1972 Type #6 Incident #11

B.F.GOODRICH CHEMICAL COMPANY
Avon Lake General Chemical Plant

TO: W. T. Gunning

FROM: J. R. Shellenberger

DEPT: Safety

DEPT: Geon

DATE: November 16, 1972

SUBJECT: Near Miss Accident - Overcome with Vinyl Chloride Vapors Inside Poly
Repetitive Accident Type #6 "Chemical Exposure"

SUMMARY:

On November 13, 1972 at 0835, Chemical Operator 2nd Class, was overcome with Vinyl Chloride vapors while cleaning inside a pearl reactor in B/461 in the Geon Resin area. He was removed by the normal rescue operation and taken to the outside catwalk where he was revived by Dr. Newman and the nurse. He was then taken to St. Josephn Hospital where he was kept for observation overnight. He was released on November 14th without any further complications.

BOARD OF REVIEW:

A Board of Review was held at 0930 on November 13, 1972 with the following people in attendance:

R.N.Rylands	- Chemical Operator Helper
W.T.Gunning	- Chemical Operator 2/c
R.S.Mather	- Chemical Operator Helper
W.K.Pember	Glen Evans - Foreman
R.F.Gascoigne	- Charge Operator
J.R.Shellenberger	- Charge Operator

NARRATIVE OF EVENTS:

On the 12-8 shift at about 0400, poly 109 had been recovered and opened for cleaning. The evacuation hose was inserted into the poly at this time. The man on 12-8 did not carry the poly cleaning procedure any further as he was reassigned to the Catalyst Bldg. at 0400. The poly remained in this condition until the start of the 8-4 shift at 0800. The poly evacuation system was working well during this period of time.

shift was scheduled to work on the day shift. had come in at 0400 on the 12-8 shift for overtime, so he knew that poly 109 had already been partially prepared for cleaning. working 12 midnight to 12 noon, started working on poly 111 next to poly 109.

At about 0805 opened the manhead on poly 111 and inserted an evacuation hose into the poly - the same hose that had been in poly 109 since 0400. then washed the residual resin out of poly 111. Simultaneously, finished washing down poly 109. then cleaned the top blades with a special tool while working outside of the reactor and then started working on the bottom blades. He was having difficulty getting the botton blades clean. During this same time reached in through the manhead with both hands to chip off the build-up on the top baffle hanger - using a hammer and screwdriver.

NGC 15758

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At about 0825 having finished poly 111, asked if he wanted the bottom inspection plate removed from poly 109 and indicated that he did. went to the second floor and removed the bottom inspection plate on poly 109 for and on poly 111 for himself. Neither bottom valve was closed because assumed that both polys would be HRC cleaned - not knowing the difficulty was having in removing lumps stuck to the poly 109 agitator.

returned from the second floor and was prepared to insert the HRC Unit into poly 111. told "Hey watch out". at the time did not know what he meant and resumed his work on poly 111. indicated that just prior to this conversation he observed lock out poly 109, insert the ladder into poly 109 and go get his bucket and cleaning tools. He recalls seeing out of the corner of his eye enter the poly assuming that Tippie had performed the proper vessel entry preparations. also recalls hearing hammering inside poly 109. After 2-5 minutes says he turned from his work on poly 111 and noticed that the evacuation hose was not in poly 109.

He looked into the poly and saw sitting on the bottom in a slumped position with his arms wrapped around the agitator shaft. summoned help and was removed from the poly by the normal rescue methods. He was revived on the catwalk and subsequently taken to St. Joseph Hospital where he remained overnight for observation.

Drills & training paid off.

returned to the plant the following day for an interview concerning the accident.

ADDITIONAL INFORMATION:

1. story agreed perfectly with story up to the point he decided he had to enter poly 109. Beyond this point in time he remembers nothing.
2. While was chipping off the lumps from the bottom blade from the outside his face was fairly close to the manhead, but not inside it.
3. While using the screwdriver and hammer for baffle cleaning, his face probably was somewhat inside the manhead.
4. had 7-8 hours sleep the night before even though he worked overtime. He stated he was not overtired at the time of the incident.

OTHER RELATED FACTS:

NGC 15759

Vessel Entry Procedure as to be followed!

1. While was in poly 109, the bottom valve on the poly was open, the evacuation hose was not in the poly, the top inspection plates were still in place and a poly safety check sheet for poly entry had not been filled out. These are all violations of the standard poly entry procedure.
2. At the time the rescuer went into poly 109 he "felt" the presence of VCl on his legs. The concentration, therefore, was apparently very high in the poly at the time of rescue.

3. The VCl entered the poly through a defective Saunders valve on the Blowdown tank and through the open bottom valve on poly 109.

4. At the time [ ] removed the bottom inspection plate there was no VCl coming out the opening. [ ] says he is very sensitive to VCl and he feels he would have noticed VCl if it were present at this time. The inspection port was not plugged because [ ] flushed it out.

5. VCl was profusely coming out this inspection plate opening when the source of VCl was found during the rescue operation. Why it was coming out at one time and not another is an unanswered question.

DISCUSSION:

Since [ ] has no memory from the time he decided that he must enter the poly, there is the possibility that he was being overcome with VCl from the manhead as he was cleaning the poly externally. The concentration of VCl in the poly was very high when [ ] was pulled from the poly. However, there was no VCl coming from the bottom opening when the inspection plate was removed and most of the cleaning from the outside did occur before this time. VCl was freely flowing out this inspection port at the time of the rescue.

If [ ] was partially overcome with VCl through the manhead this could explain why he did not follow some of the safety procedures, since VCl does have an intoxicating effect. However, it is inconsistent that he would not follow the normal entry safety procedures, but that he would be able to lock out poly, insert the ladder, get his tools, speak to [ ] enter poly and start hammering.

RECOMMENDATIONS and ACTION TAKEN:

1. Based upon the facts available, [ ] was suspended for ten working days.

2. The accident is being reviewed with the rest of the department. It is being stressed very strongly that violation of standard safety practices in the future could lead to termination whether an accident is involved or not.

3. The use of hand tools for cleaning 1100 gallon polys from the outside will be discontinued immediately.

4. The use of a separate HRC cleaning safety check sheet will be abandoned. The poly preparation for HRC cleaning will be more identifiable to the vessel entry procedure so that when an entry is required, only a few more steps will be needed.

5. When the poly alarm cart is not being used it has been the practice to have another employee working in the immediate area to make frequent manhead checks. This practice will be discontinued and the standby will be required to continuously monitor the poly entry.

6. The five minute alarm interval on the poly alarm carts will be changed to three minute intervals. The use of an alarm cart at five minute intervals would have given Tippie a longer VCl exposure in the poly than was experienced with the use of Stout as a standby in the immediate area.

JRS/bm

/s/ J. R. Shellenberger 11-28-72