PROPOSAL

FOR

REMOVAL OF DRUMS CONTAINING HAZARDOUS/ NON-HAZARDOUS MATERIALS AND CONTAMINATED SOILS AT THE FORMER COLUMBIA RIBBON & CARBON SITE, GLEN COVE, NY

Prepared for:

FRED C. HART ASSOCIATES, INC.
New York, NY

Prepared by:

Associated Chemical and
Environmental Services (ACES)
A Division of Fondessy Enterprises, Inc.

May 24, 1984

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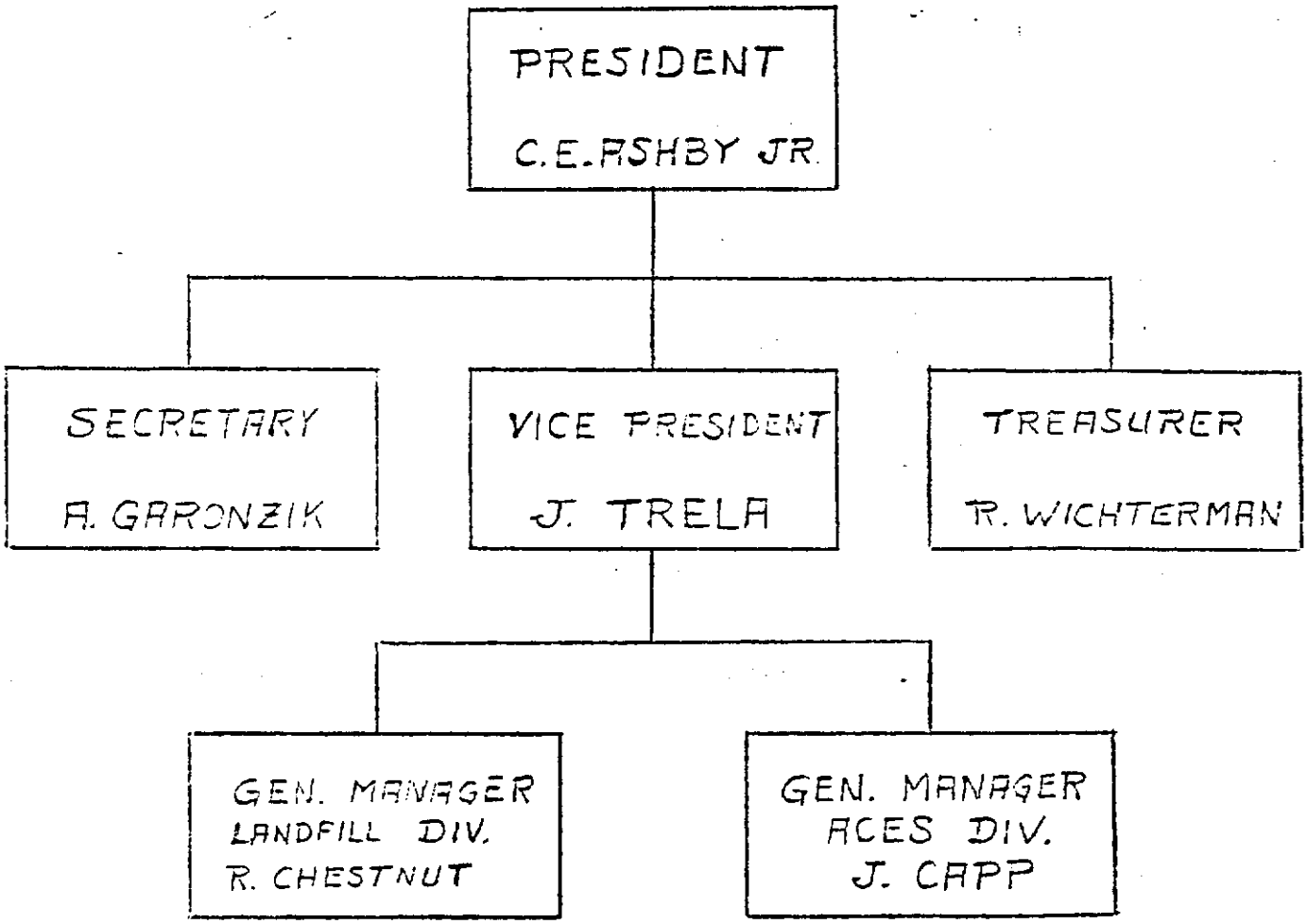
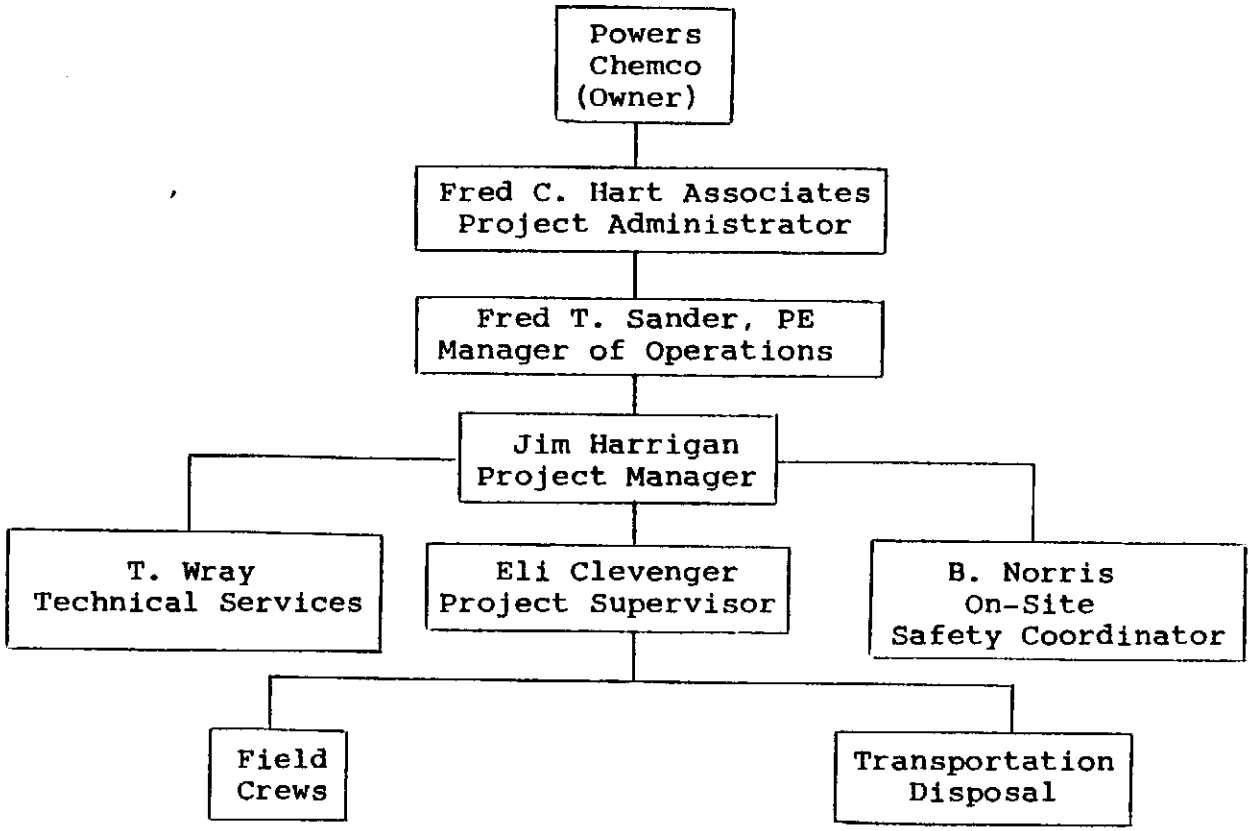
Attachment I

FONDESSY ENTERPRISES, INC.

ORGANIZATION CHART



Attachment II



Attachment IV

Subcontractor Information

Subcontractors for the project will be chosen from the following list:

SECURITY

Donovan's Armed Guard Service, Inc.
16 E. John Street
Hicksville, NY 11801
Attn: Margaret Donovan
(516) 935-9112

SECC Security Systems, Inc.
536 Glen Cove Road
Great Neck, NY
(513) 676-1120

TRANSPORTATION

Horwith Trucks, Inc. - I.D.# PAD-064035819
R.D. #1
Coplay, PA 18037
Attn: Mike Horwith
(800) 221-8981

Buffalo Fuel Corp. - I.D.# NYD-051809952
2445 Allen Avenue
Niagra Falls, NY 14303
Attn: Augustus
(800) 828-1606

S-J Transportation Co. - I.D.# NJT-000009027
E. Milbrooke Avenue
P.O. Box 91
Woodstown, N.J. 07032
Attn: Sam Jones
(609) 769-2741

Dart Trucking Co., Inc. - I.D.# OHD-009865825
61 Railroad Street
Canfield, OH 44406
Attn: Bill Scalara
(216) 533-9841

John Pfrommer, Inc. - I.D.# PAD-008781072
360 Ben Franklin Highway
Route 422 East
Douglassville, PA 19518
Attn: John Pfrommer
(215) 385-3051

DISPOSAL

Fondessy Enterprises, Inc.
876 Otter Creek Road
Oregon, OH 43616
Attn: Paul Williams
(419) 726-1521
USEPA ID# OHD 045243706

SCA Chemical Services
P.O. Box 200
Model City, NY 14107
Attn: Don Kopacz
(716) 754-8231
USEPA ID# NYD 049836679

CECOS
5092 Aber Road
Williamsburg, OH 45176
Attn: Sue Schneider
(513) 489-8722
USEPA ID# OHD 087433744

Evergreen Landfill - Chemical Waste Management
2625 E. Broadway
Northwood, OH 43619
Attn: Matt Davies
(419) 666-5136
USEPA ID# OHD 068111327

Attachment V

Location of Bidder's headquarters and local office.

	Headquarters	Local
Address:	Fondessy Enterprises, Inc. ACES Division 876 Otter Creek Rd. Oregon, OH 43616	Fondessy Enterprises, Inc. ACES Division 115 Gibraltar Rd. Horsham, PA 19044
Phone:	(800) -537-0426	(215) -441-5924

BACKGROUND INFORMATION

The area included for the purpose of this bid consists of a parcel approximately 100' X 200', hereafter known as the Columbia Ribbon and Carbon Site, presently being utilized as an employee parking lot for the Powers Chemco Company in Glen Cove, New York. The site was formerly a portion of the Columbia Ribbon and Carbon manufacturing plant who reportedly disposed of waste solvents and inks from the plant by dumping the materials into pits and backfilling the pits.

The types of waste products disposed at the site were described as volatile solvents; notably toluene and ethylbenzene. Ethylacetate and blue printing ink residues from the formulation process were also disposed of in the pits.

Fred C. Hart Associates was contracted to provide a more detailed subsurface investigation of the site and has done extensive sampling and analyses to this end. Results from this investigation indicate the wastes involved are contaminated soils, sludges, solids, residues, rags, and other debris from the formulation of ink and related activities performed by Columbia Ribbon and Carbon Company in Glen Cove, New York.

INTRODUCTION

ACES will rely on its extensive field experience in hazardous waste management to provide a cost-effective, pragmatic and environmentally sound approach to remediation activities at the site.

ACES has developed a three phase approach, as described below, for the clean-up activities required at the site.

Phase I

- Mobilization
- Site Preparation
- Soil Sampling

Phase II

- Soil Excavation and disposal with simultaneous backfilling
- Drum excavation, staging and sampling

Phase III

- Drum solidification and disposal
- Regrading activities
- Demobilization

The technical approach, as outlined here and as described in detail further in the proposal, eliminates the need for restaging the contaminated soil prior to shipment. In addition, this approach will minimize both the time necessary to complete the project and the hazards intrinsic to restaging.

The technical approach is consistent with the detailed analytical information provided in the RFP. ACES is confident that the information provided in the RFP, along with the analysis for PCB content and flash point, will be sufficient to develop a waste characterization sheet required for disposal.

The Health and Safety Plan incorporated in this proposal has taken into account the sensitivity of the Owner and his employees as well as the safety of ACES personnel working on the site.

PHASE I

- **MOBILIZATION**

Objective: To mobilize all equipment and manpower necessary to conduct excavation and clean-up activities at the former Columbia Ribbon and Carbon Site in Glen Cove, New York.

Purpose: To provide the most expeditious, economical, and pragmatic method for transporting equipment and personnel to the job site.

Procedures: ACES proposes to provide all equipment necessary to perform the job from their home base in Oregon, Ohio. ACES personnel will load the equipment onto tractor-trailer rigs and driver/operators or driver/technicians will drive the vehicles to the project site. ACES anticipates using the following manpower and equipment to adequately conduct all phases of this project:

Supervisor Vehicle	Project Supervisor (1)
Service Vehicle (Van)	Safety Technician (1)
Command Trailer	Field Technicians (3)
Hazardous Material Response Van	Operating Engineers (3)
Backhoe (2½ cy capacity)	Oiler (1)
J.D. 410 Backhoe	
Cat D3 LGP Dozer	
International TD-8 Dozer	
Sheepsfoot Roller	
Semi Tractors with Lowboys	
Bobcat with Hydraulic Drum Grappler	

ACES will have the necessary equipment and manpower for the project on-site within five (5) days of the contract award. ACES will insure compliance with any applicable Federal and State statutes concerning transportation, as well as all local ordinances.

