

Vista Chemical Company

Lake Charles VCM Plant
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Phone (318) 494-5000

R7

CERTIFIED MAIL # 241 411 272
RETURN RECEIPT REQUESTED

October 24, 1986

VISTA

William H. Davis
Department of Environmental Quality
Air Quality Division
P O Box 44066
Baton Rouge, LA 70804

Dear Mr. Davis:

Attached is the additional information requested in your letter of October 8, 1986 concerning a vinyl chloride release on September 15, 1986.

If you have any further questions, please contact George Hopkins, Chief Process Engineer, at (318) 494-5062.

Sincerely,



R. A. Conrad
Plant Manager

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bcc: JAD PEM MLA SCR GEH WPS BED MGH ERT JCL WLM RDH
GJF HJN (Conoco)

CWH 000005976

Question

- 1) Detail the event of finding the hole in the feed line. Who found it? How was it found? How can anyone be sure that the supply valve (from your sketch) was closed within one minute of the leak occurrence? Supply a copy of the operator's log and shift log that details this event.

Answer

- 1) Two operators were working in the immediate vicinity of C-203, the Vinyl Column, and at approximately 0335 hours noticed liquid dripping from the insulation on the feed line to the column. One of the operators immediately rushed to the supply valve (a distance of about 100 feet) and closed it. He estimated that he had the valve closed within one minute after the discovery of the leak. The belief that the leak had just started is supported both by the initially observed small leakage rate (which increased when the nitrogen purge was begun) and by the fact that the presence of vinyl chloride wasn't detected by the fixed point monitor system until its next sampling of that area at 0341 hours (see attached Fixed Point Monitor Report). We have attached copies of the log sheets as requested. Most of the details described above were obtained from discussions with the operators within 1.5 days after the leak occurred.

Question

- 2a) Detail the calculations for VCM emissions to the atmosphere.

Answer

- 2a) Since the hole in the feed line was covered by an approximately 1-inch thick layer of stainless steel-wrapped insulation it was not possible to estimate the amount of leakage from the size of the hole in the pipe. Therefore the best estimate of the amount of liquid vinyl chloride was obtained from the observed leakage rate as reported by the operators. From their description an approximate volumetric flow rate was obtained in measurements performed in the lab. The estimated flow rate was used along with the density of vinyl chloride and the estimated liquid

leakage time to obtain the estimate of the amount of liquid vinyl chloride which leaked out in the time period between the time of the leak discovery and the cessation of liquid leakage (about 4 minutes). The amount obtained was about 19 pounds of vinyl chloride. This value includes the dripping loss as well as the loss during the nitrogen purging process.

The amount of vinyl chloride vapor which may have been released after the nitrogen purging was completed was estimated by assuming that the entire volume of the feed line system (including H-212) was filled with nitrogen saturated with vinyl chloride at 80 degrees Fahrenheit and 100 psig and that all of this vinyl chloride was released to the atmosphere. This gave an estimated 73 pounds of vinyl chloride vapor which may have been released after the feed line was blocked in.

The total amount of vinyl chloride which may have been released was therefore estimated to be about 92 pounds.

Question

2b) Was there a picture taken documenting the size of the hole?

Answer

2b) Yes, a picture was taken of the hole and is available upon request.

Question

2c) From your verbage and sketch the supply valve was closed within 1 minute after the leak occurred and that only 19 pounds of vinyl was lost. Isn't it true that the line from the supply valve to C-203 through H-212 was full of vinyl? If nitrogen at 100 psig was opened into this feed line would it not push liquid through H-212 toward C-203 and out the hole?

Answer

2c) Yes, the line from the supply valve to C-203 through H-212 was full of vinyl. When the leak was first detected there was only a dripping leakage rate. This increased to a "pencil stream" leakage rate during the approximately first 3 minutes of the nitrogen purging process, after which there was no visible liquid vinyl chloride leakage. All of the liquid leakage is included in the estimated 19 pounds of liquid vinyl chloride which was released.

CWH 000005978

Question

- 3) For a better definition of the event and to enhance our understanding, is the current writeup simplified as the flow diagram? For example, was an operator taking readings on C-203 at 0330 hrs. and saw the hole appear in the line? Reporting this event by radio to the control room, the operator immediately blocked in the supply valve, opened the valve that bypasses the Feed Preheater, H-212 and blocked in the outlet and inlet valve of the preheater? This type of action would have minimized liquid vinyl to C-203. We can assume any number of things that may have happened, but we don't know actual events unless you tell us.

