$	3912	1558		
TOTAL HARDNESS		as ppm $CaCO_3$	794	90		
ALKALINITY		as ppm $CaCO_3$				
	Phenolphthalein		68	170		
	Total		194	290		
IRON ppm Fe			.16	.05		
SILICA ppm Si			22	51		
TURBIDITY			7	2		
TOTAL DISSOLVED SOLIDS (Mmhos)			9000	3100		
CAUSTICITY ppm (OH) as $CaCO_3$						
pH			8.9	9.9		
SULFITE (SO_3) ppm						
PHOSPHATES (PO_4) ppm						
	Poly					
	Ortho					
~~CHROMATE~~ as ppm	Chromium		.060	0		

Tests By Ellen Martin

cc: Charlie Mathis

Remarks:

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

860 WNN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12 2 88	LAB NO. WC-4770	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 88 11 25	SITE INFORM-ATION ►	Sample location EPNG Jal #3, "B" & Gas Plant Tower	
Collection TIME 1540		Collection site description	
Collected by — Person/Agency Boyer Anderson / OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

RECEIVED JAN 09 1989 OIL CONSERVATION DIVISION SANTA FE

Station/well code 24S, 37E, 33.311
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 6.5	Conductivity (Uncorrected) 3550 µmho	Water Temp. (00010) 23.5 °C	Conductivity at 25°C (00094) µmho

Field comments: Sample from Cooling Tower Sump.

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	4207	µmho	12/19
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.12		12/13
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NF, NA Sample:

			Date Analyzed
☒ Calcium	16	mg/l	12/05
☒ Potassium	13	mg/l	12/1
☒ Magnesium	11.6	mg/l	12/05
☒ Sodium	940	mg/l	12/1
☒ Bicarbonate	29.8	mg/l	12/13
☒ Chloride	469	mg/l	12/15
☒ Sulfate	1340	mg/l	12/15
☒ Total Solids	3060	mg/l	12/9
☒ CO_3	0		12/13
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported 1 5 89 | Reviewed by

Laboratory remarks

481

FOR OCD USE -- Date Owner Notified 2/21/89 Phone or (Letter)? _____ Initals

103

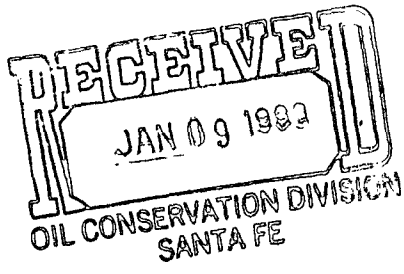
CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.80	16.00	<3.0	HC03	0.49	29.80	<1.0
Mg	1.07	13.00	<0.3	SO4	27.92	1340.00	<10.0
Na	40.89	940.00	<10.0	CL	13.23	469.00	<5.0
K	0.33	13.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	43.09	982.00			41.63	1838.80	

Total Dissolved Solids= 3060

Ion Balance = 103.49%

WC No. = 8804770

Date out/By 1/5 CS



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

701

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	12/2/88	Lab No. HM-1939	User Code	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 88 | mm 11 | dd 29 | hh 15 | mm 40

COLLECTED BY: Boyer/Anderson

COLLECTION SITE DESCRIPTION: EPNG-Jal #3, "B" & Gas Plant Tower

TO:

RECEIVED
FEB 21 1989
OIL CONSERVATION DIVISION
SANTA FE

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: Lea

Township, Range, Section, Tract: (10N06E24342)
12 | 1S+31 | 7E+31 | 3 +31 | 1 | 1

ATTN: J. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: Grab

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
6.5	3550 µmho	23.5 °C	µmho

FIELD COMMENTS: Sample from cooling tower sump

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ WPN: Water Preserved w/HNO_3 Non-Filtered	☐ WPF: Water Preserved w/HNO_3 Filtered	☒ ICAP Scan Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE	ELEMENT	ICAP VALUE		AA VALUE
Aluminum	<0.1			Silicon	89.		
Barium	<0.1			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	<0.1		
Boron	1.0			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	0.2		
Calcium	2.6			Zinc	2.0		
Chromium	<0.1	☒	0.045	Arsenic		☐	
Cobalt	<0.05			Selenium		☐	
Copper	0.6			Mercury		☐	
Iron	1.5					☐	
Lead	<0.1	☐				☐	
Magnesium	0.7					☐	
Manganese	<0.05					☐	
Molybdenum	<0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS:

