

**Work Plan**

**Removal of RCRA Hazardous Waste  
Sludges at the  
LCP Bridge Street Site  
Solvay, New York**

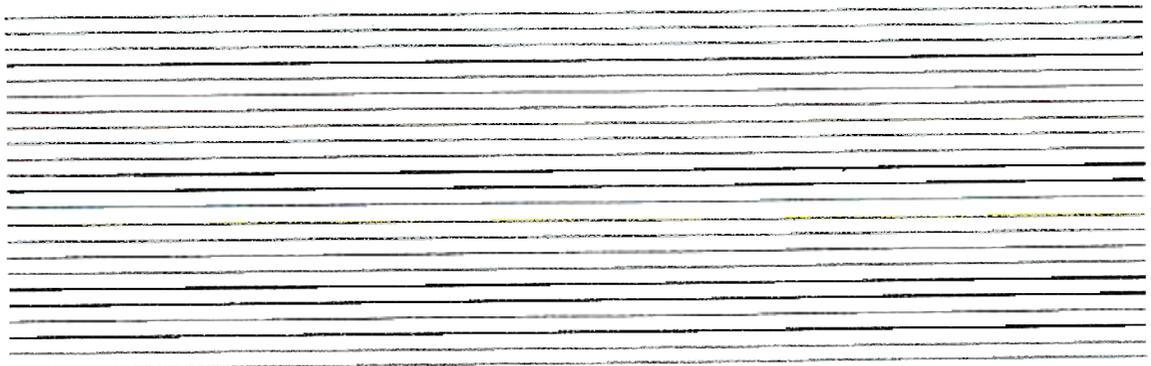
**NYS Department of Environmental Conservation  
Site Code 7-34-049**



**March 1999**



**O'BRIEN & GERE**  
ENGINEERS, INC.



WORK PLAN

Removal of RCRA Hazardous Waste Sludges at the  
LCP Bridge Street Facility  
Solvay, New York

**NYS Department of Environmental Conservation**  
**Site Code 7-34-049**

*AlliedSignal Inc.*



  
James R. Heckathorne, P.E.  
Vice President

March 1999







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## 1. Introduction

This work plan was developed by O'Brien & Gere Engineers, Inc. (O'Brien & Gere) on behalf of AlliedSignal, Inc (AlliedSignal) for removal and disposal of solids and sludges classified as Resource Conservation and Recovery Act (RCRA) hazardous wastes from vessels at the Linden Chemicals and Plastics (LCP) Bridge Street site in Solvay, New York. This work plan, *Removal of RCRA Hazardous Waste Sludges at the LCP Bridge Street Site - Solvay, New York* is a follow-up to the work plan of December 1998. The December 1998 work plan delineated the removal and disposal of liquid wastes from vessels at the site. These work plans have been prepared in accordance with a draft administrative stipulation executed between AlliedSignal and the New York State Department of Environmental Conservation (NYSDEC).

### 1.1. Background

The purpose of this work plan is to describe those work activities that are to take place to remove solids and sludges classified as RCRA hazardous waste from vessels located at the LCP Bridge Street facility in the Village of Solvay, New York. The vessels will be emptied of liquids as part of ongoing efforts being conducted by AlliedSignal to decommission the facility. Removal, transport, and disposal of the liquids will be conducted in accordance with the December 1998 work plan.

As the second task related to decommissioning the tanks, and the focus of this work plan, OP-TECH Environmental Services, Inc. (OP-TECH) will remove the solids which have settled to the bottom of the tanks. The solids will be stabilized and transported to a receiving facility permitted to accept them. The work described herein will be implemented, weather permitting, as soon as NYSDEC has reviewed and approved the plan. Prior to OP-TECH's mobilization, NYSDEC will be informed of the pending work and schedule for its execution.

## **1.2. Administrative stipulation**

AlliedSignal and NYSDEC have entered into an administrative stipulation which requires the removal and disposal of RCRA hazardous liquids, solids, and sludges from vessels at the LCP Bridge Street site. This work plan addresses the removal and disposal of RCRA hazardous solids and sludges.

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## 2. Vessel solids and sludges to be addressed by this action

The vessels to be addressed by this action include those vessels associated with the mercury treatment system at the LCP Bridge Street site, which contain materials categorized as RCRA listed hazardous wastes, and vessels containing liquids categorized as characteristic RCRA hazardous wastes. The vessels are summarized on Table 1, while their locations are shown on Figure 1. A photo log of a number of the vessels to be addressed is presented as Attachment 1. The complete site vessel inventory is listed in Table 2 for reference purposes. The estimated volume of solids and sludges to be removed and disposed as part of this action, as summarized in Table 1, is approximately 72 tons.

Analytical data describing the solids and sludges are summarized in Table 1. Analytical data indicate that concentrations of mercury at or above the TCLP limit of 0.2 mg/L for RCRA toxicity characteristic D009 are present in vessels #1, 2, 3, 4, 5, 6, and 7. In addition, solids in vessels used in the treatment of mercury cell process wastewater (vessels #1, 2, 3, 4, and 5) are categorized as a K106 waste.

Estimated weights for wastes in each vessel and RCRA designations are contained in Table 2. Of the total estimated 3527 tons of waste, approximately 72 tons are designated RCRA high level mercury waste. The remaining 3455 tons of material is considered a solid waste.



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### 3. Vessel solids and sludges removal/disposal approach

#### 3.1. Logistics

OP-TECH Environmental Services, Inc. will commence solids and sludges removal from the following tanks listed below.

*RCRA hazardous waste:*

- Vessel 1 - South Filter Feed
- Vessel 2 - North Filter Feed
- Vessel 3 - East Settler
- Vessel 4 - Center Settler
- Vessel 5 - West Settler
- Vessel 6 - Horizontal Surge Tank
- Vessel 7 - NE Saturator

*Solid Waste:*

- Vessel 8 - Stray Liquor
- Vessel 9 - SE Saturator
- Vessel 10 - NW Saturator
- Vessel 11 - North Weak Liquor
- Vessel 12 - South Weak Liquor
- Vessel 13 - Pure Brine (Black)
- Vessel 36 - Pure Brine (500,000 gal)

*Tank Access*

Tanks which are closed vessels will require confined space procedures (Attachment 2 - Health and Safety Plan). Before entering tanks, atmospheric levels within these tanks will be measured utilizing an L.E.L. O<sub>2</sub> meter. Tanks will be vented, if necessary, to obtain acceptable levels prior to cutting

If necessary to gain access, an opening will be cut on the sides of the tanks above the sludge line or an existing access hole will be enlarged for ease of entry. Corroded piping and catwalks above Tanks #7, 9, and 10 will be removed prior to cutting the tanks. In addition, Tank #5 (West Settler) contains a standpipe in the center, which runs vertically to the top of the tank. The standpipe will be cut open to access the sludge utilizing the procedures described above.

Workers inside the tanks will be equipped in Level C protection unless the health and safety officer directs otherwise based on site-specific testing. Personal protective equipment (PPE) worn by workers will include respirators with organic vapor/acid gas and HEPA cartridges, and poly-coated Tyvek® suits.

For Tanks #6 and 11, formerly containing liquids designated RCRA D002, the Level C procedures will be followed, however, the poly-coated Tyvek® suits will be upgraded to saranac suits due to the pH level.

Tanks which will be cleaned from openings at the top of the tank will not require confined space entry procedures.