- **SITE PREPARATION**

Objective: To completely prepare the former Columbia Ribbon and Carbon Site for remedial activities by making the necessary hook-ups for water and power, and to locate all temporary facilities in appropriate places on-site at Powers Chemco.

- SITE PREPARATION (continued)

  Purpose: To insure the site has adequate facilities for decontamination, observation (guard), administrative functions, etc. A well organized site will serve to augment job performance by eliminating delays caused by poor planning.

  Procedures:

  1. ACES will set up their trailers upward from the excavation area.

  2. Rally (evacuation) points will be marked by flags.

  3. Porta-johns will be set up as necessary on-site.

  4. Powers Chemco will provide hook-up of water and electrical supply.

  5. "Hot" zone will be established by displaying a 3" banner bearing the legend "DANGER-KEEP OUT" around the entire perimeter of the work area.

  6. ACES will provide security services from day 1 of mobilization. ACES intends to utilize the existing guard shack to house the security guard and also to serve as an observation post as required under Section 4.1.3 of the RFP.

- INITIAL SOIL SAMPLING

  Objective: To process composite samples of visible contaminated soils from test pits at the former Columbia Ribbon and Carbon Site in Glen Cove, New York.

  Purpose: To provide analytical data regarding PCB concentration and flash points of visually contaminated soils. This will assure ACES, Fred C. Hart Associates, and Powers Chemco Incorporated that the appropriate disposal method has been selected for their contaminated soils.

- INITIAL SOIL SAMPLING (continued)

Procedures: It is ACES' intent to conduct the initial soil sampling simultaneous with the general site preparation. This should minimize or eliminate costly down time normally associated with analysis. The following procedures will be used to obtain the samples:

1. A John Deere 410 backhoe will be used to excavate soils in test pits shown to contain drums (re: RFP, Figure 3-2).

2. ACES' technical representative will then obtain grab samples from at least three test pits and composite them into a single sample for analysis.

3. The pits will be temporarily returned to their original condition until loading operations commence.

4. A chain-of-custody report (attached) will be completed for each sample if more than one is deemed necessary upon closer examination of the situation. This report is important in assuring these samples and their analytical results legally represent the waste examined.

PHASE II

- SOIL EXCAVATION AND BACKFILLING

Objective: To remove heavily contaminated soils not to exceed 6,000 cubic yards from the former Columbia Ribbon and Carbon Site.

Purpose: To eliminate visual gross soil contamination by physically removing those soils observed to be contaminated.

Procedures: Once PCB and flash point analyses are complete and an appropriate disposal site has been selected, soil excavation activities can begin. To avoid the expense and inconvenience of restaging operations, ACES intends to load contaminated soils directly from the excavation site onto visqueen lined, seal semi-dumps. The preliminary waste disposal plan included herein, explains and justifies not performing additional analyses.

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
Building 53, Box 25227, Denver Federal Center
Denver, Colorado 80225

Proj. No.	Project Name	ANALYSIS REQUIRED	NUMBER OF CONTAINERS	Remarks
SAMPLERS: (Signature)				

STA NO	DATE	TIME	Comp	Grab	STATION LOCATION

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received (Signature)
Relinquished by (Signature)	Date/Time	Received by (Signature)	Relinquished by (Signature)	Date/Time	Received (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by (Signature)	Date/Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

FIGURE 5a. CHAIN-OF-CUSTODY RECORD (WATER)

PHASE II (continued)

SOIL EXCAVATION AND BACKFILLING (continued)

A copy of Figure 3-2 is included to orient the reader with respect to ACES' proposed methodology.

1. Beginning at Test Pit #1 and moving South, a 225 Caterpillar backhoe will be utilized to excavate visually contaminated soils as determined by ACES' Project Supervisor and Powers Chemco On-Scene Coordinator.

2. A 30 cubic yard lined semi-dump will be staged on the East side of the backhoe to receive soils.

3. Visually-contaminated soils will be loaded directly into the awaiting semi-dump.

4. Soils that appear to be non-contaminated will be staged immediately adjacent to the West of the excavation area.

5. Drums unearthed during this phase of the project will be removed using either the 225 backhoe or a bobcat equipped with a hydraulic drum grappler, and placed in a staging area constructed adjacent to the North-west corner of test pit #3. 85-gallon overpack drums will be on-hand in the event severely leaking drums are encountered.

6. The backhoe will continue moving southward while excavating the maximum area available (limited by boom extension) until the operator reaches the perimeter of the work area as identified by the 3" banner. He will then relocate the backhoe to the North and West of the area just excavated and begin the cycle over.

7. A D3 Cat or TD8 dozer will replace the non-contaminated soils removed from the excavation. Additional clean soil brought in from off-site will be utilized to re-establish the sites original contours. This activity will be conducted simultaneously with the excavation.

8. Every effort will be made to minimize the impact of groundwater intrusion. This will be done by having as small an area exposed as possible. This will also minimize the extent of volatization. If any additional unknowns such as groundwater, de-watering, concrete slabs, conduit banks, or pipes are encountered, other than those specified, this will be a change in scope.

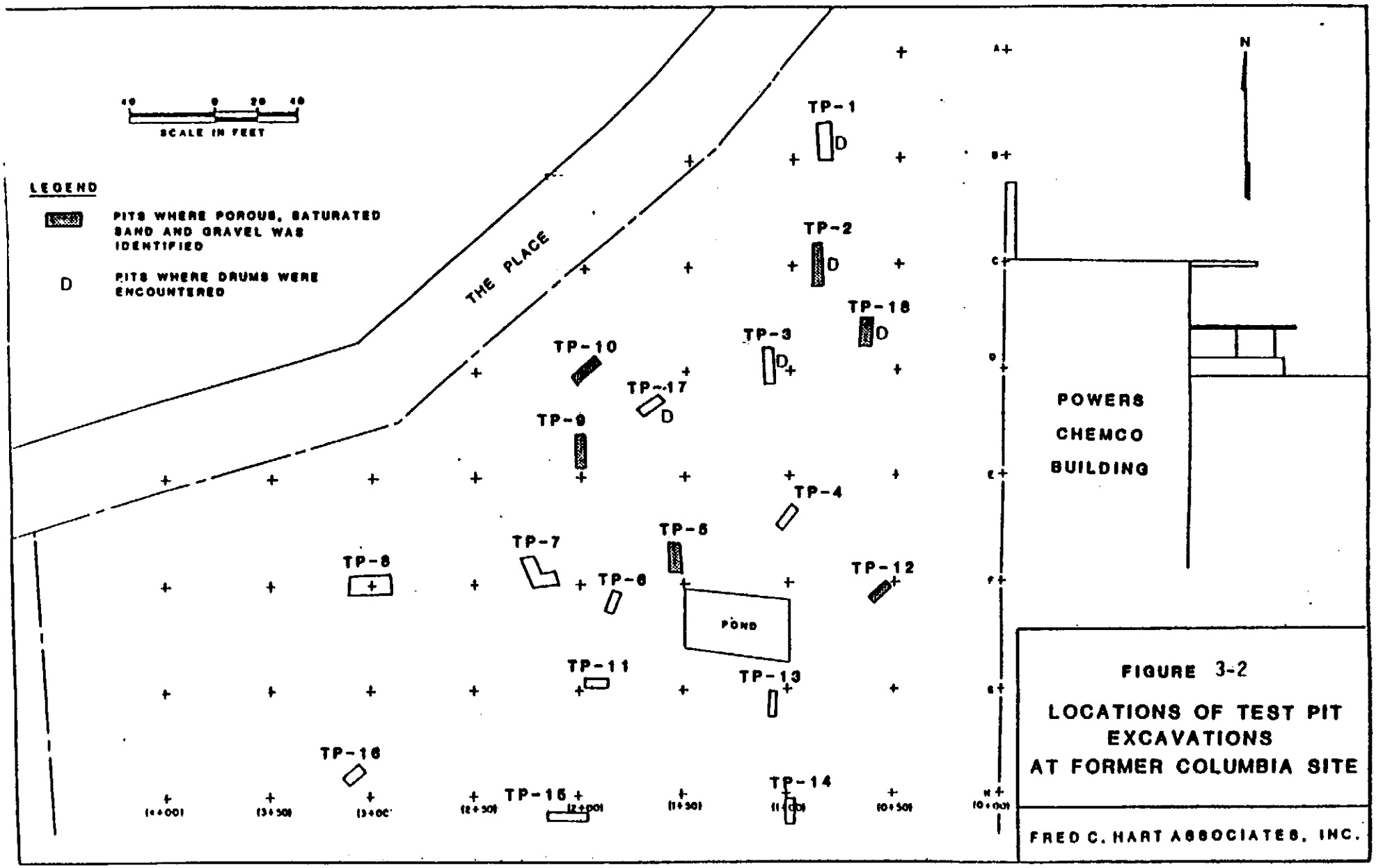
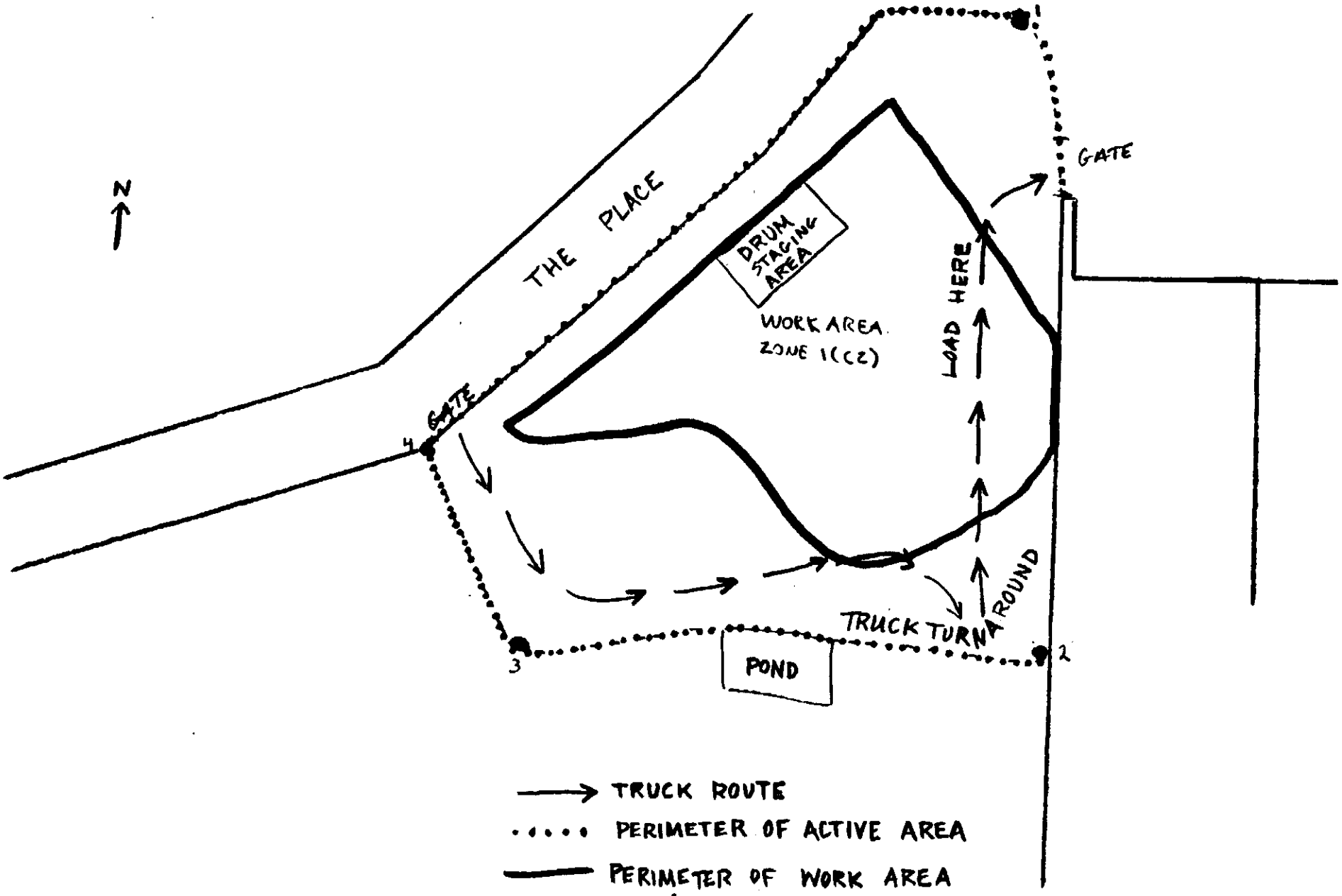


FIGURE 3-2

LOCATIONS OF TEST PIT EXCAVATIONS AT FORMER COLUMBIA SITE

FRED C. HART ASSOCIATES, INC.



