

CONFIDENTIAL
VISTA CHEMICAL CO.

To: R. A. Conrad

From: Incident Investigation Team
Date: February 25, 1986

Interoffice
Communication

Subject: VCM Release - Caustic Dryer S-207B
February 5, 1986

VISTA

Summary

On February 5, 1986 at approximately 7:30 am, a Vinyl Chloride release occurred in the Supersucker area at the east end of Block II. (See Exhibit A. Plot Plan) The release resulted when the Building Trades Leadman involved in preparation work to recharge the "off-line" Caustic Dryer, S-207A, mistakenly unblinded the "on-line" Caustic Dryer, S-207B, and opened the valve to the Supersucker Vacuum Units. The Control Room was notified of the release immediately by Maintenance Department employees. Shortly thereafter the Furnace Deluge curtain automatically came on and sounded an alarm in the Control Room. Operations and staff personnel immediately responded to control the source of the Vinyl Chloride release at Caustic Dryer, S-207B. All non-essential personnel in the operating unit were evacuated. The duration of the release was approximately five (5) minutes. The quantity of the release was estimated to be 3,982 lbs. The appropriate regulatory agencies were notified.

Caustic Dryer Process Description (See Exhibit B. Process Flow Diagram Vinyl Purification)

The overhead product from the Vinyl Column, C-203 is washed with 4 to 10% aqueous caustic solution in order to remove residual traces of HCl. This washing is accomplished in an in-line mixer and is followed by a phase separation step to settle the free caustic from the liquid VCM (VCM Caustic Decanter, S-206). The wet, neutral VCM (200-600 ppm H₂O) flows directly from the top of S-206 to two up-flow Flake Caustic Beds (S-207 A&B) which operate in series. The VCM moisture content is reduced below 100 ppm by absorption of water into the flake caustic. The dried vinyl product exits the top of the last dryer in line and flows to intermediate storage. The caustic melt which accumulates in the bottom of the dryer from water absorption is drawn off.

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The S-207 Caustic Dryers contain 70% strength flake caustic and due to water absorbtion, the beds must be recharged on a routine basis to replenish the flake caustic drying media. Each week a dryer (the first in line) is taken off line, emptied of VCM, purged and opened for recharge. Following completion of recharge, the freshly charged dryer is placed last in line and the on-line dryer then becomes the lead dryer. This cycle is repeated continuously each week as long as full vinyl production is occurring in the plant.

Circumstances Leading Up to the Release

On Wednesday morning February 5, 1986 at 7:15 am Freddie Guillory (Building Trades Leadman) obtained a Hazardous Work Permit (See Exhibit C. Hazardous Work Permit) in the control room from Dan Ross (Chief Operator) to recharge Caustic Dryer, S-207A. As scheduled, the "A" Dryer had been cleared, purged, and readied for maintenance work on the preceeding evening shift (3pm-11pm) and graveyard shift (11pm-7am). Upon issuance of the permit, Ross contacted Paul Ceasar (2nd Operator - Blk I), informed Ceasar the permit had been issued, and instructed Ceasar to meet Guillory at the Dryer. Guillory and Ceasar met at the Dryer and Ceasar went to the top of "A" Dryer to block in the vent valve to the Incinerator and shut off the nitrogen purge valve. (See Exhibit D. Piping Diagram Caustic Dryers, S-207 A&B and Exhibit E, Procedure for Clearing S-207 for Recharge.) Ceasar advised Guillory the purge valves had been shut off and Guillory could proceed. Ceasar then left the area. As usual Guillory proceeded to line up the Dryer to the Supersucker Vacuum Units. He checked the pressure upstream of the spectacle line blind, and finding no pressure he rotated the spectacle line blind into the open position and opened the block valve. Though the equipment was clearly labeled and Guillory understood he was to prepare "A" Dryer he mistakenly lined up the on-line "B" Dryer to the Vacuum Units. The Vacuum Units are located approximately 85 ft. away in the Block II operating area. Guillory left the area unaware he had made the error. (Refer to Exhibit F. Process Area Photographs.)

Circumstances Following the Release

At approximately 0730 am Maintenance personnel noticed a cloud at the east end of Block II and notified Operations personnel in the Control Room. Dan Ross (Chief Operator), Carrol Brown (Acting Shift Supervisor) and Mike Ashby (Process Superintendent)

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left the Control Room upon notification of the cloud in Block II. They proceeded between the blocks in an easterly direction (See Exhibit G. Personnel Approach Routes to Control Release). Ross went to the dryers, Brown to the monitors on the south side of Block II and Mike Ashby to the east end of the Blocks. At approximately 0735 am Ross closed the vent valve at "B" dryer which stopped the VCM release source and checked "A" dryer valve. Mike Ashby noted the source of the cloud as the Supersuckers and proceeded to the fire monitor at S-502. Brown was at the same time putting both fire monitors on at the Furnaces and the Propylene Refrigeration Area. Ross and Mike Ashby put the fire monitor on to deluge the source of the release to prevent the formation/ignition of the vapor cloud. During the above action, Dave Lonkowski, (Board Operator), announced the evacuation of the unit.

After the monitors were on, Ross and Mike Ashby directed traffic to clear Vista's 4th Street. Ronnie Young (2nd Operator - Blk II), Paul Ceasar (2nd Operator - Blk I) and Steve Ashby (Safety Director) arrived at the east end of Block I. The above action steps are felt to have been sufficient to correct the immediate hazard to the plant and its personnel.

At 0745, Mike Ashby, with a portable gas detector calibrated to 10 ppm for Vinyl Chloride, surveyed the Block Area (See Exhibit H. Portable Detector Patrol Tour). No VCM concentrations were detected.

At 0750, nitrogen was injected into the vinyl dryer vent line to clear it of any residual material. A fourth fire monitor (portable) was added during this process.

At 0800, Mike Ashby again surveyed the Block Areas with a portable gas detector. Again, no VCM concentrations, were detected. (See Exhibit I. Portable Detector Patrol Tour.)

At 0815, steam was added to the outside of the dryer vent line to be sure residual material was vaporized. Fire monitors on the south side of the plant were discontinued.

At 0830, the all clear notice was given to the plant. The last two monitors were blocked in. The Ethylene Unit was called to inform them that the situation was controlled.

Estimated Quantity of Vinyl Released

Basis

- 1) Calculate duration of release from S-206 Pressure Recorder Strip Chart.
- 2) Calculate rate of release from FR-209 Vinyl Production Rate Strip Chart.
- 3) Note: At the time of the incident, the vinyl production was lined up to T-401C. The pressure at S-206 and T-401C were both at 54 psig. When the valve to the Supersucker was opened, the pressure at S-206 dropped to 45 psig. Therefore, since the path of least resistance was to the Supersucker (and the pressure actually dropped in S-206), no production went to T-401C during the time the valve was open. The amount of release is based on the production rate and duration of release.

A. Duration of Release

Basis: PR-278 Strip Chart (S-206 Pressure Recorder)
Using a 60° engineering scale.

From strip chart:

30 min. interval = 23 units
release interval = 4 units

Duration of the
release = $4/23 \times 30 = 5.22$ minutes

B. Rate of Release

Basis: FR-209 Strip Chart (Vinyl Production Rate)

$m = 4.5 \text{ units} \times 22.6 \text{ gpm/unit} = 101.7 \text{ gpm}$
 $= 762.75 \text{ \#/min.}$
(@7.5 \#/gal.)

C. Quantity of Release

$= 5.22 \times 762.75 = 3,982 \text{ lbs.}$

Potential Employee Exposure to Vinyl Chloride

Nine (9) VCM Plant employees were potentially exposed to vinyl chloride vapors. These employees included:

- 1) Robert Shirley - Boilermaker, Mechanic "A"
- 2) Dan Ross - Chief Operator
- 3) Carrol Brown - Acting Shift Supervisor
- 4) Mike Ashby - Process Superintendent
- 5) Steve Ashby - Safety Director
- 6) Paul Ceasar - 2nd Operator - Block I
- 7) Dick Going - Instrument Technician, Mechanic "A"
- 8) Darryl Derouen - Instrument Technician, Mechanic "A"
- 9) Ronnie Young - 2nd Operator - Block II

Robert Shirley was working in Block II and initially went to investigate the source and type of release. Upon recognizing the product involved (Vinyl Chloride), Shirley immediately left the area. Six (6) employees were potentially exposed while responding to the immediate emergency. Dan Ross and Mike Ashby responded to the release area immediately from the Control Room. Dan Ross closed the valve at S-207B located approximately 85 feet from the release area. He then directed a firewater monitor located adjacent to S-207B on the release area. Carrol Brown opened a fire monitor east of the Control Room and directed it east of the Furnace Area and then proceeded south of Block II and directed a fire monitor located south of the HCl Column, C-202 onto the release area. Ronnie Young, Paul Ceasar and Steve Ashby connected a portable monitor and moved it to a location approximately 50' north east of the release area (Supersucker). Following these actions each employee left the exposure area to evaluate further actions.

