Safety Assc.
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SEPTEMBER [illegible], 1985

RE: Frank Conrad, Norman Stone, [illegible], Rod Pellion

SUBJECT: ANNUAL VINYL CHLORIDE SAFETY ASSOCIATION MEETING SEPTEMBER 1985

On September 12, 13, 1985 the Annual Vinyl Chloride Safety Association meeting was held in Tarpon Springs, Florida. The meeting agenda is given as Appendix 1. This was the first meeting in which the overseas representatives out numbered the United States representatives. It was decided during the business meeting that next years meeting will be held in October and that it will be held in Washington D.C.

Attached as table 1 are the action points which will be taken from the Annual Vinyl Chloride Safety Association Meeting. These action points have been discussed and I would anticipate feed back by October 31, 1985 on accomplishments.

DISCUSSION

These discussions are a summary of the meeting presentations.

ITEM 1 HAZARD RATE QUANTIFICATION FOR PVC REACTORS

Basically this discussion broke down to a discussion of fault tree analysis as performed by Air Products. When they looked at their protective levels within their reaction area, they put the areas as 1. Reliance on Chilled Water and Reflux Condensers; 2. Small amount of short stop gas holder degassing; or drop to a stripper; 3. Massive short stopping; 4. Rupture Disks. I would recommend that Frank, Norman, and Bruce get together and evaluate each of our main areas for control in the Polymerization Building and review for example cooling water, short stop system, charging, agitation and instrumentation. What are the key views we have to help us be safe. For example under cooling water, we have a backup diesel pump, duel water levels on the cooling tower basin, we are considering fire water backup makeup for the cooling tower. We have predictive flow alarms set at 50%, and we are looking at improved acidizing manually. With a short stop system, we are looking at implementing an effective system. Under charging to control pressure, we have a checklist, radio formula imput to the Control Room, and we use only one initiator. Under agitation, we have duel electical feeders, emergency electical backup from PPG, and annual preventative electrical maintenance. Under instrumentation, we have duel PSI4 and PSIG systems, one for control and one for alarm. We might need to consider adding a weekly measure of condenser and vessel cooling capibility. Also the rate of cooling water demand alarm on the computer, and to report monthly on level performance. Again, I think that Frank, Bruce, and Norman should review this kind of information and come up with a Lake Charles view towards how we are considerably more safe then we have been in the past.

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ITEM 2 SAFETY RELIEF VALVE TESTING PROGRAM

Ken Reynolds of PPG next gave a short view of their Safety Relief Valve Testing Program which Rod will be discussing with them. Also, he gave a short review of their Safer computer system which we will also look into. He mentioned that the use 3 % LEL for VCM being hazardous. They have automatic weather input into the safer computer system, they have 30 preset plans that they thought through for the system, and the system costs $70,000. It was noted during the conversation that Air Products in Pensacola, Florida also has a Safer Computer System with automatic contacting with the Civil Defense Department.

ITEM 3 SAFE STORAGE OF PEROXIDE CATALYSTS

Joe King of Occidental reported that they use a Nitrogen System in their Initiator Bunker for over heat protection rather than water.

ITEM 4 ACCIDENT INVESTIGATION: MANAGEMENT SYSTEM APPROACH

Herm Waltimate of PPG presented this paper, and the main point that he brought home was that in Accident Investigations, we should always attempt to continue to answer the answer WHY. Also very important for us to remember that ALL ACCIDENTS CAN BE PREVENTED, AND MANAGEMENT CAN CONTROL EMPLOYEE ACTIVITIES. He went on then to discuss the hot work permit procedure they have and what they go through to be sure to eliminate accidents. We are attempting to get a copy of this work.

ITEM 5 DIOXINS AND PVC

A copy of an article presented by Dr. Deuschl of Wacker is attached as Appendix II.

ITEM 6 COMMUNITY EMERGENCY PLANNING

Presentation on Community Emergency Planning was given by Herm Waltimate of PPG. They basically rate their chemicals with what they call a Hazard Index. The obtain this Hazard Index by dividing the ID life or the LEL divided by the vapor pressure. For example, for VCM the number comes out 13.8, for ammonia it comes out 9.1, and for chlorine it comes out to .02. The lower the number the more hazardous the material. We should review the Community Emergency Planning Questionnaire in Appendix III. Rod and Bruce should attempt to fill this out so that we can discuss it during October.