FROM ATTACHMENT #5 FIG. V-1

PHASE II (continued)

DRUM EXCAVATION AND STAGING

Objective: To exhume buried drums, whether crushed or intact, at the former Columbia Ribbon and Carbon Site in Glen Cove, New York.

Purpose: To alleviate to some degree, the effects of past disposal practices of the former Columbia Ribbon and Carbon Site by removing one source of actual or potential pollutants.

Procedures:

1. ACES will construct a staging area approximately 20' X 40' at the NW edge of test pit #3, adjacent to the property fence-line. An earthen dike at least 6" high will be constructed to identify the boundries of the staging area and provide spill protection. Said dike will be comprised of clean soils obtained off-site.

2. All drums exhumed by ACES during the soil excavation phase of this project will be placed in this diked area whether empty or full, crushed or intact. A 6 mil sheet of visqueen will be used to cover the drums.

3. Drum location, drum condition, capacity, construction material, existing markings, and any discernible label information will all be recorded on a master log form.

4. If practicable, leaking drums will be temporarily repackaged in 85 gallon overpacks to avoid future processing.

5. Drums may be exhumed and placed in the staging area in one or more ways depending on drum condition and equipment logistics.

    a. Crushed, empty drums will be removed using the Bobcat.
    b. Intact drums whether damaged or not, will be moved using the hydraulic drum attached on the Bobcat.
    c. Occasionally, distance and drum condition permitting, the 225 backhoe may be used to place drums directly from the excavation site into the drum staging area.

TRANSPORT ROUTE

(Refer to Map)

RT 495 (West Bound) to

I-295 (Clearview Expressway)

To Throgs Neck Bridge

To Cross-Bronx Expressway (Westbound)

To Geo. Washington Br.

To I-80 (Westbound)


Matinecock Pt.
Pinecock Pt.
DOSORIS POND
DOSORIS I.
WEST POND
LATTINGTOWN
The Creek Club
Red Spring Pt.
Weeks Pt.
LOCUST VALLEY
LOCUST VALLEY STA.
MATINECOCK
Nassau Country Club
GLEN COVE STA.
Friends Meeting Ho.
Piping Rock Club
GLEN ST. STA.
SEA CLIFF STA.
Sea Cliff Y.C.
SEA CLIFF
Glen Head Country Club
Brookville Country Club
Cedar Brook Country Club
Carpenter Pt.
HARBOR
OPEN HEAD
North Shore Country Club
GLEN HEAD STA.
CENTRAL SCHOOL DIST. 1
GLENWOOD LANDING
OLD BROOKVILLE
Cohens Cor.
HARBOR BEACH
Country Club
GREENVALE STA.
GREENVALE
ISLAND
ROAD
BAY
HEMPSTEAD

PHASE II (continued)

- DRUM SAMPLING

Objective: To obtain representative composite samples of drummed waste materials.

Purpose: Analytical information concerning the PCB concentration and the flash point of these wastes must be provided before an appropriate disposal option can be determined. This information is also necessary in identifying the hazardous characteristics of the wastes.

Procedure: ACES will exercise extreme caution during the drum sampling phase of this project. Air monitoring, as described in the Health and Safety Plant (HASP) will be used to select the correct respiratory and safety protection for the job. All intact drums will be opened prior to beginning sampling. Where possible, only the 2" bung opening will be used as a sampling port. Where necessary, however, the entire lid may be removed.

Where possible, ACES will strictly adhere to the sampling procedures and use sampling equipment as described in SW-846, "Test Methods ofr Evaluating Solid Waste, Physical/Chemical Methods" July, 1982.

1. For liquids with a viscosity under 1000 cps a 1 cm X 40 cm glass sample rod will be used to obtain a representative sample. A composite sample of these waste types will then be sent for analysis.

2. For extremely viscous, semi-solid and solid waste materials, a grab sample will be taken using a tier, trowel, or other appropriate sampling device.

3. ACES will complete a chain-of-custody report for each composite sample sent for analysis. The sample will be considered invalid unless this report is complete.

PHASE III

- **DRUM SOLIDIFICATION**

Objective: To completely remove and solidify any liquids, semi-solids, solids, or residues in drums thus minimizing drum repackaging and disposal costs.

Purpose: To provide an economical, practical alternative to off-site disposal of drummed waste materials. ACES has shown on past projects that on-site solidification of drummed wastes is more efficient and environmentally sound.

Procedures: As the risk of respiratory exposure and splash are greatest during this operation, it is important to minimize these risks as much as possible. Again, air monitoring equipment will be in use constantly during the solidification process to insure adequate protection per the Health and Safety Plan. A visqueen liner will be used to minimize further soil contamination in the unlikely event vertical migration occurs during the solidification process. The stepwise approach enumerated below will be followed.

1. ACES personnel will utlize one (1) Cat 225 backhoe to widen Test Pit #3, (see Figure 3-2, RFP) to approximately 20' X 20' X 8'. A 6 mil visqueen liner will then be placed in the pit and 4'-6' of uncontamined soils dumped on top of the liner. (Cement or lime kiln dust may also be used as a solidification agent).

2. ACES will use the Bobcat to bring drums from the staging area and dump their contents into the pit. Decontamination solutions used during the project will also be solidified here.

3. While these wastes are being placed in the pit, the 22t backhoe operator will be mixing them with the solids in the pit to insure complete absorbance.

4. Emptied drums will be crushed flat using the 225 backhoe. All empty drums will be loaded in a single semi-dump for transportation to an appropriate disposal site.

5. The solidified material, including the visqueen liner, will be loaded onto a lined semi-dump for delivery to an approved disposal site following solidification.

6. ACES will backfill the pit to original grade with uncontaminated soil.

PHASE III (continued)

- REGRADING AND DEMOBILIZATION

Objective: To restore original site contours at the Powers Chemco Site and to return all equipment and personnel to their original location.

Purpose: To return the area to its intended purpose (parking) and to ensure that all equipment is removed from the site.

Procedure: ACES will perform this task under close scrutiny by the on-scene coordinator. ACES personnel will also effectively decontaminate all equipment used on this project and load it onto tractor-trailers for a timely return to Oregon, Ohio.

1. Sufficient non-contaminated soil will be placed over the excavated zone compacted to a depth of at least 4" using a TD8 or D3 cat dozer.

2. All utility hook-ups will be disconnected and trailers prepared for transport.

3. Equipment will be loaded onto trucks in preparation for the return trip to ACES in Oregon, Ohio.

4. Once the on-scene coordinator and the Powers Chemco representative are satisfied with the site condition, actual demobilization will begin. ACES employees will drive tractor-trailer rigs to Ohio.

PRELIMINARY WASTE DISPOSAL PLAN

Based on extensive review of the data provided in the RFP, and an assessment of the materials likely to be encountered at the site, ACES is confident that the only additional laboratory work necessary is PCB analyses and flash point measurements. Furthermore, ACES believes composite samples will be adequqte to determine disposal options for the wastes.

Tables 3-1 and 3-2 of the RFP indicate the results of analyses of soil and drummed materials. Converting the figures for organics found in the samples to percentages reveals fairly low levels: 4.228% total organics in the "blue ink" sample with 3.6% being napthalene, the basic ingredient in moth balls. The sludge sample totals 3.152% organics with 2.4% being toluene, a very common industrial solvent which is highly flammable (see table 3-1, attached).

The wastes are essentially hazardous due to E.P. Toxicity, specifically Arsenic (D004), and Lead (D008). They may not exhibit the characteristics of ignitability (D001). Flash point measurement will determine this. PCB analysis will determine whether the wastes are also subject to regulation under the Toxic Substance Control Act (TOSCA). Disposal sites will be chosen on the basis of the analytical results from samples produced by ACES during site remediation activities. One or more of the following sites may be used for disposal.

1. Fondessy Enterprises, Inc.
   876 Otter Creek Road
   Oregon, Ohio 43616
   (419)-725-1521
   U.S. EPA I.D.# OHD-045243706

2. CECOS
   5092 Aber Road
   Williamsburg, Ohio 45176
   (513)-724-6114
   U.S. EPA I.D.# OHD-087433744

3. SCA Chemical Services
   P.O. Box 200
   Model City, New York 14107
   (716)-754-8231
   U.S. EPA I.D.# NYD-049836679

4. Evergreen Landfill - Chemical Waste Management
   2625 East Broadway
   Northwood, OH 43619
   (419)-666-5136
   U.S. EPA I.D.# OHD-068111327

Based on the information provided in the RFP Tables 3-1 and 3-2, disposal options other than secure landfilling do not seem to apply. Logistics and economics prohibit most methods enumerated in Section 4.7 of the RFP. ACES intends to transport all waste off-site in bulk including drummed wastes which will first be solidified with appropriate absorbent media, e.g. soil, CaO, and cement kiln dust.

ACES will provide all the necessary paperwork to dispose of the wastes including, but not limited to:

1. Waste product review form - required by each disposal facility.

2. Hazardous waste manifest - for each load shipped off-site. (Note: Specific form is required by New York Department of Environmental Conservation, see attachment).

3. Analytical work - to substantiate disposal site choice.

4. Master truck log - to record the quantity and weight of wastes removed.

ACES will also insure proper labeling and lacarding information is provided. As always, ACES will comply with all State and Federal laws governing hazardous waste disposal. ACES will also adhere to any local ordinances for transportation and disposal. In all cases, the on-scene coordinator will be consulted prior to any off-site movement of hazardous wastes from the former Columbia Ribbon and Carbon Site in Glen Cove, New York.

TABLE 3-1

Analysis of Drummed Materials

Parameter	"Blue Ink" Sample	%	Sludge Sample	%
Volatile Organics (ppb) - Detection Limit 10ppb				
Benzene	$43{,}000_5$	0.043	NF	
Ethylbenzene	2.9×10^6	.029	7.2×10^5	.072
Toluene	3.1×10^6	.31	2.4×10^7	24
1,2 Xylene	4.0×10^5	.04	5.7×10^5	.057
1,3 Xylene	5.2×10^5	.052	1.8×10^6	0.18
1,4 Xylene	1.7×10^5	.017	4.3×10^5	.043
Chloroform	86,000	.086	NF	
1,1,1-trichloroethane	51,000	.051	NF	
	TOTAL % = 0.628		TOTAL % = 2.752	
Base Neutrals (ppm) - Detection Limit 1ppm				
Napthalene	36,000	36	4,000	0.4
di-n-octylphthalate	NF		200	
Acid Extractables - Detection Limit 2.5 ppm	NF		NF	
Pesticides - Detection Limit 10 ppb	NF		NF	
Inorganics (ppm)				
	* RCRA E.P. TOXIC WASTES re: 40 CFR 261.24			
Antimony	25.93		406.61	
* Arsenic	4,378.18		0.437	
* Beryllium	0.311		0.263	
* Cadmium	0.25		0.25	
* Chromium (Total)	0.80		2.54	
Copper	8.82		1.31	
* Lead	8.09		21.07	
* Mercury	0.02		0.21	
Nickel	1.50		1.50	
* Selenium	0.10		1.10	
* Silver	0.50		0.50	
Thallium	5		5	
Zinc	14.73		54.65	
Cyanide	411		532	
Total Phenols	14		13	

< .05 % CN-

TABLE 3-2

LABORATORY RESULTS OF SOIL SAMPLES
TEST PITS AT FORMER COLUMBIA SITE
December 1983

Parameter	Test Pit No. / Interval	TP-2 S-2[a]	TP-3 S-2	TP-8 S-1	TP-9 S-3[a]	TP-10 S-2[a]	TP-13 S-1[a]	TP-13 S-2[a]	TP-14 S-1	TP-16 S-2	TP-18 S-1[a]
Volatile Organic Priority Pollutants (PPM)											
Chloroform		0.016	0.204	LT00.01	0.012	0.014	0.118	0.064	LT0.01	0.02	0.199
Toluene		1.129	1.199	0.01	0.514	0.012	2.15	0.032	0.01	0.01	0.327
Trichloroethylene		0.01	ND	ND	0.014	ND	ND	ND	LT0.01	ND	ND
Ethylbenzene		ND	0.549	ND	3.15	ND	2.296	6.364	ND	LT0.01	ND
Tetrachloroethylene		ND	LT0.1	ND	ND	LT0.01	0.95	0.712	ND	ND	ND
Benzene		ND	ND	LT0.01	0.011	0.011	ND	ND	LT0.01	0.012	0.758
Methylene Chloride		ND	ND	ND	ND	ND	LT0.1	ND	LT0.1	ND	ND
Acrolein		ND	ND	ND	ND	ND	ND	ND	LT0.1	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	ND	ND	ND	LT0.01	ND	5.269
1,1-Dichloroethane		ND	ND	ND	ND	ND	ND	ND	ND	ND	0.052
Trans-1,2-Dichlorcethylene		ND	ND	ND	ND	ND	ND	ND	ND	ND	0.296
Non-Priority Pollutant Volatile Organics (PPM)											
Pentene		GT0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylethlthioethe-		GT0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptane		GT0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
P+M+O Xylenes		GT1.0	ND	0.025[a]	GT2.0[a] GT4.0[b]	ND	GT1.0	22.005[c]	GT0.01[a]	ND	1.159[a] 2.512[b]
Trimethylbenzene (3-isomers)		GT1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cymene (2-isomers)		GT1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-5 Dimethylnonane		ND	GT1.0	ND	ND	ND	ND	ND	ND	ND	ND
Undicane Undecane ?		ND	GT1.0	ND	ND	ND	ND	ND	ND	ND	ND
Tridicane		ND	GT1.0	ND	ND	ND	ND	ND	ND	ND	ND
Dicane Decane ?		ND	GT1.0	ND	ND	ND	ND	ND	ND	ND	ND
5-Methylundicane		ND	GT1.0	ND	ND	ND	ND	ND	ND	ND	ND

