

October 29, 1990

Mr. Robert W. Schick, P.E.
Chief, Remedial Section A
New York State Department
of Environmental Conservation
Bureau of Western Remedial Action
50 Wolf Road
Albany, NY 12233

Dear Mr. Schick:

Enclosed for your review is Occidental Chemical Corporation's plan for the removal of Love Canal Leachate Treatment Facility sludge. This submittal is made pursuant to Paragraph 33 of the Love Canal Partial Consent Decree.

Sincerely yours,

Jay A. Cull
Jay A. Cull
Technical Manager
Special Environmental Programs

A:JACW29S
Enc.

cc See Distribution List on Next Page



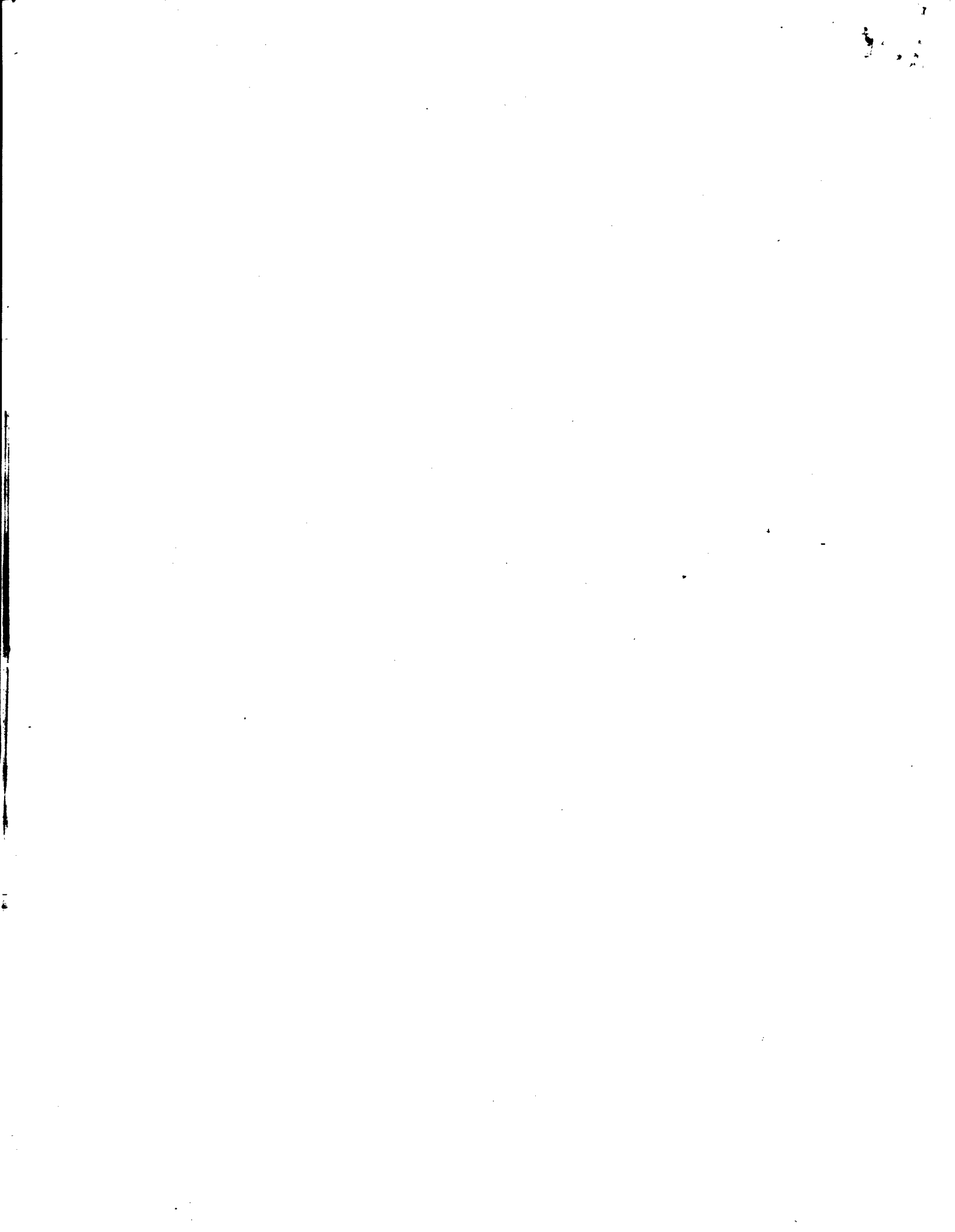
Occidental Chemical Corporation

Corporate Environmental Affairs

Occidental Chemical Center

360 Rainbow Boulevard South, P.O. Box 728, Niagara Falls, NY 14302-0728

716/286-3000



Chief, New York/Caribbean Superfund Branch

Office of Regional Counsel
U.S. Environmental Protection Agency - Region II
26 Federal Plaza
New York, NY 10278

ATTN: Love Canal Atty (1)

Chief, New York/Caribbean Compliance Branch

Emergency and Remedial Response Division
U.S. Environmental Protection Agency - Region II
26 Federal Plaza
New York, NY 10278

**ATTN: Mr. Kevin Lynch
Love Canal Site Proj. Mgr. (1)**

Chief, New York/Caribbean Remedial Action Branch

Emergency and Remedial Response Division
U.S. Environmental Protection Agency - Region II
Room 29-100
26 Federal Plaza
New York, NY 10278

**ATTN. Mr. Damian Duda
Love Canal Proj. Coord. (1)**

Chief, National Projects Branch

Office of Enforcement and Compliance Monitoring
U.S. Environmental Protection Agency (LE-134S)
401 M Street, SW
Washington, D.C. 20460

ATTN: Love Canal Atty (1)

Chief, Environmental Enforcement Section

Land & Natural Resources Division
U.S. Department of Justice
Benjamin Franklin Station
P.O. Box 7611
Washington, D.C. 20044

ATTN: Love Canal Atty (1)

Director, Bureau of Western Remedial Action

State of New York
Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233

ATTN: Edward R. Belmore, P.E. (4)

Director, Bureau of Environmental Exposure Investigation

New York State Department of Health
2 University Place
Albany, NY 12203

ATTN: Ron Tramontano, P.E. (1)

New York State Department of Law

Environmental Protection Bureau
120 Broadway - 26th Floor
New York, NY 10271

ATTN: C. Michael Bryce, Esq. (1)



LEACHATE TREATMENT FACILITY SLUDGE

INTRODUCTION

Organic leachate, or NAPL, collected at the Love Canal Treatment Facility is stored in vessels located in a diked tank farm adjacent to the facility. A curbed trailer pad is located between the tank farm and the treatment building.

There are four storage tanks, each ten foot in diameter with a capacity of 10,000 gallons. There are four 4" nozzles on each vessel, two at each end and a 24" diameter manway at the center. All nozzles are top side. The nozzles are used for fill, level, vent and a spare. The vent nozzles are connected to individual carbon canisters. The volumes and contents are reported in the TAMS report - "Waste Characterization Report for Love Canal Wastes" - December 1989, and as modified after discussions with treatment plant personnel are as follows:

COMPONENT DEPTH/VOLUME

I think the tank #3 is for tank #4

VESSEL	FREEBOARD	AQUEOUS	ORGANIC	SLUDGE	COMMENTS
#1	1'/500	2'/2000	2'/2500	5'/5000	
#2	1'/500	1'/1500	8'/2000		Vessel in Use
#3	1'/500		9'/9500		Contents Filtered
#4					Vessel Empty

Recent communications from the D.E.C. indicate a desire to load and transport at least 10,000 gallons of organic leachate in the spring of 1991, in order to maintain working capacity at the facility. The following work plan is intended to show the methods being considered to filter, load and transport this residue to Occidental's Niagara Plant for incineration. Since variations in content are reported from vessel to vessel, steps may be added or omitted from the work plan as experience is gained.

GENERAL WORK PLAN

- 1) Each vessel will be resampled to confirm the interface level and sludge characteristics.
- 2) The aqueous phase will be pumped to the ^{tank #3} facility clarifier.
- 3) *Modify #4 First* The organic phase will be pumped through a filter press to the #4 storage tank. *Tank 3 to a truck*
- 4) The sludge will be filtered and drummed.
- 5) The organic from #4 storage tank will be transferred to the trailer for transport.

GENERAL WORK PLAN (Continued)

The proposed system consists of a diaphragm pump, a filter press with a piping system valved for flow to either the facility clarifier or to #4 storage tank. The pump will be a diaphragm pump with Teflon bail checks and a Neoprene diaphragm. A second pump will be installed on the #4 storage tank. This pump will be used to load tank trailers for transport of the filtered residue for incineration.

go to truck

SPECIFIC SCOPE

The #3 storage tank, which previously has had the aqueous phase decanted and the organic filtered through a 50 mesh screen contains the least sludge and should be the easiest vessel to process. A dip leg is in place which would be used for the pump suction. The organic will be pumped through a filter press to the #4 storage tank.

Following the transfer of #3 storage tank, the #2 vessel will be processed. The aqueous phase will first be removed using the skimming pump as used at the facility. This pump will be discharged directly to the floor drain which leads to the clarifier tank #3.

The organic and sludge will then be removed with a vacuum truck. A vacuum hose will be used from the center manway. When the vacuum truck is filled, the contents will be pumped through the filter press to #4 storage tank. A three inch diaphragm pump will be used for this purpose. The capacity of the vacuum truck is limited to about 3,000 gallons, so this operation may be repeated several times to complete the transfer of the vessel.

The #1 storage tank will be processed in the same manner as #2 storage tank, using the skimming pump to remove the aqueous phase and a vacuum truck to remove the organic and sludge.

The filtered organic leachate or NAPL collected in the #4 storage tank will be sampled and fully characterized as described in Attachment "A". This information will establish the incineration rate and in turn the interval between shipments of NAPL from the Love Canal to the Niagara Plant.

To load the organic, a separate diaphragm pump will be installed on the #4 storage tank. Prior to installation, the pump will be calibrated and the time to fill a tank trailer will be calculated. The tank trailer will be parked on the curbed trailer pad adjacent to the tank farm and loaded through a temporary trailer loading station. During the transfer both the tank and trailer levels will be monitored and recorded. The result will be compared with the volume calculated from the calibration curve. The capacity of most trailers is about 3,000 gallons, so several trips may be required to complete the transfer of the vessel.

The filter cake will be discharged as determined by the pressure drop developed through the filter. The filter will be opened as required and discharged to the receiving pan. The solids will then be loaded into drums, sealed and cleaned for storage at the Love Canal Drum Storage Facility, pending transfer to Occidental's Niagara Plant.

why we determine to do it sept and not pump
will have to add water to get enough out of the truck

put in trailer and sample take trailer to main plant

SCHEDULE

At this time, an exact schedule is impossible to prepare because of unknowns. The processing of the #3 storage tank should proceed rapidly, which will provide 10,000 gallons of working volume for the facility. Because of the time required for each analysis plus the number of operations involved in the vessel transfers, a period of several months is anticipated to complete all of the transfer.