ANNUAL VINYL CHLORIDE SAFETY RESOLUTION MEETING
ENTER TO THE FILE
SEPTEMBER 27, 1984
AGE 7

EM 7 CONTAINMENT FOR VCM FROM EMERGENCY AND MANUAL RELEASES AT FORMOSA

ll Hagger had related that they are being required by the state of elaware to have a VCM containment system, therefore Formosa has come up th adding 2 new 70,000 gallon VCM storage bullets for surge off their covery system. In the industry this is a big question mark both the nyl Institute and all the industry in general, and the EPA are saying at such a system is not functional and safe. We will be keeping tabs this system and on the present EPA VCM regulations that are being written. We are fairly sure that this will not be added to the gulations.

EM 8 SURVEY: VCM SPILLAGE/GAS RELEASE PRECAUTIONS

presentation was given by Bob Dubre of Dow, and this presentation of mparisons of safety incidents is presented as Appendix IV. Also tached as Appendix VI is a summary of VCM Storage and loading cilities and the safety precautions that are present with each one of em throughout our industry. We should certainly review these comments d determine where we can show improvement within our VCM storage and overy systems.

M 9 SAFETY RELIEF DESIGN FOR PVC REACTORS

Fisher of Union Carbide gave a very excellent presentation on fety Relief Design. The details of this presentation are in Appendix .

ery important point which was brought out during the presentation was during an emergency relief from a PVC reactor, whether in spension or bulk, we should assume that the ingredients, either the der or the liquid VCM or the water will come out with a gas. This is st a sure issue. You very seldom under emergency conditions will have vapor flow. SO ANY PLANNING FOR EMERGENCIES SHOULD INCLUDE A HIGH PROBABILITY OF BOTH SOLID AND LIQUIDS COMING OUT WITH THE VCM R.

TRUE CONFESSIONS

DC Valve Fire

At ICI in England they had a fairly serious fire at a valve on a EDC furnace. Basically the cause of the fire was an iron chlorine reaction. They had some leakage of hydrocarbon into chlorine, got reaction where it was not normally to have reaction and the temperature got to 200 C to 250 C which allows the auto-ignition of iron and chlorine and basically you end up burning holes in the pipe from an iron chlorine reaction. The actions taken to resolve this in the future was different procedures, nitrogen purge on a chlorine header, and following procedures that were in place that were not followed.

C Fire

C PPG, an EDC fire was had near the furnace where a valve bonnet, hich is significantly larger than ours, ruptured causing a ignificant fire. This fire caused a good portion of the furnace o be rebuilt. The failure occured at 3,000 PSI. The actions aken to resolve this were to put a relief valve on the body avity, nitrogen purge on the line, new procedures and a verticle rientation of the valve.

[redacted]nomer Pump Fire

ere was a VCM pump fire at ESSO in Canada because of acid getting ck in that area and allowing the VCM to leak out and catch fire. ey are avoiding this type of corrosion failure in the future by flon coated pipe.

raulic Work Platform Injury

is injury occured at ESSO when a manlift, simular to what we use painting, malfunctioned and operated when it was not suppose and rammed the man against some pipes breaking some ribs. ter investigation it was found that the dead man switch that is pose to protect the worker was not functional. In the future. O plans to have ALL EQUIPMENT SAFETY CHECKED TO MAKE SURE ALL IPMENT IS OPERATIONAL CORRECTLY BEFORE IT IS USED FROM AN SIDE AGENCY.

E. Stainless Steel Slurry Tank Failure

At Borden, they had a stainless steel slurry tank failure. The stainless steel was 304 and the entire bottom about a 16 foot diameter tank fell out. This tank was not pressurized it was only the weight of the slurry. What happened overtime the 304 stainless steel corroded from the outside in because the rubber coating they put on as insulation. There was a high level of chloride in both the rubber and the cement and it caused chloride stress corrosion of the 304 stainless over time which caused the entire bottom of the tank to fail. Fortunately no one was injured.