M. L. Ashby conducted area exposure surveys with a Threshold Limit Value Portable Analyzer at 7:45 am and 8:00 am to determine if there were areas of VCM concentrations above the permissible exposure limits. No VCM concentrations were detected.

In addition to the seven employees mentioned above, two other Vista employees, Darryl Derouen and Dick Going, and six contractor employees were potentially exposed to vinyl vapors while they were evacuating the process area.

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Each employee potentially exposed was verbally notified and each reported no exposure symptoms. Each employee in this group will be notified of the potential exposure in writing within 10 days.

In addition to the nine (9) employees mentioned above, six (6) other contractor employees were potentially exposed to vinyl chloride while evacuating the unit. The contractor has been notified of the potential exposure of their employees, and the requirements of Part 1910.1017 of the OSHA Vinyl Chloride Standard.

Medical Surveillance

Dr. J. R. Drumwright - Manager of Vista Medical was contacted to determine if medical surveillance was needed in this instance. Each employee has been informed of the potential exposure and medical surveillance examinations were made available to each individual should they desire one. Based on the low exposure potential and the length of exposure Dr. Drumwright advised that immediate medical surveillance would not be warranted.

Critique of Safety Systems Utilized During This Emergency

The following safety systems and/or equipment were utilized to analyze or control this emergency.

1) Fixed Point Gas Chromatographic Analyzer System
CAR-401, CAR-171

Both fixed point monitoring systems were being calibrated at 7:30 am on 2/5/86.

The fixed point monitoring systems are span checked daily and calibrated three times per week by the VCM Plant Maintenance Department. At 7:30 am on 2/5/86, an Instrument Technician was performing a calibration on CAR-171 and CAR-401 and no data was recorded during the release period. The monitors were placed back in service as quickly as possible following the release and were used to determine when the area was clear to return to work.

2) Fixed J&W Combustible Gas Detector System

The system monitors combustible gas concentrations primarily in Block II for the purpose of activating the water curtain in the Furnace and Block II aisleway area.

This system alarms at 25% of the LEL and activates the water curtain at 40% of the LEL. The water curtain was activated by the combustible gas detectors at approximately 7:30 am.

3) Furnace Firewater Curtain

The system was activated automatically by the J&W Fixed Combustible Gas Monitoring System. The system reportedly operated per design.

4) Fixed and Portable Firewater Monitors

A total of four (4) fire monitors were utilized to control the release situation. All equipment operated properly and with adequate water supply.

5) Portable Threshold Limit Value Analyzer

One portable TLV analyzer was used to survey the release area at 7:45 am and 8:00 am. No concentrations were detected during the surveys.

Regulatory Agency Notification

The following agencies were notified regarding the release of vinyl chloride on 2/5/86.

- 1) Agency: National Response Center
Date/Time: 2/5/86, 8:25 am
Contact: Mr. DeMarco
Tel. No: 1-800-424-8802
- 2) Agency: La. Dept. of Environmental Quality
Date/Time: 2/5/86, 9:15 am
Contact: Mildred Hebert, William Coltrin
Tel. No: 491-2082 Local
- 3) Agency: U.S. Dept. of Labor
Occupational Safety & Health Admin.
Date/Time: 2/5/86, 3:30 pm
Contact: Ms. Eva Mitchell, Jack M. Matthews
Tel. No: 504-389-0474

Conclusions

The basic cause of the release was a Maintenance Leadman mistakenly unblinding and opening the vent valve of the "on-line" Caustic Dryer to the Supersucker Vacuum Unit. The employee involved understood that the job scope was to recharge "A" Dryer as evidenced by the work permit and interviews with the employee. The Dryers are clearly labeled and there was no confusion on the employee's part on which line blind and valve corresponded to each Dryer. After the incident the employee insisted he prepared "A" Dryer until he went to the job site and upon seeing the "line up" realized his error. The job was not new to the employee, by his own account he has prepared "hundreds of dryers" for recharge in the same manner. By the employee's own admission he made a mistake and doesn't know how he could have done this.

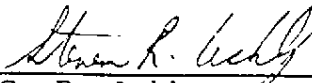
A contributing cause of the release was the isolated practice of a Maintenance employee operating process valves. Maintenance mechanics routinely operate utility service valves (i.e. water, air, steam, nitrogen) and valves associated with lubrication or freon on refrigeration units. Instrument Technicians routinely operate small valves to transmitters, analyzers, etc. with close coordination with operating personnel. However, maintenance personnel operating process valves is generally an undesirable practice. Had the line-up to the Supersucker involved two persons, the Leadman unblinding the spectacle line

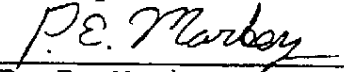
blind and the Operator opening the vent valve, it is likely the Leadman's error would have been detected and the incident prevented. This conclusion was supported by Paul Ceasar the 2nd Operator, Blk I.

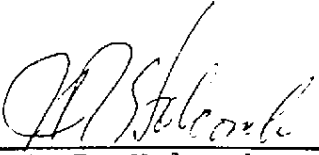
Corrective Actions

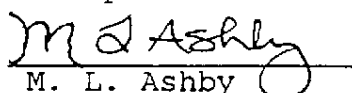
In order to prevent recurrence of this incident the following measures will be instituted:

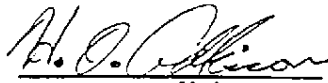
- 1) A revised clearing and preparation procedure will be issued for recharging the Caustic Dryers, S-207 A&B. (See attached Exhibit J.) The procedure includes a detailed checklist (See Exhibit K) for taking the Dryer off-line, as well as placing a Dryer back in service, involving both Maintenance and Operating personnel. The procedure will also incorporate an Operations Department Lock and Key Control on the vent valve to the Supersucker Vacuum Units.
- 2) Training sessions will be conducted with Maintenance and Operations Department personnel reviewing the incident, the new procedures and checklist within two weeks after issuance of this report.
- 3) As an added precautionary measure additional spectacle line blinds will be installed to further insure no vinyl chloride leakage occurs during recharging operations. (See Exhibit L Recommended Line Blinds.) Permanent spectacle blinds will be installed as soon as possible. Slip blinds will be used in the interim.
- 4) The Plant Superintendent and Process Superintendent have completed a General Safety Audit of the area. The Survey addressed General Work Area improvements including obsolete equipment removal, housekeeping, and equipment storage.
- 5) A Process Engineering Safety Audit of the Caustic Dryer Area will be conducted to determine if any additional measures are required.


S. R. Ashby
Safety Director


P. E. Markey
Plant Supt.


J. R. Holcomb
Mech. Supt.


M. L. Ashby
Process Supt.


H. O. Adkison
Mech. Supvr.

LIST OF EXHIBITS

EXHIBIT A	PLOT PLAN VCM PLANT - PROCESS AREA
EXHIBIT B	PROCESS FLOW DIAGRAM - VINYL PURIFICATION
EXHIBIT C	HAZARDOUS WORK PERMIT
EXHIBIT D	PIPING DIAGRAM - CAUSTIC DRYERS, S-207 A/B
EXHIBIT E	PROCEDURE FOR CLEARING S-207 FOR RECHARGE
EXHIBIT F	PROCESS AREA PHOTOGRAPHS
EXHIBIT G	PERSONNEL APPROACH ROUTES TO CONTROL RELEASE
EXHIBIT H	PORTABLE DETECTOR PATROL TOUR 7:45 AM
EXHIBIT I	PORTABLE DETECTOR PATROL TOUR 8:00 AM
EXHIBIT J	REVISED PROCEDURE FOR CLEARING S-207 FOR RECHARGE
EXHIBIT K	S-207 DRYER RECHARGE CONTROL SHEET (CHECKLIST)
EXHIBIT L	RECOMMENDED LINE BLINDS

NORTH

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T-422 T-421 T-423
CAUSTIC TKS.

