

REDACTED

*7. Pedricktown
Narrative Report*

INTEROFFICE MEMORANDUM

Date: 16-May-1994 09:33am EDT
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Subject: NARRATIVE REPORT DISTRIBUTION
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INCIDENT OF EXPERIENCE VALUE
VCM RELEASE
THE GEON COMPANY
PEDRICKTOWN, NJ PLANT

SUMMARY AND CAUSE:

ON FEBRUARY 21, 1994, A LEAK OCCURRED ON THE EQUIPMENT RECOVERY HEADER FROM THE RECOVERED MONOMER SAMPLE STATION, RESULTING IN THE RELEASE OF APPROXIMATELY 6.4 POUNDS OF VINYL CHLORIDE (VCM) OVER THE 4 MINUTES THAT THE LINE WAS UNDER PRESSURE. WATER HAD ACCUMULATED IN THE LINE AND THEN FROZE, CAUSING THE LINE TO RUPTURE. THE LEAK OCCURRED AFTER SEVERAL DAYS OF WARM WEATHER. ONE EMPLOYEE WAS EXPOSED TO THE VCM. HE WAS GIVEN APPROPRIATE MEDICAL SURVEILLANCE THE FOLLOWING DAY. THERE WERE NO OTHER INJURIES, AND THERE WAS NO EQUIPMENT DAMAGE.

BOARD OF REVIEW:

A BOARD OF REVIEW WAS HELD ON ON FEBRUARY 21, 1994, WITH THE FOLLOWING IN ATTENDANCE:

DAVE DORAN
NORM AYARS
JIM DIRIENZO
BILL WAGNER
MAY JOHNSON
DENNIS O'KEEFE
BILL FULTZ

CONSOLE TECHNICIAN
CONSOLE TECHNICIAN
LEAD TECHNICIAN
SR PROCESS ENGINEER
SUSPENSION RESIN MANAGER
SR ENVIRONMENTAL ENGINEER
MANAGER, SAFETY AND HEALTH
PLANT MANAGER

CORRECTIVE ACTION:

- 1.) REMOVE DEFECTIVE PIPING AND PRESSURE TEST HEADER. COMPLETED 2/21/94.
- 2.) INSPECT OUTSIDE PORTION OF EQUIPMENT RECOVERY HEADER FOR EVIDENCE OF CORROSION. COMPLETED 2/21/94.
- 3.) THICKNESS TEST OUTSIDE PORTION OF EQUIPMENT HEADER PIPING
- J. DIRIENZO/T. TEDESCO 2/21/94
- 4.) DETERMINE THE EXTENT OF OUTSIDE INDICATED CARBON STEEL PIPING IN
- M. SERVICE 2/21/94
- 5.) REPLACE DEFECTIVE CARBON STEEL PIPING WITH 316 INLESS OR 316 PIPING
- J. DIRIENZO/T. TEDESCO 2/21/94
- 6.) ADVISE ALL PERSONNEL OF THE RESULTS OF THE BOARD OF REVIEW AND THE
- J. DIRIENZO/T. TEDESCO 2/21/94