#### *Sludge Removal*

Loose solids and sludges will be vacuumed out with OP-TECH's 3,000 gallon Wet/Dry Power Vacuum truck. Small volumes of compacted solids will be hand shoveled into 55 gallon drums or cubic yard boxes and relocated to a container staging area. Jack-hammers and ice chopping devices may be utilized to breakup the solids before these operations. In addition a PC200 Hoeram will be employed when necessary to break-up solids

Given the large volume of solids in several Tanks (#9, 10, 11, 12, and 36), the use of heavy equipment such as a bobcat or backhoe will be required to remove all of the solids.

Under these circumstances, it will be necessary to cut large openings in the tanks to access and remove wastes with heavy equipment. When working through openings during solids removal, berms of reinforced 6 mil polyethylene will be placed around the tank openings to prevent spilling of wastes onto the ground.

Tanks will undergo a final rinse subsequent to sludge removal using a 3,000 psi hot water pressure washer. Rinseate will be collected via a vacuum truck and will be pumped into awaiting transport vehicles utilized for liquid disposal. Disposal will follow the protocol established in the December 1998 work plan for liquids removal.

### 3.2. Solids and sludges disposition

After wastes are removed from the vessels into containers and transport vehicles, they will be transported to a treatment, storage, and disposal facility (TSDF) that is permitted and authorized to accept the wastes. Transport containers will be labeled according to state and federal regulations prior to transportation. Prior to transport, sludges will be further characterized, if required by the TSDF for disposal purposes. Wastes will be transported in accordance with applicable federal, state, and local regulations. Approximately 72 tons of sludge will be transported to an appropriate off-site TSDF.

### 3.3. Health and safety

A health and safety plan (HASP) and spill contingency plan for removal of the sludges has been prepared as Attachment 2. The HASP describes potential hazards to workers, personal protective equipment, and worker monitoring. The HASP also discusses the elements necessary to implement entry into confined spaces during execution of the work. The spill contingency plan, presented at the end of the health and safety plan, discusses the manner in which unplanned releases into the environment will be minimized and the methods to address a release should it occur. The HASP has been stamped by a Certified Industrial Hygienist designating compliance with applicable Occupational Safety and Health Administration (OSHA) requirements.

### 3.4. Site access and security

Site access is controlled by fencing. During the activities described above, site security will be maintained by AlliedSignal.

Table 1  
 Summary of Vessels and Sampling Results  
 Vessel Sludges and Solids Removal/Disposal Work Plan  
 LCP Bridge Street  
 Solvay, New York

Vessel Key	Vessel	Location	Sludge Quantity (dry tons)	RCRA Listing	High/Low Level Hg	pH (std. units)	Sludge Sample Data		
							Hg (mg/kg)	Pb (mg/L)	Sulfides (mg/L)
1	S. Filter Feed Tank	outside	8	K106, D009	High	6.7	59000		1.1
2	N. Filter Feed Tank	outside	10	K106, D009	High	6.9	54000		3100
3	East Settler	inside/3rd floor	1	K106, D009	High		46000		
4	Center Settler	inside/3rd floor	4	K106, D009	High		18000		
5	West Settler	inside/3rd floor	1	K106, D009	High	9.2	12000		28
6	Horizontal Surge Tank	outside	24	D009	High	13.1	5300 / 2600		
7	NE Saturator		24	D009	High		2000 / 2600		
8	Stray Liquor		32	not listed	NA		300		
9	SE Saturator		64	not listed	NA		2		
10	NW Saturator		95	not listed	NA		6		
11	N. Weak Liquor		103	not listed	NA		1.2		
12	S. Weak Liquor		103	not listed	NA		0.1		
13	Pure Brine (Black)		116	not listed	NA		0.3		
36	Pure Brine (500,000 gal)		2,942	not listed	NA		1.06		
	Total		3527						

NA - Not Applicable, indicates the material is neither a high or low level mercury waste according to applicable regulations.

**Table 2**  
**Summary of Vessel Inventory and Sampling Results**  
**LCP Bridge Street R/FS**  
**Solvay, NY**

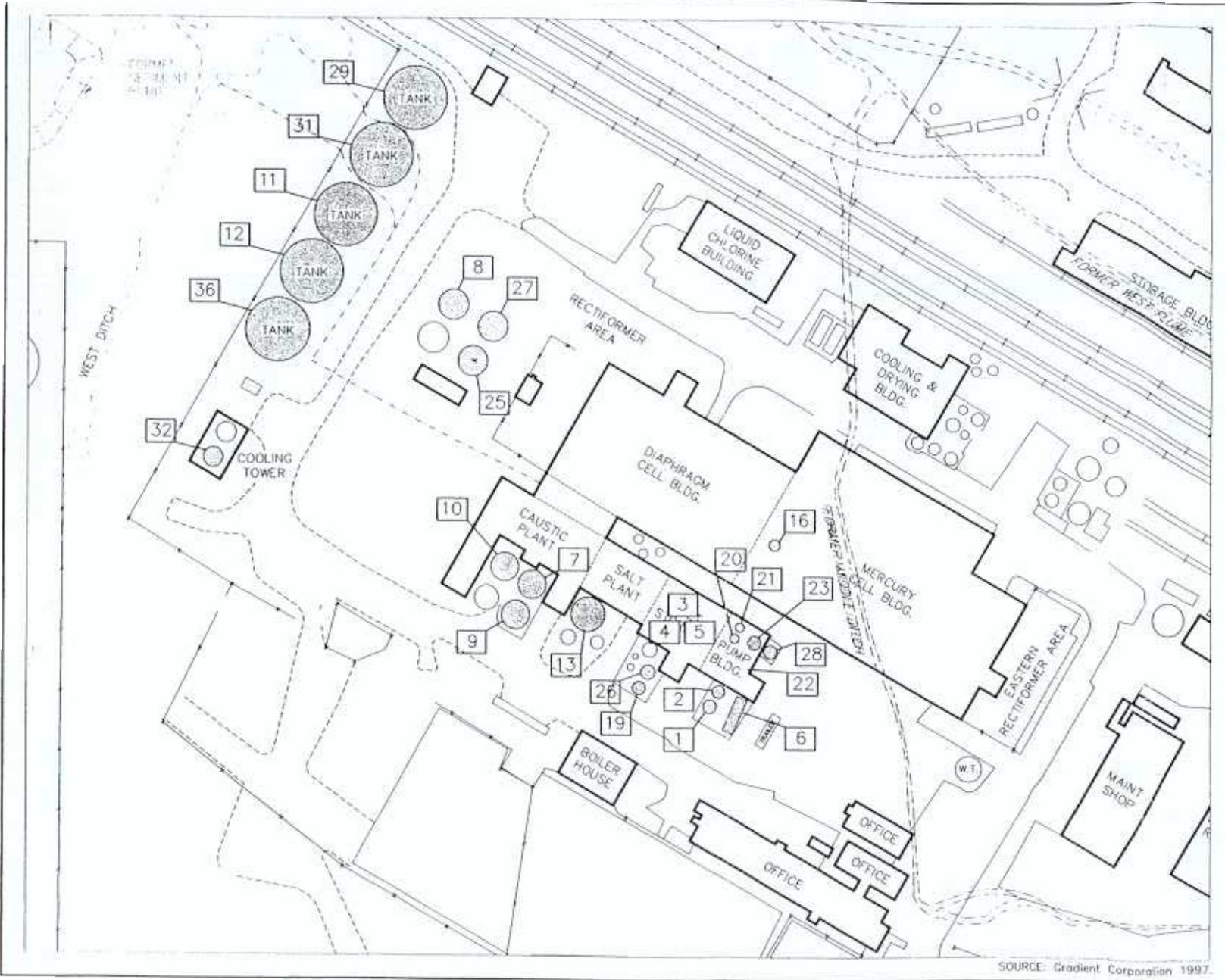
Vessel Key1	Vessel	Matrix	% Solids	% Solids (1/99)	Photo?	Quantity Tons	pH Std units	TCLP Hg mg/L (1/99)	TCLP Listing	Hg mg/Kg	Hg mg/kg (1/99)	Hg Level > 260ppm=high < 260ppm=low	Pb mg/Kg	Sulfides mg/Kg	Chlorides mg/Kg	Barium	Chromium
1	S. Filter Feed Tank	Solid	20.9		y	8	6.8	assume >0.2	K106, D009	59,000	not resampled	high		58			
2	N. Filter Feed Tank	Solid	22.9		y	10	6.5	assume >0.2	K106, D009	54,000	not resampled	high		12			
3	East Settler	Solid	58.8		y	1	7.6	assume >0.2	K106, D009	46,000	not resampled	high		< 5.0			
4	Center Settler	Solid	40.1		y	4	9.2	assume >0.2	K106, D009	18,000	not resampled	high		< 5.0			
5	West Settler	Solid	66		y	1	10.1	assume >0.2	K106, D009	12,000	not resampled	high		< 5.0			
6	Horizontal Surge Tank	Solid	41.8	50	y	24	12.7	0.29	D009	5,300	2600	high					
7	NE Saturator	Solid	60	86.1	n	24	9.7	24	D009	2,000	2600	high			180,000		
8	Siray Liquor	Solid	65.6	69.5	n	32	11.3	0.004	not listed	27	300	NA					
9	SE Saturator	Solid	99.1	98.3	n	64	10.3	0.15	not listed	6.3	2	NA					670,000
10	NW Saturator	Solid	99	95.3	n	95	9.6	0.0081	not listed	4.2	6	NA	< 0.5				690,000
11	N. Weak Liquor	Solid	79.2	93.9	n	103	10.6	0.0042	not listed	1.4	1.2	NA	< 0.5				450,000
12	S. Weak Liquor	Solid	79	87.7	n	103	11.2	0.003	not listed	1.2	0.1	NA	11				370,000
13	Pure Brine (Black)	Solid	87.7		n	116	11.1	not analyzed	not listed	0.3	not resampled	NA					580,000
36	Pure Brine (500,000 gal)	Solid		42.1	n	2942		<0.0005	not listed		1.6	NA					
<b>Totals</b>						<b>3527</b>											