CONTROL
ROOM
H.C.B. WLS.
CONC. RF.

H.C.B. WLS.
METAL RF.

ELECT. SWITCH
GEAR

MANUALLY
& AUTO.
CONTROLLED

ROAD

BLOCK II

BLOCK I

R-201A

R-201B

GAS K.O.
DRUM

STM.
POT

VAPORIZER

TAR
STILL

QUENCH
TWR.

COND.
ACCUM.

COND.

PROP. REFRIG.
COMP. (DELIVERY)

INTER COOLER
PROP.

REB. COND.

HT. EXCH.

BOTTOMS DRUM
EVAP.

HCL STGE. TK.

BL 307
C. REFRIG.
COMP. (DELIVERY)

AIR
ROVR.

BL 301
AIR
COMP. (DECOCK'D)

HT. EXCHS.
& COOLER

HT. EXCH.

HT. EXCH.

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HT. EXCH.

AGIT.

TAR
STILL

ACCUM. & COND.

COOLERS

DECANTER

CRUDE LT. ENDS
EDC REM. COL.

WATER
WASH TK.

CAUSTIC
DECANT.

STRIP.

DRYERS

DECANT.

STM. FLASH TKS.

STM. FLASH TKS.

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REBOILER

C-103
Hvy. ENDS
REM. COL.

COND. POTS

REBOILERS

COND. POTS

REBOILER R101

EDC
REACTOR

VCM. COND.

REBOIL.

VCM. COL.

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NH3

PITS

SCRUBBER

K.O.
DRUMS

NEUTRALIZATION
PIT

SWITCH GEAR

COOLING
TOWER

WOOD &
METAL
CONSTR.

MANUAL
DELUGE
PROT.

CHEM.
TREAT.

CHRSO

EXHIBIT A.
PLOT PLAN
VCM PLANT
PROCESS AREA

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4 TH ST.

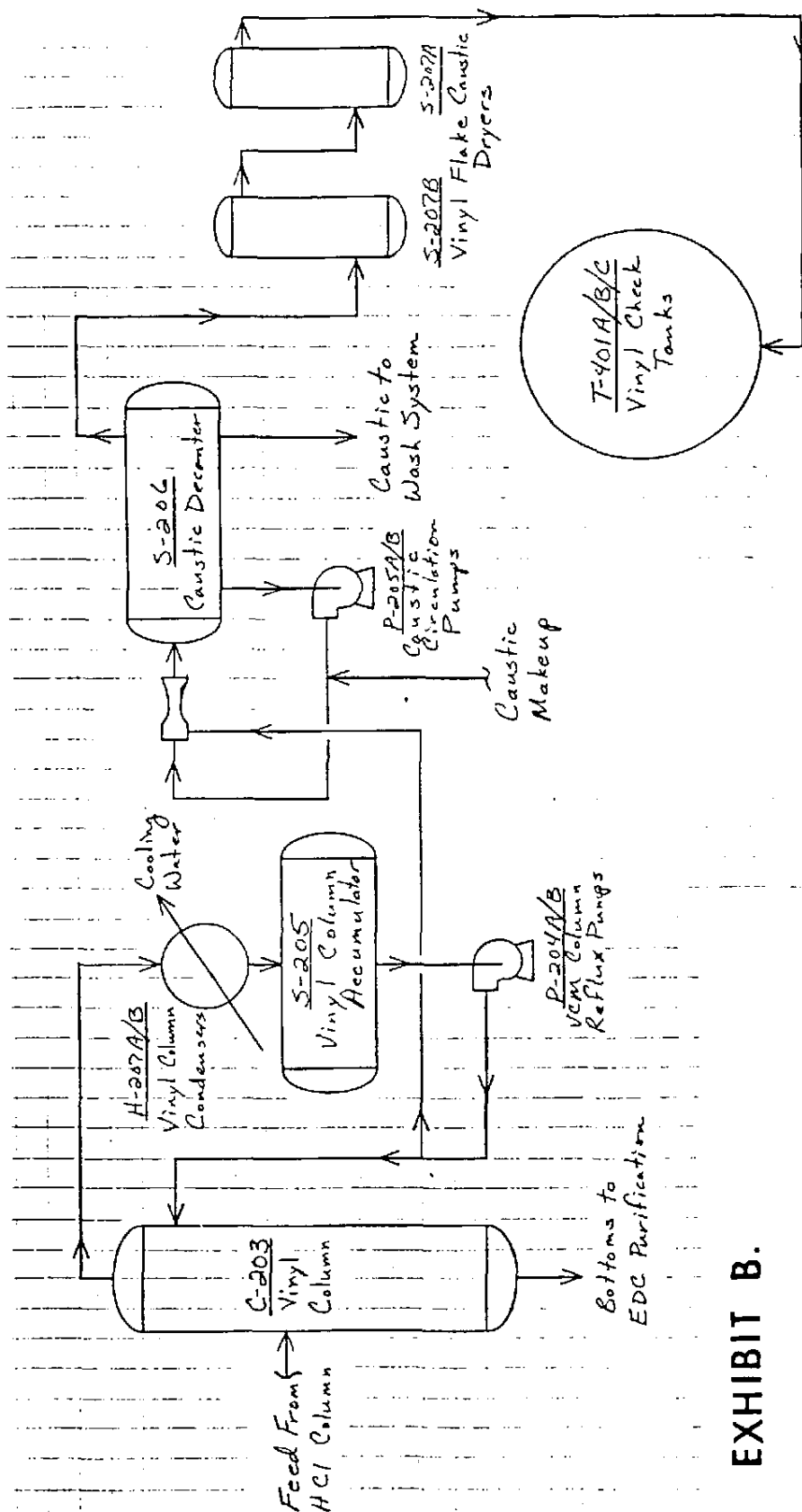


EXHIBIT B.

PROCESS FLOW
DIAGRAM
VINYL PURIFICATION

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Continental Oil Company
VCM Plant
Hazardous Work Permit

Posted
05-108

Effective Date 2/5	Time 0700	am pm	Expires 1530	am pm
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Location S-207A	Requested By Guillory
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Description of Work
RECHARGE DRUM

Permit must be displayed on job site and returned to operations

Type of Work ☐ Hot Work: Burn-Weld-Other Ignition Source ☐ Entry: Vessel-Tank-Enclosure ☐ Alterations: Repair-Opening Equipment ☐ Drilling-Chipping ☐ Electrical-Instrumentation ☒ LEL Entry	Safety Equipment Required ☐ Goggles/Face Shield ☐ Life Line ☐ Rubber Gloves/Boots ☐ Safety Belt & Lanyard ☐ Slicker Suit/Chemical Suit ☐ Safety Line & Harness ☐ Fresh Air Mask
Safety Preparations Test for explosive <u>0</u> %LEL Test for O₂ <u> </u> % Test for toxicity <u> </u> PPM VCM ☐ Electrical breakers locked out ☐ Blinds installed ☐ Equipment tagged out ☐ Equipment depressured ☐ Sewers covered ☐ <u> </u>	Safety Precautions ☐ Water Spray ☐ Firewatch/Fire Ext. ☐ Manhole Watch ☐ Air Blower ☐ Fire Blanket ☐ Low Voltage Light ☐ Caution Signs/Barriers ☐ <u> </u>

Special Precautions

Approvals-All Permits Field Checked by CEASAR Shift Foreman Off Chief Operator Off Mechanic Guillory In Charge Guillory Permit Extended by <u> </u>	Shift Foremen must approve all Hot Work Permits in Proc. Area and Vessel Entry Permits.
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Job Status ☐ Complete ☐ Incomplete	Mechanic in charge <u> </u> Accepted <u> </u> Remarks <u> </u>	From <u> </u> am pm To <u> </u> am pm
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EXHIBIT C.
HAZARDOUS
WORK PERMIT