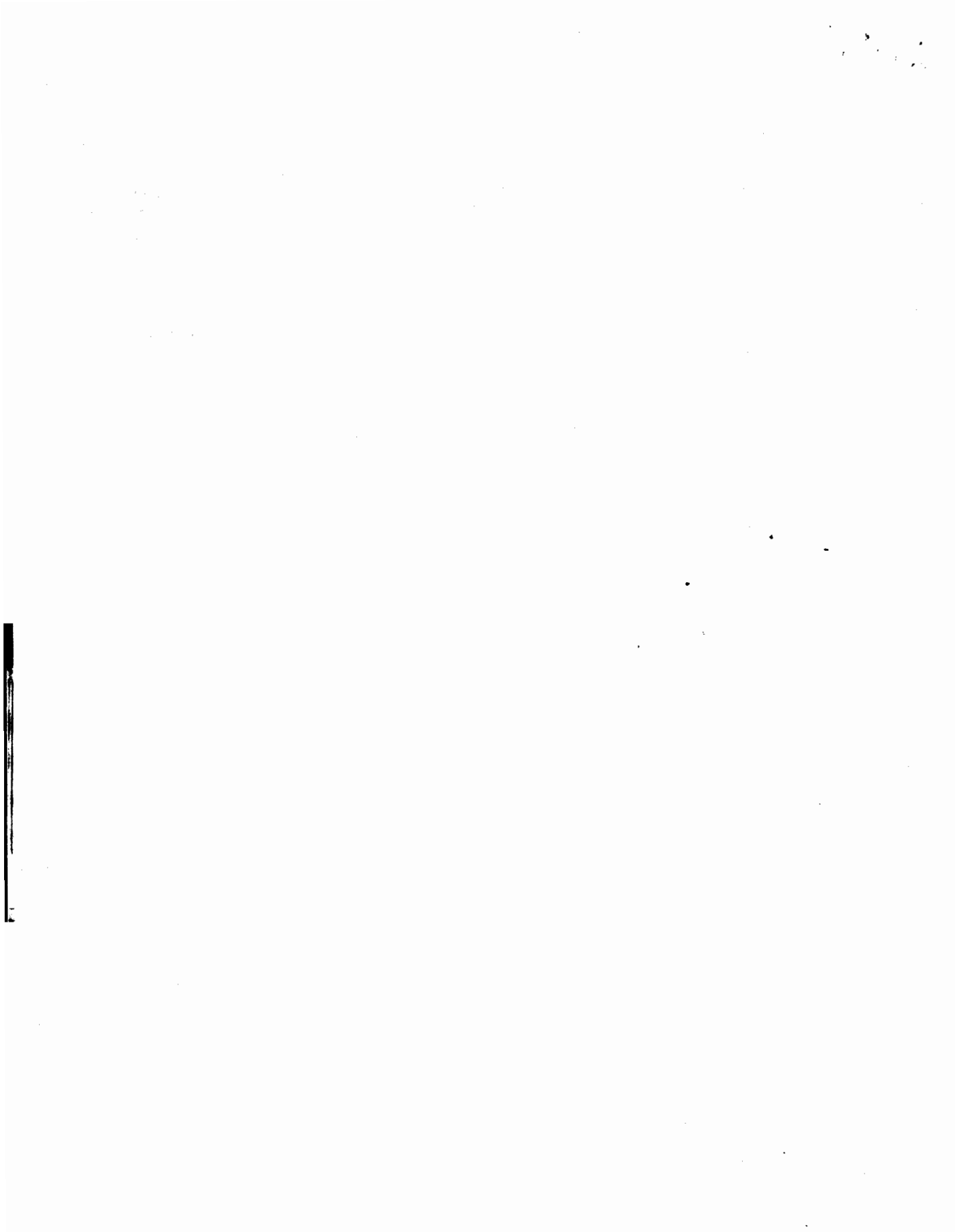
HEALTH & SAFETY

The D.E.C. Health & Safety Plan for Sludge Tank Mixing is attached. The appropriate sections of this plan will be used for sludge processing.

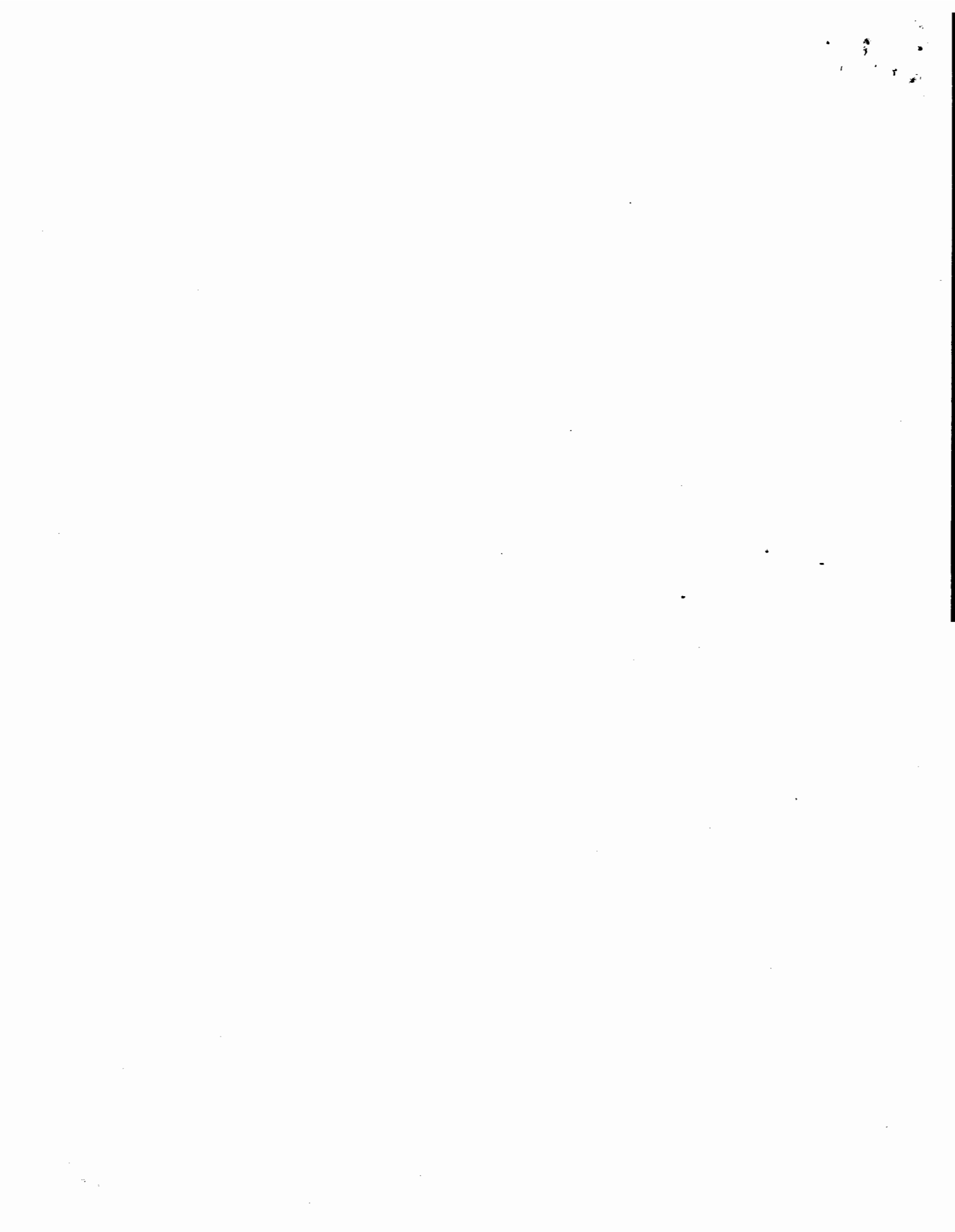
TRANSPORT

The protocol to transport organic leachate to Occidental's Niagara Plant for incineration is included as Attachment "B".

LEACH.JHS/smk



ATTACHMENT "A"



DEC PERMIT NUMBER

90-86-0707

FACILITY PROGRAM NUMBER(s)

EPA ID No.
NYD000824482

PERMIT

Under the Environmental Conservation Law

EFFECTIVE DATE

June 30, 1988

EXPIRATION DATE(s)

June 30, 1993
(5 years)

- Article 15, Title 3; 6NYCRR 327, 328, 329: Aquatic Pesticides
- Article 15, Title 5: Protection of Water
- Article 15, Title 15: Water Supply
- Article 15, Title 15: Water Transport
- Article 15, Title 15: Long Island Wells
- Article 15, Title 27: Wild, Scenic and Recreational Rivers

- 6NYCRR 608: Water Quality Certification
- Article 17, Titles 7, 8: SPDES
- Article 19: Air Pollution Control*
- Article 23, Title 27: Mined Land Reclamation
- Article 24: Freshwater Wetlands

N—New, R—Renewal, M—Modification,
C—Construct (*only), O—Operate (*only)

- Article 25: Tidal Wetlands
- Article 27, Title 7; 6NYCRR 360: Solid Waste Management*
- Article 27, Title 9; 6NYCRR 373: Hazardous Waste Management
- Article 34: Coastal Erosion Management
- Article 36: Floodplain Management
- Articles 1, 3, 17, 19, 27, 37; 6NYCRR 380: Radiation Control

PERMIT ISSUED TO Occidental Chemical Corp.			
ADDRESS OF PERMITTEE P.O. Box 344, Niagara Falls, New York 14302			
AGENT FOR PERMITTEE/CONTACT PERSON Mr. James Czapl, Superintendent of Environmental Control			TELEPHONE NUMBER (716) 278-7534
NAME AND ADDRESS OF PROJECT/FACILITY (if different from Permittee) Buffalo Avenue & 47th Street, Niagara Falls, NY 14302			
LOCATION OF PROJECT/FACILITY 4700 Buffalo Avenue	COUNTY Niagara	TOWN/CITY/VILLAGE Niagara Falls	UTM COORDINATES
DESCRIPTION OF AUTHORIZED ACTIVITY Operation of a hazardous waste treatment, storage, and disposal facility at a chemical production facility. Operation of 15 container storage areas (equivalent to 6128 55 gallon drum + 3-4,000 gal. trailers + 2-60 cu. yd. containers), 11 tanks (67,000 gal. total) and a liquid injection incinerator.			

GENERAL CONDITIONS

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations and the conditions specified herein or attached hereto.

- The permittee shall file in the office of the appropriate regional permit administrator, or other office designated in the special conditions, a notice of intention to commence work at least 48 hours in advance of the time of commencement and shall also notify him/her promptly in writing of the completion of the work.
- The permitted work shall be subject to inspection by an authorized representative of the Department of Environmental Conservation which may order the work suspended if the public interest so requires pursuant to ECL §71-6301 and SAPA §401(3).
- The permittee has accepted expressly, by the execution of the application, the full legal responsibility for all damages, direct or indirect, of whatever nature, and by whomsoever suffered, arising out of the project described herein and has agreed to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from the said project.
- The Department reserves the right to modify, suspend or revoke this permit at any time after due notice, and, if requested, hold a hearing when:
 - the scope of the project is exceeded or a violation of any condition of the permit or provisions of the ECL and pertinent regulations are found; or
 - the permit was obtained by misrepresentation or failure to disclose relevant facts; or
 - newly discovered information or significant physical changes are discovered since the permit was issued.
- The permittee is responsible for keeping the permit active by submitting a renewal application, including any forms, fees or supplemental information which may be required by the Department, no later than 30 days (180 days for SPDES or Solid or Hazardous Waste Management permits) prior to the expiration date.
- This permit shall not be construed as conveying to the applicant any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work or as authorizing the impairment of any rights, title or interest in real or personal property held or vested in a person not a party to the permit.
- The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way which may be required for this project.
- Issuance of this permit by the Department does not, unless expressly provided for, modify, supersede or rescind an order on consent or determination by the Commissioner issued heretofore by the Department or any of the terms, conditions, or requirements contained in such order or determination.
- Any modification of this permit granted by the Department must be in writing and attached hereto.

PERMIT ISSUANCE DATE

Jun 30 1988

PERMIT ADMINISTRATOR

Mr. Steven Doleski

ADDRESS

600 Delaware Ave., Buffalo, NY 14202

**B. Frequency of Analysis
(for On-site and Off-site Wastes)**

<u>PARAMETER</u>	<u>NEW WASTE</u>	<u>ONE YEAR UPDATE</u>	<u>REPEAT ANALYSIS ON MODIFIED WASTE</u>	<u>VARIABLE WASTE (Each STREAMS Shipment)</u> (RB-32, 33, 25, 30, 23, 24, 36, 39)	<u>EACH OCC OFF-SITE WASTE SHIPMENT</u>	<u>ROUTINE WASTES QUARTERLY **</u>
1. Flash Point	X	X	X	X	X	X
2. Ash	X	X	X	X	X	X
3. Specific Gravity	X	X	X	X	X	X
4. Viscosity	X	X	X	X	X	X
5. pH	X	X	X	X	X	X
6. Solids	X	X	X	X	X	X
7. Boiling Point	X	X	X	X	X	X
8. Freezing Point	X	X	X	X	X	X
9. Heating Value	X	X	X	X	X	X
10. Sulfur	X	X	X	X	X	X
11. Chlorine	X	X	X	X	X	X
12. Fluorine	X	X	X	X	X	X
13. Sodium, Potassium	X	X	X	X	X	X
14. Mercury, Lead	X	X	X	X	X	X
15. Hazardous Constituents	X	X	X	X	X	X
16. C-56	-	-	-	-	-	-
17. Compatibility	As required	-	-	-	-	-
18. Major Organic Components	X	X	X	X	X	X
19. Carbon, Hydrogen, Nitrogen	X	-	-	-	-	-
20. Corrosivity	As required	-	-	-	-	-

Any/all as deemed necessary by management
(depending on modifications made to process)

* Analysis Required when known to be present in the waste
 ** Each batch of RB-05N, 10, 14, 15, 16, 42 analyzed for ash content along with any others which have an ash content greater than 0.05% until a sufficient data base is established

ATTACHMENT F-2

Only the wastes in Section A - Wastes Authorized For Incineration, below, plus other wastes which have been approved in writing by the NYSDEC in accordance with Section B - Supplementary Approval Procedure below, may be burned in the incinerator.

