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INTER-OFFICE CORRESPONDENCE

REILLY TAR & CHEMICAL CORPORATION

TO:	MR. R. J. BOYLE - INDIANAPOLIS	OFFICE:	St. Louis Park, Minn.
FROM:	Mr. P. E. White	DATE	October 5, 1966
SUBJECT:	EXPLOSION - STORAGE 20		

On Oct. 3, 1966 at about 1:45 P.M. an explosion ruptured the roof on our mix tank storage 20. This tank receives pitch blown from the stills and is used to adjust the softening point of the pitch to customer specifications. The temperature of the pitch in the tank could be as high as 310°C. We want to cool this pitch to a temperature less than 300°C to pump to our railroad car for sale. We have installed a cooler in the line and we circulate pitch through this cooler back to the tank to reduce the temperature to blowing temperature.

The explosion occurred when we were blowing out the line with steam, after circulating pitch through the cooler. Mr. Ralph Thompson, the assistant pumpman, had cracked steam on the line 1/2 to 3/4 turn, "waited half minute or so", then opened the steam line another 1/2 to 3/4 turn. At that point the explosion occurred. No fire ensued.

This cooler has a crude water spray system to cool the pitch, but this was shut off before blowing the line. However, there was a fairly heavy rainfall which was falling on the coils of the cooler at the time of the explosion. The valve on the bottom of the pitch tank was closed and steam to blow out the line was entering at that point. The temperature of the pitch in the tank was about 300 - 310°C.

The explosion caused the following damage:

1. Destroyed the roof beyond repair.
2. Slightly damaged the Gland and Jura gage on top of the tank.
3. Bent the blow line from the stills to the tank (extent unknown at this time).
4. The vapor vent line attached to the tank is cracked and bent.
5. Blew off about 1/3 of the top row of insulation, that was recently installed.
6. Bent the top ring of the vertical ring of the tank.

Estimated total damage $2,000 - $2,500.

Discussion:

Storage 20 was insulated about the first of August. The job is not complete yet as Armstrong is having a very difficult time finding a man who can take the hot creosote oil vapors. There is still one ring of support metal to go around the top of the tank and the top-side has to be sealed.

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EXPLOSION - STORAGE 20 (Continued)

Toward the end of August after the insulation had been installed, we developed a leak in the vent line that caused vapors to impinge on the side of the tank. About a week later, a second hole developed also causing vapors to impinge on the side of the tank. We tried to plug the holes by bending, but this didn't work. So we scheduled the tanks to go down so we could weld the lines. However, before this could be done, the vapors had saturated the insulation and the heat from the hot pitch blown to the tank caused several small fires on the insulation. We tore most of the insulation away from around the leaks to prevent these fires. It was during this period that we stepped up production to go to continuous firing of the stills (Sept. 7). With the added production requirements, we had trouble scheduling down time, but we got the tank down to weld the vent line Sept. 17th. The welds did not hold and we had to schedule down again Sept. 30th for rewelding. We repaired the tank on 10-3-66, the morning of the explosion after steaming out the vent line about 6 hrs. This of course caused an accumulation of water in the bottom of the tank. We blew our stills very carefully into the tank and got the pitch into the tank without any trouble. As it was hot, we circulated through the cooler and were preparing to make an adjustment, when the explosion occurred.

The actual cause of the explosion is not known, but there are at least two possibilities.

1. When we steamed out the line, we had sufficient condensation in the line to cause the explosion. This could have been caused by some condensation behind the valve and the cooler condensing still additional water blown directly to the top of the tank.

2. We could have had a water pocket in the tank that finally got hot enough to vaporize after slowly heating up during the morning, causing the explosion.

Yours very truly,

PEWhite

P. E. White

PEW:go

CC: Mr. C. F. Lesher - Indpls.
Mr. H. J. Hennessy - Indpls.
Mr. H. L. Finch - St. Louis Park
File

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