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VCSA

1991 VCSA Meeting
Denver, Colorado

I. A: Explanation of FPC-Texas $3.4 Million Fine
Burley Melton, Formosa Plastics

Hazardous waste treatment
10/90 - FPC proposed fine of $8.3 million by EPA Region VI. Allegations: FPC operating TSD (Treatment, Storage, & Disposal) facility for hazardous waste. FPC said they were just generators. TWC said they were handling hazardous waste incorrectly. EPA initially dropped the case in 1989. This was after three years of negotiations. Negotiations were with EPA not TWC. EPA took over from TWC. Public pressure brought on fine in 1990.

EPA Allegations:

Failure to Submit Part A and B	$925,000
Waste Analysis Plan	$925,000
Hazardous Waste Determination	$925,000
Proper Containers	$925,000
Inspection Log - 3 Years	$925,000
Written Schedule of Inspections	$925,000

Penalty Calculation

1st day	$25,000
180 Days at $5,000 each	$900.000

$925,000 for each count

Formosa agreed to the following:

Civil Penalty	$3,375,000
Trust Fund	$1,000,000
Four Annual Environmental Audits	
Pollution Prevention Projects	
Corrective Action Plan	

Estimated cost to FPC of ~ $20,000,000

300ppm of EDC was found in the ground water. EPA checked water wells within a 2 mile radius of the plant and found no EDC contamination.

B. Explosions in VCM, EDC, and Polyperoxide Units
J-P. Bindelle, Solvay

Fire in VCM Cracking Unit
12/90 Explosion. Testing of valves on pyrolysis quench. Erosion in pipe. Rupture of carbon steel pipe in the quench loop. Rupture due to fire in the bend. Erosion was in a spiral configuration after the orifice plate of a flow meter. Fluid perturbations by bends in pipe too close together. Similar situation in OXY Chem plant in Deer Park. OXY replaced carbon steel pipe with monel.

Solvay has developed Gamma Ray method for thickness checking of pipe. Gives average thickness over length of pipe.

Scrubber with sulfuric acid to recover VCM. A deareator tank was cleaned prior to explosion. Deareator tank contained VCM/Water, VCM, PVC. PVC residue was not completely removed. While cleaning a piece of pipe an instrument was removed and an explosion occurred. VC polyperoxides were found in the pipe and the deareator tank.

Conditions in Tank

VCM liquid in contact with water
Excess Oxygen
pH less than 8
Temperature in the range of 10 to 15 degrees C
Fouling and Dead Corners
Impurities in VCM (?)

Loss of sensitivity to the part of the operations personnel to the formation of Polyperoxides.

Effect of hydroquinon is not known.

Essentially had a polyperoxide reactor formed in the end of the deareator tank.
APME doc # VPS 87/3 "Vinyl Polyperoxide"

C. Rupture Disk/Relief Valve Openings (Copy of Slides attached)
Jorge Zarate Montano, Primex

Twenty six failures this year - fifty tons of VCM emissions
Rupture Disc was forward acting with a design failure of 200 psig.

5 failures between 135 and 163 psig
21 failures between 163 and 174 psig

New rupture discs installed are "Composite with Vacuum Support"

Reactor designed for 200 psig. New RD's installed designed to fail at 220 psig.

Investigated three types of RD as follows:
Discs that failed were conventional - tension loaded - forward acting
Composite - has three membranes
Reverse acting with knife blades

D. EDC Release from Quench System on VCM Plant
Roger Farr, ICI UK

Found leaks in quench system during plant shut down. Thickness measurements for PM were being made on SS portions of pipe and not the CS portions. Released EDC/VCM to atmosphere.

4/17 Release of 10 tons of VCM in greater than 50 minutes.

Release of approximately 12 tons per minute through 1/2 inch hole. Wind was blowing in direction of LEL detectors. LEL did not respond. Failure was observed because of abnormal changes in levels as observed by control operator. Fracture of drain line under pipe.
5/2 Release of approximately 2 1/2 tons of VCM in greater than 12 minutes. Wind blowing away from LEL. LEL responded. Emergency isolation valves actuated as well as manual block valves. Pump impeller was found to be badly worn causing high frequency vibration which lead to the line failure.