A. WASTES AUTHORIZED FOR INCINERATION

<u>OCC WASTE CODE</u>	<u>DESCRIPTION</u>	<u>EPA HAZARDOUS WASTE NUMBER</u>
<u>Process Wastes</u>		
RB-01	Orthochlorotoluene	D001
RB-05N	Monochlorotoluene Still Residue	-
RB-06	C-23 Residue	D003
RB-07	Benzoyltrichloride Still Bottoms	D003
RB-09	Benzoyl Still Bottoms	D003
RB-10	Dechlorane Plus Residue	D001, F002
RB-11N	Parachlorobenzotrighloride Residue	D001
RB-12	Parachlorobenzotrifluoride Still Residue	D001
RB-14	C-12 Catchall Residue	D003
RB-15	Pentac Mother Liquor	D001
RB-16	API Separator Organic	D001
RB-20	Lab CS2 Solvent	F005
RB-23	Grand Island Burnables	*
RB-25	Niagara Plant Misc. Burnables	*
RB-29(3)	3,5 DCBDC Still Bottoms	D003
RB-29(4)	3,5 DCBDC Catchall Residue	D001, D003
RB-30	Pilot Plant Misc. Burnables	*
RB-31	Works Lab Organic Burnables	D001, D002
RB-32	V-81 Non-reactive Organics	D001, D008, D009
		D003, D008
RB-33	V-81 Reactive Organics	-
RB-35	3,4 DCBTF Still Bottoms	F001
RB-36	Spent Trichloroethane and Oil	D003
RB-37	Mixture of RB-07,09,29(3)	D001
RB-38	Monochlorotoluene Catalyst Mother Liquor	D001
RB-42	Mixture of RB-01,5N,12,35	-
RB-43	Dures Phenolics	-
<u>Remedial Wastes</u>		
RB-40	Hyde Park NAPL	F020, B003 D001
RB-41	Taft NAPL	B003, U210

* - Wastes not listed here must be among those listed below under "Process Wastes" in Section B. - Supplementary Approval Procedure.

B. SUPPLEMENTARY APPROVAL PROCEDURE

All wastes that are candidates for incineration under the Supplementary Approval Procedure must be either non-hazardous wastes or wastes designated by one or more of the following hazardous waste codes:

<u>Process Wastes</u>				<u>Remedial Wastes</u>		
D001	F001	K073	U045	D001	U207	F020
D002	F002	P022	U130	U048	U208	B002
D003	F003	U002	U154	U128	U209	B003
D008	F004	U019	U159	U130	U210	
D009	F005	U031	U239	U131	U228	

All candidate wastes must also meet the limitations of Condition VI.C of this permit.

To apply for authorization to incinerate wastes other than those listed above in Section A - Wastes Authorized for Incineration, the Permittee will submit two copies of the following information to:

Regional Hazardous Substances Engineer
NYSDEC Region 9 Headquarters
600 Delaware Avenue
Buffalo, New York 14202-1073

1. a. Process Wastes: Description of the process generating the waste including (when applicable) a process flow sheet, summary of the process chemistry, and a description of the expected variability of the waste stream.
- b. Remedial Wastes: Identification of the site generating the candidate remedial waste along with a brief description of the collection process.
2. a. Process Wastes: A listing of the raw materials (including contaminants in the raw materials) used in the process generating the waste including a description of the expected reaction by-products and any catalysts used or any other sources of hazardous constituents.
- b. Remedial Wastes: A summary of all wastes known to have been disposed at the site generating the remedial waste.
3. An estimate of the annual quantity of waste to be burned.

4.
 - a. **Process Wastes:** Signed and dated analytical reports which provide the information required for "new wastes" in Table 2.2.8 of the waste analysis plan (page 106 of this permit). For spilled products or non-recoverable commercial products, the analytical information provided will consist of data for "variable waste" analysis along with the applicable Material and Safety Data Sheets.
 - b. **Remedial Wastes:** Signed and dated analytical reports which provide the information required for "new wastes" on page 106 of this permit.
5. Detailed description of the proposed waste feed rate and incinerator operating conditions (including proposed ranges for each parameters) which will be maintained while incinerating the waste;
6. Details of the proposed handling and storage procedures.

The NYSDEC Divisions of Hazardous Substances Regulation and Air Resources will issue a joint written determination to the Permittee to either approve the incineration of the waste as proposed, incinerate the waste with modified conditions, or deny authorization to incinerate the waste with an explanation for the decision to deny the request within 30 days after receipt of the written request. If approved for incineration, the NYSDEC will also specify the future analytical requirements for the waste by designating the waste as either "routine" or "variable" in accordance with the requirements in Table 2.2.8 (Attachment A). If approval to incinerate the proposed waste is denied the Permittee may apply for a modification to this Permit in accordance with the provisions of 6 NYCRR 621.13 and 6 NYCRR 373-1.7.

It is anticipated that the Permittee shall apply to the Department for authorization to incinerate the remedial wastes listed below. These wastes are currently ~~not~~ authorized, but may be if the applicable requirements of the Supplementary Approval Procedure are met.

<u>OCC WASTE CODE</u>	<u>DESCRIPTION</u>	<u>EPA HAZARDOUS WASTE NUMBER</u>
RB-39	Energy Blvd. Org.	F020, B003
RB-44	S-Area NAPL	F020, U207
RB-45	102nd Street NAPL	F020, U207
RB-46	Niagara Plant NAPL	D001, F020 B003
RB-47	Dures Plant NAPL	F020, U048
RB-48	Tacona Plant NAPL	U210
RB-49	Love Canal NAPL	F020

1.0 861-25c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PERMIT NUMBER D-86-0707
PROJECT PROGRAM NUMBER(S) PA ID No. YD000824482



PERMIT

Under the Environmental Conservation Law

EFFECTIVE DATE <i>July 23, 1990</i>
EXPIRATION DATE(S) June 30, 1993

- | | | |
|--|--|--|
| <input type="checkbox"/> Article 15, Title 3: 6NYCRR 327. 328, 329: Aquatic Pesticides | <input type="checkbox"/> 6NYCRR 608: Water Quality Certification | <input type="checkbox"/> Article 25: Tidal Wetlands |
| <input type="checkbox"/> Article 15, Title 5: Protection of Water | <input type="checkbox"/> Article 17, Titles 7, 8: SPDES | <input type="checkbox"/> Article 27, Title 7: 6NYCRR 360: Solid Waste Management* |
| <input type="checkbox"/> Article 15, Title 15: Water Supply | <input type="checkbox"/> Article 19: Air Pollution Control* | <input checked="" type="checkbox"/> M Article 27, Title 9: 6NYCRR 373 Hazardous Waste Management |
| <input type="checkbox"/> Article 15, Title 15: Water Transport | <input type="checkbox"/> Article 23, Title 27: Mined Land Reclamation | <input type="checkbox"/> Article 34: Coastal Erosion Management |
| <input type="checkbox"/> Article 15, Title 15: Long Island Wells | <input type="checkbox"/> Article 24: Freshwater Wetlands | <input type="checkbox"/> Article 36: Floodplain Management |
| <input type="checkbox"/> Article 15, Title 27: Wild, Scenic and Recreational Rivers | N—New, R—Renewal, M—Modification, C—Construct (*only), O—Operate (*only) | <input type="checkbox"/> Articles 1, 3, 17, 19, 27, 37: 6NYCRR 380: Radiation Control |

PERMIT ISSUED TO
Accidental Chemical Corporation

ADDRESS OF PERMITTEE
P.O. Box 344, Niagara Falls, New York 14302

AGENT FOR PERMITTEE/CONTACT PERSON Mr. James Czapla, Superintendent of Environmental Control	TELEPHONE NUMBER (716) 278-7534
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NAME AND ADDRESS OF PROJECT/FACILITY (if different from Permittee)
Buffalo Avenue & 47th Street, Niagara Falls, New York 14302.

LOCATION OF PROJECT/FACILITY 700 Buffalo Avenue	COUNTY Niagara	TOWN/CITY/VILLAGE Niagara Falls	UTM COORDINATES
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DESCRIPTION OF AUTHORIZED ACTIVITY
Operation of a hazardous waste treatment, storage, and disposal facility at a chemical production facility. Operation of 16 container storage areas (equivalent to 9680 55 gallon drum + 3-4,000 gal. trailers + 68-30cu. yd. containers), 10 tanks (78,500 gal. total) and a liquid injection incinerator.

GENERAL CONDITIONS

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations and the conditions specified herein or attached hereto.

The permittee shall file in the office of the appropriate regional permit administrator, or other office designated in the special conditions, a notice of intention to commence work at least 48 hours in advance of the time of commencement and shall also notify him/her promptly in writing of the completion of the work.

The permitted work shall be subject to inspection by an authorized representative of the Department of Environmental Conservation which may order the work suspended if the public interest so requires pursuant to ECL §71-0301 and SARA §401C.

The permittee has accepted expressly, by the execution of the application, the full legal responsibility for all damages, direct or indirect, of whatever nature, and by whomsoever suffered, arising out of the project described herein and has agreed to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from the said project.

The Department reserves the right to modify, suspend or revoke this permit at any time after due notice, and, if requested, hold a hearing when:

- the scope of the project is exceeded or a violation of any condition of the permit or provisions of the ECL and pertinent regulations are found; or
- the permit was obtained by misrepresentation or failure to disclose relevant facts; or
- newly discovered information or significant physical changes are discovered since the permit was issued.

The permittee is responsible for keeping the permit active by submitting a renewal application, including any forms, fees or supplemental information which may be required by the Department, no later than 30 days (180 days for SPDES or Solid or Hazardous Waste Management permits) prior to the expiration date.

This permit shall not be construed as conveying to the applicant any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work or as authorizing the impairment of any rights, title or interest in real or personal property held or vested in a person not a party to the permit.

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way which may be required for this project.

Issuance of this permit by the Department does not, unless expressly provided for, modify, supersede or rescind an order on consent or determination by the Commissioner issued heretofore by the Department or any of the terms, conditions, or requirements contained in such order or determination.

Any modification of this permit granted by the Department must be in writing and attached hereto.

PERMIT ISSUANCE DATE	PERMIT ADMINISTRATOR	ADDRESS
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TABLE M

ANALYSIS FREQUENCY FOR ORGANIC CONSTITUENTS AND METALS

*OC must
characterize
the sludge.*

1. Analyze for all seventeen Appendix 23 metals in initial characterization of the Remedial Waste and the organic hazardous constituents reasonably expected to be present.
2. Repeat analysis for all metals and organic hazardous constituents 1 & 2 years following initial characterization.
3. After each of the above analysis, identify Constituents of Concern based on all analytical data to date. The Constituents of Concern will be classified into two groups to form the basis for the frequency of future analysis.
4. One group of Constituents of Concern will be those constituents present at a concentration equal to or greater than 20% of the constituents concentration calculated by dividing the constituents' MCF in the Permit by a feedrate of 30 lbs./min. This group of constituents must be analyzed in each feed batch.
5. The second group of Constituents of Concern will be those constituents present at a concentration equal to or greater than 10%, but less than 20%, of the concentration calculated from the MCF and a waste feed rate of 30 lbs/min. This group of constituents will be analyzed quarterly.

2.2.4 OCCIDENTAL OFF-SITE AND REMEDIAL WASTE

The Occidental Residue Incinerator Facility incinerates process wastes from OCC facilities in Tacoma, Washington, N. Tonawanda and Grand Island, New York. The facility will also incinerate liquid remedial wastes from remedial programs at Hyde Park landfill; Taft, Louisiana; S-Area; 102nd Street, Niagara Plant; Durez (N. Tonawanda); Tacoma, Washington and other WNY sites. Each shipment of waste will be checked by an inspection procedure that includes sampling, inspection and analysis of parameters.

2.2.4.1 General Screening and Control

- a. Shipment Sampling - will be conducted utilizing the Collwasa sampler or equivalent composite sampling methods approved by the NYSDEC.
- b. Inspection and Analysis - each shipment will be visually checked for color, layering and possible solids content. The sample will be analyzed at a minimum for specific gravity, heating value, ash, chlorine, fluorine (when known to be present in the waste) and major organic components.* These parameters will be compared with the established ranges for the waste designated on the analytical reports submitted to NYSDEC in the Part 373 application. If one or more of these parameters is outside of the established range by more than 25%, OCC will notify the NYSDEC and not incinerate the waste until approval has been received from the NYSDEC.
written
- c. Other Analyses - Off-site wastes will be subject to the same annual update and new waste analysis criteria as wastes generated on-site. Organic Constituents and Metals in Remedial Wastes will be analyzed on a frequency specified by Table M.
- d. Waste Blending - Remedial Waste shipments may be blended with each other, process waste, OCT or fuel oil in one of the waste storage tanks prior to incineration. Prior to blending, each waste shipment added to the blending tank will be inspected and analyzed pursuant to item (b). The contents of the storage tanks will then be circulated for 16 hours.