III-18

TABLE 3-2 (Continued)

LABORATORY RESULTS OF SOIL SAMPLES
FROM TEST PITS AT FORMER COLUMBIA SITE
December 1983

Parameter	Test Pit No. Interval	TP-2 S-2*	TP-3 S-2	TP-8 S-1	TP-9 S-3*	TP-10 S-2*	TP-11 S-1*	TP-13 S-2*	TP-14 S-1	TP-16 S-2	TP-18 S-1*
Non-Priority Pollutant Volatile Organics (PPM)											
Octanol		ND	ND	GT0.025	ND	ND	ND	ND	ND	GT0.01	ND
Decane		ND	ND	GT0.025	ND	ND	ND	ND	ND	ND	ND
Decahydro-1-Methylnaphthalene		ND	ND	ND	GT0.1	ND	ND	ND	ND	ND	ND
Butylcyclohexane		ND	ND	ND	GT0.1	ND	ND	ND	ND	ND	ND
1-Ethyl-2-methylbenzene		ND	ND	ND	GT0.1	ND	ND	ND	ND	ND	ND
5-Hydroxy-4-methyl-6-Heptex-3-one		ND	ND	ND	ND	GT0.01	ND	ND	ND	ND	ND
2-methylidene		ND	ND	ND	ND	GT0.01	ND	ND	ND	ND	ND
1-ethyl-1-methyl-cyclopentane		ND	ND	ND	ND	GT0.01	ND	ND	ND	ND	ND
3,3-Dimethylhexane		ND	ND	ND	ND	GT0.01	ND	ND	ND	ND	ND
1,4-Dimethylbenzene		ND	ND	ND	ND	GT0.01	ND	ND	ND	ND	ND
Ethylmethylbenzene		ND	ND	ND	ND	ND	GT1.0	ND	ND	ND	ND
Cumene		ND	ND	ND	ND	ND	GT1.0	ND	ND	ND	ND
Methyldecalin		ND	ND	ND	ND	ND	GT1.0	ND	ND	ND	ND
Freon		ND	ND	ND	ND	ND	ND	ND	GT0.01	ND	ND
Hexane		ND	ND	ND	ND	ND	ND	ND	ND	GT0.01	ND
Heptanol		ND	ND	ND	ND	ND	ND	ND	ND	GT0.01	ND

III-19

TABLE 3-2 (Continued)

LABORATORY RESULTS OF SOIL SAMPLES
FROM TEST PITS AT FORMER COLUMBIA SITE
December 1983

Parameter	Test Pit No. Interval	TP-2 S-2^	TP-3 S-2	TP-8 S-1	TP-9 S-3^	TP-10 S-2^	TP-13 S-1^	TP-13 S-2^	TP-14 S-1	TP-16 S-2	TP-18 S-1^
Inorganics (Metals) (PPM)											
Antimony, Total		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic		1.562	6.763	3.807	0.768	1.184	2.879	4.206	1.796	1.817	0.663
Beryllium		0.510	0.456	0.249	0.184	ND	ND	ND	ND	ND	ND
Cadmium		0.270	0.210	0.249	0.246	0.338	0.366	0.379	0.251	0.385	0.299
Chromium		4.08	22.32	15.8	5.28	3.93	4.89	7.69	7.76	8.603	2.56
Copper		6.36	12.76	13.49	8.23	10.62	7.45	11.06	11.61	10.35	5.71
Lead		ND	4.03	3.63	ND	ND	ND	ND	ND	ND	ND
Mercury		0.05	0.058	0.119	0.154	0.141	0.152	0.063	0.07	0.092	0.055
Nickel		3.42	7.01	6.41	4.39	3.38	1.05	4.74	4.09	3.74	0.996
Selenium		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc		18.32	30.31	22.84	11.46	11.97	11.15	18.64	18.25	12.20	11.20
pH		6.71	4.83	7.09	6.74	6.60	6.52	6.46	4.91	5.47	5.18

NOTES: These results are only for parameters detected in the Analysis.

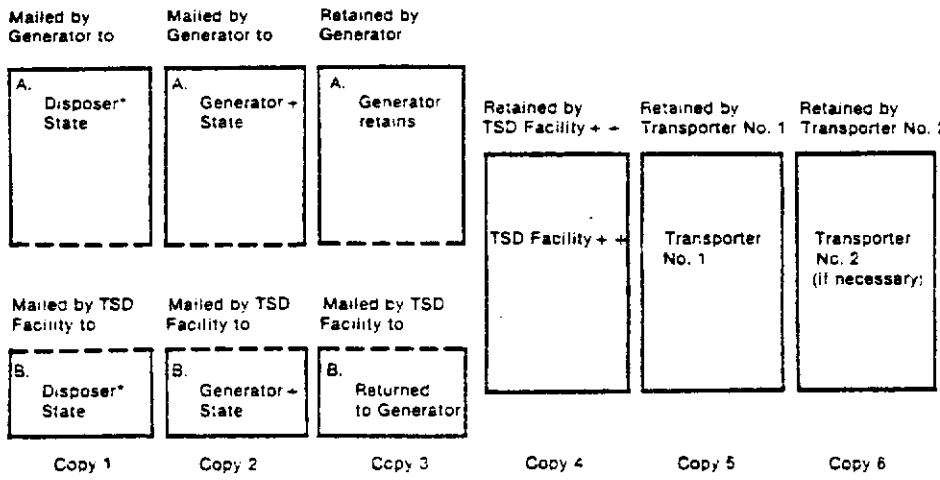
a = only m-xylene
b = only p-xylene
c = sum of concentrations: p-xylene (7.738), m-xylene (6.557), o-xylene (7.71)
ND = Not Detected; LT = Less than; GT = Greater than; ^ = soil samples of saturated sand and gravel.
^ = Soil sample of sand and gravel

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Instructions for the Preparation of a Hazardous Waste Manifest

Routing of the Manifest

The Hazardous Waste Manifest consists of six copies with copies 1, 2 and 3 detaching into two parts, A and B.



1. Generator completes Part A of the Manifest and has Transporter No. 1 sign and certify receipt of the shipment.
2. The Generator detaches Part A of copies 1, 2 and 3 and distributes as indicated on Part A of each copy. Generator always retains copy 3, Part A for his records.
3. Transporter No. 1 carries the remaining copies of the manifest along with the shipment.
4. Upon delivery of the shipment to the Designated TSD Facility or Transporter No. 2, Transporter No. 1 signs and certifies delivery of the shipment, obtains the signature and certification of the TSD Facility's authorized representative or Transporter No. 2 and detaches and retains copy 5 of the manifest.
5. Upon delivery of the shipment to the Designated TSD Facility, Transporter No. 2 signs and certifies delivery of the shipment, obtains the signature and certification of the TSD Facility's authorized representative and detaches and retains copy 6 of the manifest.
6. The TSD Facility detaches and distributes Part B of copies 1, 2 and 3 as indicated on Part B of each copy. TSD Facility always retains copy 4 for its records and mails Part B of copy 3 to the Generator.
7. Each manifest form will record a maximum of two transporters. If more than two transporters are to be utilized, the Generator must complete an additional manifest form/s, and reference the first manifest document number on the additional manifest form/s.
8. If more than six hazardous wastes from the same generator are to be shipped in the same shipment, additional manifests must be prepared by the generator.
9. Copies to be mailed to New York State by Generators and TSD Facilities should be mailed to New York State Department of Environmental Conservation, P. O. Box 13628, Albany, New York, 12212.

* Disposer State — The State in which the Designated TSD Facility is located.
\+ Generator State — The State in which the installation generating hazardous waste is located.
\+ + TSD Facility — A Treatment Storage Disposal Facility.

See Reverse Side

40-24-1 (4/81)

See cover sheet for instructions

PLEASE TYPE

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

HAZARDOUS WASTE MANIFEST

DOCUMENT NO. NY 255943 8

Part A:

To Be TYPED by Generator

GENERATOR NAME	PHONE	EPA ID NO.
SITE ADDRESS		
TRANSPORTER NO. 1	PHONE	
SITE ADDRESS		
TRANSPORTER NO. 2	PHONE	
SITE ADDRESS		
TREATMENT, STORAGE OR DISPOSAL (TSD) FACILITY	PHONE	
SITE ADDRESS		

THIS FORM IS NO. ____ OF A TOTAL OF ____ THE FIRST MANIFEST DOCUMENT NO. IS NY

	PROPER US DOT SHIPPING NAME	US DOT HAZARD CLASS	UN/NA NUMBER	FORM	NET QUANTITY	UNITS	CONTAINERS NO.	CONTAINERS TYPE	EPA HAZ CODE	EPA WASTE TYPE
1										
2										
3										
4										
5										
6										

SPECIAL HANDLING INSTRUCTIONS (INCLUDING CONTAINER EXEMPTION (e.g. IDENTIFICATION OF ADDITIONAL WASTES INCLUDED IN SHIPMENT OF A NONHAZARDOUS NATURE WHICH DO NOT HAVE TO BE MANIFESTED)

GENERATOR'S CERTIFICATION: This is to certify that the herein named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the EPA. The wastes described herein were consigned to the transporter named. The TSD Facility can and will accept the shipment of hazardous waste, and has a valid permit to do so. This shipment also conforms with all applicable State regulations. I certify that the foregoing is true and correct.

GENERATOR'S SIGNATURE (Please type name also)	DATE SHIPPED Mo. Day Yr.	EXPECTED ARRIVAL DATE Mo. Day Yr.
TRANSPORTER NO. 1 SIGNATURE: "To the best of my knowledge the contents of the shipment I have accepted for transport conforms with the description on this manifest." TRANSPORTER NO. 1 PERMIT NUMBER		DATE RECEIVED Mo. Day Yr.

COPY 1 Disposal State—Mailed by Generator

Tear at this Perforation

Transporter—FILL OUT

Part B: GEN NAME ____ GEN EPA ID# ____

TRANSPORTER NO. 1 SIGNATURE: "I certify that I have not tampered with or materially altered the contents of this shipment."	DATE DELIVERED Mo. Day Yr.
TRANSPORTER NO. 2 SIGNATURE: "To the best of my knowledge the contents of the shipment I have accepted for transport conforms with the description on this manifest." TRANSPORTER NO. 2 PERMIT NUMBER	DATE RECEIVED Mo. Day Yr.
TRANSPORTER NO. 2 SIGNATURE: "I certify that I have not tampered with or materially altered the contents of this shipment."	DATE DELIVERED Mo. Day Yr.

TSD Facility—FILL OUT

TSD NAME	TSD EPA ID #	HANDLING METHOD
TREATMENT STORAGE OR DISPOSAL FACILITY INDICATION OF ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT OR LISTING OF REASONS FOR AND DISPOSITION OF REJECTED MATERIALS		1 2 3 4 5 6
TREATMENT STORAGE OR DISPOSAL FACILITY SIGNATURE: "Upon visual inspection, I certify that the contents of this shipment conform with the description on the manifest except those discrepancies noted on this form." SIGNATURE (Please print or type name also)		DATE RECEIVED Mo. Day Yr.

In case of emergency or spill immediately call the National Response Center (800) 424-8802 and the N.Y. Department of Transportation (518) 457 7362

DOCUMENT NO. NY 255943 8

COPY 1 Disposal State—Mailed by TSD Facility

SCHEDULE

ACES has enclosed an estimated schedule highlighting the duration of the various activities on this job. This schedule is based on excavating 6,000 cubic yards and loading and disposing of 2,000 cubic yards to a secure chemical landfill.

