B.F. Goodrich Chemical Company

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Inter-Organization Correspondence

To	Ken Hardesty	Date	December 18, 1968
Location	Bulk Handling	From	Oran C. Johnston

RECEIVED
JAN 10 1969

Subject Derailment of EDC Tank Car SHPX 81876

EDC tank car SHPX 81876 was shipped from B.F.Goodrich Calvert City Plant on December 6 with 193,700 pounds on board to Rohm and Haas - Port Richmond, Pa.

On Monday, December 9 at 10:58 the tank car was derailed along with approximately twenty additional cars on the B&O railroad at Elkton, Maryland. The car was lying almost on its top side with one end down an embankment. The ethylene dichloride was leaking from the manhead on the tank car.

The Calvert City Plant was notified Tuesday afternoon that the car was derailed, on its top and thought to be leaking. We were instructed that if assistance from our plant was needed we would be contacted. Wednesday, we were informed that Rohm and Haas had agreed to handle the assistance from there, as the car was about fifty miles from their plant.

Thursday afternoon the Calvert City Plant was notified that Rohm and Haas had declined ny assistance and that someone from this plant would have to go to Elkton, Maryland to assist the B&O Railroad with the transfer of the material. Thursday afternoon I was instructed to proceed to Elkton to assist with the transfer of this material into tank trucks to be unloaded by Rohm and Haas.

I met Mr. Frank Burton who is in charge of Salvage and Salvage Sales for B&O and C&O Railroads and Mr. Ted Baur of American Association of Railroads - Explosives Division, at the scene at Elkton at 0830 Friday morning. I inspected the tank car and made the following observations. The car had been struck in the end that was down the embankment by what appeared to be the corner of a box car. The end had been pushed in and was cracked in one place with a slight amount of EDC leaking at this point. I inspected the manhead section and found that the packing around the reach rod to the bottom unloading valve was leaking a pretty good stream. I inspected the bottom unloading valve and found that it had been struck and bent over about two inches out of line and there was a slight leak where the valve is attached to the tank car. The upper end of the car was covered by a derailed box car and when it was removed a hole was discovered in this end about an inch in diameter; apparently the hand rail that goes around the car was torn away stripping out a rivot at this point. There was no leakage here at this end of the car as it was elevated. Two railroad cranes were positioned to roll the car back to the upright position and set it on ties in a near-level position to be unloaded. The cranes were able to right the top side of the car but they were unable to move it. They left the car at about a forty-five degree angle resting on the embankment. The car in this position was still leaking badly at the dome and the bottom unloading valve reach rod. The dome cover was ghtened and this leak stopped.

Mr. Burton was then instructed to bring in tank trucks to receive the material from the car. He contacted several of the tank truck companies in the Baltimore-Philadelphia area but was only able to secure one tank truck for Friday. No trucks would be available after this one until Monday. At this point I contacted the Calvert City Plant to see if our Traffic Department could assist in securing tank trucks. I was informed that Cleveland Traffic was able to secure trucks from O'Boyle Truck Lines and subleased to Matlock Lines to carry the material. I informed Mr. Burton of this but he had already been contacted by his office that this had fallen through.

The one Matlock trailer arrived at 1830 hours and was positioned to receive a load of EDC from the tank car. It was a 6500 gallon stainless trailer that had previously carried whiskey. I inspected the trailer and found it to be thoroughly steam cleaned and ready to receive the material. A two inch line was attached to the eduction pipe from the tank car and 4000 gallons were pumped into the trailer. The transferred material was inspected and believed to be ready for shipment. The amount of material that was pumped off did not stop the leaks so the driver and Mr. Burton agreed to pump an additional 1000 gallons into the trailer. This stopped all visible leakage from the car. At this point we all retired for the night. Saturday morning I again talked to Mr. Burton who still could not secure additional trucks before Monday and he wasn't sure of getting enough trucks then to complete the job. I again contacted the Calvert City Plant, informed them of the situation and was instructed to return to Calvert City as Mr. Burton felt that my assistance would no longer be necessary.

Mr. Burton informed me that the tank car would be scrapped when empty. The under carriage was twisted and rolled up. One side of the car that had been on the ground was caved in. I was informed that a box car had been removed from on top of the car before I arrived.

