PLAINTIFF'S EXHIBIT
UC-438
WV-0215 #13

UNION CARBIDE STANDARD CHEMICALS/PLASTICS

1 GENERAL

1.1 This specification presents standards for developing a Confined Space Entry Procedure.

2 CONFINED SPACE ENTRY PROCEDURE

2.1 To have insured the safety and health of personnel and protection of equipment when entrance into confined spaces is required by establishing minimum standards and guidelines for the preparation of equipment prior to entry and the monitoring of conditions throughout the job sequence.

2.1.1 Standards

2.1.1.1 Procedures define confined spaces as enclosures having limited means of egress such as, but not limited to, storage tanks, tank cars, process vessels, bins, boilers, column skirts, and other tank-like compartments; open-topped spaces more than four feet in depth such as pits or floating roof tanks; ventilation or exhaust ducts, sewers, underground utility tunnels, and similar structures.

2.1.1.2 A procedure exists to insure safety and health in the working environment and includes the following:

1. Provides for cleaning and removal of all harmful substances.
2. Insures complete isolation through physical disconnect, blanking off, and inactivation of radioactive sources.
3. Insures physical immobilization of equipment.
4. Insures "lock-out" of all powered equipment through use of a lock-out/tag-out procedure.
5. Provides for placement of appropriate work signs.
6. Provides testing for oxygen, flammable gas, suspected toxic materials, and excessive heat conditions prior to initial entry, after each interruption, and when deemed necessary during the entire job sequence.
7. Adequate ventilation and cool-down is provided to prevent the accumulation of flammable materials, oxygen excess or deficiency (19.5-22.0 percent), toxic contaminants (above allowable TLV), flammable gas (not to exceed 10 percent LEL), or heat (above 95°F wet bulb temperature).
8. A sketch or list is provided and attached to the vessel entry permit to identify the location and size of all points of isolation for large scope jobs.
9. Restricts the use of portable electrical lighting to 12 volt maximum in vessels.

stock, flammable

2.1.1.7 The procedure is based on proposed ANSI Standard Z-117.1.

2.1.1.8 The procedure includes an audit system to ensure understanding and compliance.

2.1.1.9 The procedure may permit entry into steam generators without physical disconnect or blanking of the larger boiler feed water lines and steam lines. Should this option be utilized the procedure must also contain the following:

1. Applies only to inlet boiler feed water lines (6" or larger) and exiting steam lines (6" or larger) from steam generators. All other lines must either be blanked or physically disconnected per 2.1.1.2.2.

2. Provides that the steam and boiler feed water lines must have double-valve and a 1½-inch minimum vent directly to the atmosphere between the valves.

3. Provides that the in-line valves be padlocked in the closed position and the vent valve padlocked open. Access to the keys to these locks will be controlled through the requirements of Master Tag/Lockout procedures.

4. Provides that each in-line valve is leak tested at full operating pressure and assurance is provided that the vent valve is open and not plugged.

5. The padlocked valves must be near the entry point and readily accessible for inspection by the man entering the steam generator.

Attachment "A"

REQUEST FOR VARIANCE TO
SOUTH CHARLESTON PLANT
S/H PROCEDURE

Unit Making Request Maintenance Date 5/26/87

Procedure Title and No. S/H Procedure 2.4 Confined Space Entry

Applicable Section of Procedure III.B.1.

I. Reason for Request for Variance (Explain why the procedure as written presents difficulties.
OSHA standards for removal of asbestos insulation require that enclosures be used "where feasible." The requirement for wearing harnesses inside the plastic enclosures around vessels would present an increased hazard due to restricted mobility of the worker.

II. Action to be Taken to Assure Safety (Describe how the work will be done safely.)

(See Attached)

Effective Date 5/27/87 Expiration Date 5/27/88

APPROVAL ROUTING:

Dept. Head Submitting Request R. G. Hull (Date)

Maintenance Dept. Head (Where Appropriate) J. R. Dement (Date)

S/H Department Head M. J. Shoger (Date)

Other (Date)

Accountable Asst. Plant Mgr. B. N. Gliatta (Approval) (Date)

Copies of final approved variances are to go to the originating department and the S/H Department.

II. Action to be Taken to Assure Safety:

All other provisions of S/H Procedure 2.4, section III.B.1 for confined space entry other than vessels shall be followed. The following additional precautions will also be taken , as applicable:

1) A class "A" HWP will be used for authorization and control of the work

2) Insure that vents, sewer openings, etc. are external to the enclosure.

3) No material transfers will be made to a vessel surrounded by an enclosure while work is progressing.

4) Insure that the electrical air moving equipment meets area classification requirements.

5) Insure that the air intake to the enclosure is located to minimize the intake of outside contaminants.

6) Consider complete emptying and cleanup of vessels containing HFS rated 3 or 4 materials.

does this include circulation? an effort should be made to shut off transfers in preparation.

UNION CARBIDE CORPORATION
Specialty Chemicals — Sistersville Plant

RECEIVED
JUN 15 1987
C. R. Rotthoff

MEMORANDUM TO: Department Heads
Department Coordinators

FROM: L. W. Phair

DATE: June 10, 1987.

SUBJECT: Interim Plant Procedure for Entry Into Asbestos Enclosures

COPY TO: D. G. Beddow
K. F. Carroll
~~C.~~ Rotthoff
W. V. Summers

The Maintenance and Safety/Health Departments are currently working with Division HS&EA and other SCD location personnel to develop a standard for entries into enclosures built for asbestos removal activities. Until this procedure is published, a period of time not to exceed 30 days, the following interim procedure will be followed at Sistersville:

1) The Maintenance Department will establish a barricade around any asbestos removal enclosure as soon as any 3 sides (or 2 sides and the roof) of the enclosure are erected. The Maintenance Department will immediately communicate to the department in which the enclosure is being built that the enclosure has been barricaded.

2) An HWP (issued by the department in which the enclosure is located) will be required for any personnel entry into a barricaded enclosure. The HWP will, at a minimum, require:

   - Continuous monitoring of the atmosphere within the enclosure with an O_2 and Explosion meter
   - Use of airline respirator or self-contained breathing apparatus
   - An attendant with radio communications if there is a concern that those entering may not be able to hear the O_2/Explosion meter alarms or low breathing air supply alarms.

L. W. Phair

LWP/le
5556A