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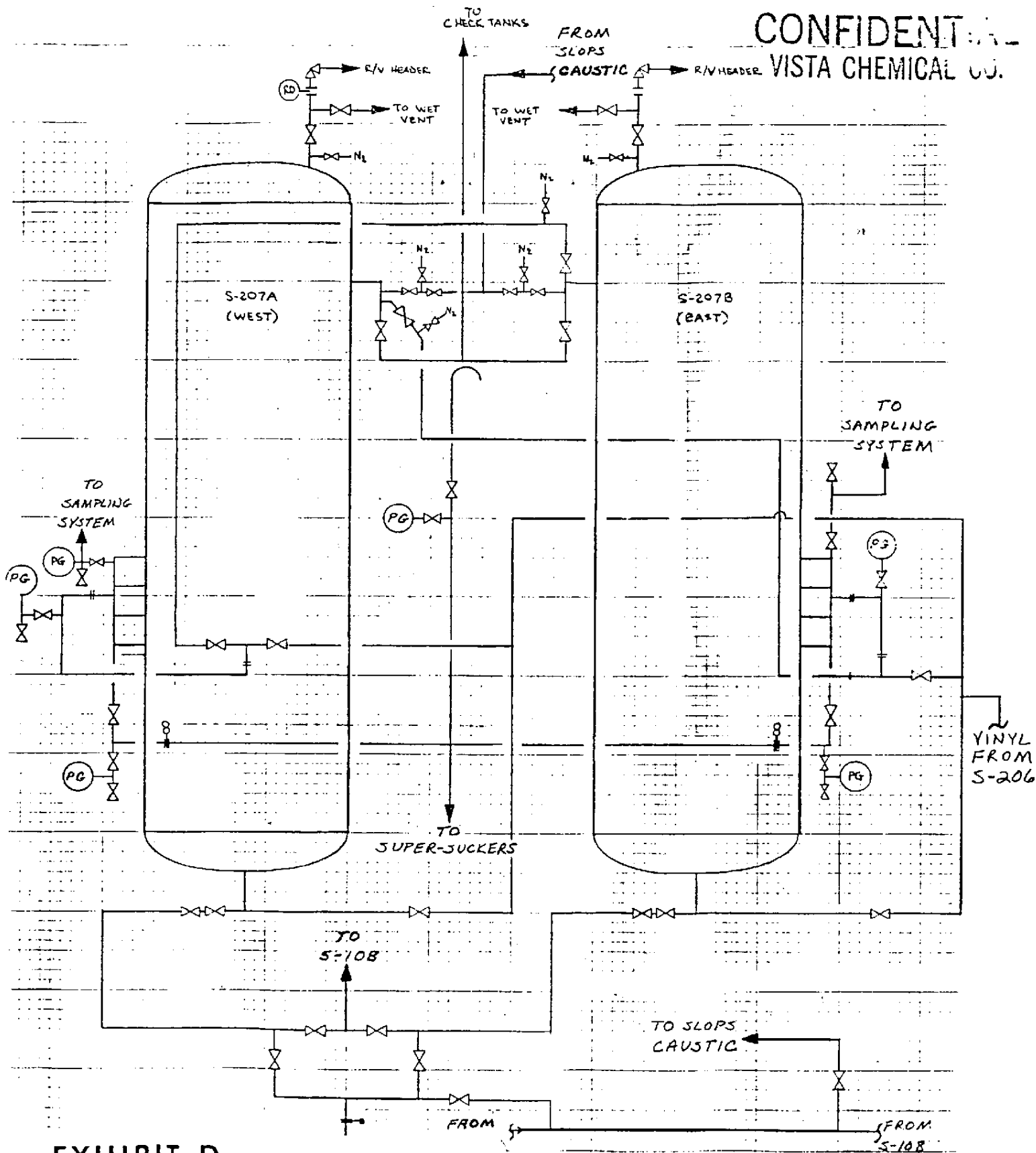


EXHIBIT D.

PIPING DIAGRAM CAUSTIC DRYERS
S-207 A&B

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EXHIBIT E.

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PROCEDURE FOR CLEARING S-207 FOR RECHARGE

- 1) Line up (open valve) from S-206 to down-stream dryer.
- 2) Close valve from S-206 to up-stream dryer.
- 3) Open the valve on the bottom of the up-stream dryer. This will enable you to empty dryer into the line coming from S-206.
- 4) Close the outlet valve on the up-stream dryer. This isolates the up-stream dryer with only the bottom valve open.
- 5) Open nitrogen to top of up-stream dryer. Open nitrogen slowly so as not to increase pressure on S-206 by more than 10-12 psig.
- 6) Watch for level to come down into the sight glass. When the level goes out of sight glass, wait about one minute (no more) then close the bottom valve.
- 7) Contact incinerator operator, then slowly depressure dryer to S-108. (leave nitrogen cracked in on top while depressuring).
- 8) Pressure dryer up with nitrogen to 50 psig and depressure three times. During this step, also open nitrogen to spargers, and depressure through sight glass to clear. Will have to keep in close contact with incinerator operator.
- 9) After No. 8 step, block in nitrogen going to the spargers, and with a positive pressure on the dryer sample for lab analysis. If analysis is less than 2% vinyl, depressure completely. If analysis is more than 2% vinyl, continue step 8 until an acceptable analysis is obtained.
- 10) After step 9 is complete, open the 2 valves going to the super sucker from the spargers, put the supersucker on and open the nitrogen wide open to the top of the dryer. After five minutes cut the nitrogen back to minimum and open the vent valve in the line to the supersucker.
- 11) Maintenance will open the dryer and then close the vent valve before recharging.
- 12) When recharge is complete, shut down supersucker and close the two valves from spargers to the supersucker. Pressure the dryer up to 75-100 psig with nitrogen, and leak check top manway. If there are no leaks, depressure, and pressure up to 50 psig two more times and depressure. Dryer is now ready to put in service.

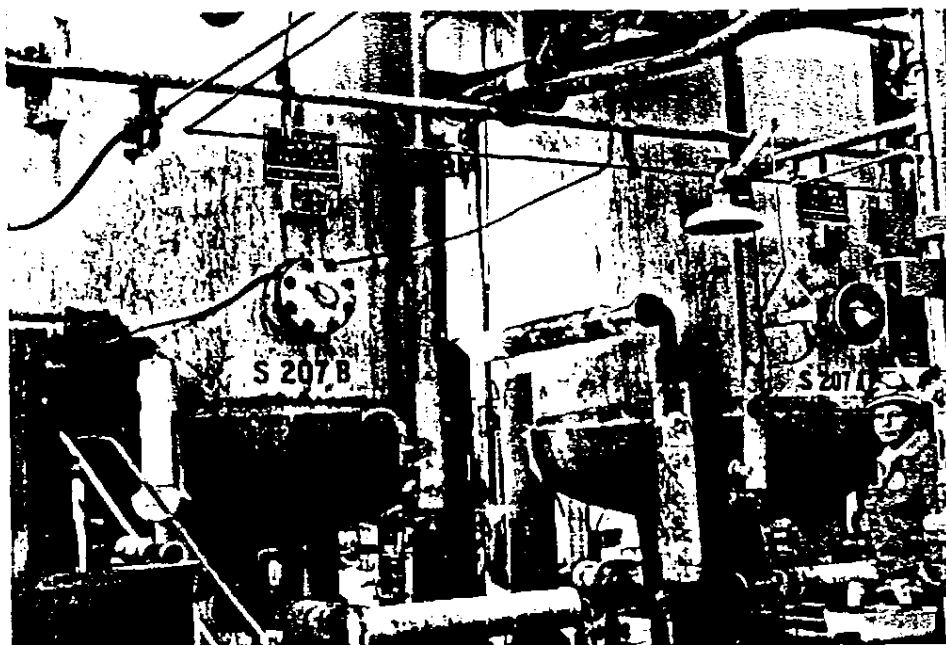
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- 13) Open valve (barely crack open) from top of dryer in service, to spargers of the dryer you are putting in service. Do not lower pressure on S-206 more than 10-12 psig during this step.
- 14) When pressure is equalized, open the valve to spargers wide open. Call incinerator operator, and slowly bleed nitrogen out of top of dryer to wet vent. When dryer is liquid full, put in service second in line, by opening top valve to the check tanks and closing the valve to the check tanks from the upstream dryer.