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ON FEBRUARY 19, 1994, THE NIGHT SHIFT BEGAN HAVING PROBLEMS ON THE RECOVERY SYSTEM. AS IF AIR WAS BEING PULLED INTO THE SYSTEM WHEN THE EQUIPMENT RECOVERY SYSTEM WAS IN SERVICE. THEY CHECKED THE SYSTEM FOR ANY OBVIOUS PROBLEMS, AND FOUND NONE. THE DAY SHIFT ALSO CHECKED THE SYSTEM AND FOUND NO OBVIOUS PROBLEMS. NORM AYARS AND [REDACTED] CHANGED THE RUPTURE DISC ON TK-1E, BUT THAT HAD NO EFFECT. THE EQUIPMENT RECOVERY HEADER CAN BE SEPARATED INTO TWO PIECES, THE POLY SIDE AND THE BUILDING SIDE. THIS SHIFT (AYARS, [REDACTED], AND DAVE DORAN) HAD PRESSURE ON THE HEADER EARLIER IN THE MORNING ON THE 21ST AND HAD DETERMINED THAT THE LEAK WAS ON THE BUILDING SIDE OF THE HEADER. AT ABOUT 1035 HRS, DORAN PUT A BLOWDOWN TANK ON EQUIPMENT RECOVERY, AND AYARS AND [REDACTED] WERE PREPARED TO GO LOOK FOR ANY FUGITIVE EMISSIONS WITH HNU METERS. ALMOST IMMEDIATELY, THE 25% LEL ALARM IN THE RECOVERED MONOMER DIKE AREA WENT OFF. DORAN CLOSED THE VALVES ON THE BLOWDOWN TANK TO START TO PULL THE EQUIPMENT RECOVERY HEADER DOWN TO A VACUUM. THE 50% LEL (IN THE RECOVERED MONOMER DIKE AREA) WENT OFF, SETTING OFF THE DELUGE SYSTEM AND SOUNDING THE FIRE ALARM. DIRIENZO WENT TO INVESTIGATE, GOT AS FAR AS THE UTILITY BUILDING, SMELLED VCM, AND CAME INTO THE CONTROL ROOM TO SOUND THE GAS ALARM. WITHIN 4 MINUTES, THE EQUIPMENT RECOVERY HEADER WAS UNDER A VACUUM, AND DORAN SWITCHED OVER TO THE VACUUM JETS. AYARS VALVED OUT THE DELUGE, AND HE, [REDACTED] DIRIENZO, BOB BACON, AND GEORGE LEHMAN RESPONDED TO THE RECOVERY STRUCTURE. AYARS AND [REDACTED] WERE EQUIPPED WITH HNU METERS TO HELP FIND THE LEAK. THEY WERE DOING A SYSTEMATIC SEARCH OF THE STRUCTURE WHEN BACON NOTICED SOME VCM VAPORS COMING FROM THE INSULATION ON THE EQUIPMENT RECOVERY PIPING FROM THE RECOVERED MONOMER SAMPLE STATION. THE SAMPLE STATION WAS ALREADY ISOLATED FROM THE RECOVERED MONOMER PUMPS, BUT AYARS ALSO CLOSED THE BLOCK VALVE ON THE EQUIPMENT RECOVERY HEADER PIPING, FURTHER ISOLATING THE LEAK.

FACTS SURROUNDING THE INCIDENT:

- 1.) THE EQUIPMENT RECOVERY HEADER IS USED TO PREPARE EQUIPMENT FOR MAINTENANCE. IT'S NORMAL SERVICE IS ALTERNATING PRESSURE/VACUUM.
- 2.) AT THE TIME OF THE LEAK, THE PRESSURE IN THE HEADER WAS APPROXIMATELY 28 PSIG.
- 3.) THE SPLIT PIPE WAS A 1 INCH CARBON STEEL LINE. IT SPLIT 3-4 INCHES ABOVE AN ELBOW. THE SPLIT WAS 2 INCHES LONG AND 1/2 IN. WIDE AT IT'S WIDEST POINT.
- 4.) THE HNU METER READINGS TAKEN AT THE STRUCTURE WERE ALL LESS THAN 5 PPM.
- 5.) THE RECOVERED MONOMER SAMPLE STATION HASN'T BEEN USED IN AT LEAST TWO MONTHS.
- 6.) THE ELECTRICAL HEAT TRACING ON THAT SECTION OF PIPING WAS NOT WORKING.
- 7.) THE LEL DETECTOR HEAD IN THE RECOVERED MONOMER DIKE AREA WAS APPROXIMATELY 20 FEET FROM THE SOURCE OF THE LEAK.
- 8.) THERE WAS 4-6 INCHES OF WATER AND ICE IN THE DIKE, EFFECTIVELY REDUCING THE VOLUME OF VCM NEEDED TO SET OFF THE LEL.

MANAGEMENT SYSTEMS INVESTIGATION:

- 1.) THE SAFETY SYSTEMS WORKED AS DESIGNED. THE LEL, DELUGE, AND FIRE ALARM ALL FUNCTIONED NORMALLY.
- 2.) THE PERSONNEL RESPONDING TO THE KNOWN VCM LEAK DID NOT USE PROPER RESPIRATORY PROTECTION.

CONCLUSION:

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THE EQUIPMENT RECOVERY HEADER PIPING AT THE RECOVERED MONOMER SAMPLE STATION FILLED WITH WATER, FROZE, AND EITHER BURST THE PIPE OR SUBSTANTIALLY WEAKENED IT. THE ICE PLUG REMAINED IN PLACE AND DIDN'T BEGIN TO THAW UNTIL THE NIGHT OF FEBRUARY 20TH. THE COMBINATION OF WARMER TEMPERATURES AND THE PRESSURE ON THE HEADER AT 1035 HRS ON 2/21 WAS ENOUGH TO RUPTURE THE LINE OR BLOW OUT THE ICE PLUG, CAUSING THE VCM LEAK.

ACCIDENT REPORTS
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