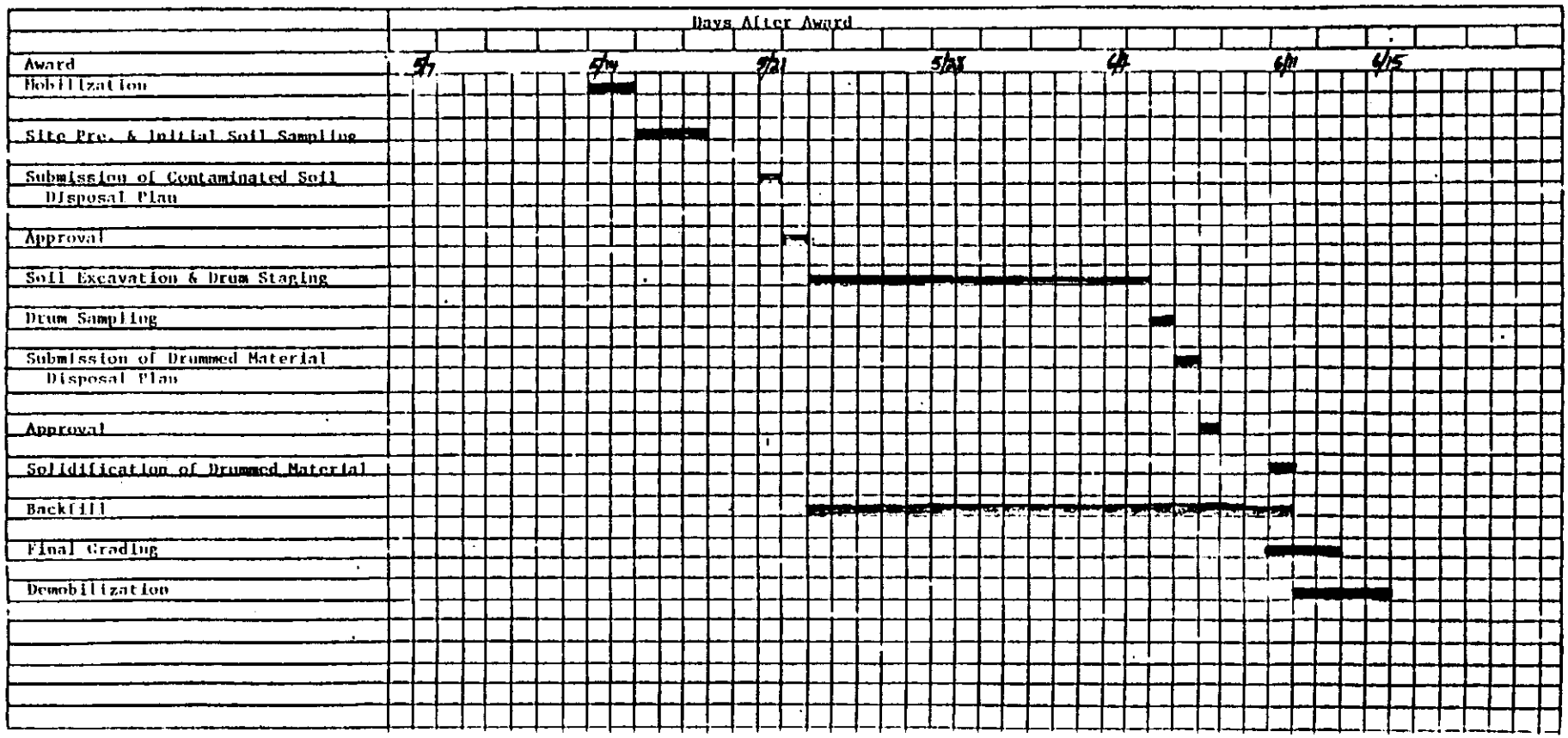
If additional material is excavated or additional material is disposed of then, this schedule will change.

SHEET 1 OF ___

PROJECT Columbia Ribbon and Carbon Site
LOCATION Glen Cove, New York
BID DATE April 26, 1984 (Addendum #1)
COMPLETION DATE ___

OWNER Powers Chemco
ENGINEERS Fred C. Hart Associates

PROJECT SCHEDULE



UTILITY REQUIREMENTS

110 volt power supply

1" water line for decontamination

HEALTH AND SAFETY PLAN INDEX

Former Columbia Ribbon and Carbon Site
Glen Cove, New York

HEALTH AND SAFETY PLAN

Former Columbia Ribbon and Carbon Site
Glen Cove, New York

Introduction

This manual details the Health and Safety Plan and practices to be employed for the remedial action work to be performed at the former Columbia Ribbon and Carbon Site in Glen Cove, New York. As described in the RFP., the actual site is located next to the Powers Chemco Company and utilized a portion as a parking lot. This area was previously used for disposal of waste solvents and inks from a manufacturing process. Reportedly, liquids were poured into pits, and filled, along with drums, debris and contaminated soils.

Entry onto the site by ACES workers will be done as proposed by this manual, in compliance with all federal, State, local health and safety requirements, but moreover, to ensure that this cleanup operation is conducted in a safe manner. To this end, the responsibility for safety will, to some extent, be shared by all who are involved, since "Safety is Everyones Business".

Actual entry onto the site will begin in Level C (which includes half-face respirators with organic vapor and dust mist fume, paint, enamel, lacquer and pesticide prefilter; hard hat and face shield, protection boots and gloves; protective coveralls; and if there is a splash hazard, chemical splash suits). While remedial action work is being performed, air monitoring will be done to confirm this level or change the level as necessary. It is expected that a higher level of respiratory protection (supplied air) may be necessary during the drum work phase.

We have defined the following materials to be present and have developed this Health and Safety Plan accordingly.

Volatile Solvents:
- Toluene
- Benzene
- Xylene (1,2) (1,3) (1,4)
- Napthalene
- Chloroform
- Di-n-octylphthalate
- Ethylbenyene
- 1,1,1 Trichloroethane
- Ethylacetate

Other materials (in high levels)
- Arsenic
- Antimony
- Cyanide
- Zinc
- Phenols
- Cadmium
- Chromium
- Lead

Care must be taken in dealing with these materials as any of the volatile solvents can also be found in the air through evaporation, as also the other material through carriers such as wind, dust and mist. Confined spaces should be avoided at all times. Information pertaining to this plan were from:

NIOSH/OSHA Occupational Health Guidelines, 1981
OHMTADS - Computer Base
NIOSH/OSHA Pocket Guidebook, 1978
Chemical Dictionary, 9# edition, 1977
Handbook of Toxic and Hazardous Materials, 1981
Merck Index 1983
OSHA 29 CFR 1910; 1983
Chemistry of Hazardous Material, 1977
Hazardous Chemical Spill Cleanup 1979
Dangerous Properties of Industrial Materials 1979
Hazardous Chemical Data Book 1980

More specific information is available through the ACES Oregon, Ohio office by contacting Safety and Training Department per W.K. Norris.

PERSONAL PROTECTION EQUIPMENT

OBJECTIVE

All personnel entering the work area will have available all the necessary safety equipment to meet any anticipated hazard that may arise at the job site.

PURPOSE

All site personnel must be adequately protected from potential health and safety hazards at the site. All State, Federal and Local Safety Standards must also be met. A sufficient and diverse inventory of all safety equipment necessary to meet anticipated hazards will be available at the site to all employees. The personnel and any site visitors must be instructed in the proper use of this equipment before entry to the work area is permitted.

PROCEDURES

The Site Safety Officer will be able to reference the extensive library of OHMTADS chemical reference sheets to assist in determination of the proper equipment and safety level to employ for each grid to be excavated. On-line telecommunications which can directly interface with OHMTADS and other computer access data bases will be available to the Site Safety Officer.

The OHMTADS data base is one of the data bases of the Chemical Information System (CIS). While the OHMTADS base does not contain all possible chemicals that may be found at an uncontrolled waste site, other pertinent bases can be asessed through SANSS. These are e.g., Toxlene, Medlene and RTECS. Also, the Site Safety Officer will have a library of information on hand for quick reference and documentation of material. These manuals include Federal Regulation, OSHA Standards, and various chemical and industrial handbooks.

ACES home office in Oregon, Ohio can be contacted (Safety and Training Department or Technical Services) for any information, advice or conformation of data at any time.

Utilizing the information obtained through calculation of the additive effects of the gaseous contaminants and the estimated rate of vapor generation as shown above, the Site Safety Officer will make a rational judgement as to the level of dress required each day. These various levels of protection are discussed below.

PERSONAL PROTECTION EQUIPMENT (CONT.)

LEVEL A

Level A protection will be selected when the highest available level of both respiratory, skin and eye contact protection is needed.

1. Personal Protection Equipment

   - Positive Pressure SCBA (MESA/NIOSH approved) Scott Air Pak 2A or Scott Air Pak Model 2.2.
   - Totally encapsulating suits (booth and gloves attached) Acid King - polyvinyl chloride by Wheeler.
   - Gloves - inner (tight fitting and chemical resistant) PVC by Edmont.
   - Boots - chemical protective, steel toe and shank. Depending on suit boot construction; worn over suit boot.
   - Gloves - outer, chemical protection. Depending on suit construction; worn over suit gloves. May be replaced with tight-fitting, chemical resistant gloves worn inside suit gloves.
   - Underwear, cotton, long-john type.
   - Hard hat (under suit).
   - Disposable protective suit, gloves and boots. (Worn under or over encapsulating suit.) Tyvec, spun-bonded Olefin by DuPont.
   - Coveralls (under suit).
   - 2-way radio communications.

2. Criteria For Use

   a. When type(s) and concentration(s) of toxic substances are known and require the highest level of combined protection to the respiratory tract, skin and eyes. These conditions would be:

      1. Atmospheres which are "immediately dangerous to life and health" (IDLH). (IDLH's can be found in the NIOSH/OSHA's "Pocket Guide to Chemical Hazards" and/or other references.)

      2. Known atmospheres or potential situations that would affect the skin or eyes, or could be absorbed into the body through these surfaces. Potential situations are those where vapors may be generated or splashing occurs through site activities.

PERSONAL PROTECTION EQUIPMENT (CONT.)

LEVEL A (CONTINUED)

2. Criteria For Use (Continued)

a. 3. Oxygen deficient atmospheres with the above conditions.

b. When the type(s) and/or potential concentration(s) of toxic substances are unknown. The site will be presumed to present hazards to the respiratory system, skin and eyes, and Level A protection will be worn by the initial entry team.

c. Total vapor readings indicate 500 ppm to 1,000 ppm.

LEVEL B

Level B protection will be selected when the highest level of respiratory protection is needed, but cutaneous or percutaneous exposure to the small unprotected areas of the body (i.e.: neck and back of head) is unlikely, or where concentrations are known to be within acceptable exposure standards.

1. Personal Protective Equipment

- Positive Pressure SCBA (MESA/NIOSH approved) Scott Air Pak 2A or Scott SKA Pak (air-line).
- Two-piece chemical resistant suit, two-piece hooded PVC by NASCO.
- Chemical resistant hood (PVC) by Edmont.
- Coveralls (fire resistant) under splash suit.
- Gloves - outer, chemical protective.
- Gloves - inner, tight fitting, chemical resistant.
- Boots - outer (chemical protective Tyvec spun-bonded Olefin by DuPont).
- Boots - inner (chemical protective, steel toe and shank) PVC industrial by Ranger.
- 2-way radio communications.
- Hard hat.

2. Criteria For Use

a. When the type(s) and concentration(s) of hazardous substances are known and require the highest degree of respiratory protection, but a lower level of skin and eye protection is required.

1. Atmospheres with concentrations of known substances greater than protection factors associated with full-face, air-purifying respirators with appropriate cartridges.

2. Atmospheres with less than 19.5 percent oxygen.

PERSONAL PROTECTION EQUIPMENT (CONT.)

LEVEL B (CONTINUED)

2. Criteria For Use (Continued)

a. 3. Type(s) and concentration(s) of vapors in air do not present a cutaneous or percutaneous hazard to the small, unprotected areas of the body.

b. A determination is made that potential exposure to the body parts not protected by a hooded Tyvec suit is highly unlikely.

1. Known absence of cutaneous or percutaneous hazards.

2. Activities performed preclude splashing of individuals.

c. Total vapor levels range from 5 ppm - 500 ppm on instruments such as an OVA or an HNU (PID) and do not contain high levels of toxic substances affecting skin or eyes.

d. Level B protection is the lowest level of protection for initial entries until the hazards have been further identified and defined by monitoring, sampling and other reliable methods of analysis.

LEVEL C

Level C protection will be selected when the type(s) and concentration(s) of respirable material is known to be not greater than the protection factors associated with air-purifying respirators, and exposure to the few unprotected areas of the body (i.e.: neck and back of head) is unlikely to cause harm.

1. Personal Protective Equipment

- Full-face, air-purifying respirator (MESA/NIOSH approved) half-faced cartridge mask (R 2300) by Willson used with Encon 160 chemical splash goggles.
- Respirator filter - filter R25 for organic vapors and acid gases by Willson.
- Chemical resistant clothing:
  - overalls and long sleeved jacket or coveralls;
  - hooded disposable coveralls - Tyvec, spun-bonded Olefin by DuPont;
  - chemical resistant suit - 2 piece hooded PVC by NASCO.
- Gloves - outer (chemical protective) PVC by Edmont.
- Gloves - inner (surgical type).
- Cloth coveralls - fire resistant (inside chemical protective clothing).
- Boots - outer (chemical protective Tyvec spun-bonded Olefin by DuPont).
- Boots - inner (chemical protective, steel toe and shank) PVC industrial by Ranger.
- 2-way radio communications.
- Hard hat.