Safety precautions around the car were pretty hard to enforce. The wrecking crews were using cutting torches on salvage operations on box cars a few feet away. Everyone seemed to insist on smoking in the area in which some fifty to sixty men were working. One of the cranes was steam operated and there was fire falling continually from the fire box.

A dike was built in the drainage ditch to try to contain the leakage from the car in as small an area as possible; also to prevent contamination of nearby water supplies.

The drainage ditch along side of the railroad drained into the north river which ran into the reservoir that supplied the water for northern Maryland. This was of some concern and everyone was cautioned as to the importance of containing the material that escaped and also the necessity of completing the transfer as quickly as possible.

As a suggestion to anyone else who might attend a similar situation, a safety rope with a dozen or so lading cards to rope off the area with danger signs would be helpful. Also a camera to record some facts that are difficult to describe would be helpful.

Oran C Johnston

OCJ/plz

cc: AH Cassity
JR Harper
JJ Schonaerts
GJ Magyar
FR Carvell
GE Evens
File

B. F. Goodrich Chemical Company

Inter-Organization Correspondence

To	Karl Perdue	Date	March 2, 1967
Location	Cleveland Office	From	B. J. Schrembs

Subject

Following is the information you requested on transfer of the wrecked VCl tank car:

Wrecked Car	-	GATX 83484
Car VCl Transferred to	-	GATX 84736
Location	-	Decoursey, Kentucky L & N Decoursey Yards
Weight of VCl in Wrecked Car	-	146,300 pounds
Weight of VCl in Car Filled	-	146,200 pounds
VCl Lost	-	100 pounds
Date	-	September 29, 1966

Extent of Car Damage:

All catwalks, hand rails on sides and dome of car badly damaged and sixty percent missing. Metal skin covering covering insulation badly torn and large areas crushed against inner tank walls. Manual brake wheels missing. Tank car rodding assembly bent so badly unable to rod car for level. One VCl unloading valve leaking slightly. Tank car on original trucks and mobile. Tank car, especially trucks, heavily encrusted with mud, etc.

Preparations by L & N Railroad Prior to Unloading:

1. Wrecked car spotted in Decoursey Yards in the most isolated and safest area.

2. One nitrogen trailer consisting of four banks of horizontal cylinders at 3000 psig of N_2 spotted at ten feet from wrecked car.

3. Purchased by L & N three, six foot sections of flexible stainless steel tubing (hose)---two for unloading VCl and one for nitrogen to pressure VCl from wrecked car.

4. Necessary hi-pressure reducing valves (2) to reduce N_2 from 3000 psig to 100 psig. Also, pressure gages 0-150 psig and sufficient pipe and fittings to connect cars and N_2 lines.

5. Spotted empty VCl tank car on track opposite wrecked car.

6. Chocked wheels securely on both cars. Installed derailers and danger signs at least 500 feet from cars.

7. Installed ground wires between cars and between car domes and under carriages to eight foot long, one-half inch copper ground rods.

8. Tested entire tank car, especially between insulation and inner tank for leaks.

Safety Precautions Discussed and Agreed On:

1. L & N yard detectives to be present during entire preparation and unloading. Detectives to be in constant contact, via two-way radio, with yard master to warn him of any emergency so he could stop all traffic in yards.

2. Notified chief of volunteer fire department in area of our operation, etc.

3. Briefed all personnel involved as to material being handled and emergency procedures. Cautioned them not to smoke in area; carry no matches, lighters, etc.; and use only explosion-proof lights.

4. Thoroughly inspected area by tank cars for storm sewers, drain culverts, land depressions, etc., in case an uncontrollable severe liquid VCl leak would drain into or collect in same. In this case, had to seal a 24" storm drain over 1/2 mile long under yards that drained into a nearby river.

5. Checked area for any electrically operated equipment, open switches, non-explosion proof flood lights, combustion type engine, etc.

Installation of Unloading Lines:

1. L & N maintenance men installed all unloading equipment.

2. Both unloading lines and nitrogen lines had a section of flexible stainless steel tubing inserted so shifting of cars during unloading would not break rigid piping.