LEL's did not respond on 4/17 but did on 5/2 because they are "hot wire" devices and need to see flammable conditions (ie. oxygen).

Some of pipe work was screwed and not welded.

E. Membrane Technology to Recover VCM (Paper Attached)
R. Rose, Goodyear

F. **VCM Release from Mass Plant**
1/15/91
Breaking of graphite rupture disc. Hand slide was closed within 1-2 minutes. Rupture occurred towards end of reaction. Approximately 800 kgs of VCM were released. Reactor was at normal pressure. At failure - pressure dropped. Normal pressure of around 12 Bar. Appears to have been a problem with graphite RD.

10/18/90
Safety relief valve released at 7.6 Bar. Temperature in reactor of 53 degrees C. 5000 kgs of VCM released. Heavy corrosion in relief valve. Internal spindle of relief valve was broken. Last inspection of relief valve was made in 1986.

II. Clean Air Impact on the VC/PVC Industry (Paper Attached)
Joe Ledvina, Vista

Primary problem in US appears to be Ozone

III. Voluntary Reductions of Toxic Air Emissions (Paper Attached)
Jim Kachtick, Occidental

IV. Development of a Fugitive Emissions Reduction Project (Paper Attached)
Mike Pope, Dow

Performance based standard.
No EPA approved method for HCl

Need to look at how we mark our flanges. May need to use tags.

V. Update of TCLP/TOC Regulations, A Recap (Paper Attached)
Joe Ledvina, Vista

9/25/90 Rule Effective

Need to seriously consider getting out of below ground bio lagoons.
Need to look at tank based system in Plant's 1 & 2 - as we have in Plant 3.
About 10 times more expensive to dispose of hazardous waste as it is non hazardous.

VI. VCSA Presentations Database (Paper Attached)
Jim Wallace

VII. Design Process Changes, Process Safety, Hazop Reviews (Paper Attached)
Matt Miller, Dbw

VIII. Process Safety Management of Highly Hazardous Chemicals and Control of Hazardous Energy, Confined Space Permits (Paper Attached)
Herm Waltemate, BFG

IX. Contractor Safety (Paper Attached)
M. Garcia, Dow

X. US Regulatory Update

No major changes other than new "Clean Air Act".

XI. European Regulatory Update (Paper Attached)
Harry Steegenga, Akzo

XII. State/Federal Enforcement-US (Attached)
Ken Law, Keysor

XIII. Treasurer's Report, Election of Officers, 1992 Site Selection, Revise Charter, Etc. (Paper Attached)

Treasurer's Report

	$2,230	After Bermuda
~	$6,000	After Registration
~	$3,00	After Denver

Revised "By-Laws" approved by vote of members attending Denver meeting. Copy of By-Laws attached.

1992 Officers

Chairman	Roger Farr
Vice Chairman	Larry Burmeier
Prog. Chairman	L. LaCorte

1992 Meeting to be held in Baltimore

XIV. Angiosarcoma Update
Dr. J. Drumwaite, Vista

Four new cases of angiosarcoma have been added to the registry as follows:

Australia	One
Germany	One
Italy	Two

Two cases in the US are being investigated. As usual, there are problems in diagnosing as angiosarcoma. There have been no deletions this year.

Still living but having been diagnosed as angiosarcoma:

France	One
US	Two

There are a total of 161 cases reported world wide. Although it appears as if we are at the down side of the bell shaped curve. the register will be extended for an additional ten years.

We may see an increase in the number of cases as the Eastern European countries get into the program. They have no real controls and have not been reporting. If this happens it may skew the data. For this reason, data from these countries may be held separate for comparison.

Monsanto - Springfield - Case to be watched
Stauffer - South Carolina - individual had VCM exposure for less than two years. Very likely not a legitimate case.

Brain Tumors - Neoblastoma - no firm link to VCM - but population of individuals (6) is not large. Some statistical elevation.

XV. IGSCC in Stainless Steel VC Vessels (Paper Attached)
Charles Arnold, Dow