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EXHIBIT F. PROCESS AREA PHOTOGRAPHS



S-207 A&B Looking From North East
(Caustic Melt Piping)

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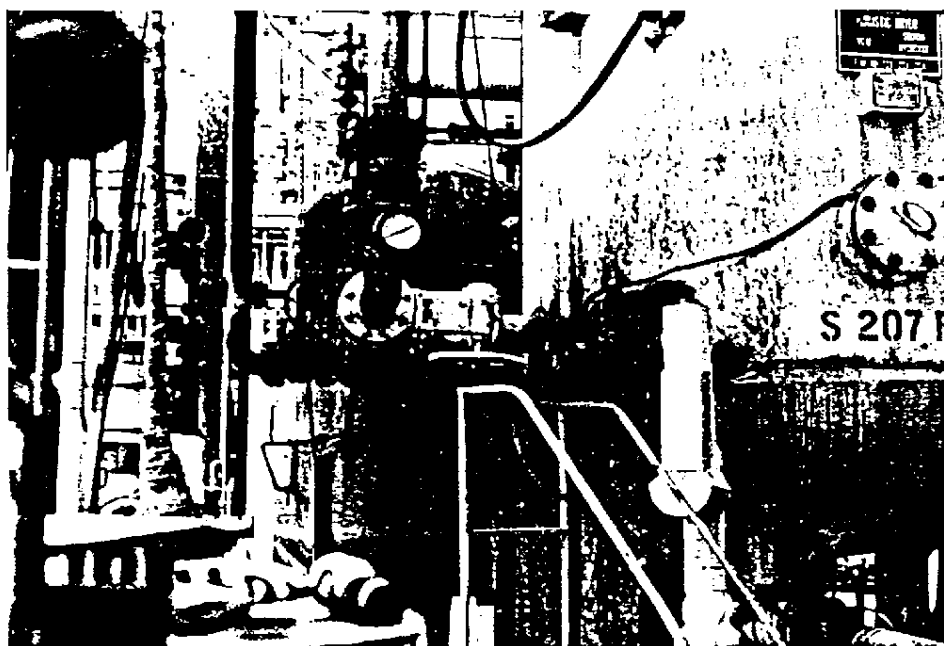
S-207B Roll Blind In Vent Line To Supersucker
Looking From North East

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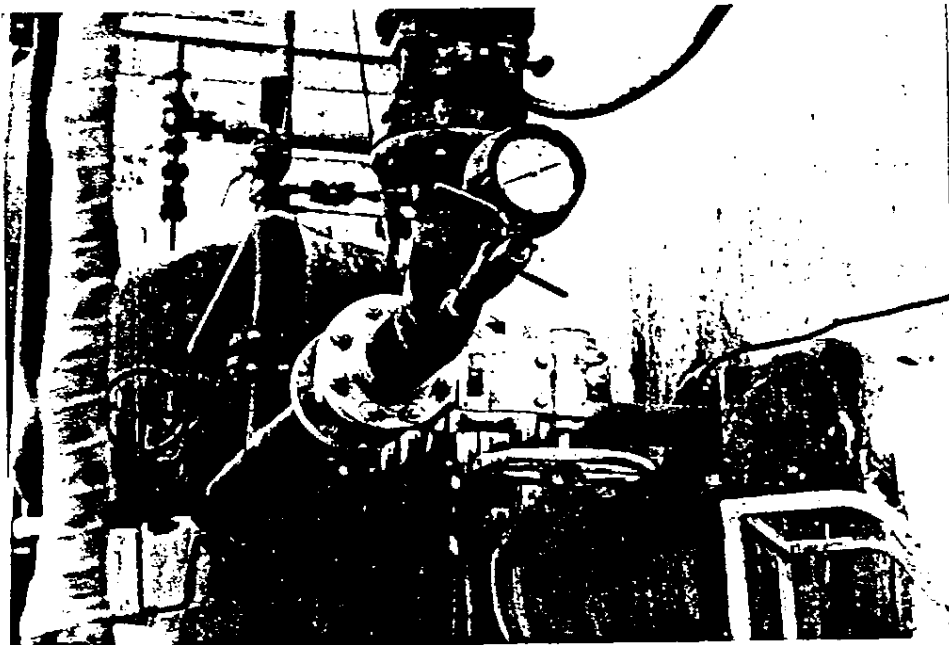


S-207B Block Valve In Vent Line to
Supersucker Looking From the North

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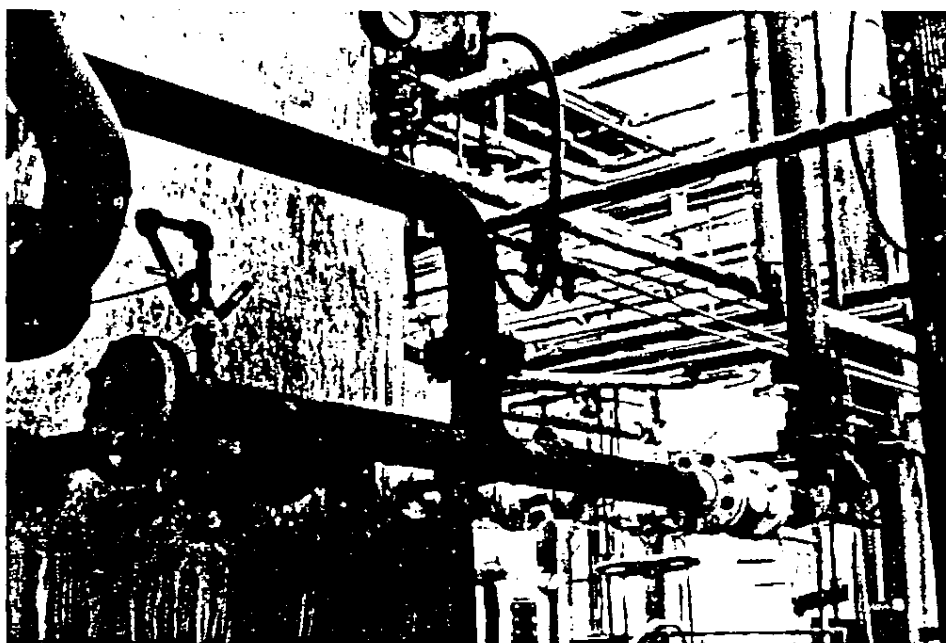


S-207B Pressure Gauge Between Roll Blind
And Block Valve Or Vent Line to Supersucker
Looking From North



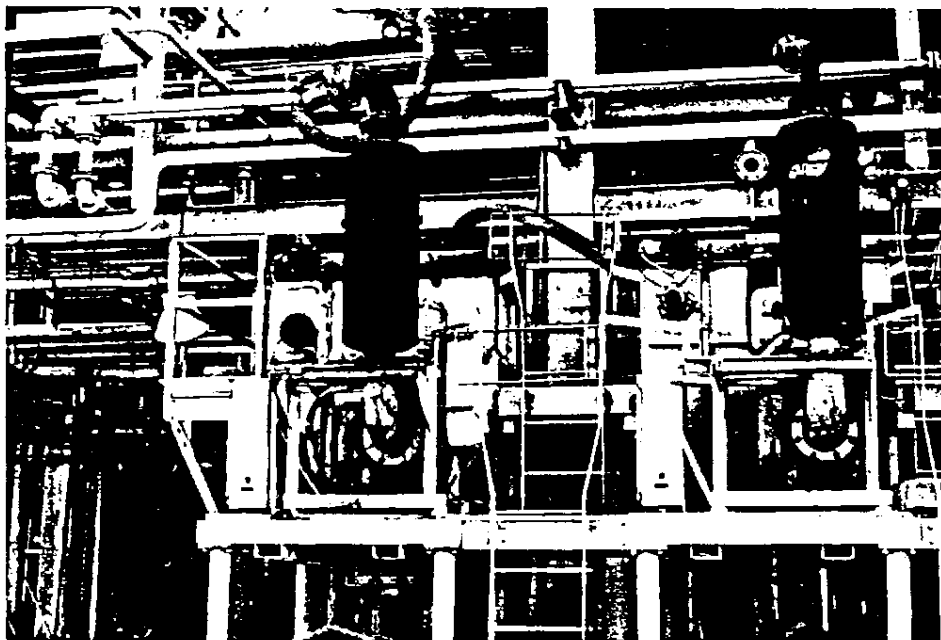
Close Up of S-207B Supersucker Vent Line
Block, Blind and Gauge