The blended waste will then be sampled and analyzed at a minimum for specific gravity, viscosity, heating value, ash, chlorine, fluorine when known to be present, and if remedial wastes are present in the blend, the organic constituents and metals in Table M required for analysis each batch. The values will be compared with the established ranges or limits in the modified permit.

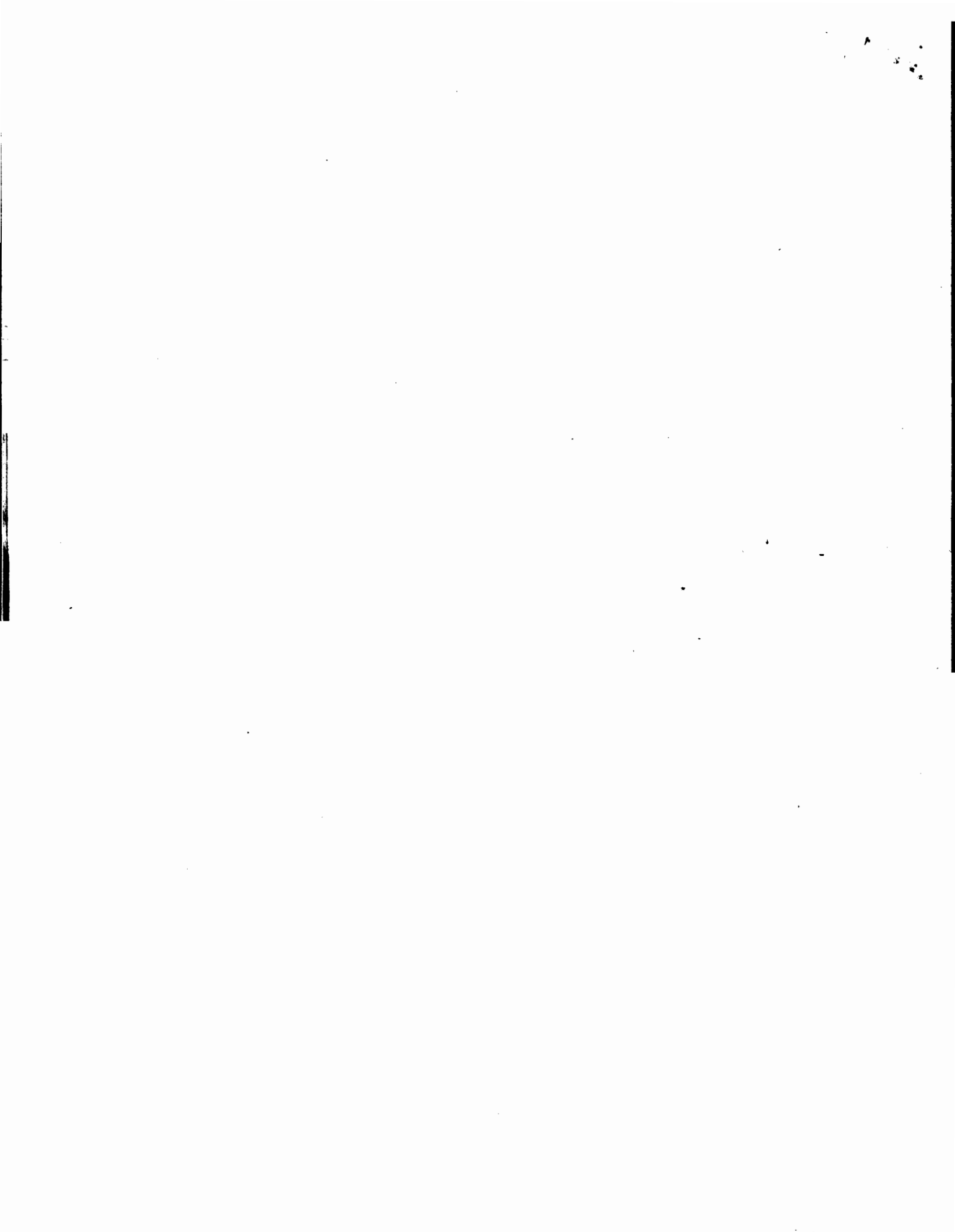
Whenever any additional waste is added to the tank, the tank contents must be recirculated and analyzed.

- The "major organic components" determined for the Hyde Park NAPL are: dichlorotoluene, xylene & ethyl benzene, monochlorotoluene and tetrachlorobenzene. The "major organic components" determined for Taft NAPL are: trichloroethylene, tetrachloroethylene and tetrachloroethane. The major components for Energy Blvd. Organic are: hexachlorocyclopentadiene, hexachlorobutadiene, perchloroethylene and Octochlorocyclopentene. For the remaining remedial wastes, the "major organic components" will be selected after the initial characterization is completed. The basis for selection will be 1) any component that is present in concentrations above 10% or 2) in the case where no component is above 10%, the four components with the highest concentrations.

A:PERMIT.JN1p2.1



ATTACHMENT 'B'



DRAFT ENVIRONMENTAL IMPACT STATEMENT

**Occidental Chemical Corporation (OCC)
Existing Liquid Waste Incinerator
Permit and Permit Modifications
for OCC Liquid Remedial Waste**

**Niagara Falls Plant
Buffalo Avenue & 47th Street, Box 344
Niagara Falls, Niagara County, New York, 14302
Attention: James Czapla (716-278-7534)**

Prepared by:

**Occidental Chemical Corporation
Midwest Research Institute, Kansas City, MO 64110
IT Corporation, Edison, NJ 08818
Great Lakes Laboratory, State University College at Buffalo
Buffalo, NY 14222**

Submitted to:

**New York State Department of
Environmental Conservation (NYSDEC)**

Department Contacts:

**Mr. James W. Dolen, Jr.
NYSDEC - Division of Hazardous Substances Regulation
50 Wolf Road
Albany, New York 12233-7251
(518-457-7269)**

**Mr. Steven Doleski
NYSDEC - Region 9, Division of Regulatory Affairs
600 Delaware Avenue
Buffalo, New York 14202-1073
(716-847-4551)**

DEIS Acceptance Date: February 14, 1990

DEIS Comment Due Date: April 13, 1990



2.4.1.3.5 Love Canal NAPL and 102nd Street NAPL: Love Canal NAPL and 102nd Street NAPL to be incinerated during modified permit operations will be transported, under escort by an emergency response van, from either the Love Canal or 102nd Street site to the Niagara plant. It is estimated that there will be one shipment per month from each site. Upon arrival at the Niagara plant, the waste will be transferred to an authorized storage tank as described in Section 2.4.1.4.

Transport of the Love Canal NAPL and the 102nd Street NAPL will occur entirely within the State of New York and Niagara Falls metropolitan area. The following primary route will be used between Love Canal/102nd Street and the OCC Niagara Falls plant:

East on Colvin Boulevard to 102nd Street
South on 102nd Street to Buffalo Avenue
West on Buffalo Avenue to 53rd Street
North on 53rd Street to plant entrance and truck scale
South on 53rd Street to Buffalo Avenue
West on Buffalo Avenue to Iroquois Street
South on Iroquois Street to Adams Avenue plant entrance

Figure 2-5 illustrates the selected truck route between the Love Canal/102nd Street site and the Niagara Falls plant.

The length of the selected route is 4.9 miles. The entire length is on urban arterial streets. The entire route is located in a high population density area (greater than 1,000 persons per square mile).

2.4.1.3.6 Durez NAPL: NAPL waste from the Durez plant remedial program will be transported, under escort by an emergency response van, from the Durez facility to the Niagara plant. It is estimated that there will be one shipment per month from this site. Upon arrival at the Niagara plant, the waste will be transferred to an authorized storage tank prior to incineration.

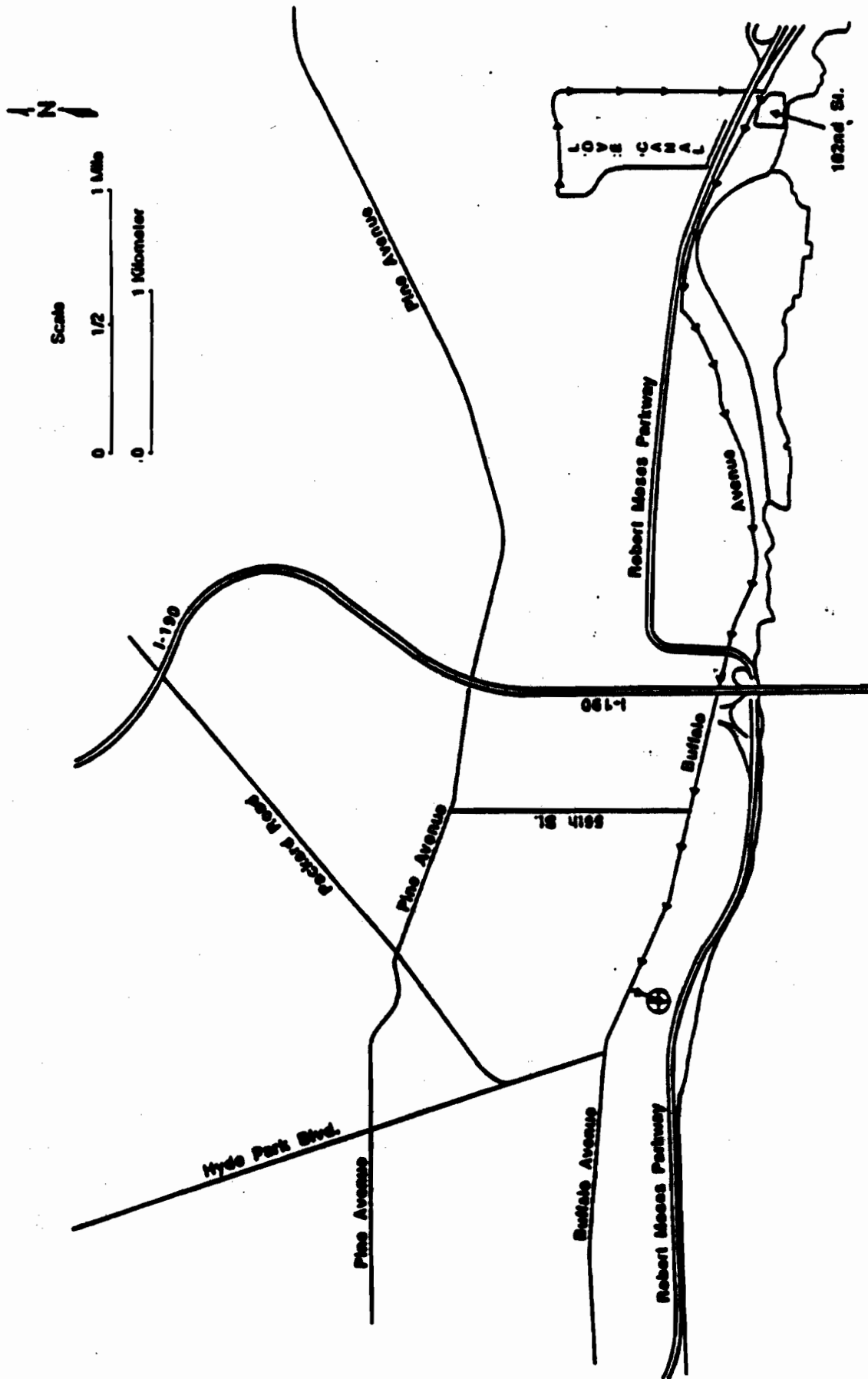


Figure 2-5 - Truck Route From Love Canal to Incinerator Site

Transport of the Durez plant NAPL will occur entirely within the State of New York and Buffalo/Niagara Falls metropolitan area. The following primary route will be used between the Durez site and the OCC Niagara Falls plant:

East on Walck Road to Erie Avenue
Northeast on Erie Avenue to Niagara Falls Boulevard
Northwest-west on Niagara Falls Boulevard to 56th Street
South on 56th Street to Buffalo Avenue
West on Buffalo Avenue to 53rd Street
North on 53rd Street to plant entrance and truck scale
South on 53rd Street to Buffalo Avenue
West on Buffalo Avenue to Iroquois Street
South on Iroquois Street to Adams Avenue plant entrance