3. A 150 psig relief valve, a 0-150 psig pressure gage, and a bleed-off valve (to relieve pressure before disconnecting) installed in all VCl and N_2 lines.

4. Dual pressure regulator, in parallel, installed in N_2 line in case one failed.

5. A check valve installed in N_2 line so no VCl could back pressure into N_2 cylinders in case of a leak, etc.

6. A flame arrestor installed atop a six foot vent line attached to vapor line of empty (unwrecked) tank car so pressure could be bled off to keep it at 25 psig below wrecked car.

Unloading of Wrecked VCl Tank Car:

1. Alerted yard master of impending operation.

2. Cracked open VCl unloading valves on wrecked car to purge out air in lines via bleed-off valves.

3. Tested all lines, etc., for leaks with explosimeter.

4. Tested and adjusted N_2 pressure regulator (via vent valve) to reduce 3000 psig to 75 psig to wrecked VCl tank car. Increased pressure to 100 psig as unloading progressed to speed up operation.

5. No leaks, so opened unloading valves very slowly on empty car and then wrecked car unloading valves. VCl began to flow immediately.

6. Gradually opened N_2 valve to 50 psig, then 75 psig, etc., to maintain a 25 psig differential between cars until unloaded.

7. Checked level in car being filled every 15-30 minutes to be sure liquid flowing into car.

8. When rod measurement (by innage chart) indicated level (and amount) in car being filled equal to amount that was in wrecked car, we opened bleed-off valves in unloading line to be sure only vapor in lines and no liquid.

9. As soon as all liquid transferred, pressure immediately equalized between cars--another indication car was empty.

10. Lowered pressure of N_2 in wrecked car from 100 psig to 50 psig.

Conclusion:

1. Unloading required approximately three hours.
2. Used only part of two banks of N_2 cylinders which contained approximately 18,000 cu.ft.
3. Had 350 psig N_2 pressure remaining in above cylinders after transfer completed.
4. Due to cooling and light rain, pressure on both cars dropped below 50 psig.
5. Bled-off VCl pressure trapped in unloading lines and N_2 in pressuring line via bleed-off valves and removed same.
6. Ground wires and rods removed last.
7. Tagged damaged parts on wrecked car--leaking valve, bent rodding unit, etc.
8. Filled car, also tagged as to final rodding, temperature, pressure, etc.

Contact me if any more information is needed or if you have questions on any of the enclosed information. Will be glad to cooperate.

Cordially,

B. J. Schrembs

B. J. Schrembs

sef

E. St. Louis, Ill. July 11, 1968 to July 14, 1968

Vinyl chloride car unloading due to a weld leak. July 1968.

Car condition: Upright on rails in S.P. yard E. St. Louis, Ill.

Leak: End cap welded seam where coupling housing, truck wheels are mounted to bottom side of tank.

Severity of leak: Minor vapors which increased to liquid droplets upon heat of the day (95-100° F) causing vapor pressure to go up on tank car.

No explosive mixture could be picked up within 5-10 ft. of car end which was leaking. Using a MSA explosimeter provided by Bureau of Explosives representative, Mr. Adkinson.

Safety Precautions:

1. Installed grounding device to the full car and the empty car to which the transfer was to be made.
2. Located Ansul fire extinguishers (4), 3-30 lb. dry chemical, 1-100 lb. dry chemical.
3. Installed D A N G E R--V I N Y L C H L O R I D E placards on plywood placed on all four sides of damaged car.
4. Informed all hands in S.P. RR office of potential hazard.
5. Barricaded all roads leading to leaker, used red RR reflectors.
6. Switches and/or derails were put up on both tracks while transfer was being made or cars hooked up.

Unloading method:

1. Used 76/230 cu.ft. each N_2 cylinders. This was time consuming and expensive. We had to use the individual nitrogen cylinders as there was no nitrogen trailer available.
2. We proceeded to unload the car, one into the other, by creating a pressure differential by venting off the car we were loading into.
3. During venting we monitored the explosiveness via the MSA explosimeter and never did show any reading within 20' or more of the car venting. The fact that we had a good wind out of the west helped.