Tons of RCRA D009 high level Hg waste: 72 Tons

NA - Not Applicable, indicates the material is neither a high or low level mercury waste according to applicable regulations.

Note: 1. See Figure 4.5-11 for Vessel Inventory Map

FIGURE 1



**LEGEND**

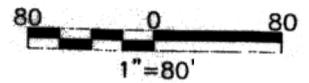
○ TANKS

□ FENCE

1 KEY FOR VESSEL INVENTORY

LCP  
BRIDGE STREET  
SOLVAY, NEW YORK

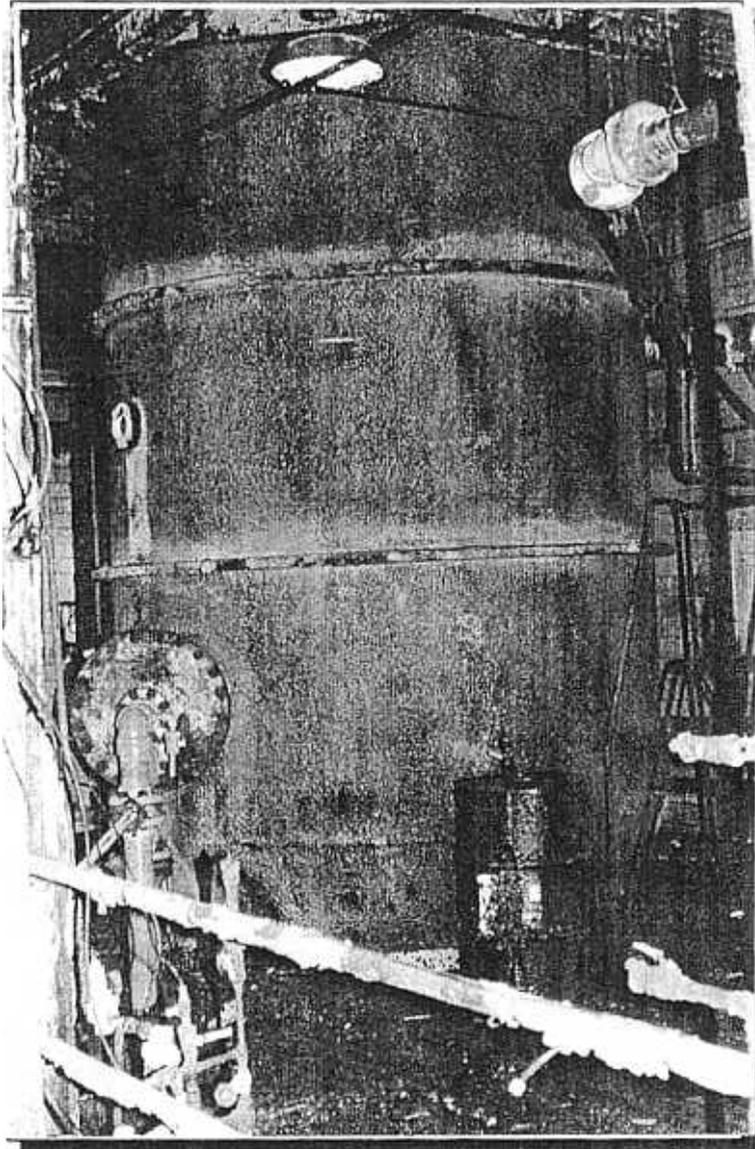
**VESSEL  
INVENTORY MAP**



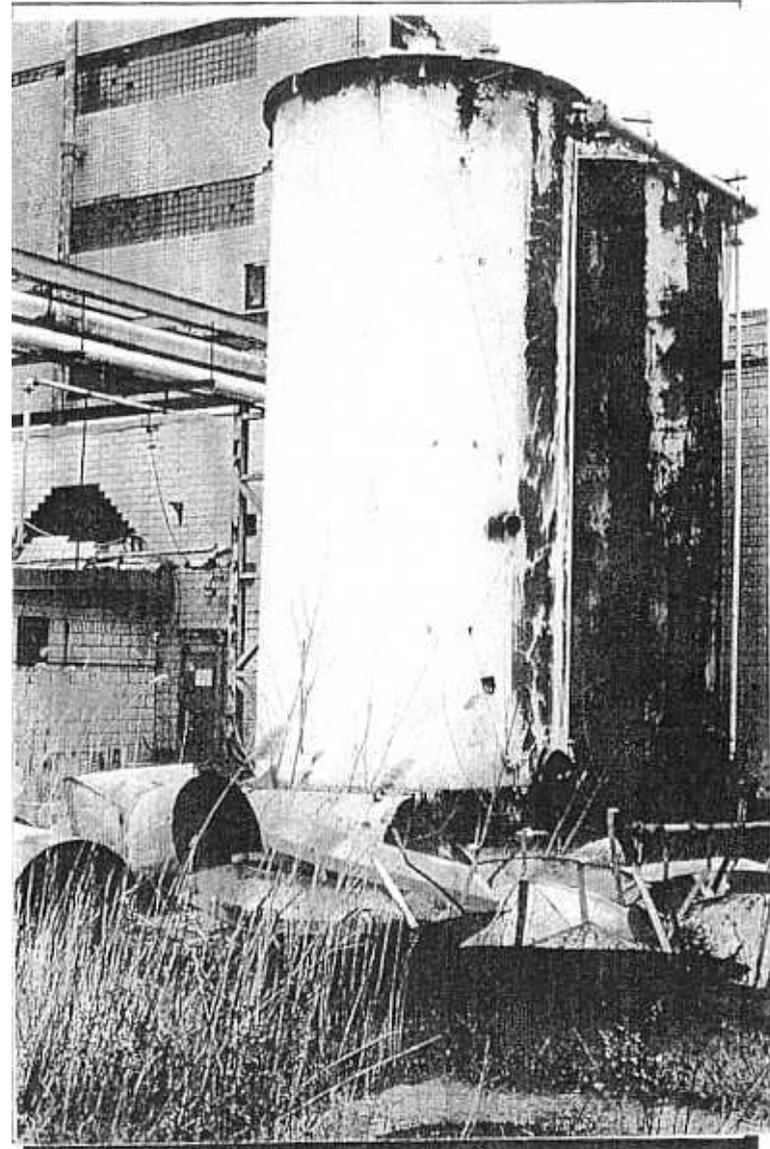
Dec. 1998

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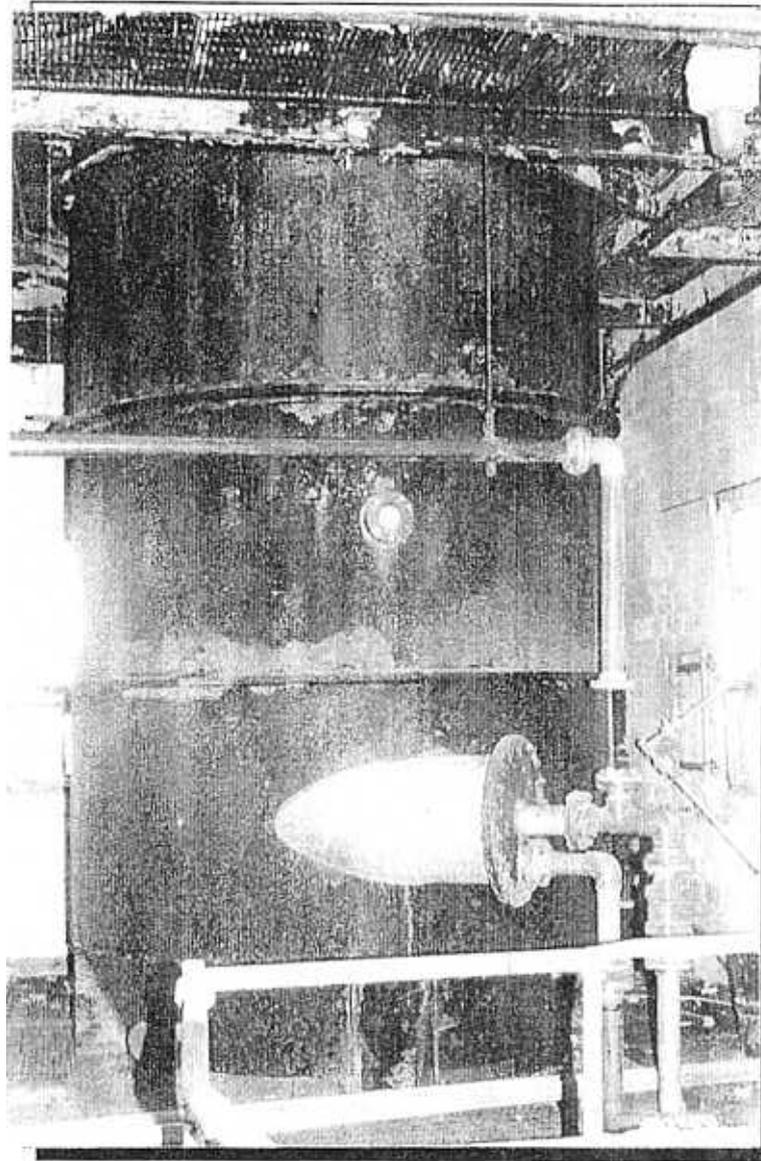




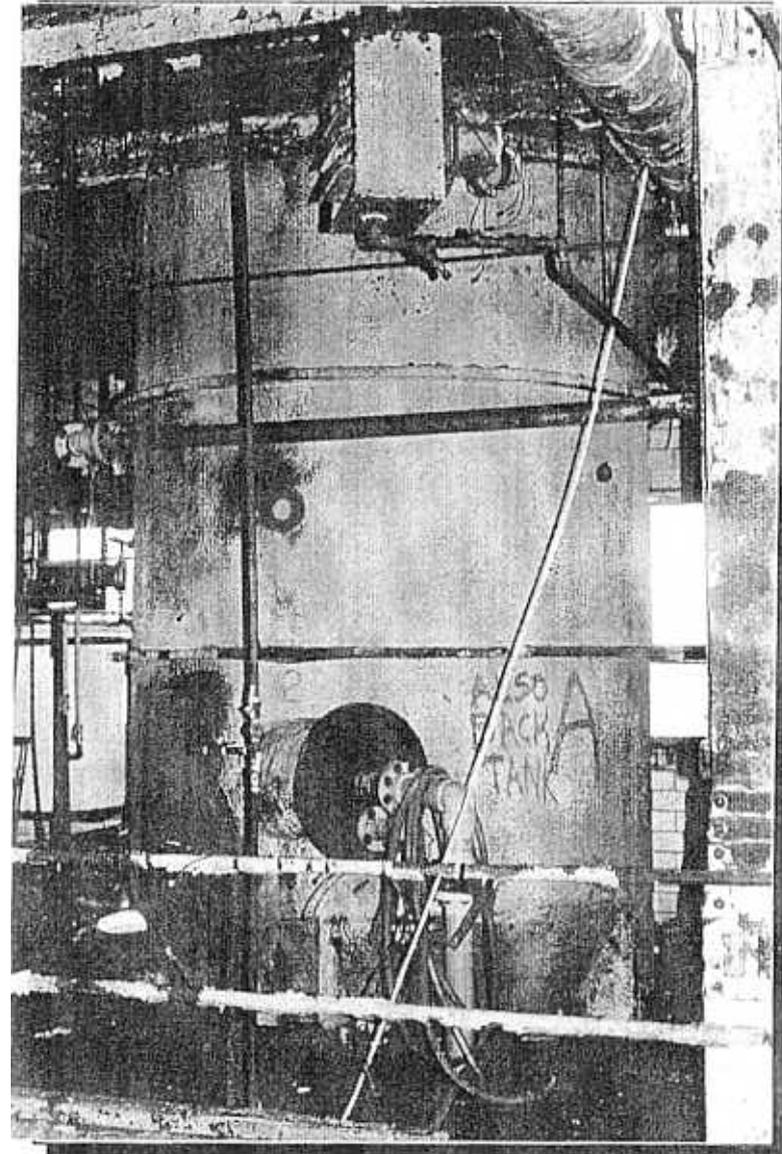
Tanks #1 and #2, the South and North Filter Feed Tanks  
K106 liquid