Answer

- 3) Yes, the writeup was simplified, covering only the major parts of the event. Most of the details have been presented in the previous answers. Following is a step-by-step presentation of the events:
- a) Two operators were working on the east Vinyl Column reboiler when they discovered liquid vinyl chloride dripping from the insulation on the feed line to the column at approximately 0335 hours.
 - b) One of the operators immediately rushed to the supply valve (about 100 feet away) and closed it.
 - c) He then purged the line with nitrogen for about 4 minutes through H-212 into C-203, at which time the other operator closed the block valve at C-203.
 - d) The outlet valve on H-212 was then closed, thus blocking in the section containing the leak.
 - e) Water sprays, from the plant's firewater system were then placed on the leaking area to suppress any vinyl chloride vapors.
 - f) Beginning at 0700 hours the feed line was further cleared and blinded at H-212, the bypass valve, and at C-203 and removed for replacement.

CWH 000005979

00:00:41 9- 16- 86

FIXED POINT MONITOR REPORT FOR 9- 15- 86

NUMBER OF LEAKS DURING THE PAST 24 HOURS:
AREA 1 (CAR-171, PTS 1,2,3) = 2 LEAKS *
AREA 2 (CAR-171, PTS 1,4) = 1 LEAKS *
AREA 3 (CAR-171, PTS 4,9) = 0 LEAKS
AREA 4 (CAR-171, PTS 1,5) = 0 LEAKS
AREA 5 (CAR-171, PT 6) = 0 LEAKS
AREA 6 (CAR-171, PT 7) = 0 LEAKS
AREA 7 (CAR-171, PT 8) = 0 LEAKS
AREA 8 (CAR-171, PT 10) = 0 LEAKS
AREA 9 (CAR-401, PT 1) = 0 LEAKS
AREA 10 (CAR-401, PT 2) = 0 LEAKS
AREA 11 (CAR-401, PTS 3,4,5,8) = 0 LEAKS
AREA 12 (CAR-401, PT 6) = 0 LEAKS
AREA 13 (CAR-401, PT 7) = 0 LEAKS
AREA 14 (CAR-401, PTS 9,10) = 0 LEAKS

A LEAK OCCURED AT 03:41:27 IN AREA 1
A LEAK OCCURED AT 03:51:22 IN AREA 1 *
A LEAK OCCURED AT 04:01:25 IN AREA 2 *

* Note: Areas 1 and 2 are the Fixed Point Monitor Areas around C-203. The leaks indicated at 0351 and 0401 hours are actually the residual vinyl chloride from the leak which was first detected at 0341 hours.