PERSONAL PROTECTION EQUIPMENT (CONT.)

LEVEL C (CONT.)

2. Criteria For Use

a. When the type(s) and concentration(s) of hazardous substances are known and require the highest degree of respiratory protection, but a lower level of skin and eye protection is required.

1. Atmospheres with concentrations of known substances greater than protection factors associated with full-face, air-purifying respirators with appropriate cartridges.

2. Atmospheres with less than 19.5 percent oxygen.

b. Type(s) and concentration(s) of vapors in air do not present a cutaneous or percutaneous hazard to the small, unprotected areas of the body.

c. A determination is made that potential exposure to the body parts not protected by a hooded Tyvec suit is highly unlikely.

1. Known absence of cutaneous or percutaneous hazards.

2. Activities performed preclude splashing of individuals.

d. Total vapor levels range from 0 ppm - 5 ppm on instruments such as an OVA or an HNU (PID) and do not contain high levels of toxic substances affecting skin or eyes.

LEVEL D

Level D protection will be selected when there is no respiratory protection required and ther is no exposure to hazardous materials.

1. Personal Protection Equipment

- coveralls
- work uniform
- gloves
- eye protection
- boots
- hard hat

DETERMINATION OF PROPER SAFETY EQUIPMENT

OBJECTIVE

The proper safety equipment must be chosen before personnel enter the site. There must be a clearly defined process.

PURPOSE

Before personnel enter the area to be cleaned up, they must wear the proper safety equipment. For the initial entry to the site, the level of protection will be Level C. If substantiated by personnel air monitoring data, the level of protection will be down-graded to, Tyvecs, gloves and boots, but not respirators. Inversely if air monitoring data indicates sustained reading above 5 ppm in a specific area, supplied air may be used. However, since the respiratory hazards are fairly well identified, Level B protection may not be necessary. Personnel while in the contaminated zone will not use Level D.

PROCEDURE

The ACES team personnel, on site will use the following decision tree:

1 & 2) The site safety officer will review all pertinent historical data, operating records and practices, and any associated analytical data. From this information, an initial schedule of required safety equipment will be generated and implemented on the site. The SSO will hold daily safety meetings before activity begins at the site.

The content of the daily safety meeting will include the following:

- Specification of the safety dress for the day.
- Update the employees on any new hazards being encountered at the site.
- Solicitation of employee input on the safety of the operation.
- An analysis of any site accidents, should any occur, in order to ensure that they do not reoccur.

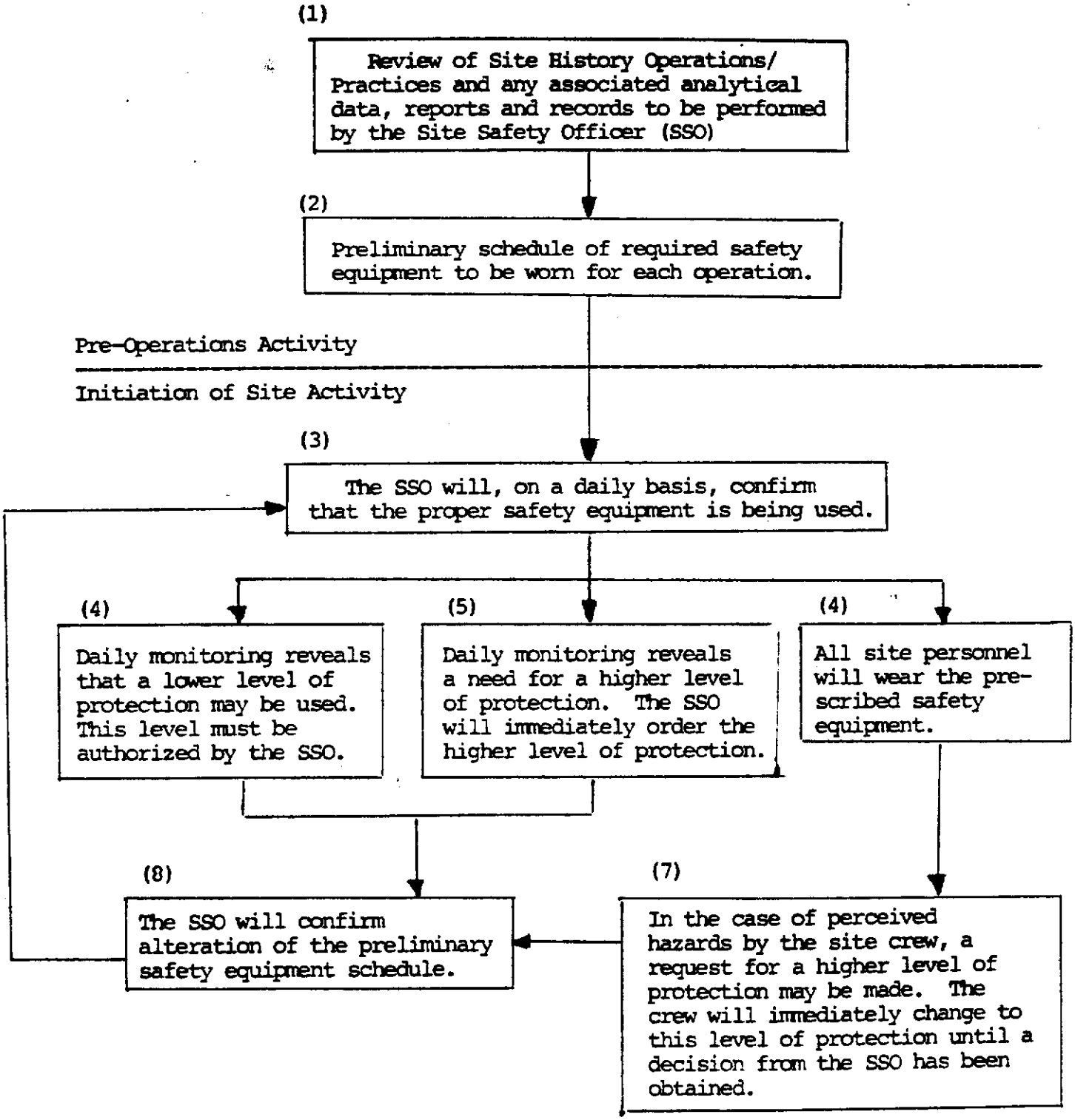
3) The SSO will daily inspect the active site(s). This is done to confirm that proper safety equipment is being used.

4) If the monitoring data and the site inspections by the SSO do not indicate the need for a change in safety equipment, all site personnel will continue to operate under the preset guidelines.

5) If monitoring results indicate the need for a higher level of protection, based upon the predetermined action levels, the SSO will immediately direct all site personnel to wear this increased level of protection. This predetermined action level will be of the air monitoring level of 6ppm above each ground.

6 - 8) If the monitoring reveals that a lower level of protection will be sufficient, the SSO will have responsibility for any down-grading of safety equipment requirements.

1 & 2). The Site Safety Officer will review all pertinent historical data, operating records and practices and any associated analytical data. From this information, and initial schedule of required safety equipment will be generated and implemented on the site. The SSO will hold daily safety meetings before activity begins at the site.



SAFETY EQUIPMENT PROCEDURES

OBJECTIVE

All personnel entering the work area will have available all the necessary safety equipment to meet any anticipated hazard that may arise at the former Columbia Ribbon and Carbon site.

PURPOSE

All site personnel must be adequately protected from potential hazards at the job site. A sufficient and diverse inventory of all safety equipment necessary to meet anticipated hazards will be available at the site to all employees. The personnel and any site visitors must be instructed in the proper use of this equipment before entry to the work area is permitted.

PROCEDURES

The following personal protection and safety equipment will be maintained and provided in sufficient supply to meet the job requirements and allow site inspections by all authorized personnel.

Respiratory Protection Equipment Usage Criteria.

1. Users will have been medically approved to use such equipment.

2. Users will be fit-tested by the following procedure:

   a. The respirator is placed over the face and the straps are drawn securely. The mask should not be so tight as to cause discomfort or a headache. Bottom straps should be secured first.

   b. Negative pressure test.

      - Close off the cartridge inlet with the palm of the hand.
      - Gently inhale so the facepiece collapses against the face for about 10 seconds.
      - Note whether or not the negative pressure within the facepiece is maintained over the 10 seconds. This can be determined by an inward rushing of air.

   c. Positive pressure test.

      - Close off the exhalation valve with the palm of the hand. The exhalation valve cover may have to be removed.
      - Exhale gently into the facepiece so a slight positive pressure builds.
      - Note whether or not the positive pressure can be built. An outward leakage is present if it cannot be built.

SAFETY EQUIPMENT PROCEDURES (CONTINUED)

2. d. "Smoke" test.

- Both ends are broken on an MSA (or equivalent) ventilation smoke tube. One end is inserted into the tube connected to the positive pressure end of a two-way respiratory bulb and the other end covered by a 1" - 2" length of tygon, surgical or rubber tubing. The test aerosol is generated by squeezing the aspirator bulb.
- The test subject will don the respirator and a visual inspection of the facepiece-to-face seal will be made by the tester. An obvious leak in the facepiece-to-face seal shall be reason to abort the test and record that mask as unsatisfactory. Expression of discomfort created by the mask shall also be reason to abort the test.
- The smoke will be generated and directed around the entire sealing surface of the mask. The tube will be held no closer than 3" or farther than 6" from the sealing surface. The test subject will be instructed to breathe shallowly during initial test around surface and normally thereafter if no leakage is detected. If a half-mask is being tested, the subject shall be instructed to close his eyes for the duration of the test. The test shall be performed first with the test subject sedentary, then with the subject performing head and face movements (i.e.: talking, moving side to side and up and down). Leakage at any time shall be cause to terminate the test.
- Any indication of detection of the smoke by the test subject during fitting indicates a failure of that respirator. If leakage is detected, the subject shall be removed from the test atmosphere and the facepiece-to-face seal visually inspected for obvious leakage. If any doubt about the condition of the respirator or the filter exists, another like respirator shall be tested to assure the leakage was due to the facepiece-to-face seal.

3. Users will have been trained in the use, selection, limitations and maintenance of the equipment.

4. Workers will be familiar with the written procedures for use of respirators (full-face, air-purifying respirator (MESA/NIOSH approved) half-faced cartridge mask (R 1200) by Willson used with Encon 160 chemical splash goggles, respirator filter - (filter R21 and R15 prefilter for organic vapors and acid gases by Willson). Respirator training documentation will be furnished to the CO upon request.

5. Equipment will be issued to individuals for their personal use and marked accordingly.

6. Equipment will be inspected before each use and during post-use cleaning and will receive a thorough inspection once each month during the project by an approved respirator maintenance man. ACES will maintain records of the equipment inspections.

SAFETY EQUIPMENT PROCEDURES (CONTINUED)

7. Respirators will be cleaned and disinfected after each day's use or more often if necessary.

8. Respirators will be stored in a convenient, clean and sanitary location.

9. Respirators in use will only be those with NIOSH/MESA approvals.

10. Respirators in use will be selected in accordance with the guidance of the American National Standard Practices for Respiratory Protection Z88.2-1980.

11. Air quality will meet the requirements for Grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1966.

12. Air cylinders in use will have been tested in accordance with the Shipping Container Specification Regulations of the Department of Transportation.

13. Air cylinders will be marked in accordance with American National Standard Method of Marking Portable Compressed Gas Containers to Identify the Material Contained 248.1-1954.

14. In areas where the respirator wearer, with failure of the respirator, could be overcome by a toxic or oxygen deficient atmosphere, at least one additional worker will be present (the Buddy System). communications between workers will be maintained and the additional worker will be positioned so as to be unaffected by an incident and will have the proper rescue equipment to be able to assist others.

Body Protection

1. If the hazard present is known to be minimal or simply a nuisance, then minimal protection is warranted. This will be in the form of garments of Tyvek which are disposable.

2. As the hazard to the body becomes more serious, the level of needed protection increases. A splashsuit made of PVC will be used if the team encounters chemical liquid hazards such as acids or bases when there is minimal chance for direct contact.

3. In the event that the materials being encountered are more toxic in effect, then more substantial protection will be utilized in the form of splashsuits made of butyl rubber or neoprene.

4. In the event of encountering high levels of vapors/gases or the possibility of skin contact with liquids that are toxic via percutaneous absorption, then fully encapsulating suits (Acid King-polyvinyl chloride by Wheeler) will be used in connection with supplied air or self-contained breathing apparatus.