The East Settler, Tank #3  
No liquid, Some K106 Sludge



The Center Settler, Tank #4  
No liquid, Some K106 Sludge



West Settler, Tank #5  
This is the Only Settler Containing Liquid - K106 liquid



**Top of the East, Center and West Settlers (Tanks #3, 4, and 5) Looking West**



**Tank #6, Horizontal Surge Tank  
D009 liquid**

**Health & Safety Plan**

**Removal of RCRA Hazardous Waste  
Sludges at the  
LCP Bridge Street Site  
Solvay, New York**

**NYS Department of Environmental Conservation  
Site Code 7-34-049**



**March 1999**

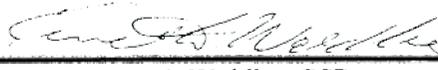
Health & Safety Plan

**Removal of RCRA Hazardous Waste Liquids at the  
LCP Bridge Street Facility  
Solvay, New York**

**NYS Department of Environmental Conservation  
Site Code 7-34-049**

*AlliedSignal Inc.*

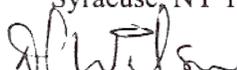
Prepared by  
OP-TECH Environmental Services, Inc.  
6352 Deere Road  
P.O. Box 2153  
Syracuse, NY 13220-2153



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Kenneth Waldby, CSP

Reviewed by  
O'Brien & Gere Engineers, Inc.  
5000 Brittonfield Pkwy  
P.O. Box 4873  
Syracuse, NY 13221



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David J. Wilson, CIH



March 1999

**HEALTH & SAFETY PLAN**

**SECTION GENERAL INFORMATION & ACKNOWLEDGEMENTS**

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CLIENT NAME: **O'BRIEN & GERE ENGINEERS - ALLIEDSIGNAL**

PROJECT NAME: **VACUUM TANK MATERIAL AND RELATED CLEANING**

PROJECT MANAGER: **CHRIS MYERS**

JOB NUMBER:

PROJECT LEADER: **CHRIS MYERS**

REVISION:

HEALTH & SAFETY OFFICER: **KEN WALDBY**

PREPARED BY: **KENNETH WALDBY, CSP**

DATE: **11/24/98**

SHORT FORM APPROVED BY

DATE:

Corporate Health & Safety \_\_\_\_\_

Project Manager: \_\_\_\_\_

Project Leader: \_\_\_\_\_

**SECTION 2: PROJECT INFORMATION**

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**(1) WILL POTENTIAL HAZARDS TO PROJECT PERSONNEL EXIST (YES OR NO)**

Physical: YES (If yes, see Section 3)  
Chemical: YES (If yes, see Section 4)  
Confined space entry: YES (If yes, see Section 6)  
Work zone control required: YES (If yes, see Section 7)

**(2) LOCATION INFORMATION**

Client Name: **ALLIEDSIGNAL, INC**  
Address: **P.O. BOX 6**  
**SOLVAY, NY 13206**

Client Contact: **AL LABUZ**

Phone: **315-487-4078**

OBG Contact: **JEFF BANIKOWSKI**

Phone: **315-437-6100**

**(3) WORK CLASSIFICATION: (check all that apply)**

Hazardous (RCRA)       Hazardous (CERCLA)       Other  
 Construction       T/LUST       Active  
 Sanitary landfill       Manufacturing       Inactive

**(4) PURPOSE OF FIELD VISIT(S): OP-TECH PERSONNEL WILL VACUUM MATERIAL FROM DESIGNATED TANKS AND TRANSFER IT TO OTHER CONTAINERS FOR DISPOSAL.**

(5) **TASKS: OP-TECH PERSONNEL WILL VACUUM MATERIAL USING A VAC TRUCK. MATERIAL WILL BE STAGED ON LCP PROPERTY AT A LOCATION SELECTED BY THE OWNER FOR DISPOSAL. AFTER THE TANKS ARE EMPTIED, THEY WILL BE RINSED AND DRAINED.**

(6) **OP-TECH ORGANIZATION**

Personnel  
**\*CHRISTINE MYERS**

Responsibilities  
**PROJECT MANAGER**

NOTE: Identify project field leader/supervisor with an asterisk (\*).

NOTE: This safety plan has been prepared for use by **OP-TECH Environmental Services, Inc.** employees. OP-TECH claims no responsibility for its use by others. The plan is written for the specific conditions, purposes, dates and personnel specified and must be amended if these conditions change.

Subcontractors whose work will be performed, or who otherwise could be exposed to health and safety hazards, will be advised of known hazards through distribution of information obtained by OP-TECH from others, and this Safety Plan. They shall be solely responsible for the health and safety of their employees and shall comply with all applicable laws and regulations. All subcontractors are responsible for: (1) providing their own personal protective equipment; (2) training their employees in accordance with applicable Federal, State and local laws; (3) providing medical surveillance and obtaining medical approvals for their employees; (4) insuring their employees are advised of and meet the minimum requirements of this Safety Plan and any other additional measures required by their work activities; and (5) designating their own safety officer.

**SECTION 3: PHYSICAL HAZARDS INFORMATION**

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(1) **IDENTIFY POTENTIAL PHYSICAL HAZARDS TO WORKERS**

- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> Confined space     | <input checked="" type="checkbox"/> Steep/uneven terrain | <input checked="" type="checkbox"/> Falling hazards   |
| <input checked="" type="checkbox"/> Heavy equipment    | <input type="checkbox"/> Heat stress                     | <input type="checkbox"/> Drum handling                |
| <input type="checkbox"/> Trenching hazards             | <input checked="" type="checkbox"/> Extreme cold         | <input checked="" type="checkbox"/> Noise             |
| <input type="checkbox"/> Explosive                     | <input type="checkbox"/> Flammable                       | <input type="checkbox"/> Combustible                  |
| <input checked="" type="checkbox"/> Electrical Hazards | <input checked="" type="checkbox"/> Acid/Base            | <input checked="" type="checkbox"/> Caught in-between |

Describe other unsafe environments **BENDING, LIFTING, SLIPPING, TRIPPING AND FALLING HAZARDS; VACUUM TRUCK HAZARDS**

(2) **IS LOCKOUT/TAGOUT NECESSARY?** Yes  No  If yes, see attachment on Lockout/tagout.

(3) **PROTECTIVE EQUIPMENT REQUIRED?** Yes  No  If yes, complete Section 9.

(4) **EXCAVATION PERMIT REQUIRED?** Yes  No  If yes, see attachment

(5) SAFETY EQUIPMENT REQUIRED:

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Harnesses                | <input type="checkbox"/> Non-sparking tools  | <input checked="" type="checkbox"/> Lights                    |
| <input checked="" type="checkbox"/> Explosimeter  | <input checked="" type="checkbox"/> Eye wash | <input type="checkbox"/> Lockout/tagout kit                   |
| <input type="checkbox"/> Blower                   | <input type="checkbox"/> Shower              | <input type="checkbox"/> Safety cones                         |
| <input type="checkbox"/> Lifeline                 | <input type="checkbox"/> Barrier tape        | <input checked="" type="checkbox"/> Communications - (verbal) |
| <input checked="" type="checkbox"/> Ladder        | <input type="checkbox"/> Fire extinguisher   | <input type="checkbox"/> Other Communications                 |
| <input checked="" type="checkbox"/> First aid kit | <input type="checkbox"/> Emergency air horn  | <input checked="" type="checkbox"/> Extra batteries           |

Describe other: **HEARING PROTECTION, STEEL TOE BOOTS, SAFETY GLASSES/GOGGLES, HARD HATS**

(6) See Section 10 for additional safe work practices.