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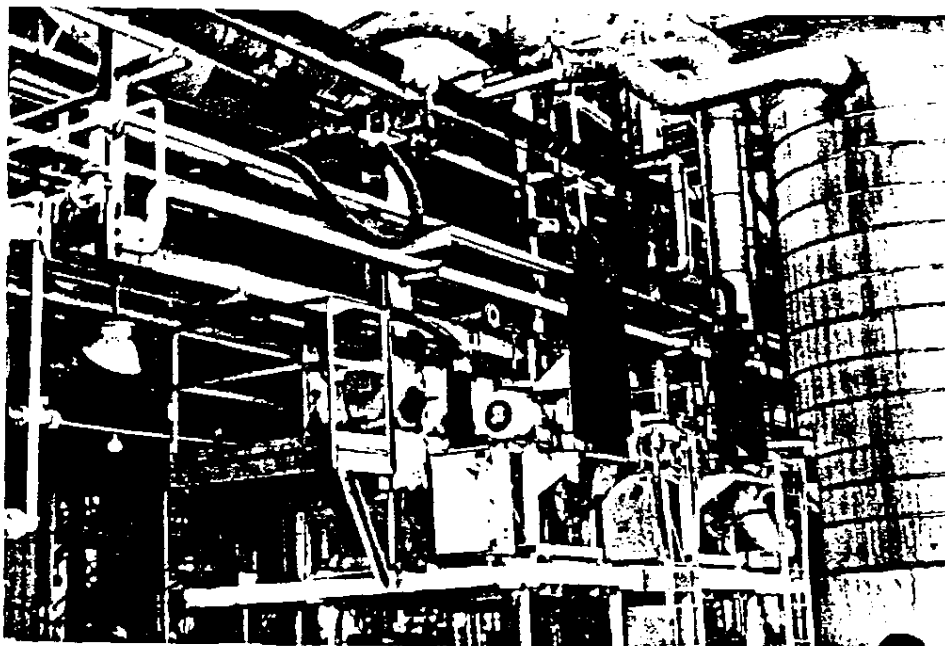
S-207B Sparger Inlet Line With Supersucker
Line Running To The Right

DWH 000005955



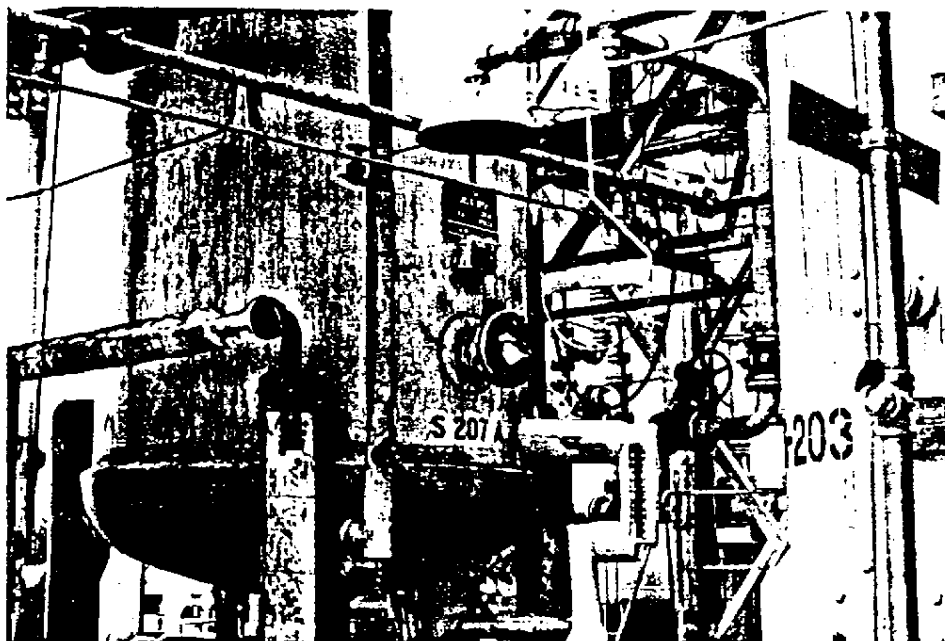
BL-303 And 304 (Supersuckers) Looking
From East

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BL-303 And 304 (Supersuckers) Looking
From South East