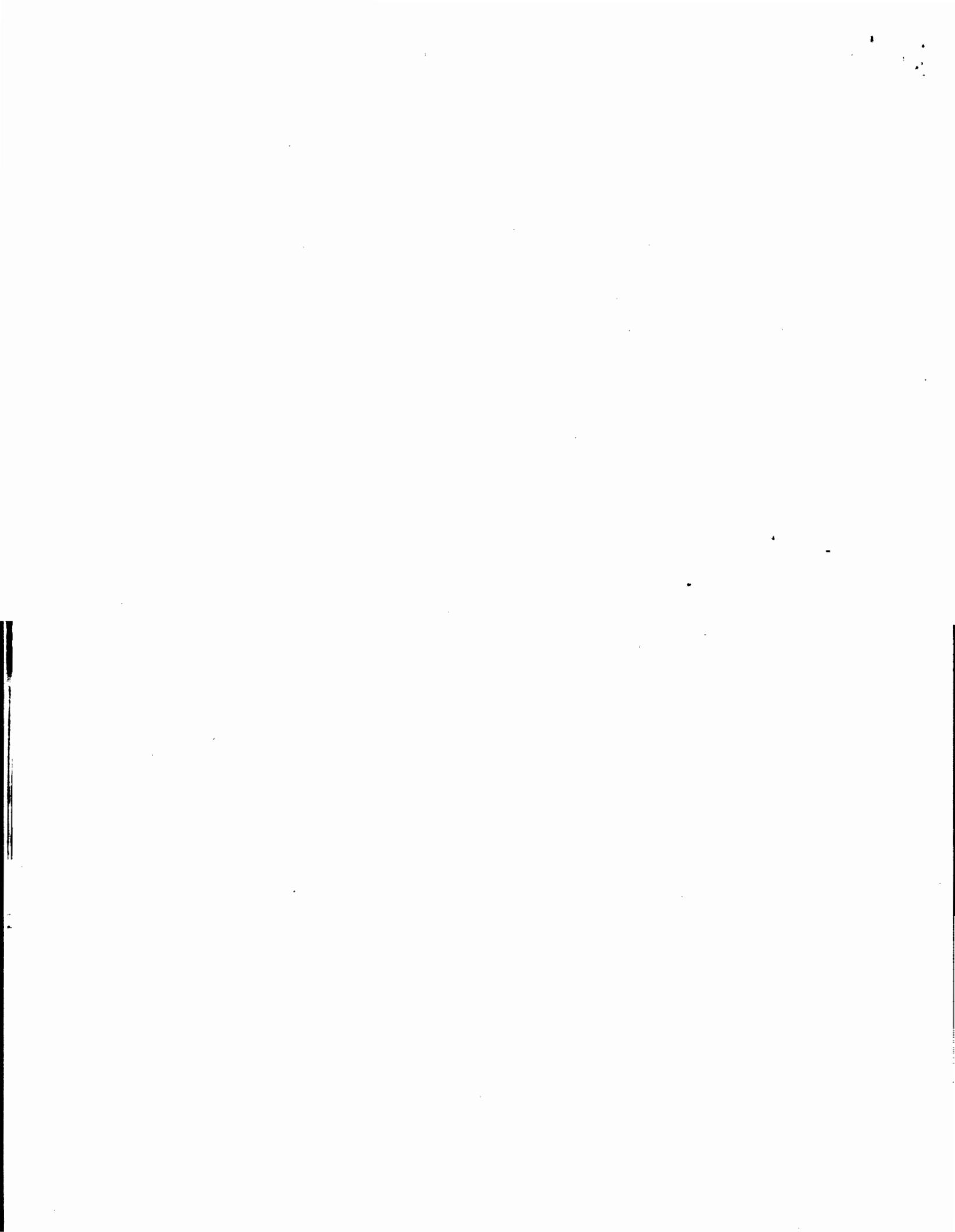
Figure 2-6 illustrates the selected truck route between the Durez plant site and the Niagara Falls plant.

The length of the selected route is 4.9-miles. The entire length is on urban arterial streets. The entire route is located in a high population density area (greater than 1,000 persons per square mile).

2.4.1.3.7 Manifesting waste shipments: Remedial Waste from each site will be analyzed and characterized, as described in Section 2.4.1.2, prior to the initial shipment to the incinerator. All Remedial Waste shipments from sites outside the Niagara plant will be manifested pursuant to RCRA/HSWA regulations. All shipments to the incinerator which originate from within the Niagara plant (i.e., S-Area, Energy Boulevard, Corrective Action) will be manifested pursuant to OCC standard operating procedures.



HEALTH & SAFETY



Basis of Health and Safety Plan Development

The Occupational Safety and Health Administration (OSHA) standards and regulations contained in Title 29 Code of Federal Regulations, Parts 1910 and 1926 (29CFR 1910 and 1926) and subsequent additions and/or modifications, the New York State Right-to-Know law (New York State Public Health Law Section 4802 et seq. and the New York State Labor Law Section 875 et seq.) and the standard Operating Safety Guides, Office of Emergency and Remedial Response, Hazardous Response Support Division, U.S. Environmental Protection Agency, Washington, DC, November 1984, provide the basis for this Safety and Health Plan. Additional specifications in this Health and Safety plan are in addition to OSHA regulations and reflect the positions of both the USEPA and the National Institute for Occupational Safety and Health (NIOSH) regarding procedures required to ensure safe operations at hazardous waste sites.

General Statement

This Health and Safety plan sets forth the basic requirements which must be observed during all work associated with the mixing of Love Canal Sludge. This plan provides for the containment of contaminants that may have health and environment implications for the workers constructing the Administration Building and for the surrounding community. This plan also provides for the personal safety of all personnel concerned with this project.

The safety and health of the public and on site personnel and the protection of the environment shall take precedence over schedule and any other considerations. The Site Safety Officer shall make final decisions regarding when work will be stopped for health and safety reasons.

Section 1

INTRODUCTION

This Health and Safety Plan concerns the mixing of Love Canal liquid organic waste (sludge) currently stored in Tank #3 which is located adjacent to the Love Canal Leachate Treatment Facility.

The liquid organic waste needs to be mixed so that sampling of Tank #3 may proceed. These samples of the liquid organic waste will be sent to Versar Labs so that tests may be performed in order to establish the homogeneity of solids present in the waste. If the solids are deemed homogeneous in the waste by the appropriate regulatory bodies then Versar Labs can proceed to test for dioxins, furans and inorganics.

A sand-piper SB 1 $\frac{1}{2}$ - A air-powered double diaphragm pump is placed on top of Tank #3 and bolted to the grating. The air supply to the pump is 80 psig. The suction and discharge pipes are flanged 3-inch 316 stainless steel. The suction pipe inlet is 12 inches off the bottom of the tank on the south side and goes directly up through a 4-inch port on the top of the tank into the pump.

The discharge piping has a pressure gauge followed by a gate valve to regulate flow, the piping goes to a sparger, the sparger goes directly through a 4-inch port on top of the tank directly down to the bottom of the tank. This port is on the north side of the tank. The sparger consists of 10 $\frac{1}{2}$ -inch diameter holes placed on the bottom 64 inches of the pipe. These holes are staggered between a center line and 24 degrees on either side of the center line of the pipe (refer to Diagram on page ____).

Section 2

PROJECT SEQUENCE

1. Start tank mixing;
2. Using sampling equipment (pulley system, etc.), take first sample after 24 hours;
3. Take second sample after 48 hours;
4. Mixing is stopped after second sample is taken.

The pump will be checked once every $\frac{1}{2}$ hour for the first 8 hours and once every hour for the remainder of the project. The pressure gauge will also be checked on an hourly basis. From the pressure gauge, it will be possible to estimate a flow rate based on a pressure vs. flow rate curve. Our aim is to achieve a flow rate of 70 gallons per minute. The air pressure will be checked on an hourly basis. The five numbers to be recorded on an hourly basis are: 1) the net positive suction head; 2) the flow rate; 3) the air-line pressure; 4) the pump pressure; and 5) the outside air temperature.

Section 3

Hazard Assessment

The liquid organic waste to be mixed in this process contains TCDD 2,3,7,8-tetrachlorodibenzodioxin. $C_{12}H_4O_2Cl_4$; mol wt. 321.96 C 44.77%. H 1.25% Cl 44.04%, O 9.94%. (Highly toxic and teratogenic contaminant of 2,4,5 trichlorophenol and 2,4,5 T can be formed during the manufacture of trichlorophenol. Preparation by chlorination of dibenzo-p-dioxin)

Drawing of a molecule of 2,3,7,8 Tetrachlorodibenzodioxin.

Needles, mp 295°(tonita); crystals from anisole, mp320-325 (Sanderman). LD50 orally in male, female rats (mg/kg) 0.022, 0.045, BA Schwetz et al in Chlorodioxin origin and fate.

TCDD is an extremely potent, low molecular weight toxin. Toxic effects in animals include anorexia, severe weight loss, hepatotoxicity, vascular lesions, chloracne, gastric ulcers, teratogenicity and delayed death. Industrial workers exposed to TCDD have developed chloracn, porphyrinuria and porphyria cutanea tarda THR=HIGH via oral, dermal and ip routes. It causes death in rats by hepatic cell necrosis. Death can follow a lethal dose by weeks. Acute and subacute exposure hepatic necrosis, thymic atrophy, hemorrhage, lymphoid depletion, chloracne. (Dangerous properties of industrial materials, 5th Edition.)

Section 4

Definitions

The following definitions apply to the mixing of the sludge at Love Canal:

Love Canal Site - The Love Canal site shall be defined as that area contained within the chain-link fence encompassing the Love Canal landfill.

Site Safety Officer - This is the person primarily responsible for the implementation and enforcement of the Health and Safety Plan. Work will not proceed unless a safety officer is designated for the work site.

Department - This refers to the New York State Department of Environmental Conservation (NYSDEC).

On-Site Personnel - This refers to engineers and technicians employed by the NYSDEC together with construction workers involved in the construction of the New Administration building.

Lethal Dose Fifty (LD₅₀) - A calculated dose of a substance which is expected to cause the death of 50 percent of an entire defined experimental animal population. It is determined from the exposure to the substance by any route other than inhalation.

Section 5

Work Zones

The Love Canal site is enclosed by a ten foot high security fence, therefore during mixing there is minimal possibility of a member of the public unknowingly gaining access on site during mixing. Ingress to and egress from the site can only take place through the main gate which will be locked or guarded.

One method of preventing or reducing the migration of contaminants is to delineate zones on the site in which prescribed operations occur. Movement of personnel and equipment between zones and onto the site itself would be limited by access control points. Access will be through the plant rear exit only. The Hazard zone will be marked entirely around the tank area. This will designate the zone for administration building construction workers.

Section 5

Work Zones Continued

Zone 1: Exclusion Zone.

Zone 2: Contamination Reduction Zone.

Zone 3: Support Zone.

Zone 1: Exclusion Zone

The Exclusion Zone, the innermost of these areas, is the zone where contamination could occur. All people entering the Exclusion Zone must wear prescribed levels of protection. An entry and exit checkpoint must be established at the periphery of the Exclusion Zone to regulate the flow of personnel and equipment into and out of the zone and to verify that the procedures established to enter and exit are followed. The outer boundary of Zone 1, the Hotline, is initially established by visually surveying the immediate environs of the outside storage tanks and pad (ramp), cognizant of the fact that the hazardous substances involved are located in the storage tanks and that the drain on the pad is the only location where drainage from the pad can take place.

Additional factors that should be considered include the distances needed to prevent fire or an explosion from affecting personnel outside the zone, the physical area necessary to conduct sludge mixing, and the potential for contaminants to be blown from the area. Once the hotline has been determined, it should be well-defined by landmarks. The boundary may be modified and adjusted as circumstances allow. This zone will be marked with Banner Guard.

Subareas within its exclusion zone

All personnel within the Exclusion Zone must wear the required Level of Protection. Personnel protective equipment is designated based on site-specific conditions including the type of work to be done and the hazards that might be encountered. Frequently within the Exclusion Zone, different levels of protection are justified (as is the case here). Subareas are to be specified as to whether Level A, B, or C protection is required (Figure 3). The level of protection is determined by the measured concentration of substances in air, potential for contamination, and the known or suspected presence of highly toxic substances.

Level C will be used at the tank opening for long term work. Level C will also be used at the tank opening for short term visual observations, as well as in the remainder of the zone. The assignment, when appropriate, of different Levels of Protection based on existing conditions within the Exclusion Zone generally makes for a more flexible, effective, and less costly operation while still maintaining a high degree of safety.

Zone 3: Support Zone

The Support Zone, the outermost part of the site, is considered a non-contaminated or clean area. Support equipment is located in the storage area of the leachate Treatment Facility which is located in the zone. Since normal work clothes are appropriate within this zone, potentially contaminated personnel clothing, equipment and samples are not permitted, but are left in the Contamination Reduction Zone which will be the pad area prior to the sidewalk leading to the plant decon pad. Our command post in the Support Zone will be the Leachate Treatment Facility.

Zone 2: Contamination Reduction Zone

Between the Exclusion Zone and the Support Zone is the Contamination Reduction Zone which provides a transition between contaminated and clean zones. Zone 2 serves as a buffer to further reduce the probability of the clean zone becoming contaminated or being affected by other existing hazards. It provides additional assurance that the physical transfer of contaminating substances on people, equipment, or in the air is limited through a combination of decontamination, distance between Exclusion and Support Zones, air dilution, zone restrictions, and work functions. Initially, the Contamination Reduction Zone is considered to be a non-contaminated area. At the boundary between the Exclusion and the Contamination Reduction Zones, Decontamination Stations (chiefly drums in this case) are established. Exit from the Exclusion Zone is through a Contamination Reduction Corridor. As operations proceed, the area around the decontamination station may become contaminated, but to a much lesser degree than the Exclusion Zone. On a relative basis, the amount of contaminants should decrease from the Hotline to the Support Zone due to the distance involved and the decontamination procedures used.