SAFETY EQUIPMENT PROCEDURES (CONTINUED)

Foot Protection

1. Footwear worn during site activities will have steel toes and steel shanks. Footwear will meet the specifications of ANSI Z41. 1-1969.

2. For protection against liquid hazards, boots of neoprene, PVC, butyl rubber or natural rubber, depending on the nature of the hazardous chemical encountered and its ability to permeate various materials, will be worn.

3. In the event of the need for decontamination, disposable, pullover boots will also be used.

4. Pant legs will be worn outside of boots to prevent spillage into boots.

Selection of Boot Materials-Chemical Protection by Generic Glass

Generic Class	Butyl Rubber	Poly Vinyl Chloride	Neoprene	Natural Rubber
Alcohol	E	E	E	E
Aldehydes	E-G	G-F	E-G	E-F
Amines	E-F	G-F	E-G	G-F
Esters	G-F	P	G	F-P
Ethers	G-F	G	E-G	G-F
Fuels	F-P	G-P	E-G	F-P
Halogenated Hydrocarbons	G-P	G-P	G-F	F-P
Inorganic Acids	G-F	E	E-G	F-P
Inorganic Bases and Salts	E	E	E	E
Ketones	E	P	G-F	E-F
Natural Fats and Oils	G-F	G	E-G	G-F
Organic Acids	E	E	E	E

Legend: E - Excellent F - Fair G - Good P - Poor

Hand Protection

1. Heavy leather gloves will be worn over chemical protective gloves when doing heavy work. If the leather gloves become contaminated they will be discarded.

2. Jacket cuffs will be worn over glove cuffs to prevent any liquid from spilling into the gloves. The gloves will be sealed with tape to the coveralls or splash-suits, to prevent spilling any liquid into the jacket if hands are elevated above the head during work activity.

SAFETY EQUIPMENT PROCEDURES (CONTINUED)

Hand Protection (Continued)

3. Gloves will be selected, for various situations, taking into consideration length of cuff, thickness in relation to degree of protection afforded and thickness effects on manual dexterity. For routine use, the inner gloves (tight fitting and chemical resistant) will be made of PVC by Edmont. When manual dexterity is the prime consideration (only when there is no danger from hazardous chemicals), the PVC gloves that afford a close, tight fit will be used without the heavy leather and without cotton inner gloves.

Safety Glasses

1. Safety glasses, goggles or face shields will be included as standard safety gear for each member of the site crew.

2. Safety glasses will meet the specifications Z87.1-1968.

3. Safety glasses will be worn when the respiratory protection is a half-face mask or when no face shield is worn.

4. The safety goggles chosen for the project are Encon 160 goggles with fog-free lenses.

Hearing Protection

1. Ear plugs or muffs will be issued when the noise level exceeds 90 dBA. Activity around the backhoe and bulldozer may warrant the use of ear protection.

2. The permissible exposure limit (PEL) to noise, per 29 CFR 1910.95 (a) (b) is 90 dBA, measured slow response on an eight hour time-weighted average (TWA).

3. Employees will be offered hearing protection at 85 dBA and will be required to wear it at 90 dBA.

Head Protection

1. Hard hats will be worn in all work operations.

2. Hard hats will be Class A and meet ANSI Z89-1-1969 specifications for protection.

3. Face shields or cold weather liners will be affixed to hard hats as needed.

4. Signs designating the site as a hard hat area will be posted conspicuously around the site.

SAFETY EQUIPMENT

Respiratory Equipment

Scott 2.2 a air-pak + cylinder
30 min. Scott air-pak cylinder
Scott recharging system
Scott ska-pak - cylinders
Scott pressure demand full face air line mask + belt harness
Scott pressure demand half face air line mask
Scott breathing air hoses (3/8") 50' sections
Scott pressure reducing gauges
Scott cascade systems
#229 breathing air cylinders (4 hour)
Willson WIGW full face canister gas mask
Willson canisters 1) organic vapor 2) Acid Gas 3) Ammonia
MSA full face canister gas masks
MSA canisters 1) Organic Vapor 2) Acid Gas 3) Ammonia
Willson R1200 half face cartridge gas mask
Willson R10 prefilter (dust/mist)
Willson R11 cartridge (dust/mist/fume)
Willson R13 pre filter (dust/mist/fume)
Willson R15 pre filter (dust/mist/fume/pesticide/paint/laquer/enamel)
Willson R21 cartridge (organic vapor)
Willson R24 cartridge (ammonia/methylamine)
Willson R25 cartridge (organic vapor/acid gas)
Willson R682 retainer
Willson R683 retainer
Willson 1410 (dust, asbestos filter)
3M 8712 disposable organic vapor gas mask

Clothing

Wheeler Acid King fully encapsulated suit
Wheeler Acid King hoods
Dura-fab pvc coated tyvek fully encapsulated suits
Dura-fab pvc one piece coverall
Wed Dri chemical protective suits
1210 Weatherite rainsuits
Tyvek coveralls (with hood and elastic wrist and cuff)
Cloth coveralls
PVC 40' splash apron with full front and arms
Butyl Rubber 36' splash apron with full front and arm
White cotton work socks

Boots

Weatherite slush boots
Weatherite hip waders
Weatherite chest waders
Ranger steel toe/shank boots
Tyvek disposable booties

Safety Equipment (Cont.)

Gloves
- Best 12' pvc
- Best 18" pvc
- Best 12" nitrile
- Willson 12" lab
- Norton butyl rubber (acid)
- Granit pvc winter lined
- 8 oz. cotton
- Edmont pvc-winter lined
- Edmont Surgical Gloves

Head and Face
- Hard Hat Class B
- 12" face shield with rim
- Goggles, chemical splash non-vented
- Goggles, vented
- Eye Glasses with side shield, shatter proof fire retardant hard hat liners

Sampling Equipment
- Brass non-sparking
  - Drum Wrench
  - Hammer
  - Sledge
  - Socket Set (12 piece)
  - Scrappers
  - Round, square nose pony shovel
  - Chisel
  - Picks
  - Hoe, rack
- 1 centimeter glass sample tubes
- 3'x8" sample bags
- 1 pint to 1 gal sample jars and lids
- Brass depth finder
- Brass clam bucket

Air Monitoring
- Century Foxburo 128 OVA with printer
- HNU photoionization detector
- Dynameter explosion, 0_2 Meter
- Backrach TLV Sniffer
- MSA Sample pump and tubes
- 3M #3500 organic vapor badges
- Radiation geiger counter lowpower mr.

Safety Equipment
- Fire Extinguishers A,B,C (Sand 20 lb.)
- Encon Pressure Eye Wash Station (5 gal.)
- Encon Portable Eye Wash Station (5 gal.)
- Encon Portable Eye Wash Station (10 gal.)
- Zee Medical 25 Man First Aid Station
- Johnson and Johnson First Aid Kits
- Stretcher
- Fire Blanket

INVENTORY OF ITEMS IN WALKWAY AND HANGING ON WALL:

2 - Industrial First Aid Kit
1 - Stretcher
2 - Emergency Eye Wash Stations
1 - Emergency Oxygen
1 - Fire Blanket
1 - Fire Extinguisher
1 - 4' Ladder
1 - Circular Saw (#9523)
14 - Wilson Gas Masks
1 - Emergency Wash Shower

A. Boots Size: 9 - 6
10 - 10
11 - 11
12 - 6
13 - 10
14 - 6

B. Tyvek	2 Boxes
Incapsulated Suits	4 - Large
Medium Acid Rain Suits	75
Orange Coveralls	2 Boxes - Large 1 Box - X-Large
½" x 4' Testing Rods	1 Box
C. Acid Rain Suits	75 - Medium 75 - Large 35 - X-Large
D. Rubber Gloves (Af-18) - Green	48 Pairs
(25930) - White	4 Dozen
Black Rubber Acid	5 Pairs
Anti-Fog Solution	2 Bottles
Water Bottles	12
E. Face Shields	2
Holders	6
Rain Suits	90
Safety Glasses	20 Pairs
Safety Goggles	20 Pairs
T-5 Toilet Chemical	1 Box

F.	Air Hose - Scott - 50'	11 Sections
	Fresh Air Fittings for Tanks	1 Box
	Monkey Grip Rubber Gloves (3-318)	6 Dozen
	White Size: 10	4 Dozen
	9 (25928)	1 Dozen
	Green 11 (MF-18)	7 Dozen
G.	Yellow Gloves (7668)	2 Dozen
	Cartridges for Organic vapors and Acid Gases	19 Boxes
	G1 Canisters	60 Boxes
	R21	38 Boxes
	R682	3 "
	R683	9 "
	R10	4 "
	R11	4 "
	R13	4 "
	1410	4 "
H.	Fire Extinguisher	1
	Air Bottles	12
	Scott Air Cylinders	6
	Cascade Lines	3
	Heaters	2
I.	Scott Air Pak	2
	Ice Cooler	
	Rags	1 Box
J.	Manila Rope	
	Rags	1 Box

K. Fittings:

a. Hose Caps
   1-4"
   1-3"
   1-2"
   1-1½"

b. Hose Plugs
   1-4"
   1-3"
   1-2"
   1-1½"

c. 1-4" Male Adapter/Male Thread
   1-4" Male Adapter/Female Thread
   1-3" Male Adapter/Male Thread
   1-3" Male Adapter/Female Thread
   1-2" Male Adapter/Male Thread
   1-2" Male Adapter/Female Thread

K. Fittings (Continued):

1-1½" Male Adapter/Male Thread
1-1½" Male Adapter/Female Thread
1-6" Male Adapter/Frmale Thread
1-6" Male Adapter/Male Thread

d. 1-6" Female Coupler/Male Threads
1-4" Female Coupler/Male Threads
1-3" Female Coupler/Male Threads
1-2" Female Coupler/Male Threads
1-1½" Female Coupler/Male Threads

e. 1-6" Female Coupler/Female Threads
1-4" Female Coupler/Female Threads
1-3" Female Coupler/Female Threads
1-2" Female Coupler/Female Threads
1-1½" Female Coupler/Female Threads

f. Reducers
1-6" Female to 4" Male Adapter
1-4" Female to 1½" Male Adapter
1-2" Female to 1½" Male Adapter
1-3" Female to 1½" Male Adapter
1-3" Female to 2" Male Adapter
1-4" Female to 3" Male Adapter

Plastic Fittings:

2 - ½" Tees
6 - ½" Elbows
4 - ½" Coupler
3 - ½" Threaded Coupler
3 - ½" Lawn Faucets
2 - ½" Pipe Plugs

4 - 3/4" Barrel and Drum Faucet
2 - 3/4" Pipe Plugs

Miscellaneous Fittings

Speedy Dry	4 Bags
Barrel Thiefs - 1½"	2

L.

Anti-Freeze	5 Gallons
Motor Oil	15 Gallons
Cleaning Solvent	5 Gallons
Diesel	5 Gallons
Gas	5 Gallons
Empty Can - 5 Gallon	1
Pressure Eye Wash Station	1 5-Gallon Can

M.	Poly Cover	4 x 24	7 Rolls
		4 x 12	3 Rolls
	Poly Bags		1½ Rolls
	151 Pads		2 Bundles
	Empty Gallon Jugs		2 Boxes - 6 Jugs
	Empty Quart Bottles		1 Dozen
	Empty Pint Bottles		2 Dozen
	Empty Half-Pint Bottles		2 Dozen

N.	Acid King Suits	3
	Acid King Hoods	2
	Acid King Patch Kit	2

O. <u>First Shelf</u>

Banner 3" Caution	No Smoking	
Banner 3" Caution	Acid Hazard	
Banner 3" Caution	Do Not Enter	
Banner 3" Caution	Caustic Hazard	
Banner 3" Caution	Caution	
Banner 3" Caution	Open Trench	
Banner 3" Caution	Entry Requires Special Permission	
Stencils	(252-G)	1
	(252-P)	1
	(252-R)	1
Placard Holders		
Drum Labels	PBC	250
Hazard Waste	ORM-E	200
	ORME-E	500
Placards	Flammable	20
	Combustible	20
	Poison	20
	Flammable Solid	20
	Oxidizer	20

<u>Second Shelf</u>

Drum Labels	Flammable Solid	500
	Flammable Liquid	500
	Oxidizer	500
	Corrosive	500
	Chlorine	500
	Poison	500
	Combustible	500
Air Pump		
Staple Hammer		
Staple Gun		
Staples	1/4"	11 Boxes
	3/8"	3 Boxes
	9/16"	2 Boxes
Nails	4 Different Sizes	
Miscellaneous Nuts, Bolts, Screws		
Puco Numbers		3 Sets
Rubber Straps		1 Box

O. Third Shelf

Sand Paper
Outlet Plugs - 220 - Black
Outlet Plugs - 220 - Yellow
110 Male Plugs
110 Female Plugs
Plug-in Circuit Breakers
Air Chisel plus Accessories
Duct Tape
Nails - 16 penney

Fourth Shelf

Garden Hose - 50'
Suction Hose - 25'
Fire Hose - 50'