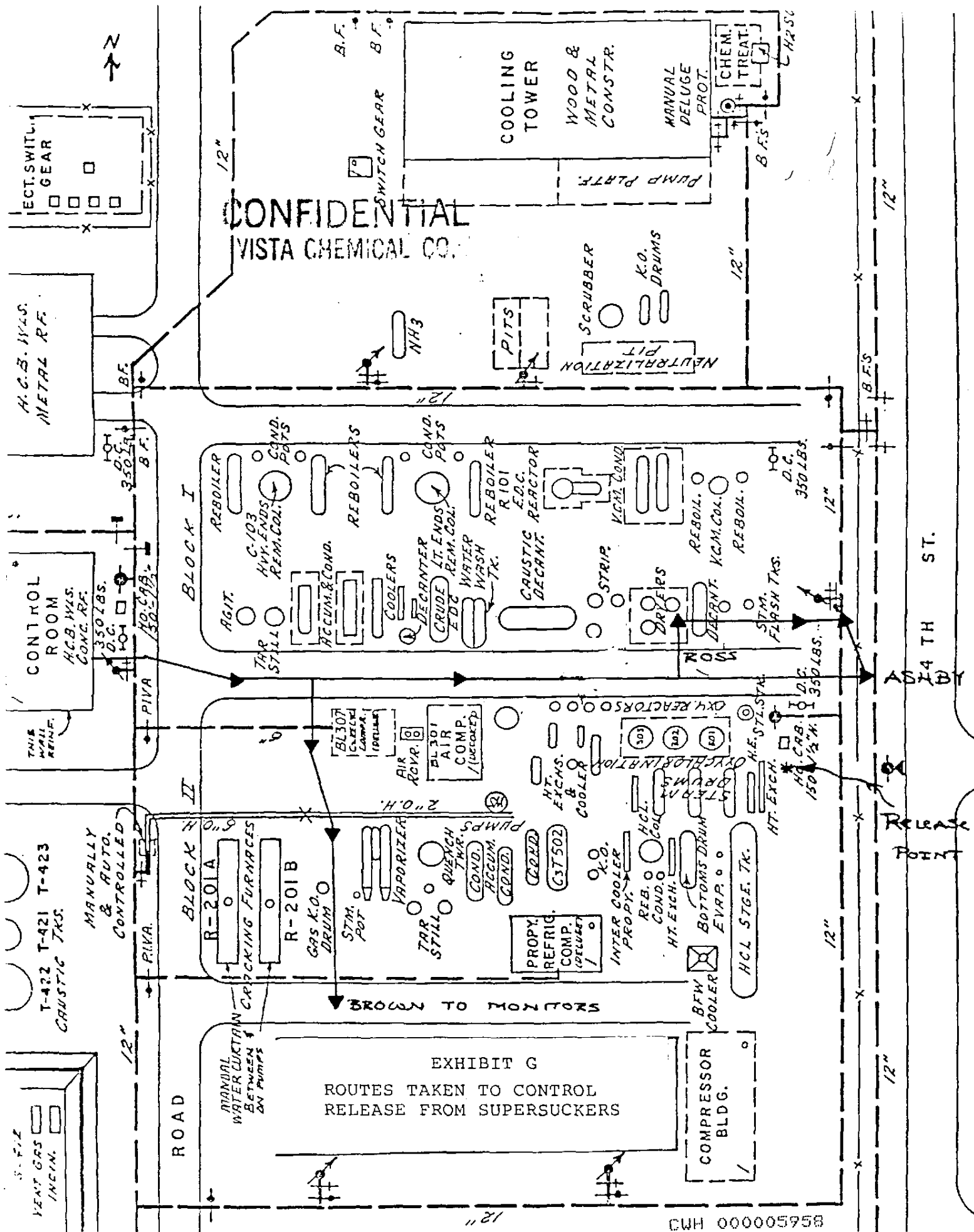
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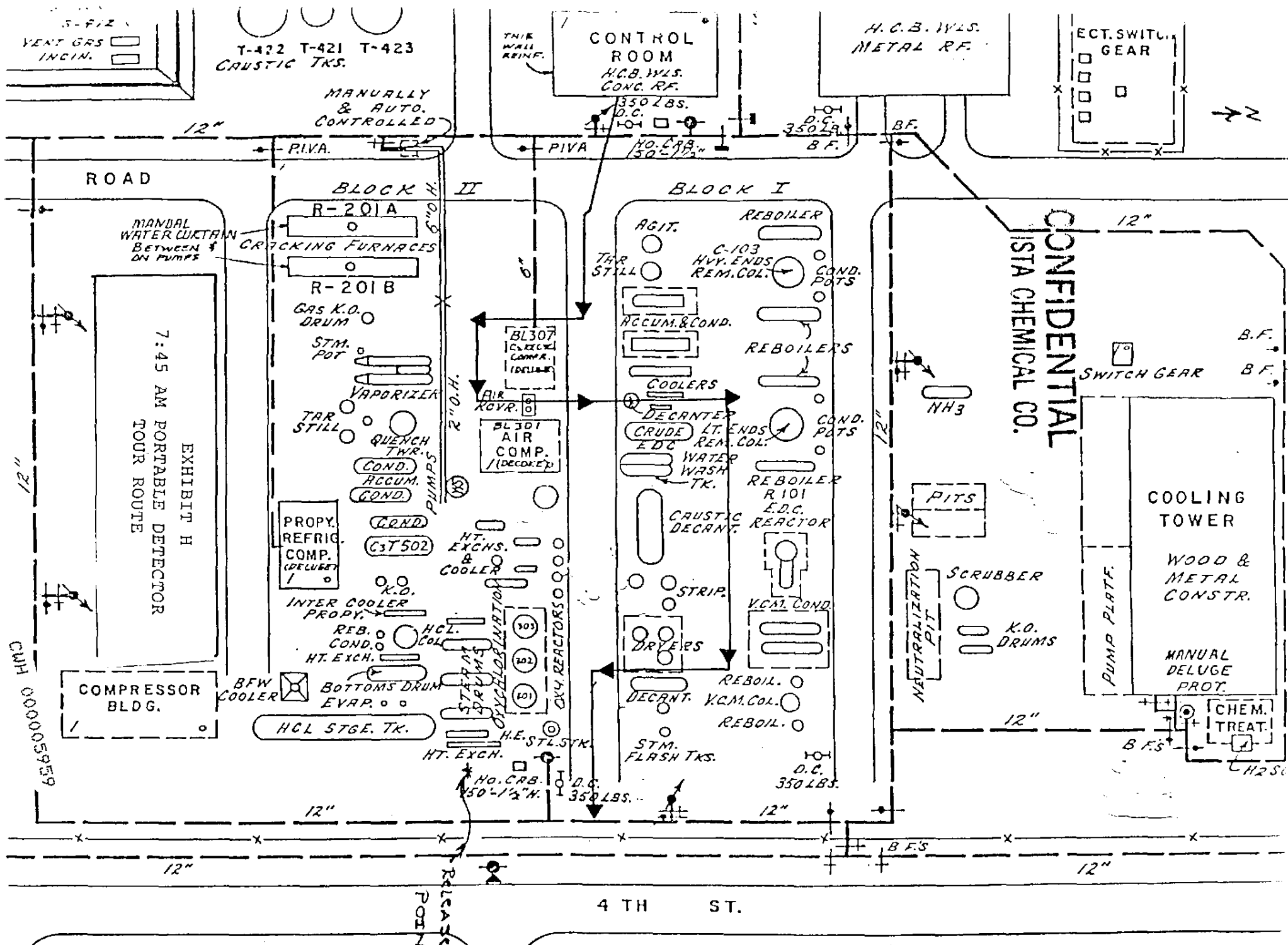