The boundary between the Support Zone and the Contamination Reduction Zone, the Contamination Control Line, separates the possibly low contamination area from the clean Support Zone. Access to the Contamination Reduction Zone from the Support Zone is through a Control Point. Personnel entering there would wear the prescribed personnel protective equipment, if required, for working in the Contamination Reduction Zone. Entering the Support Zone requires removal of any protective equipment worn in the Contamination Reduction Zone.

B. Other Considerations

1. Modifications and Area Description

The use of a three-zone system, access control points, and exacting decontamination procedures provides a reasonable assurance against the translocation of contaminating substances. This site control system is based on a worst case situation. Less stringent site control and decontamination procedures may be utilized if the field situation allows.

Technical data concerning air monitoring on the characteristics and behavior of contaminants (Dioxin) is widely available; therefore, alterations in the exclusion zone may be possible due to field conditions.

2. Area Dimensions

The distance between the Hotline, Contamination Control Line, and command post and the size and shape of each zone have to be based on conditions specific to each site. Considerable judgement is needed to assure that the distances between zone boundaries are large enough to allow room for the necessary operations, provide adequate distances to prevent the spread of contaminants, and eliminate the possibility of injury due to explosion or fire. Long term operations would involve developing reasonable methods (for example, our surveillance, swipe testing, and visible deterioration) to determine if material is being transferred between zones and assisting in modifying site boundaries.

The following criteria should be considered in establishing area dimensions and boundaries:

- Physical and topographic features of the site.
- Weather conditions.
- Field/laboratory measurements of air contaminants and environmental samples.
- Air dispersion calculations.
- Potential for explosion and flying debris.
- Physical, chemical, toxicological, and other characteristics of the substances present.
- Cleanup activities required.
- Potential for fire.
- Area needed to conduct operations.
- Decontamination procedures.
- Potential for exposure.
- Proximity to residential or industrial areas.

Section 6

Responsibilities of Safety Officer

A. APPROVALS

Gerald Rider
(SIGNATURE)
On-Scene-Coordinator (OSC)
(Gerald J. Rider, Jr.)

Gerald Rider
(SIGNATURE)
DATE Safety Officer
(Gerald J. Rider, Jr.) DATE

Nick Kolak 2/9/87
(SIGNATURE)
(Technical Advisor) Nick Kolak DATE

John Willson
(SIGNATURE)
(Bureau Chief) John Willson DATE

B. Summary of Minimum Requirements

A. The safety officer/designee shall:

1. Describe chemicals, hazards, and risk involved
2. List key personnel
 - a. Response manager (OSC)/alternate _____ (Brian Sadowski)
 - b. Safety officer(s)/alternate _____ (Brian Sadowski)
 - c. Other responsible site personnel/alternate _____ (Brian Sadowski)
3. Prescribe Levels of Protection
4. Designate work zones: Support area, contamination reduction area, exclusion area.
5. Implement procedures to control site access.
6. Define decontamination procedures.
7. Delineate entry and escape routes.
8. Identify/contact medical facility, etc.:
 - a. Fire 911 (297-1111)
 - b. Ambulance 911 (297-1111)
 - c. Police 911 (278-8060)
 - d. Health 284-3124
 - e. Etc. _____

9. List responsible parties and emergency contacts:

a. Federal Government USEPA/USCG/CDC/OSHA

b. State Government NYSDEC/NYSDOH

10. Establish personnel air monitoring.

11. Specify routine and special training needed

12. Establish procedures for managing weather-related problems.

Section 7

Monitoring Procedures

Establish Personnel Air Monitoring

Phil Waite or Loren Greene will have an HNU or a Photo Vac Tip. He will sample in the support zone, upwind, downwind of the exclusion zone or hot zone and in the support zone. Preliminary sampling will be made in the hot zone. If the number of zones is changed, there will be adjustments in the number of samples taken. Sampling should also be done in the vicinity of the construction of the Administration Building. Particular care should be taken to ensure that the construction workers present are not in any way in danger of chemical exposure or contamination by any incident or wind direction change occurring during filtration. If the wind is coming from the south-east and monitoring indicates contamination outside the exclusion zone work on the Administration Building will stop for a minimum of one day.

Section 7

Monitoring Procedures

CHARACTERISTICS OF THE HNU PHOTOIONIZER

Air Monitoring

I. INTRODUCTION

The HNU Photoionizer is used in the field to detect a variety of compounds in air. This instrument can be used to detect leaks of volatile substances in drums and tanks, determine the presence of volatile compounds in soil and water, make ambient air surveys, and collect continuous air monitoring data. After personnel are thoroughly trained to operate the instrument and to interpret the data, this instrument can be a valuable tool for helping to decide the levels of protection to be worn, assist in determining other safety procedures, and determine subsequent monitoring or sampling locations.

II. HNU

The HNU portable photoionizer detects the concentration of organic gases as well as a few inorganic gases. The basis for detection is the ionization of gaseous species. The incoming gas molecules are subjected to ultraviolet (UV) radiation, which is energetic enough to ionize many gaseous compounds. Each molecule is transformed into charged ion pairs, creating a current between two electrodes. Every molecule has a characteristic ionization potential (I.P.), which is the energy required to remove an electron from the molecule, yielding a positively charged ion and the free electron.

Three probes, each containing a different UV light source, are available for use with the HNU. Energies are 9.5, 10.2, and 11.7 electron volts (eV). All three detect many aromatic and large-molecule hydrocarbons. The 10.2 eV and 11.7 eV probes, in addition, detect some smaller organic molecules and some halogenated hydrocarbons. The 10.2 eV probe is the most useful for environmental response work, as it is more durable than the 11.7 eV probe and detects more compounds than the 9.5 eV probe.

The primary HNU calibration gas is benzene. The span potentiometer knob is turned to 9.8 for benzene calibration. A knob setting of zero increases the sensitivity to benzene approximately tenfold. The instrument's response can be adjusted to give more accurate readings for specific gases and eliminate the necessity for calibration charts.

While the primary use of the HNU is as a quantitative instrument, it can also be used to detect certain contaminants, or at least to narrow the range of possibilities. Noting instrument response to a contaminant source with different probes can eliminate some contaminants from consideration. For instance, a compound's ionization potential may be such that the 9.5 eV probe produces no response, but the 10.2 eV and 11.7 eV probes do elicit a response. The HNU does not detect methane.

The HNU is easy to use. Its lower detection limit is in the low ppm range. The response time is rapid; the meter needle reaches 90% of the indicated concentration in 3 seconds.

III. GENERAL CONSIDERATIONS

This instrument can monitor only certain vapors and gases in air. Many non-volatile liquids, toxic solids, particulates, and other toxic gases and vapors cannot be detected. Because the types of compounds that the HNU can potentially detect are only a fraction of the chemicals possibly present at an incident, a zero reading on the instrument does not necessarily signify the absence of air contaminants.

The instrument is generally not specific, and its response to different compounds is relative to the calibration gas. Instrument readings may be higher or lower than the true concentration. This can be an especially serious problem when monitoring for total contaminant concentrations if several different compounds are being detected at once. In addition, the response of this instrument is not linear over the entire detection range. Care must therefore be taken when interpreting the data.

Since the HNU is a small, portable instrument, it cannot be expected to yield results as accurate as laboratory instruments. It was originally designed for specific industrial applications. It is relatively easy to use and interpret when detecting total concentrations of known contaminants in air, but interpretation becomes more difficult when trying to identify the components of a mixture. This instrument can be used as an indicator for combustible gases or oxygen deficiency.

The HNU is certified by Factory Mutual for use in Class 1, Division 2, Groups A,B,C, and D.

Section 8

DECONTAMINATION AND DISPOSAL

I. INTRODUCTION

Personnel responding to hazardous substance incidents may become contaminated in a number of ways including:

- Contacting vapors, gases, mists, or particulates in the air.
- Being splashed by materials while sampling or opening containers.
- Walking through puddles of liquids or on contaminated soil.
- Using contaminated instruments or equipment.

Protective clothing and respirators help prevent the wearer from becoming contaminated or inhaling contaminants while good work practices help reduce contamination on protective clothing, instruments, and equipment.

Even with these safeguards, contamination may occur. Harmful materials can be transferred into clean areas, exposing unprotected personnel. In removing contaminated clothing, personnel may contact contaminants on the clothing or inhale them. To prevent such occurrences, methods to reduce contamination, and decontamination procedures must be developed and established before anyone enters a site and must continue (modified when necessary) throughout site operations.

Decontamination consists of physically removing contaminants or changing their chemical nature to innocuous substances. How extensive decontamination must be depends on a number of factors, the most important being the type of contaminants involved. The more harmful the contaminant, the more extensive and thorough decontamination must be. Less harmful contaminants may require less decontamination.

Combining decontamination, the correct method of doffing personnel protective equipment, and the use of site work zones minimizes cross-contamination from protective clothing to wearer, equipment to personnel, and one area to another. Only general guidance can be given on methods and techniques for decontamination. The exact procedure to use must be determined after evaluating a number of factors specific to the type of operation contemplated.

II. DECONTAMINATION DURING MEDICAL EMERGENCIES

A. Basic Considerations

Part of overall planning for incident response is managing medical emergencies. The plan should provide for:

- Response team members fully trained in first aid and CPR.

- Arrangements with the nearest medical facility for transportation and treatment of injured, and for treatment of personnel suffering from exposure to chemicals.
- Consultation services with a toxicologist.
- Emergency eye washes, showers, and/or wash stations.
- First aid kits, blankets, stretcher, and resuscitator.

In addition, the plan should establish methods for decontaminating personnel with medical problems and injuries. There is the possibility that the decontamination may aggravate or cause more serious health effects. If prompt life-saving first aid and medical treatment is required, decontamination procedures should be omitted. Whenever possible, response personnel should accompany contaminated victims to the medical facility to advise on matters involving decontamination.

B. Physical Injury

Physical injuries can range from a sprained ankle to a compound fracture, from a minor cut to massive bleeding. Depending on the seriousness of the injury, treatment may be given at the site by trained response personnel. For more serious injuries, additional assistance may be required at the site or the victim may have to be treated at a medical facility.

Life-saving care should be instituted immediately without considering decontamination. The outside garments can be removed (depending on the weather) if they do not cause delays, interfere with treatment, or aggravate the problem. Respirators and backpack assemblies must always be removed. Fully encapsulating suits or chemical-resistant clothing can be cut away. If the outer contaminated garments cannot be safely removed, the individual should be wrapped in plastic, rubber, or blankets to help prevent contaminating the inside of ambulances and medical personnel. Outside garments are then removed at the medical facility. No attempt should be made to wash or rinse the victim at the site. One exception would be if it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life. For minor medical problems or injuries, the normal decontamination procedure should be followed.

C. Chemical Exposure

Exposure to chemicals can be divided into two categories:

- Injuries from direct contact, such as acid burns or inhalation of toxic chemicals.
- Potential injury due to gross contamination on clothing or equipment.

For inhaled contaminants treatment can only be by qualified physicians. If the contaminant is on the skin or in the eyes, immediate measures

must be taken to counteract the substance's effect. First aid treatment usually is flooding the affected area with water; however, for few chemicals, water may cause more severe problems.

When protective clothing is grossly contaminated, contaminants may be transferred to treatment personnel or the wearer and cause injury. Unless severe medical problems have occurred simultaneously with splashes, the protective clothing should be washed off as rapidly as possible and carefully removed.

III. PROTECTION FOR DECONTAMINATION WORKERS

The Level of Protection worn by decontamination workers is determined

- Expected or visible contamination on workers.
- Type of contaminant and associated respiratory and skin hazards.
- Total vapor/gas concentrations in the contamination reduction corridor.
- Particulates and specific inorganic or organic vapors in the CRC.
- Results of swipe tests.

A. Level C Use

Level C includes a full-face, canister-type air-purifying respirator, hard hat with face shield (if splash is a problem), chemical-resistant boots and gloves, and protective clothing. The body covering recommended is chemical-resistant overalls with an apron, or chemical-resistant overalls and jacket.

A face shield is recommended to protect against splashes because respirators alone may not provide this protection. The respirator should have a canister approved for filtering any specific known contaminants such as ammonia, organic vapors, acid gases, and particulates.