Preparation of car for shipment to repair shop.

1. Filled car completely full of water.
2. Placards turned.
3. Pictures were taken showing safety precautions taken as to signs, fire extinguishers.

Mansfield, Louisiana August 19, 1969

Two cars of vinyl chloride were derailed approximately 100 yards from the KCS station. This was located in a residential section on the east side of town.

Both cars were completely off the tracks and almost completely separated from the carriage. Neither car was leaking. One car had the dome upright, but the car was lying on an embankment and sitting at about a 30° angle. In this position only about 3/4 of the liquid could be removed without lifting the car. The other car was lying almost horizontal, but the dome was rolled to one side, such that only about 1/2 of the liquid could be removed without lifting the car. It would have taken considerable piping and nitrogen to unload the cars. Also, both would have had to be uprighted in order to be completely unloaded. Unloading in this area would create a hazardous condition.

The railroad people in charge decided that it would be easier, safer, and more economical for them to load the wrecked cars on flat cars and return them to our plant to be unloaded.

The following is a report in connection with the transfer of vinyl chloride from car SHPX 85006 which was wrecked in derailment under load at Trent, Ohio by the Baltimore and Ohio Railroad:

This car was loaded and shipped from Baton Rouge on July 25, 1968 for Dow Chemical's account, consigned to the Allied Chemical Co. at Painesville,Ohio. The car was apparently wrecked on August 1, but we were not notified of the incident until September 21.

On contacting the B&O Railroad we were advised that the car could not be moved to destination and was being held at Cincinnati for transfer of contents. He also requested our assistance in supervising the transfer of the car which we agreed to do.

Empty car SHPX 85176 was prepared at Baton Rouge and forwarded to Cincinnati on October 1 with final arrangements to transfer the car on October 10.

The transfer was started using the pump at approximately 2:30 p.m. However, the pump was not working properly and along with considerable leakage through the packing gland, it was decided to disconnect from the pump and transfer through the hoses. The pump was tried again at a later period but without success. Approximately 50 PSI of nitrogen was maintained on the car during the transfer which was completed at approximately 3:30 a.m. on Saturday, October 11.

Maximum safety precautions were maintained at all times. Provisions were made by the Railroad officials to have a fire truck and police guard from North Bend at the site during the transfer. The only people in the area were local police and fire chiefs and authorized Railroad officials.

This is in reference to the subject car containing vinyl chloride that was wrecked by the Missouri Pacific Railroad at Cotulla, Texas on May 27.

While the car was in a fire and damaged beyond repair, apparently the greater part of the contents, if not all, remained in the car. As requested by the MOP Railroad, we agreed to have them return this car to Baton Rouge and to remove the contents from the car.

The car arrived at the Plant on June 14, contained on a flat car; the combined gross track scale weight on arrival was 204,300 pounds. Laboratory analysis indicated the vinyl chloride in the car was good material and is currently being removed from the car by Hydro-Carbon Operations. The car will be vented down after unloading.

This is in reference to the subject cars containing vinyl chloride and trichloroethylene that were wrecked in transit on December 11, 1968 at Gilman, Illinois by the Illinois Central Railroad.

These cars were shipped from the Baton Rouge plant on December 9, The vinyl chloride car was consigned to Monsanto at Indian Orchard, Mass. and the solvent car was consigned to the Ethyl Terminal at Bayonne, New Jersey.

The Railroad advised that both cars were damaged to the extent that they could not be forwarded to destination and would have to be transferred.

Empty solvents car was forwarded from the Baton Rouge plant to Gilman for transfer of the solvents. This was completed and the car was forwarded to destination on December 17.

Empty vinyl car was forwarded from the Baton Rouge plant to the Illinois Central Railroad at Markham (Chicago) Illinois for transfer of the vinyl chloride. This was completed and the car forwarded to Monsanto on January 8.

The transfer of the commodity from both cars was made by the Hulcher Railroad Service Company of Virden, Illinois. However, Mr. W. C. [illegible]vall of the H.C. area went to Markham, Illinois to supervise the transfer of the vinyl chloride and reported that the work was performed in a satisfactory manner.