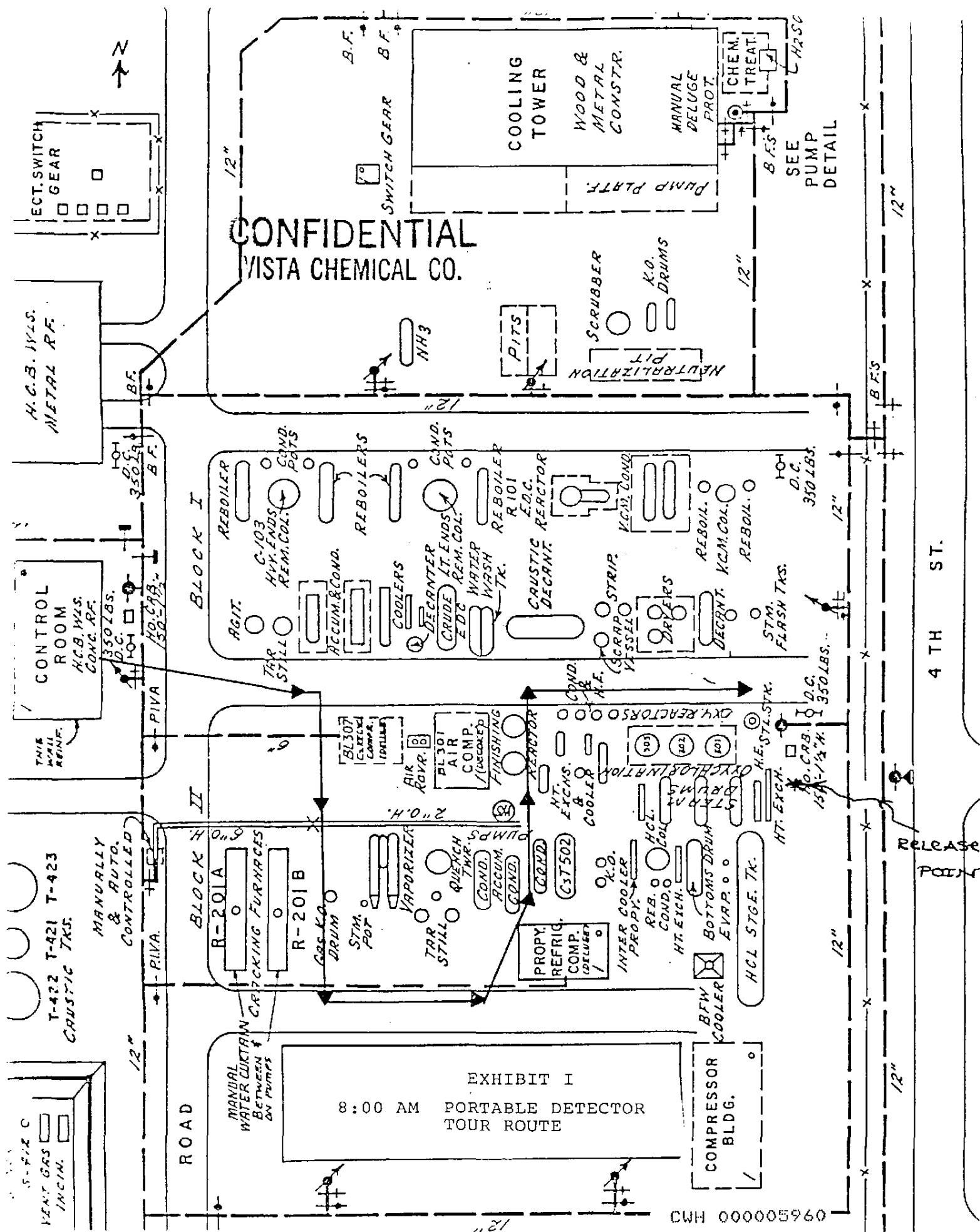
S-207A Dryer Looking From North East

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REVISED PROCEDURE FOR CLEARING S-207 FOR RECHARGE

Early on Evening Shift

1. Line up (open valve) from VCM Caustic Decanter, S-206, to downstream dryer.
2. Close valve from S-206 to upstream dryer.
3. Let dryer sit for several hours, isolated with shakers on.
4. Draw off melt caustic to S-108 until all melt is gone.
5. Open the valve on the bottom of the upstream dryer. This will enable you to empty the dryer into the line coming from S-206.
6. Close the outlet valve on the upstream dryer. This isolates the upstream dryer with only the bottom valve open.
7. Open nitrogen to the top of the upstream dryer. (Blind in nitrogen line has been removed) Open nitrogen slowly so as not to increase pressure on S-206 by more than 10-12 psig. (Watch S-206 pressure closely while performing this step - relief valves set @ 113 psig and 115 psig.)
8. Watch for the level to come down into the sight glass on the dryer. When the level goes out of the sight glass, wait about one minute (no more) then close the bottom valve.
9. Contact the Incinerator Operator then slowly depressure the dryer to S-108. (Leave the nitrogen cracked open on top while depressuring.)
10. Pressure the dryer up with nitrogen to 50 psig and depressure to S-108. Repeat this step 3 times. During this step, also open nitrogen to the spargers, and depressure through the sight glass to clear. Keep in close contact with the Incinerator Operator at all times during this operation.
11. Block in the nitrogen going to the spargers, and with a positive pressure (no greater than wet vent header pressure) on the dryer, sample for lab analysis. If analysis is less than 1.3% vinyl, depressure completely. If analysis is more than 1.3% vinyl, repeat step #10 until an acceptable analysis is obtained. Need to have two (2) consecutive samples less than 1.3% by lab analysis.

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12. Write and issue permit to maintenance for dryer recharge. Block in nitrogen and vent. Fill out a "Dryer Recharge Control Sheet" for dryer to be charged.
13. Check the pressure gauge on the sparger line and the vent line to be sure they are reading zero.
14. Have maintenance blind the dryer to be recharged per the control sheet. The operator should then check for proper blind installation.
15. Have maintenance personnel check the bleeder at the blind for pressure and then remove the blind in the "Supersucker" line (only on the dryer to be recharged).
16. An Operations Department employee must then remove the chain and lock on the vent valve to the "Supersucker" on the dryer to be recharged.
17. The Operations employee will open the valves going to the "Supersucker" from the spargers. Put the "Supersucker" on and open the nitrogen wide open to the top of the dryer. After 5 minutes cut the nitrogen back to minimum flow and open the vent valve in the line to the "Supersucker".
18. Maintenance will open the dryer and close the vent valve before recharging (Valve located at top of dryers).
19. When recharge is complete, maintenance will shutdown the "Supersucker" and reinstall the blind in the "Supersucker" line.
20. An Operations Department person will close the valve to the "Supersucker" and reinstall the chain and lock.
21. Secure the dryer valves and have maintenance pull blinds and set the dryer up for operation.
22. Pressure the dryer up to 75-100 psig with nitrogen and leak check all disturbed flanges and fittings. If there are no leaks, depressure, and pressure up to 50 psig and depressure 2 times to purge the dryer of oxygen. The dryer is now ready to be put in service. (Make sure blind is reinstalled in the nitrogen line).
23. Open the valve (barely crack open) from the top of the dryer you are putting in service. Do not lower the pressure on S-206 more than 10-12 psig during this step.

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24. When the pressure is equalized, open the valve to the spargers wide open. Call the Incinerator Operator and keep in close contact, then slowly bleed nitrogen out of the top of the dryer to the wet vent. When the dryer is liquid full, put it in service second in-line, by opening the top valve to the check tanks on the recharged dryer and closing the valve to the check tanks from the upstream dryer.

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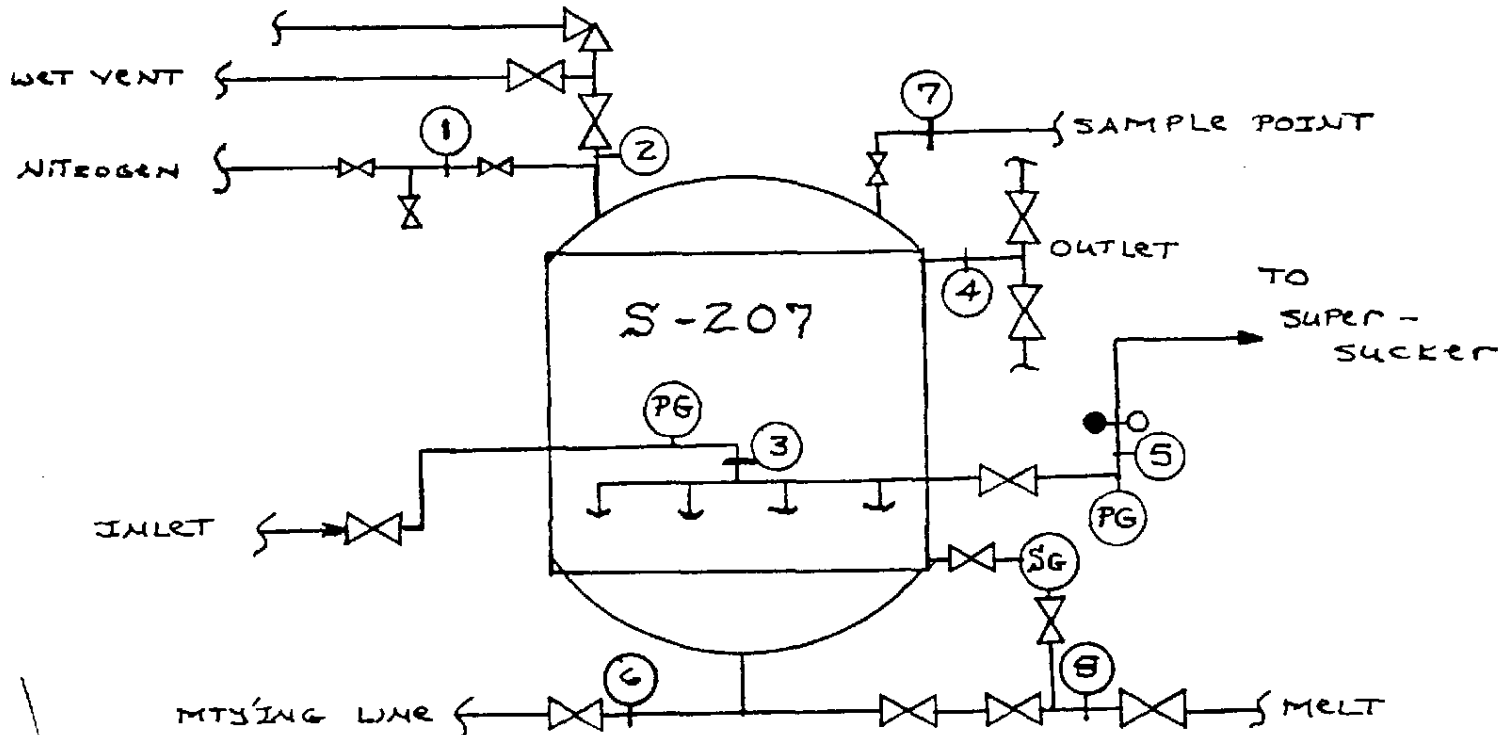
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EXHIBIT K

S-207 _____ DRYER RECHARGE CONTROL SHEET

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- A. Dryer Emptied and Purged _____
- B. Lab Samples 1) _____ ppm 2) _____ ppm _____
- C. Pressure on Sparger line is zero, ready to blind. _____



	Description	Size	To Charge	To Startup
1.	Nitrogen (Double Block & Bleed)	1"	Out	In
2.	Vent and Relief Valve	4"	In	Out
3.	Sparger Line Inlet	4"	In	Out
4.	Vinyl Outlet	4"	In	Out
5.	Supersucker Line	4"	Out	In
6.	Dryer Emptying Line	4"	In	Out
7.	Sample Line (Union)	1"	Out	In
8.	Caustic Melt Line	2"	In	Out

- D. Pressure on vent line is zero, supersucker valve can be unchained and opened. _____
- E. Dryer recharge complete and manway on. _____
- F. Supersucker valve closed and chained. _____
- G. Dryer leak checked and purged. _____
- H. Nitrogen blind reinstalled. _____