B. Level B Use

In situations where site workers may be contaminated with unknowns, highly volatile liquids, or highly toxic materials, decontamination workers should wear Level B protection. Level B protection includes SCBA, hard hat with face shield, chemical-resistant gloves, and protective covering. The clothing suggested is chemical-resistant overalls, jacket, and a rubber apron. The rubber apron protects the SCBA harness assembly and regulator from becoming contaminated.

IV. DECONTAMINATION OF EQUIPMENT

Insofar as possible, measures should be taken to prevent contamination of sampling and monitoring equipment. Sampling devices become contaminated, but monitoring instruments, unless they are splashed, usually do not. Once contaminated, instruments are difficult to clean without damaging them.

Any delicate instrument which cannot be easily decontaminated should be protected while it is being used. It should be placed in a clear plastic bag, and the bag taped and secured around the instrument. Openings are made in the bag for sample intake.

A. Decontamination Procedures

Section 8 - Decontamination and Disposal

Section IV - Decontamination of Equipment

A Decontamination Procedures (The Pump and the Sampling Device)

The sand-piper pump, piping and sparger will remain in place through the trial burn period. Unless the flange joints leak there will not be a need to decon the pump.

The sampling device will be decontaminated using methyl ethyl ketone (MEK) with a minimum of four rinses. The ball valve on the sampling device will be soaked in MEK for a minimum of two minutes. To decontaminate the copper pipe on the sampling device, a test tube brush will be pushed through the entire inside length of the copper pipe. This brush will be attached to a rod and as MEK is being slowly poured down one end of the copper tubing, the brush will be pushed up the entire length of the sampling device and back down twice. The brush will also be turned as it is moved up and down the sampling device. The test tube brush head should be composed of copper bristle or animal hair and the diameter of the head from the end of bristle to another should be one-half inch.

Tools

Wooden tools are difficult to decontaminate because they absorb chemicals. They should be kept on site and handled only by protected workers. At the end of the exercise, wooden tools should be discarded. For decontaminating other tools, MEK will be used.

Respirators

Certain parts of contaminated respirators, such as the harness assembly and leather or cloth components, are difficult to decontaminate. If grossly contaminated, they will be discarded. Rubber components can be soaked in soap and water and scrubbed with a brush. Regulators must be maintained according to manufacturer's recommendations. Persons responsible for decontaminating respirators should be thoroughly trained in respirator maintenance.

B. Sanitizing of Personnel Protective Equipment

Respirators, reusable protective clothing, and other personal articles not only must be decontaminated before being reused, but also sanitized. The inside of masks and clothing becomes soiled due to exhalation, body oils, and perspiration. The manufacturer's instructions should be used to sanitize the respirator mask. If practical, protective clothing should be machine washed after a thorough decontamination; otherwise it must be cleaned by hand.

C. Persistent Contamination

In some instances, clothing and equipment will become contaminated with substances that cannot be removed by normal decontamination procedures. A solvent may be used to remove such contamination from equipment if it does not destroy or degrade the protective material. If persistent contamination is expected, disposable garments should be used. Testing for persistent contamination of protective clothing and appropriate decontamination must be done by qualified laboratory personnel.

D. Disposal of Contaminated Materials

All materials and equipment used for decontamination must be disposed of properly. Clothing, tools, buckets, brushes, and all other equipment that is contaminated must be secured in drums or other containers and labeled. Clothing not completely decontaminated on-site should be secured in plastic bags before being removed from the site.

Contaminated wash and rinse solutions should be contained by using step-in-containers (for example, child's wading pool) to hold spent solutions. Another containment method is to dig a trench about 4 inches deep and line it with plastic. In both cases the spent solutions are transferred to drums, which are labeled and disposed of with other substances on site.

LEVEL C DECONTAMINATION

VI

A. EQUIPMENT WORN

The full decontamination procedure outlined is for workers wearing Level C protection (with taped joints between gloves, boots, and suit) consisting of:

- One-piece, hooded, chemical-resistant splash suit
- Canister equipped, full-face mask
- Hard hat
- Chemical-resistant, steel toe and shank boots
- Boot covers
- Inner and outer gloves

B. PROCEDURE FOR FULL DECONTAMINATION

Station 1: Segregated Equipment Drop

Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination.

Equipment: various size containers
plastic liners
plastic drop cloths

Station 2: Suit/Safety Boot Wash

Thoroughly wash splash suit and safety boots. Scrub with long-handle, soft-bristle scrub brush and copious amounts of decon solution or detergent/water. Repeat as many times as necessary.

Equipment: container (30-50 gallons)
decon solution
or
detergent/water
2-3 long-handle, soft-bristle scrub brushes

Station 3: Suit/Safety Boot Rinse

Station 4: Safety Boot Removal

Remove safety boots and deposit in container with plastic liner.

Equipment: container (30-50 gallons)
plastic liners
bench or stool
boot jack

Station 5: Splash Suit Removal

With assistance of helper, remove splash suit. Deposit in container with plastic liner.

Equipment: container (30-50 gallons)
bench or stool
plastic liner

Station 6: Facepiece Removal

Remove facepiece. Avoid touching face with gloves. Deposit facepiece in container with plastic liner.

Equipment: container (30-50 gallons)
plastic liners

Station 7:

Remove inner gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
plastic liners

Station 8: Inner Clothing Removal

Remove clothing soaked with perspiration. Place in container with plastic liner. Do not wear inner clothing off-site since there is a possibility small amounts of contaminants might have been transferred in removing fully encapsulating suit.

Equipment: container (30-50 gallons)
plastic liners

Station 9: Field Wash

Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present.

Equipment: water
soap
tables
wash basins/buckets
field showers

Station 10: Redress

Put on clean cloths. This will be done in the treatment facility.

Equipment: tables
 chairs
 lockers
 clothes

LEVEL B DECONTAMINATION

V

A. EQUIPMENT WORN

The full decontamination procedure outlined is for workers wearing Level B protection (with taped joints between gloves, boot, and suit) consisting of:

- One-piece, hooded, chemical-resistant splash suit.
- Self-contained breathing apparatus.
- Hard hat.
- Chemical-resistant, steel toe and shank boots.
- Boot covers
- Inner and outer gloves.

B. PROCEDURE FOR FULL DECONTAMINATION

Station 1: Segregated Equipment Drop

Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination.

Equipment: various size containers
plastic liners
plastic drop cloths

Station 2: Suit/Safety Boot Wash

Thoroughly wash chemical-resistant splash suit, SCBA, gloves, and safety boots. Scrub with long-handle, soft-bristle scrub brush and copious amounts of decon solution or detergent/water. Wrap SCBA regulator (if belt-mounted type) with plastic to keep out water. Wash backpack assembly with sponges or cloths.

Equipment: container (30-50 gallons)
decon solution
or
detergent/water
2-3 long-handle, soft-bristle scrub brushes
small buckets
sponges or cloths

Station 3: Suit/SCBA/Boot/Glove Rinse

Rinse off decon solution or detergent/water using copious amounts of water. Repeat as many times as necessary.

Equipment: container (30-50 gallons)
 or
 high-pressure spray unit
 water
 small buckets
 2-3 long-handle, soft-bristle scrub brushes
 sponges or cloths

Station 4: Safety Boot Removal

Remove safety boots and deposit in container with plastic liner.

Equipment: container (30-50 gallons)
 plastic liners
 bench or stool
 boot jack

Station 5: SCBA Backpack Removal

While still wearing facepiece, remove backpack and place on table. Disconnect hose from regulator valve and proceed to next station.

Equipment: table

Station 6: Splash Suit Removal

With assistance of helper, remove splash suit. Deposit in container with plastic liner.

Equipment: container (30-50 gallons)
 plastic liners
 bench or stool

Station 7: Facepiece Removal

Remove facepiece. Avoid touching face with gloves. Deposit in container with plastic liner.

Equipment: container (30-50 gallons)
 plastic liners

Station 8: Inner Glove Removal

Remove inner gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
 plastic liners

Station 9: Inner Clothing Removal

Remove clothing soaked with perspiration. Place in container with plastic liner. Do not wear inner clothing off-site since there is a possibility small amounts of contaminants might have been transferred in removing fully encapsulating suit.

Equipment: container (30-50 gallons)
plastic liners

Station 10: Field Wash

Shower if highly toxic, skin-corrosive, or skin-absorbable materials are known or suspected to be present.

Equipment: water
soap
small tables
basins or buckets
field showers

Station 11: Redress

Put on clean clothes. This will be done in the treatment facility.

Equipment: tables
chairs
lockers
clothes

Section 9

Emergency Procedures

In the event of injury to on-site personnel or contact with hazardous materials the following procedures will be used:

- (i) In the event of an injury, the site Safety Officer will be notified.
- (ii) Off-site emergency medical services are available by telephoning 911 and describing the injury. Emergency telephone numbers such as hospital, fire department, ambulance, State police, will be posted at each telephone on site along with directions and map showing the most direct route to the hospital.
- (iii) Decontaminate personnel, if possible, and administer appropriate first aid.
- (iv) Transport personnel to prescribed treatment facility, Niagara Falls Memorial Medical Center, along predetermined routes. Directions to this hospital have been given in Section 10 of this narrative.

Section 10

Emergency Services

Location

Telephone

Niagara Falls Memorial Hospital (448 beds)
10th Street and Pine Avenue

278-4000

Mount St. Mary's Hospital (220 beds)
5300 Military Road in Lewiston

297-4800

Route to Niagara Falls Memorial Hospital from 97th and Colvin Boulevard. West on Colvin Boulevard to 91st Street.

Turn right on 91st Street to Cayuga Drive. Left from Cayuga to Tuscarora Road. Right from Tuscarora to Pine Avenue (Route 62). Left from Pine Avenue to Walnut Avenue (Route 62A). Bear left on fork from Walnut to Portage Road. Right on Portage to Pine Avenue. Enter hospital from Pine Avenue.

Location

DeGraff Memorial Hospital (235 beds)

694-4500

Ambulance Service

Ambulance Service in Niagara Falls is furnished by three privately owned firms. The most conveniently located one is Frontier Ambulance Service.

Frontier Ambulance Service

285-3663

Fire Department

Frontier Volunteer Fire Department

283-4095

1999 Frontier Avenue

Emergency

297-1111

Police Department

Hyde Park and Walnut Avenue

278-8111

The City of Niagara Falls has a force of approximately 180 police officers. Of its 21 police cars, six are equipped with emergency respiratory equipment for use in chemical accidents. The main police station is at Hyde Park Boulevard and Ferry Street.

The following arrangements have been made through meetings phone calls and correspondence with the Niagara Falls Police and Fire Departments and the Niagara Falls Memorial Hospital.

1. Niagara Falls Police Department has agreed to the following:
 - To provide frequent patrols of the Love Canal area
 - To secure the area and restrict unauthorized entry during an emergency at the facility
 - In case of forced entry at the facility, officers will not enter the building until a NYSDEC employee arrives. In addition, a burglar alarm is monitored by the Niagara Falls Police Department
2. Officials from the Niagara Falls Fire Department were given a tour of the facility. The following points were made:
 - In case of fire, forced entry should be made into the site and the facility rather than waiting for a NYSDEC staff member
 - If entry is made into the facility during a fire, full protective clothing must be worn including a full face mask with SCBA. This also holds true for entry into pump chambers
 - The sludge holding tank was identified as being a possible source of toxic fumes if ignited. Areas where flammable solvents are likely to be found were also pointed out. These areas are marked on the floor plan, Appendix B of attached Love Canal Leachate Treatment Facility Contingency Plan.
3. Representatives of the Niagara Falls Memorial Medical Center were also given a tour of the facility. The following arrangements were made:
 - In case of medical emergency, the hospital will be contacted at 278-4000
 - Hospital emergency room personnel will be equipped with isolation suits if needed. Emergency room procedures will be the same as those for the hospital's disaster preparedness program.
 - Arrangements for use of an isolation room at the hospital have been made.
 - Any protective clothing contaminated during medical operations will be placed in a drum and returned to the Love Canal.

EMERGENCY PHONE NUMBERS

NIAGARA FALLS POLICE 911
NIAGARA FALLS FIRE 911

AMBULANCE SERVICE

Frontier Ambulance Service (716) 285-3663
Niagara Ambulance Service (716) 284-4228
Niagara Falls Memorial Hospital (716) 278-4000

POLICE NUMBERS

Niagara Falls (716) 278-8280
Sheriff (716) 285-5355
State Police (716) 297-0755

SPILL CONTROL

In the event of off-site contamination each of the following agencies is to be notified.