**SECTION 4: CHEMICAL HAZARDS INFORMATION**

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(1) IDENTIFY CONTAMINANTS

Known or suspected hazardous/toxic materials (attach tabulated data if available)

<u>Media</u>	<u>Substances Involved</u>	<u>Characteristics</u>
	<b>WATER CONTAMINATED WITH MERCURY AND SODIUM HYDROXIDE</b>	<b>CC, TO</b>
	<b>WATER IN PRIMARY AND SECONDARY TANKS POSSIBLY CONTAMINATED WITH HCL</b>	<b>CC, TO, TA</b>

Media types: GW (ground water), SW (surface water), WW (waste water), AI (air), SL (soil), SD (sediment), LE (leachate), WA (waste), OT (other), WL (waste, liquid), WS (waste, solid), WD (waste, sludge), WG (waste, gas)

Characteristics: CA (corrosive, acid), CC (corrosive, caustic), IG (ignitable), RA (radioactive), VO (volatile), TO (toxic), RE (reactive), UN (unknown), OT (other, describe), CO (combustible)

(2) DESCRIBE POTENTIAL HAZARDS FOR EACH MEDIA TYPE:

**ERYTHEMA (SKIN IRRITATION THAT WILL CAUSE REDDENING)  
AVOID SKIN AND EYE CONTACT WITH MATERIAL, AVOID INHALATION OF MATERIAL**

(3) **OP-TECH SPILL CONTINGENCY IS LOCATED IN THE BACK OF THIS HASP.**

(4) OVERALL PROJECT HAZARD LEVEL:

Serious  Moderate  Low  Unknown

(5) MONITORING REQUIRED? Yes X No.

If yes, identify monitoring equipment below:

Hnu meter (lamp 10.2 Ev)  Geiger counter  
 Explosimeter (LEL)  Respirable dust monitor  
 Organic vapor analyzer (OVA)  Other

Describe other: HG VAPOR ANALYZER, H<sub>2</sub>S analyzer (triple gas meter)

**NOTE: IN THE EVENT OF CONFINED SPACE ENTRY, OXYGEN/CARBON MONOXIDE/HYDROGEN SULFIDE DETECTORS WILL BE USED AS PART OF THE EXPLOSIMETER.**

Monitoring equipment is to be calibrated according to manufacturer instructions. Record measured levels in logbook.

Describe method of surveillance (e.g., continuous, periodic, etc.) Indicate action levels and PPE required (total vapors, oxygen, LEL, radiation, other). Confined Space monitoring will be conducted before entry and periodically after entry. The standards to be used are as follows:

OXYGEN =	GREATER THAN 19.5 %
LOWER EXPLOSIVE LIMIT (LEL) =	LESS THAN 10 %
CARBON MONOXIDE =	LESS THAN 35 PPM
HYDROGEN SULFIDE =	LESS THAN 10 PPM
HG VAPOR =	0.10 MG/C <sup>3</sup> (SKIN) NIOSH

(6) BLOODWORK NECESSARY?; BEFORE AND AFTER WORK? Yes. No X, IF YES, AT WHAT FREQUENCY?

**OP-TECH PERSONNEL FOLLOW A COMPANY MEDICAL MONITORING SURVEILLANCE PROGRAM AND ARE TRAINED IN ACCORDANCE WITH 29 CFR 1910.120, (HazWOper) REGULATIONS FOR HAZARDOUS WASTE WORK.**

(7) PROTECTIVE CLOTHING REQUIRED? Yes X No\_  
If yes, complete protective equipment form (Section 9).

(8) RESPIRATORS REQUIRED? Yes X No\_  
If yes, complete Section 9 and respirator log (Attachment 2).

#### **SECTION 5: HAZARD COMMUNICATION PROGRAM**

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For each chemical introduced to the work area by OP-TECH Environmental Services, Inc. (e.g. decontamination liquids), Material Safety Data Sheets (MSDSs) are attached to this form for review by all field personnel. These chemicals include the following:

**NONE**

**SECTION 6: CONFINED SPACE ENTRY**

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**(1) WILL CONFINED SPACE ENTRY TAKE PLACE?            YES, IF NECESSARY.**

If yes, complete the Confined Space Entry Permit (attached), prior to entering each confined space, each work shift. The Confined Space Permit must be posted outside the confined space. Follow the Confined Space guidelines of OP-TECH's Health & Safety Manual (Attached).

**SECTION 7: AREA SECURITY AND CONTROL**

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**THE SITE IS SUROUNDED BY A CHAIN-LINK FENCE. PERSONNEL MUST SIGN-IN BEFORE ENTERING THE SITE. ONLY AUTHORIZED WORKERS ARE TO BE IN THE WORK AREA DURING OPERATIONS. THE WORK AREA IS TO BE SECURED DURING WORK AND AFTER WORK. VEHICLES NOT LEAVING THE WORK AREA WILL BE SECURED AFTER HOURS.**

**PERSONNEL ARE TO BE AWARE OF THEIR SURROUNDINGS AT ALL TIMES.**

**7a: DECONTAMINATION: PERSONNEL WILL DECONTAMINATE PRIOR TO LEAVING THE WORK AREA OR EATING/DRINKING. PERSONAL PROTECTIVE EQUIPMENT WILL BE DISPOSED OF AFTER THE WORKDAY. IF NECESSARY, EQUIPMENT WILL BE DECONTAMINATED BEFORE LEAVING WORK AREA.**

**AT A MINIMUM, A BOOT AND GLOVE WASH WILL BE PROVIDED FOR PERSONNEL. TYVEK SUITS WILL BE DISPOSED OF DAILY.**

**DECONTAMINATION WILL AT MINIMUM, CONSIST OF:**

- 1. A BOOT AND GLOVE WASH/RINSE**
- 2. PROTECTIVE SUIT REMOVAL**
- 3. RESPIRATOR (IF NECESSARY) REMOVAL**
- 4. FIELD WASH (WASH FACE AND HANDS)**



**SECTION 9: PROTECTIVE EQUIPMENT LIST**

<b>Task</b>	<b>Respirators &amp; Cartridge</b>	<b>Clothing</b>	<b>Gloves</b>	<b>Boots</b>	<b>Other</b>
<b>VACUUMING</b>	<b>D or ½FC-A</b>	<b>P</b>	<b>N/T</b>	<b>S</b>	<b>H/G/F</b>

**PLACE DUCT TAPE OVER ALL OPENINGS**

<b>Resp.</b>	<b>Cartridge</b>	<b>Clothing</b>	<b>Gloves</b>	<b>Boots</b>	<b>Other</b>
<b>B=SCBA</b>	<b>O=Organic vapor</b>	<b>T=Tyvek</b>	<b>B=Butyl</b>	<b>F=Fireman</b>	<b>F=Face Shield</b>
<b>FFC=Resp.</b>	<b>G=Organic vapor &amp; acid gas</b>	<b>P=PE Tyvek</b>	<b>L=Latex</b>	<b>L=Latex</b>	<b>G=Goggles</b>
<b>½FC=Resp.</b>	<b>M= Mercury vapor</b>	<b>B=Barricade</b>	<b>P=PVC</b>	<b>P=PVC</b>	
<b>PC=PAPR</b>	<b>H=HEPA (HEPA)</b>	<b>S=Saranex</b>	<b>N=Neoprene</b>	<b>N=Neoprene</b>	<b>L=Glasses</b>
<b>E=Escape</b>	<b>P=Particulate</b>	<b>C=Coverall</b>	<b>T=Nitrile</b>	<b>S=Safety</b>	<b>H=Hardhat</b>
<b>D=No Respirator</b>					
	<b>C=Combination organic vapor &amp; HEPA Filter</b>		<b>V=Viton</b>		
	<b>A = Acid gas</b>		<b>W=Work</b>		