For OCD Use:
Date Owner Notified:
Phone or Letter?
Initials:

ICAP Analyst JAA
Date Analyzed 1/26/89

Reviewer
Date Received 2/14/89

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

8610 WNN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12 2 88	LAB NO. WC-4771	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 12 1 88	SITE INFORM-ATION ►	Sample location EPNG Tal #3 "A" Cooling Tower	
Collection TIME 1325		Collection site description Sump	
Collected by — Person/Agency Anderson/Boyer /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

RECEIVED JAN 09 1989 OIL CONSERVATION DIVISION SANTA FE

Station/well code 24S, 37E, 33,311

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 3400 µmho	Water Temp. (00010) 23.5 °C	Conductivity at 25°C (00094) ~~3315~~ 3978 µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	3980	µmho	12/19
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.77		12/13
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NE, NA Sample:

			Date Analyzed
☒ Calcium	8.0	mg/l	12/05
☒ Potassium	12	mg/l	12/1
☒ Magnesium	6.7	mg/l	12/05
☒ Sodium	891	mg/l	12/1
☒ Bicarbonate	69.3	mg/l	12/13
☒ Chloride	433	mg/l	12/15
☒ Sulfate	1220	mg/l	12/15
☒ Total Solids	2782	mg/l	12/9
☒ CO_3	0		12/13
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	1 5 89	

Laboratory remarks

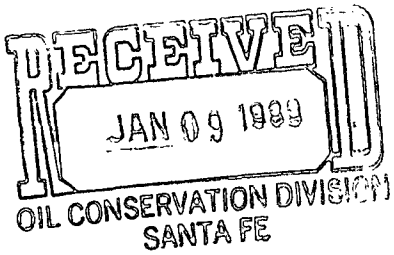
4169

FOR OCD USE -- Date Owner Notified 2/3/89 Phone or Letter? _____ Inital

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.40	8.00	<3.0	HC03	1.14	69.30	<1.0
Mg	0.55	6.70	<0.3	SO4	25.42	1220.00	<10.0
Na	38.76	891.00	<10.0	CL	12.21	433.00	<5.0
K	0.31	12.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	40.01	917.70			38.77	1722.30	

Total Dissolved Solids= 2782
Ion Balance = 103.21%

WC No. = 8804771
Date out/By 1/5



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

701

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	12/2/88	Lab No. HM-1942	User Code	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 88 | mm 11 | dd 29 | hh 15 | mm 25

COLLECTED BY: Boyer/Anderson

COLLECTION SITE DESCRIPTION: EPNG Jal #3 "A" Cooling Tower

TO:

RECEIVED
FEB 21 1989
CONSERVATION DIVISION
SANTA FE

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

OWNER:

SITE LOCATION:
County: Lea

Township, Range, Section, Tract: (10N06E24342)
12 14 S+3 17 E+3 13 +3 1 1 1 1

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water Level:	Discharge:	Sample Type: Grab

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	3400 µmho	23.5 °C	µmho

FIELD COMMENTS: From tower ~~sample~~ Sump

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ WPN: Water Preserved w/HNO_3 Non-Filtered	☐ WPF: Water Preserved w/HNO_3 Filtered	☒ ICAP Scan Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE
Aluminum	<0.1		
Barium	<0.1		
Beryllium	<0.1		
Boron	0.9		
Cadmium	<0.1	☐	
Calcium	3.7		
Chromium	<0.1	☒	0.019
Cobalt	<0.05		
Copper	<0.1		
Iron	0.3		
Lead	<0.1	☐	
Magnesium	0.6		
Manganese	<0.05		
Molybdenum	<0.1		
Nickel	<0.1		

ELEMENT	ICAP VALUE		AA VALUE
Silicon	80.		
Silver	<0.1	☐	
Strontium	0.5 JA		
Tin	<0.1		
Vanadium	0.2		
Zinc	3.1 JA		
Arsenic		☐	
Selenium		☐	
Mercury		☐	
		☐	
		☐	
		☐	
		☐	
		☐	
		☐	

LAB COMMENTS:

For OCD Use:
Date Owner Notified: 2/21/89
Phone or Letter?
Initials: AYB

ICAP Analyst JA
Date Analyzed 1/26/89

Reviewer
Date Received 2/14/89