F. Reactor Heading Header Piping

At Tenneco this year they were attempting to put a 2" addition to a 10" header on top of their reactors and found that they could not successfully weld the 2" into the 10". They eventially found by putting a torch to the 10" and seeing if it had any stress cracks that it had a significant amount of chloride stress corrosion. The majority of their reactor piping had the same challenge.

As history this plant was built in 1975. They have 34,000 gallon reactors and the piping above the reactors are mostly 304 stainless steel with a small amount of 316 stainless steel. The found in further testing that all of the 304 under the severe torch test would show chloride stress cracking, and the 316 would not fail the test. AFTER 10 YEARS OF SERVICE THEY HAVE SIGNIFICANT FAILURES OF THE 304 AND ALMOST NO FAILURE OF THE 316. Consequently they had to replace the majority of their stainless piping above the reactors at a cost of approximately $3,000,000. In talking back to their licensor, Shinitzu, they found that Shinitzu estimated that LIFE OF 304 STAINLESS STEEL IN PVC SERVICE AT A REACTOR IS ESTIMATED TO BE 5 YEARS and SERVICE OF 316 STAINLESS STEEL IN PVC REACTORS IS TO BE IN EXCESS OF 10 YEARS.

ATTACHMENT 1

VINYL CHLORIDE SAFETY ASSOCIATION MEETING 1985

PROGRAM

THURSDAY September 12

0800		REGISTRATION AND COFFEE	
0830	(1)	HAZARD RATE QUANTIFICATION FOR PVC REACTORS	Robert Ormsby Air Products
0900	(2)	SAFETY RELIEF VALVE TESTING PROGRAMME	B. Reynolds PPG
0930	(3)	SAFE STORAGE OF PEROXIDE CATALYSTS	J. King Occidental
1000	(4)	ACCIDENT INVESTIGATION: MANAGEMENT SYSTEM APPROACH	H. Waltemate BFG
1030		C O F F E E	
1045	(5)	DIOXINS AND PVC	H. Deuschl Wacker
1115		APME: SAFETY COMMITTEE REPORT (EUROPEAN ORGANIZATION)	T.B.N.
1145	(6)	INCENTIVE AWARDS - ANY ROLE IN SAFETY?	O. Aas Norsk Hydro
1215		L U N C H - A SPEAKER WILL BE PROVIDED BY NASA TO GIVE A SPACE AGE VIEW OF SAFETY	
1345		MEXICO CITY DISASTER	J. Zarate Pimex
1430	(8) 6	COMMUNITY EMERGENCY PLANNING	H. Waltemate BFG
1500		C O F F E E	
1515		UNITED KINGDOM: CONTROL OF MAJOR ACCIDENT HAZARD REGULATIONS	D. Middleton Norsk Hydro U.K.
1545	(9) 7	CONTAINMENT FOR VCM FROM EMERGENCY AND MANUAL RELEASES FORMOSA	B. Hager
1600		OFFICIAL CLOSE OF MEETING	
1605		VINYLS INSTITUTE UPDATE ON ACTIVITIES	R. Gottesman VI

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FRIDAY September 13

0800 BUSINESS MEETING

Election of Officers
Selection of 1986 Meeting Site
Treasurer's Report

0830	(11)	SURVEY: VCM SPILLAGE/GAS RELEASE PRECAUTIONS	R. Oubre Dow
0900	(12)	SURVEY: GAS MONITORING SYSTEMS	J.T. Vaughan ICI
0930		SURVEY: BURSTING DISC TYPES	Esso Chemical Canada
1000		C O F F E E	
1015	(14)	SAFETY RELIEF DESIGN FOR PVC REACTORS	Harold Fisher Union Carbide
1115	(7)	UPDATE ON EPA/OSHA REGULATORY ACTIVITIES	John Barr Air Products
	(15)	UPDATE ON LITIGATION ON RELEASES	Joe King Occidental
1145	(16)	ANGIOSARCOMA UPDATE	J.T. Vaughan ICI
1215		L U N C H	
1330	(17)	TRUE CONFESSIONS	

Descriptions by members of recent incidents in their plants will include

i) An EDC Valve Fire
ii) An EDC Fire
iii) A VC Monomer Pump Fire
iv) An injury due to a hydraulic work platform
v) A stainless steel slurry tank failure

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