\*Action levels for upgrade/downgrade

**SECTION 10: SAFE WORK PRACTICES**

**THE FOLLOWING WORK PRACTICES MUST BE FOLLOWED BY WORK PERSONNEL**

1. Smoking, eating or drinking are forbidden. Ignition of flammable liquids within or through improvised heating devices (e.g., barrels) is forbidden.
2. Contact with samples, excavated materials, or other contaminated materials must be minimized.
3. Use of contact lenses is prohibited.
4. Do not kneel on the ground when collecting samples.
5. Fall Protection is to be employed for potential falls over six feet.
6. All electrical equipment must be plugged into ground fault interrupter (GFI) protected outlets. The following is a list of electrical equipment for this job:  
**NONE**



LOCATION: \_\_\_\_\_

JOB #

**SUPERVISORS/FOREMAN INSPECTION CHECKLIST**

SIGNATURE OF PERSON PERFORMING INSPECTION: \_\_\_\_\_

Date and time:

**VERIFY:**

- Buddy system is being used*
- PPE is being used and appropriately donned*
- OP-TECH personnel know the hazards of the project*
- OP-TECH personnel know where the Safety Plan is located*
- Decontamination is being performed*
- Fire extinguishers/first aid kit available*

**CHECK:**

- Chemical exposures to personnel (respirators used?)*
- Hazardous areas (marked off)*
- Mechanical hazards*
- Control measures in place (ventilation, water sprays, etc.) \_\_\_\_\_*
- Confined spaces (if any) - USE THE PERMIT FOR EACH ONE!*
- Excavation Permit/Hot Permit in use?*
- Lockout/tagout in place (if needed)*
- Heat/Cold stress - potential*
- Is water or other fluid available on the project? yes no*
- Is monitoring/sampling taking place? yes no*
- Are readings acceptable? yes no*
- Housekeeping procedures*
- Are drums properly labeled and stored? (if any) yes no*
- Check here if comments are made on the back*

## Confined Spaces

### A. Introduction

OSHA has a standard, 29 CFR 1910.146, for permit-required confined spaces. The standard includes provisions for testing and entering confined spaces. The employee who enters a confined space may be subject to multiple hazards. The purpose of this section is to outline procedures to reduce these hazards.

### B. Definitions

"Permit-required confined space" means a confined space (see definition below) that has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere (see definition below).
2. Contains a material that has the potential for engulfing an entrant.
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or by a floor which slopes downward and tapers to a smaller cross-section, or
4. Contains any other recognized serious safety or health hazard.

"Confined Space" means a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry): and
3. Is not designed for continuous employee occupancy.

"Hazardous Atmosphere" means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
2. Airborne combustible dust at a concentration that meets or exceeds its LFL (Note: this concentration may be approximated as a condition in which dust obscures vision at a distance of 5 feet (1.52 meters) or less);
3. Atmospheric oxygen concentration below 19.5% or above 23.5%;
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in 29 CFR 1910 Subparts G or Z and which could result in employee exposure in excess of its dose or permissible exposure limit (Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment or ability to self-rescue, injury, or acute illness due to its health effects is not covered).
5. Any other atmospheric condition that is immediately dangerous to life or health.

Note: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Program, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

"Non-permit confined space" means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

### C. Confined Space Entry Program

#### **1 Coordination with Host Employer (Owner)**

The Supervisor/Foreman in charge of entry will:

- a. Obtain any available information regarding permit space hazards and entry operations from the host employer (Owner);
- b. Coordinate entry operations with the host employer (Owner), when both host employer personnel and OP-TECH personnel will be working near permit spaces;
- c. Inform the host employer (Owner) of the permit space program that OP-TECH personnel will follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.
- d. Follow the Host Employers (Owners) confined space entry program whenever possible.

#### **2. Determine classification of Confined Space**

Should OP-TECH employees need to enter a confined space that has not been classified, then the following procedures will be used:

- a. Determine whether the space meets the definition of a confined space as defined in Part B of this Section.
- b. If the space meets the definition of a confined space, then determine whether it meets the definition of a permit-required confined space. If the confined space does not meet the definition of a permit-required confined space, employees may enter the space after the appropriate safety pre-cautions have been taken.
- c. If the confined space requires a permit, refer to Part 3 of this section for the procedures to be followed under these conditions.

#### **3. Preparations for Permit-Required Confined Spaces**

The Supervisor/Foreman in charge of entry is responsible for:

- a. Implementing the measures necessary to prevent unauthorized entry.
- b. Identifying and evaluating the hazards before employees enter the permit space.
- c. Specifying acceptable entry conditions on the "Safety, Work, Flame, Tank Entry, & Gas Test Permit" (An example is attached. Four-copy pressure sensitive forms are available from the Syracuse office).

- d Isolating the permit space and following lock-out/tag-out procedures as necessary.
- e Purging, inerting, flushing or ventilating the permit space as necessary to eliminate or control atmospheric hazards.
- f. Providing signs and pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards.
- g Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
- h Confirming that the necessary equipment is available and that employees are trained to use it as outlined on the permit.
- i Performing testing as described in Section 6.
- j Verifying that at least one attendant is stationed outside the permit space into which entry is authorized for the duration of the entry.
- k Verifying that the emergency rescue team has been notified (see Section 10).  
Coordinating entry operations when employees of more than one employer are simultaneously as authorized attendants in a permit space, so that the employees of one employer do not endanger the employees of any other employers.
- m. Prior to entry, signing the permit to authorize entry.
- n. Posting the completed permit at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.
- o. When a ladder is required to enter the confined space, the ladder must be tied securely and must not be removed while anyone is in the confined space.
- p Adequate lighting of an approved safety type must be provided.
- q. All necessary safety equipment to be used by the person entering the confined space as well as for the safety watch will be checked.
- r. Emergency procedures will be reviewed.
- s. Smoking is prohibited inside of and within twenty feet of the confined space.
- t. Spark proof hand tools and explosion proof equipment will be used.
- u If welding is to be performed in the confined space that previously or now contain combustibles, all residues, including dry scale or sediment must be removed. If it is not possible to remove all combustible materials, they must be covered with a non-combustible blanket.  
At least one 20 lb. ABC multi-purpose fire extinguisher must be available for instant use in a confined space containing flammable gases or vapors.
- w Each person involved shall be trained on the hazards, as outlined in Section 4, how to recognize the hazards, and how to protect themselves from the hazards. Additionally, the attendants will be training on the use of rescue equipment and other duties outlined Section 8.

#### 4 Training

Each employee who is required to enter a permit-required confined space will be trained in the safe performance of duties.

- a Training will be provided to each affected employee:
  - (1) before an employee is assigned duties which require entry into permit-required confined spaces,
  - (2) whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained, or

- (3) whenever there is reason to believe either that there are deviations from the permit-required confined space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.
- b. The training will be documented by the employees name, the signatures or initials of the trainers, and the dates of training. This documentation will be filed in the employees safety file and is available for inspection.

5. Procedures during entry

- a. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.
- b. The Foreman/Supervisor in charge of entry will terminate and cancel the entry permit when:
  - (1) Entry operations covered by the entry permit have been completed; or
  - (2) A condition that is not allowed under the entry permit arises in or near the permit space.

6. Procedures for Atmospheric Testing

- a. Before an employee enters that space, the internal atmosphere will be tested, with a calibrated direct-reading instrument to determine if acceptable entry conditions exist, for the following conditions in the order given:
  - (1) Oxygen content
  - (2) Flammable gases and vapors
  - (3) Potential toxic air contaminants (carbon monoxide (CO), hydrogen sulfide (H<sub>2</sub>S) and mercury vapor)
- b. If isolation of the space is infeasible because the space is large or is part of a continuous system, such as a sewer, pre-entry testing will be performed to the extent feasible before entry is authorized and, if entry is authorized, entry conditions will be continuously monitored in the areas where authorized entrants are working.
- c. When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope should be tested a distance of 4 feet in the direction of travel and to each side. If a sampling probe is use, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response.

