



To: P.J. Kober

From: Investigation Team

Date: April 22, 1998

Subject: VCM Release - April 6, 1998

Interoffice
Communication

Description of Event

On April 6, 1998, as a railcar at the VCM Unloading Rack was being disconnected, a VCM leak occurred due to a valve not being completely closed because it had an inoperable stop mechanism. No injuries or damage to equipment were caused by this incident. It was estimated that 600 to 800 pounds of VCM were released.

Shortly after Chris Ewing (Yard Trainee) had come on shift on the above date at 1500, he was at the VCM Un-Loading Rack unhooking liquid and vapor lines from VCM railcars as he had been doing for the last couple of weeks on this shift as part of his training. He was wearing a supplied air mask. He had already unhooked one car that afternoon and had moved to another car which was located on Spot 9. This was a Georgia Gulf car, UTLX 94787. He had disconnected the vapor line from this car and had moved to disconnect the liquid line.

As he loosened the Snappy Joe on the liquid line he noticed a hissing sound. This was not unusual as there is sometimes a slight vacuum left from the recovery process. This was usually rectified by slightly shaking the Snappy Joe to relieve the vacuum. This did not stop the hissing and he realized that there was a leak.

The valve handle was in the horizontal position, pointing north. Chris then raised the valve handle to the vertical position in hopes that this would stop the leakage, but it only made it worse, so he positioned the valve back to the way he had found it. At this time, the Snappy Joe, which Chris had loosened, suddenly popped off, and VCM started escaping. This event caused Chris to fall off the top of the car to the west side. He grabbed the walkway grating thus averting falling the entire distance off the car. After shedding his mask he dropped the remaining 6 to 8 feet to the ground. He was not injured.

Ricky McMillan (Yard Operator), who was unhooking a car on Spot 7 looked up and didn't see Chris on top of the car. He looked around and then saw him on the



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ground. Chris motioned that there was a problem with the car that he had been working on. Ricky then unhooked from his air supply and went down the rack to the car Chris was working on. Ricky realized that the liquid line valve was leaking. He intended to hook up his mask/hose apparatus to the air line at this spot but it was not available as it was dislocated to the west side of the car. Ricky then went out on the car to see if he could quickly correct the problem. He also tried moving the valve to the vertical position to see if it would help only to also find that it made the problem worse because this fully opened the valve. Without having supplied air, he knew that he had to evacuate, so he put the valve back in the original horizontal position and left the car. He saw Willie Malone down the rack and signaled for him to set off the deluge, which he did. Both Willie and Ricky then came down off the rack.

After discussing options with their supervisor, Dean Honeycutt, and others, Willie and Ricky donned Scott Air-Packs and rainsuits and went up to try and secure the leaking valve. By this time, a good bit of ice had formed around the valve. They tried to chip down to the valve but were not able to remove enough ice to operate or plug the valve. They came down off the car.

As further discussion progressed the dome lid iced over and the leak stopped. Ricky and Willie went up again to try and chip ice down to the valve, but as they got near the valve, VCM started escaping again, and as before, they were unable to get to the valve. As they were running low on air, they came down again.

It was determined that access to the vapor line could be obtained, and it was decided to hook up a line to this valve and attempt to recover the car which would stop or decrease the leak. Ricky and Willie went up again with this in mind, but the car emptied and the leak stopped before the recovery process could be initiated.

Once the leak stopped, the ice in the dome quickly began to melt. When enough was gone, Ricky and Willie observed that the valve should close to the inside, and they put the handle in that position, thus closing the valve, and then plugged it.

The deluge ran for some additional time, and monitors and firehoses were used to melt the remaining ice so that VCM PPM levels would return to an acceptable level. After this was attained, inspection of the railcar took place, and the initial investigation began.

All during the event HNUs were used to monitor areas around the railcar area as well as personnel evacuation areas to minimize employee exposure and off-site impact.

The release was reported to the National Response Center, and info was faxed to the MS Emergency Management Center. A wastewater bypass was also reported to the MDEQ.

Cause

The cause of the release was the lack of realization by at least two Yard Operators and/or trainees that railcar UTLX 94787 had a quarter-turn ball valve with an inoperable stop mechanism. If this valve had been in proper working condition, there would have been no release. However, the entire event could also have been prevented if the faulty valve had been detected and measures taken to repair it.

Typically, railcars will have three valves in the dome area: two liquid line valves, and one vapor line. Most all railcars that have quarter-turn ball valves in the dome area of the car will have handles that are in the vertical position when the valve is open and either all turn toward the center relief device in the closed position, or all turn away from the device to be in the closed position (as in Figure 1, attached). This particular car had a vapor line that closed with the valve handle to the outside, while the two liquid lines closed with the valve handles to the inside (Fig. 2).

This car had other abnormalities. The liquid line valve associated with the leak came into the plant with a valve handle that was longer and straighter than the other two valves. For this valve to close to the center, and not hit the relief device, the nut holding the valve handle in place had to be loosened by the supplier to allow the handle to swivel and thus pass by the relief device. In doing this, it allowed the mechanical stop mechanism to become unseated and thus rendered the valve capable of being turned at an angle of more than ninety degrees. If there was an attempt to close the valve in the outward position, this long handle would hit the side of the dome before the valve handle reached ninety degrees from the vertical, thereby leaving the valve "cracked open".

This car had been off-loaded, and the liquid line valve in question had been left with the handle placed in the outward position.

Recommendations**Responsibility****Target Date**

- Train all Yard Operators to check for non-standard valves and valving arrangements whenever they hook-up or un-hook cars and to report them to their supervisor upon discovery.

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06/01/98

- Change line/hose recovery procedures to keep air on the Snappy Joes during hose recovery thus keeping them open so that vacuum will be pulled against the valve on the car and not the Snappy Joe. This would have indicated a leaking valve in this instance.

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- Develop a procedure for notifying the railcar owner of valve problems and require that they respond in writing on how the

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problem was corrected.

- Research the feasibility of having some type of safety restraint system for personnel that access the tops of railcars.

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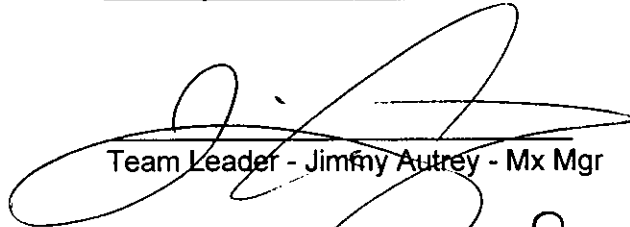
- The concern by our plant over the vast variety of valving configurations on VCM cars throughout industry should be voiced to the Vinyl Institute. A standard configuration should be proposed.

K.G. Akin

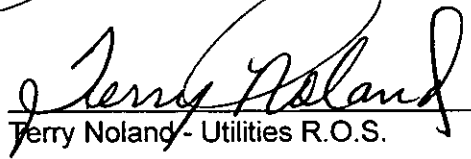
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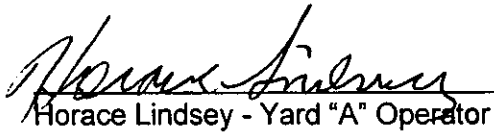
Investigation Committee

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Team Leader - Jimmy Autrey - Mx Mgr

A handwritten signature in black ink, appearing to read 'Terry Noland', with a large loop at the end.

Terry Noland - Utilities R.O.S.

A handwritten signature in black ink, appearing to read 'Horace Lindsey', with a large loop at the end.

Horace Lindsey - Yard "A" Operator

Attachments: Photos (Figures 1 & 2)