National Response Center (800) 424-8802
**N.Y.S. Oil and Hazardous
Material Spill Notification** (518) 457-7362
**Niagara Falls Wastewater
Treatment Plant** (716) 278-8138
(716) 278-8416 Shift Operator
Niagara County Department of Health (716) 284-3128 Business Hours
(716) 439-6141 After Hours

EMERGENCY EQUIPMENT AVAILABLE AT THE LOVE CANAL TREATMENT FACILITY

ITEM (# of)	LOCATION	DESCRIPTION AND CAPABILITIES
Fire extinguishers (4)	1) at main entrance to the facility 1) in the treatment area at the doorway between the plant and the hallway 1) at the northeast exit of the treatment plant 1) at the southeast exit of the treatment plant	Model 10H Multiuse CB dry chemical fire extinguisher for use on A, B, C type fires A - wood, paper (ordinary combustible) B - flammable liquids C - electrical
Scott air-paks (4)	4) located under table in office area	30 minute air supply with full face masks. Positive pressure self-contained breathing apparatus
Scott ska-pak emergency escape unit (4)	1) ska-pak is kept in the locker room area 3) in locker #4 on the west wall of the treatment plant area	The ska-pak is a full face 5 min. escape SCBA. Its primary purpose is for use with an external air supply
Full face mask respirators, canister type (2)	2) on coat rack in hallway	For use in presence of organic vapors and acid gases, <u>only</u> when oxygen content is greater than 19.5%
half face respirators cartridge type (2)	2) on coat rack in hallway	For use in presence of organic vapors, acid gases, <u>only</u> when oxygen content is greater than 19%
half face mask respirators, cartridge type (12)	12) in cabinet #2 on the west wall of the treatment plant area	For use in presence of organic vapors and acid gases, <u>only</u> when oxygen content is greater than 19.5%

EMERGENCY EQUIPMENT AVAILABLE AT THE LOVE CANAL TREATMENT FACILITY (CONT'D)

ITEM (# of)	LOCATION	DESCRIPTION AND CAPABILITIES
portable air compressor for use with ska-paks (1)	1) near southeast exit to treatment plant	Supplies air suitable for breathing when located in an area with contaminated air. Can supply two air-lines at 60 PSI. Airlines are kept on the west wall of the treatment plant area
50 pound bags of absorbent material (10)	in block house south of plant	Absorbent material used to contain spills and increase solids content of sludges and slurries.
protective coveralls, gloves, boots, and hardhats	in cabinet #2, west wall of treatment plant	Coveralls, gloves and boots are used to protect against dermal contamination. Variations exist to equip in all protection levels.
Bellow and tank resuscitation units (1)	1) on lower shelf of coat rack in hallway	Used to resuscitate accident victims overcome by fumes and/or lack of oxygen.
First aid kits (4)	1) in office 3) lockerroom	Basic first aid kit for treatment of accident victims.
Shower/eyewash stations (3)	1) north end of clarifier 1) south end of clarifier 1) portable	Used to flush contaminants from body or eyes in the event of situation that is IDLH.

Section 11

Personnel Potentially Exposed to Hazardous Substances

Personnel authorized to enter site:

- | | |
|-------------------------|--------------------------------|
| 1. Nigel N. Crawford | (Personnel involved in mixing) |
| 2. Dr. Nick Kolak | " |
| 3. Brian Sadowski | " |
| 4. Lorne Greene | " |
| 5. Maurice Moore | " |
| 6. Gerald Rider | " |
| 7. Phil Waite | (other personnel on site) |
| 8. Contractor Personnel | " |

Section 12

Alternative Work Practices

Personal Protection

Personnel should at least be in a level C suit when in the work area. Air monitoring will be provided if a south-easterly wind develops and at the beginning of the project to determine levels at tank opening. If a southeasterly wind develops and our monitoring detects contamination beyond the safety zone, the workers on the Administration Building will be required to leave. A wind indicator will be installed that is visible by our work crew and our monitors will be individually located outside the work zone.

Area Preparation

Floor-sorb (kitty litter) is adequate in case there is a spill. For spills on the earth, there are rakes, shovels and drums available on site. Drums are also provided for the disposal of protective clothing and debris. The Plasma Arc pad is bermed by a concrete curb. The area where the pump will be has to be lined with polyethylene. The polyethylene should also be placed on the walkway grating to facilitate clean up. Extra polyethylene and floorsorb should be kept nearby.

A clean line will be provided which will consist of a drum to dispose of protective clothing and/or washing of protective clothing and equipment.

12.1 Established Procedures for Weather Related Problems

Strong winds out of the southeast quadrant of the site will require monitoring of air north of the exclusion zone to protect the construction workers nearby. They are situated approximately 150 feet away from the tanks and winds from the southeast could quite possibly transport sludge vapors (volatile constituents) over to their work site. In the event that there is a downpour of rain, there may be a postponement of activity including mixing. This suspension may be necessary if the polyethylene placed on the tank walkway becomes slippery from rainfall. There is a chance that mixing may take place during a drizzle.

Section 14 - Levels of Protection

A. The levels of protection for the project are as follows:

Part B Levels of Protection

Persons on the top of the tank or on pad for any duration - Level C

Air Monitors in zone - Level C

Air Monitors out of zone or observers, no protection required.

Protective Equipment Description

A. Respirator

Specific jobs in exclusion zone where respirators will be used.

Model 65: No TC23C - 172 cartridge or

No 600252-11 cannister

B. Clothing for all persons in exclusion zone

_____gloves: Plastic gloves (inner)

Vitron gloves (second)

Nitrile gloves (third)

B. Weather

Adverse weather conditions are important considerations in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Of particular importance is heat stress resulting when protective clothing decreases natural body ventilation. Heat stress can occur even when temperature is moderate. One or more of the following recommendations will help reduce heat stress:

- Provide plenty of liquids e.g. Gatorade to replace body fluids (water and electrolytes) lost due to sweating.
- Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency. Long cotton underwear acts as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing. It should be the minimum undergarment worn.
- Showers are installed in the treatment facility. If needed, they will help reduce body temperature.

Suits: Poly laminate or saranex, seams taped with hoods.

Boots: Rubber

If highly contaminated, clothing will be disposed of.

C. General Safety Rules and Equipment

1. There will be no eating, drinking or smoking in the exclusion or contamination reduction zone.
2. All personnel must pass through the contamination reduction zone to enter or exit the exclusion zone.
3. As a minimum, emergency eye washes will be on the hot side of the contamination reduction zone and/or at the work station.
4. As a minimum, an emergency deluge shower/spray cans are to be located on the clean side of the contamination reduction area.
5. At the end of the work day, all personnel working in the exclusion area shall take a hygienic shower.
6. All supplied breathing air shall be certified as grade D or better.
7. Where practical, all tools/equipment will be spark proof, explosion resistant and/or bonded and grounded.
8. Fire extinguishers will be on-site for use on equipment or small fires only.
9. Since site evacuation may be necessary if an explosion, fire or release occurs, an individual shall be assigned to sound an alert and notify the responsible public officials if required. For example, the evacuation signal may be two long blasts every 30 seconds until all personnel are evacuated and accounted for.
10. An adequately stocked first-aid kit will be on-scene at all times during operational hours. It is suggested that an oxygen inhalator respirator be available and a qualified operator present. The location of these items and the operator shall be posted.

D. Morning Safety Meeting

A morning safety meeting will be conducted for all site personnel and they will indicate that they have read the site safety plan and will comply. The safety procedures, the day's planned operations as well as all issues prior to initiating project should be discussed.

Section 16

I. Miscellaneous Safety and Operating Practices

A. Personal Precautions

- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated contaminated.
- Hands and face must be thoroughly washed upon leaving the work area.
- Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
- No facial hair which interferes with a satisfactory fit of the mask-to-face-seal is allowed on personnel required to wear respirators.
- Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit or place equipment on drums, containers or the ground.
- Medicine and alcohol can potentiate the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel on operations where the potential for absorption, inhalation or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake should be minimized or avoided during response operations.

B. Operations

- All personnel going on-site must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures and communications.
- Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
- Personnel on-site must use the buddy system when wearing respiratory protective equipment. As a minimum, a third person, suitably equipped as a safety backup, is required.
- Visual contact must be maintained between pairs on-site and safety personnel. Team members should remain close together to assist each other during emergencies.
- During continual operations, on-site workers act as safety backup to each other. Off-site personnel provide emergency assistance.
- Personnel should practice unfamiliar operations prior to doing the actual procedure.

- Entrance and exit locations must be designated and emergency escape routes delineated. Warning signals for site excavation must be established.
- Communications using radios, hand signals, signs or other means must be maintained between workers near pump on tank walkway and those in the support zone.
- Wind indicators visible to all personnel should be strategically located throughout the site.
- Personnel and equipment in the contaminated area should be minimized, consistent with effective site operations.
- Work areas for various operational activities must be established.
- Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established based on expected site conditions.

C. Indicators of Toxic Exposure Effects

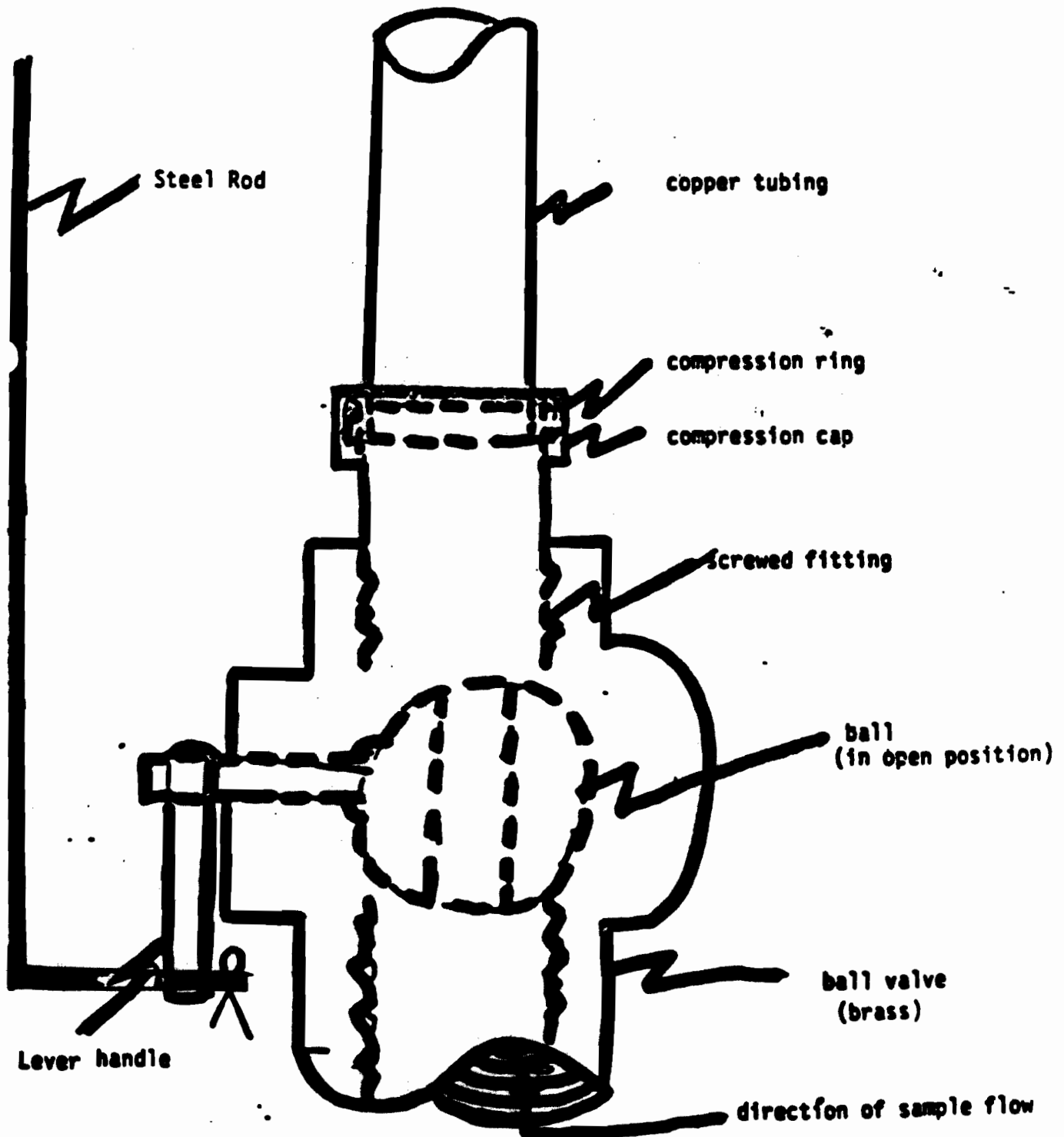
- Observeable by others
 - changes in complexion, skin discoloration
 - lack of coordination
 - changes in demeanor
 - excessive salivation, pupillary response
 - changes in speech pattern
- Non-Observeable by Others
 - headaches
 - dizziness
 - blurred vision
 - cramps
 - irritation of eyes, skin or respiratory tract

FIGURE 1

LOVE CANAL SLUDGE SAMPLING DEVICE

By:

R. L. Hall 7/22/86



MICROFILMED