Authorized Entrants

The Foreman/Supervisor in charge of entry is responsible for confirming that all authorized entrants:

- a. Know the hazards they face during entry, including information on the mode, signs or symptoms, and consequences of exposure;
- b. Properly use equipment as required by this section;
- c. Communicate with the attendant as necessary to enable the attendant to monitor

entrants status and to enable the attendant to alert entrants of the need to evacuate the space;

- d. Alert the attendant whenever:
  - (1) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
  - (2) The entrant detects a prohibited condition;Exit from the permit space as quickly as possible whenever:
  - (1) An order to evacuate is given by the attendant or the entry supervisor;
  - (2) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
  - (3) The entrant recognizes a prohibited condition, or
  - (4) An evacuation alarm is activated.

## 8. Attendants

The Foreman/Supervisor in charge of entry is responsible for confirming that attendants:

Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure;

- b. Is aware of possible behavioral effects of hazard exposure in authorized entrants;
- c. Initial entry will be accomplished with an attendant stationed outside for the purpose of immediate assistance.
- d. Will never enter into the permit space for the purpose of an attempt to rescue the entrants.
- e. Will use any rescue equipment provided for their use and perform other rescue and emergency duties, without entering the permit space.
- f. Will be responsible for continuously maintaining an accurate count of all authorized entrants in the space.
- g. Communication between attendants and entrants will be maintained continuously during entry.
- h. Attendants will order authorized entrants to evacuate a space immediately when:
  - (1) The attendant observes a prohibited condition.
  - (2) The attendant detects behavioral effects hazard exposure.
  - (3) The attendant detects a situation outside the space which could endanger entrants.
  - (4) The attendant detects an uncontrolled situation within the permit space.
  - (5) The attendant is monitoring entry in more than one permit space and must focus attention on the rescue of entrants from one of those spaces.
  - (6) The attendant must leave the work station.
  - (7) If the attendant cannot effectively and safely perform all the duties required under this section.
- i. Attendants will summon rescue and other emergency services as soon as the attendant determines that the authorized entrants may need assistance to escape from the confined space hazards.
- j. Attendants will warn unauthorized persons away from the space, request that unauthorized persons exit immediately if they have entered the space, and inform authorized entrants if unauthorized persons have entered the space.
- k. Attendants will perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

9 Supervisor/Foreman

Employees of OP-TECH authorizing or in charge of entry will

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure;
- b. Determine that the entry permit is properly filled out.
- c. Determine that the entrants and attendants are properly trained.
- d. Determine that necessary procedures, practices and equipment for safe entry are in place, including verifying rescue services are available and that the means of summoning them are operable.
- e. Remove unauthorized individuals who enter or attempt to enter the permit space during entry operations.  
Periodically monitor to determine that confined space operations remain consistent with the terms of the entry permit and that acceptable entry conditions are present.
- g. Cancel authorization and terminate entry whenever entry conditions are not present.
- h. Take the necessary measures for concluding an entry operation, such as closing off a permit space and canceling the permit, once the authorized work has been completed.  
The supervisor/foreman in charge of authorizing the confined space entry may also be an entrant or an attendant.

10. Rescue and Emergency Services

- a. Arrangements must be made prior to entry under which a rescue team will respond to a request for rescue activities. The outside rescue team will be informed of the hazards they may confront when called to the rescue.
- b. To facilitate non-entry rescue, retrieval systems or methods will be used whenever an authorized entrant enters a permit-required confined space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems will meet the following requirements:
  - (1) Each authorized entrant will use a chest or full body harness, with a retrieval line attached at the center of the entrants back near shoulder level, or above the entrant's head. Wristlets may be used in lieu of the chest or full body harness if it can be demonstrated that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.
  - (2) The other end of the retrieval line will be attached to a mechanical device such as a wench or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device will be available to retrieve personnel from vertical type permit-required confined spaces more than 5 feet deep.
- c. If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information will be made available to the medical facility treating the exposed entrant.

D. Records

Permits will be filed with other pertinent project health and safety information and filed in the job file.

E. Evaluation of Program

The Permit-Required Confined Space Entry Program will be reviewed once per year, using the canceled permits and revise the program as necessary to confirm that employees participating in entry operations are protected from permit space hazards.

**ANY PROBLEMS WITH THE PERMIT OR ENTRY DURING THE JOB ARE TO BE DISCUSSED WITH THE HEALTH & SAFETY SPECIALIST FOR CORRECTION IN THE FUTURE.**

F. Exception to Permit Requirements

If the only hazard posed by the confined space is an actual or potential hazardous atmosphere and it can be demonstrated that continuous forced air ventilation alone is sufficient to maintain that confined space for safe entry, then a permit is not required under the regulations. However, it is OP-TECH's policy to require a permit for entries that meet the definition of a "permit-required confined space" (see Section B). If a project requires regular entry into a confined space that does not require a permit under the regulations, the Operations Manager must be contacted and the permit waiver will be considered on a project by project basis. Special procedures to be followed under these conditions will be coordinated by the Operations Manager.

LCP Bridge Street Facility  
Solvay, NY

# **SPILL CONTINGENCY PLAN**

**FOR**

**OP-TECH OPERATIONS**

**OP-TECH ENVIRONMENTAL SERVICES, INC.**

**1998**

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## 1.0 INTRODUCTION

This Spill Contingency Plan is designed to minimize hazards to human health or to the environment from unplanned releases of hazardous substances or wastes to the air, soil, or surface water during work activities or emergency response. The provisions of this plan will be carried out immediately whenever there is a release of hazardous substances or wastes, which could threaten human health or the environment. The drum containment area and hazardous waste tanker storage areas are subject to this contingency plan.

## 2.0 NOTIFICATION

Should a spill or release occur during work activities, **ALLIEDSIGNAL** will be contacted along with an OP-TECH representative at the home office.

The OP-TECH supervisor or foreman will be in charge of OP-TECH personnel and will direct operation of the clean up. The supervisor or foreman will inform **ALLIEDSIGNAL** of the action OP-TECH is taking to mitigate the situation. **ALLIEDSIGNAL** may exercise the right to protect the environment or property using their own resources or with OP-TECH assistance.

If necessary, **ALLIEDSIGNAL** will make the determination to contact the State DEC or other appropriate agencies. If **ALLIEDSIGNAL** does not make the contact, advise OP-TECH Project Manager.

## 3.0 EMERGENCY PREPAREDNESS

OP-TECH personnel are trained in Hazardous Waste Operations and emergency response in addition to the typical clean up operations the normal work dictates. Supervisors will verify that maintaining the following preparedness and prevention program minimizes spills and similar incidents. For example, during removal operations, plastic sheeting or other materials will be used as a precautionary preparedness measure.

Proper work practices will be adhered to during the tasking. These work practices will be in addition to proper personal protective equipment (PPE) and materials that will be used. Spill equipment will be on hand in case of a release and will be strategically located and capable of providing secondary containment provision quickly and easily around a spill. Designated storage areas for materials/waste will be labeled.

The company does not permit smoking or initiating a source of ignition where flammable materials may be stored or used. Fire extinguishers with an ABC rating will be available during work activities.

Communications during work activities will be verbal command when personnel are in close proximity of each other. Additionally the use of a buddy system will be utilized during sampling and cleaning activities. If in the event those workers are not in close proximity of each other, air horns or car horns will be used to notify OP-TECH workers if an emergency exists.