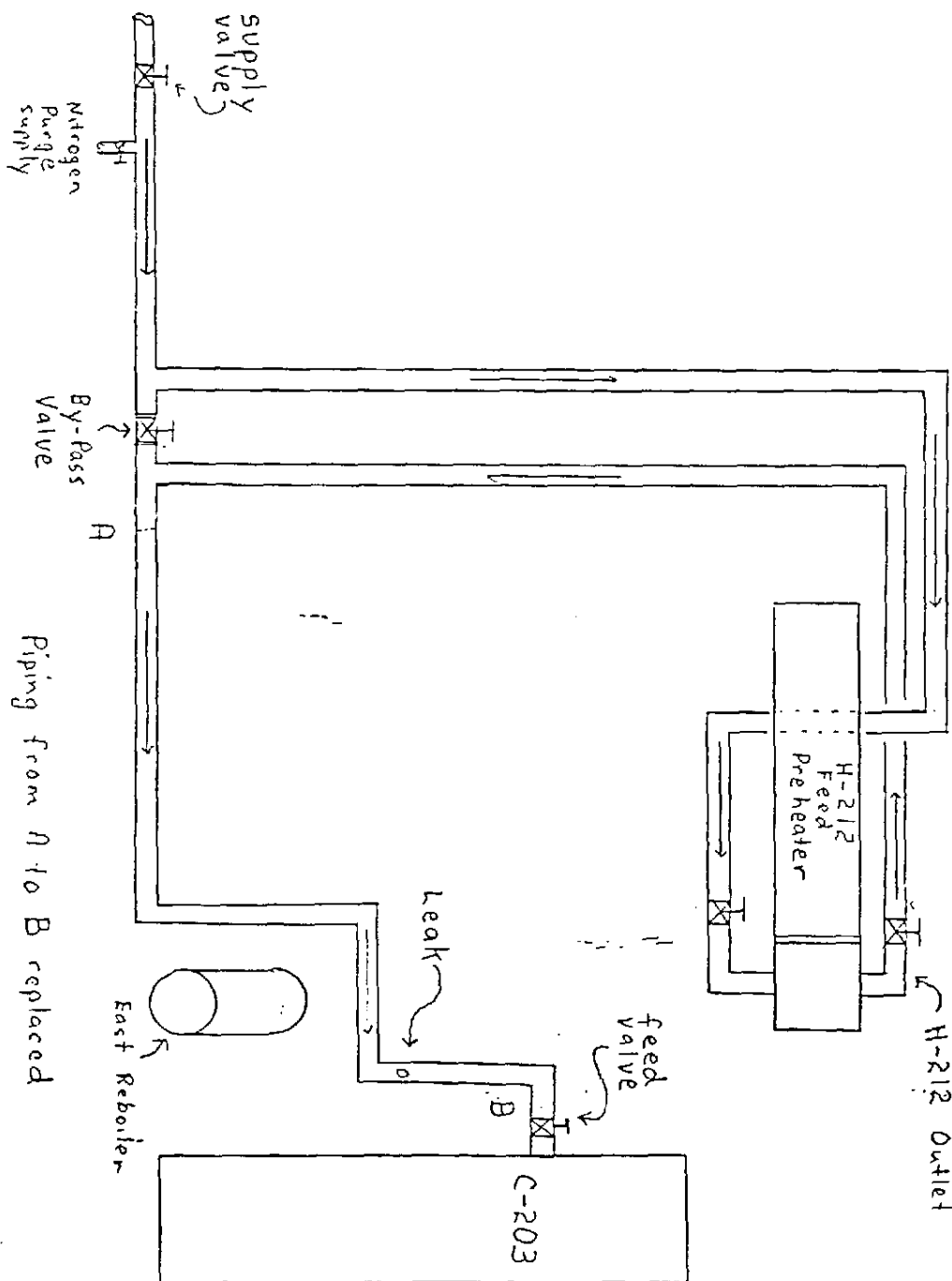
CWH 000005980

To _____
 From _____

Calculation Sheet

VISTA

Simplified Flow Diagram of the Vinyl
 Chloride Column Feed System



CWH 0000059B1

Made By RDH
 Date _____
 Page _____ of _____

Job No. _____
 Title _____

$$L \subset P \quad \text{DLO} \subset \text{LO} \quad \text{C} \subset \text{D}$$

MTJ VC 5-205 TRU NETWORK

185601158 B100K = 2

SHIT down C-723.

0350 LEAK on VC FID 11.11.11

2400 STARTED AZEO BAYVIEW C-201

$$= \mathcal{B}'' \cap \mathcal{B}'' = \mathcal{B}''$$

Reverend Col. Pless. Checked, Ranged & Good to start Area Dry.

Revealing T-401-A to Q-203

Maint to Repair Tube LEAK on H-207

5-316 INCOMPLETE on stopping to

5-11-86 1500-2300 11 — 25 ft

Visit confirmed at the
in the station - PC-2/11
13 March 1994 from 10:00 AM to 12:00 PM

332

9-15-86 0700-1500 - C - Brown

Cleaned C-203 feed line + blind at H-2112 + bypass line around H-212 - and Cont pulling + changing.

Shut down R-401 - put C-102 on total - C-103 on slip stream - cleaning EDC lines to T-453.

Empty bed + started purging H-200A.

Leak checked S-316 engine - Astro Metallurgist making repairs.

9-15-86 1500 - 2300 - D - Whit -

1500 P-453 SUCTION LINE EMPTY + water washed.

1600 TRAU'S LOAD OF TARS to PPG.

HCL Going into T-500 to Conts T.H.

INST Dept. Safety Checked R-12.

1730 S-316 depressured

1800 Press Purging HCL Col.

CWH 000005983