P. First Shelf

Ext. Banners	1 Box
Explosion-proof Lights	1 Box

Second Shelf

Spray Paint	
Black	8 Cans
White	4 Cans
Hi-Temp Aluminum	6 Cans
Epoxy Latex Enamel - Red	1 Pint
Stencil Ink	4 Cans
Penetrating Oil	4 Cans
Starting Fluid	4 Cans
Gas Treatment	2 Cans
PH Test Kit	1
Regular Flash Light	
Flash Light Batteries	8

Third Shelf

Jumper Cables	
Duct Tape	1 Box
Mobil Grease	7 Tubes
Explosion-proof Flash Light	3

Fourth Shelf

Garden Hose - 5/8" - 50'
High-pressure Hose - 1" - 2 Sections - 25'
Fire Hose - 1½" - 6 Sections - 50'

Q. First Shelf

Extra Barrel Gaskets
Explosion-proof Lead Lights - 25'
Lead Cords - 25'
Extra Placards

Second Shelf

String		2 Rolls
Pipe Tape		
7205 Lock		1
Chain Saw Oil		1 Gallon
Lumber Crayon - Red and Blue		
Electrical Tape		

Third Shelf

Brass Tools:

Socket Set - ½" Drive		
Bung Wrench		1
Ball Pen Hammers		3
Hatchet		1
Brass Stake		1
Pipe Wrenchs	10"	1
	18"	1
Channel Lock Pliers	8"	1
	12"	1
Screw Drivers	18"	1
	12"	2
	8"	1
Phillips Screw Drivers	8"	1
	12"	1
Brass Wedge	W2 - ½"	1
	W4 - 1"	1
Putty Knife	1"	2
Sarapers	6"	3
Combination Wrench	5/8"	1

Hand Tools:

Machutte	7
Cheater Bar	1
Drum Cutters	2
Metric 3/8" Drive Set	1
Hatchet	1
Crescent Wrench - 10"	1
Garden Hose Nozzel	1
Utility Knife	2
Screw Drivers - Assorted Sizes	
Phillips Screw Drivers - "	
Putty Knives	
Socket Set - ½" Drive	
Hammers	
Pliers	
Bung Wrench	
4-Way Lug Wrench	
Wire Brushes	2

Q. Third Shelf (Continued)

Hand Tools (Continued):
Hatchet
Pipe Wrench
Cable Cutter
Razor Blade Scraper

Fourth Shelf

PTO Drive Line
"U" Joint 1
Fire Hose - 1½" - 6 Sections - 50'
Snatch Block
Hydralic Jack and Handles
Pump - 1½"

R.

Lawn Rake	1
Garden Rake	1
Pick	1
Short-handle Square Nose Shovel	2
Long-handle Square Nose Shovel	5
Short-handle Round Nose Shovel	2
Long-handle Round Nose Shovel	3
Push Brooms	3
Ax	1
Sledge Hammer	1
Brass Sledge Hammer	1
Extra Handle for Pick	1
Extra Handle for Push Brooms	2
Corn Broom	1
Long-handle Scrapers	2
Tree Saw	1
Lumber Saw	1
Air Hose with Gland Hand - 50'	1
Red Flags with Stakes	6
Grease Gun	1
Jumper Cables	1 Set
Arnold Lubricator	1
Ramset	1
Squeegee	2
Short-handle Spade	1
Barrel Grounds	2
Grass Spreader	
Plastic Pumps	2
Flagman Vests	2

S. Reference Books
Miscellaneous

Cabinets under Sink:

Right-hand Side

Bath Towels		13
Face Towels		6
Bathroom Paper		5 Rolls
White Socks		5 Boxes
Orange Coveralls		1 Medium
		1 X-Large
Off		4 Cases
Chest Wadders	Size: 9	2 Pair
	11	2 Pair

Left-hand Side

D & L Hand Cleaner
Fantastik
Protective Hand Cream
Paper Cups
Hand Soap
Window Cleaner
Paper Towels
Abrasive Cleanser

In each Individual Locker:

Hard Hat	1
Scott Air Belt	1
Fresh Air Mask	1
White Gloves	1 Pair
Black Rubber Gloves	1 Pair
Face Shield	1
Face Mask with Assorted Filters	1

EQUIPMENT MASTER LIST

COID	EQUID	EQDESC	SERIAL	MODEL
1	22-1011.83	72 IH Tandem Dump Trk.	15682OH272573	1800
1	22-1016.84	73 GMC Tandem Dump Trk.	TJ190DV568804	9500
1	22-1017.84	73 GMC Tandem Dump Trk.	TJ190DV572588	9500
1	22A1018.84	73 GMC Tandem Dump Trk.	TJ190DV569612	9500
1	22A1019.84	73 GMC Tandem Dump Trk.	TJ190DV572590	9500
1	22A1020.84	73 GMC Tandem Dump Trk.	TJ190DV569765	9500
1	22-1127.91	69 GMC Value Van	P530HFA17217	PS3500
1	22-1131.92	62 GMC Fuel Tanker	JP1456F	FV-4008
1	22-1134.77	64 IH-Oil Tanker	SB4448998	17CO-IH
1	22-1136.93	78 Ford Service Trk.	W60FVBJ5844	L-600
1	24-1162	1982 Semi Dump Trailer	1E1D1R38-4CRF05162	
1	24A1163	1982 Semi Dump Trailer	1E1D1R38-6CRF05163	
1	24A1164	1982 Semi Dump Trailer	1E1D1R38-8CRF05164	
1	22-1264.93	78 Ford 4x4 Pick Up Trk.	F26HLCA9055	F-250-4x4
1	22-1350.73	'60 IH SA Tractor	FA62282F	R-190
1	22-1357.73	'62 IH SA Tractor	FD1277OF	R-190
1	22A1372.74	1980 Kenworth K-100	281589K	K-100
1	22A1373.74	1980 Kenworth W-900	179093S	W-900
1	22-1374.74	1980 Kenworth W-900	180948S	W-900
1	22-1375.74	1980 Kenworth W-900	180949S	W-900
1	24A1401.86	61 Ottawa Lowboy Trl.	1846	LBT 25
1	24A1403.87	68 Fontaine Lowboy Trl.	358T11379	LBT 35
1	24A1405	Fruehauf Tool Trl.	CHX26902TFW4402	
1	24A1406	51 Trailmobile Tanker	35X13161	6000 Gal. Tank
1	24-1409	Fruehauf Tool Trl.	OK26903TFW5368	
1	24-1411	'72 Water Separator Trl.	WC-11805	WC-1624
1	24-1412	Fruehauf Office Trl.	ME25509	
1	24A1418	B & K Tri-Axle Trl.	3201406	
1	06A1435	72 Superior Motor Home	MH01068153	
1	20-1440.72	Rome Harrow Plow	10TAW-30065	
1	28-1700	200 AMP Lincoln Welder	A404364	
1	28-1701	200 AMP AC-DC Welder	473602	
1	28A1704	Hobart Welder	42445	
1	28-1705	Miller Welder	HHO19953	
1	06-1800	'84 Celebrity L.Critch	1G1AW27ROE6839288	Chev-Celeb.
1	06-1801	'84 Celebrity J.Laliberte	1G1AW19R5E6843943	Chev-Celeb.
1	16-1900.69	Fabricated Light Plant		
1	16-1901.69	Fabricated Light Plant		
1	16-1902.69	Fabricated Light Plant		
1	18-1910.99	4 Inch Gorman Rupp Pump	370587	
1	28A1912	Cat Generator In #1405		
1	18A1917.99	3 Inch Gorman Rupp Pump	361636	
1	18-1918.99	Barnes Supmersiple Pump	30016	
1	18A1919.99	3 Inch Gorman Rupp Pump	556394	
1	18A1920	Tornado Vac High Effic.	8622A-ADH1124	320
1	12-1924	Tow Motor Fork Lift	PSN20L274	
1	18-1925.99	4 Inch Gorman Rupp Pump	557398	
1	18A1926.99	3 Inch Gorman Rupp Pump		
1	22-2109.96	77 CCC Rolloff	23980	F4414-4BJ

EQUIPMENT MASTER LIST

COID	EQUID	EQDESC	SERIAL	MODEL
1	22-2116.96	74 CCC Roll Off Trk.	19178	CCC R44244
1	22-2129.97	67 GMC Dumpster	CE37A123226	CE637A
1	22-2133.97	'77 Single Axle Dumpster	D1227GGB17650	2070A
1	02-3004.52	D-7 '54 Cat Bulldozer	3T3678	D-7
1	02-3008.56	Cat D8H Crawler Dozer	46A18,623	
1	12-3101.62	955H Cat Crawler Loader	60A/2056H	955H
1	12A3103.65	71 Cat 977L Endloader	11K3944	977L
1	12-3109.64	Cat 966 Endloader	764194	966
1	12-3110.66	988 Cat Endloader	87A1608	988
1	02-3142.55	D65P-6 Komatsu	31420	D65P-6
1	14-3203.70	Cat 12 Grader	7T45SP	12
1	14A3204.70	Cat 14 Grader	64C231	14
1	14-3205.70	'72 Cat Grader	72G132	Cat 14E
1	20-3251.71	WABCO Elev. Scraper	GP43753CPA6G	222
1	20-3255S71	TS14-Scraper	57512	TS 14
1	20-3255T71	TS14-Scraper	57512	TS 14
1	20-3256.72	Cat 70 Pull Scraper		
1	20-3258.72	Cat 70 Pull Scraper		
1	14-3259.49	Dodge Wayne St. Sweeper	D51FYOS115164	945
1	14-3260.49	Dodge Wayne St. Sweeper	1581929252	945
1	04A3306.41	75 J.D. 410 Backhoe	203604	JD 410
1	04A3307.41	75 J.D. 410 Backhoe	170308	JD 410
1	04-3308.45	Int. Tractor Mower	14661	504
1	10-3402L12	'68 Lima Trk Crane 65 Tn.	4863-19	60CT
1	10-3402U12	'68 Lima Trk Crane 65 Tn.	3528-14	60CT
1	08-3707	Leroi Air Compressor	203X3491	
1	08-3709	Leroi Air Compressor	911012H	
1	08-3711	Leroi Air Compressor	911012H	
1	02-4006.55	D65P-7 Komatsu	40060	D65P-7/W.T.
1	02A4007.55	D65P-7 Komatsu	40079	D65P-7/W.T.
1	24-4010	Whitehead Car Carrier	8293	
1	24A4013	59 Stritch #1 Tool Trl.	DEO4-1005	
1	24A4014	63 Fruehauf #2 Tool Trl.	FWC653302	
1	24-4016	57 Heil Tanker Trl.	901154	
1	24A4017	Haz.Trl.62 Fruef. Van	FWCJ28901	
1	24A4018	'83 Boom Trailer	N/A	Home Made
1	24A4019	Command - Comissary Trl.	AUB575438	
1	24-4020	Fruehauf Van Trl.	AUB575434	Storage
1	24A4025	80 Ace Oil Boom Trl.	Home Made	Boom Trl.
1	24A4026	80 Ace Oil Boom Trl.	Home Made	Boom Trl.
1	24A4027	Boat Trl. Little Dude	EK0215	
1	24A4028	68 Flatbed Trl.	E607SS	
1	24-4029	69 Kentucky Van Trl.	32099	Storage
1	24A4030	Haz. Trl.'69 Kentucky Van	35520	
1	24-4031	Decontamination Trl. 1980	128615	10-50ST
1	24A4032	'77 45' Budd Van Trailer	144372E	YS2S450A56
1	24A4033	1972 Welles Trailer		
1	24-4034	82 Benlee Rolloff Trl.	82-205C	TA60TC
1	22-4035.76	71 GMC Vac Trk.	CM603-Y180630	CM 56403
1	22A4036.76	71 GMC Vac Trk.	GM503Y201526	CM 56403
1	24-4037	'83 Benlee Rolloff Trl.	83-221	TRA60TC
1	22A4039.80	70 Ford Flatbed Truck	F61DCH81088	F-600
1	24A4040.75	71 Skid Vac-Trl. Mount	5201008	Skid Vac.

EQUIPMENT MASTER LIST

COID	EQUID	EQDESC	SERIAL	MODEL
1	18-4913.99	4 Inch Gorman Rupp Pump	5726744	
1	18A4914.99	4 Inch Gorman Rupp Pump	4853644	
1	18-4915.99	6 Inch Gorman Rupp Pump	G658630	
1	18-4923.99	4 Inch Gorman Rupp Pump	628925	
1	06A4924	Oil MDP Machine	1251F	
1	22-4927.93	'77 Jeep 4-Wheel Drive	J7A45MN047358	J10 4X4
1	22-4928.93	'77 Jeep 4-Wheel Drive	J7A25MN103394	J10 4X4
1	18-4930.99	3 In. Gorman Rupp SubPump	685453	
1	18-4931.99	Gorman Rupp Submrsble Pmp	49F0017	
1	16A4932.69	Sun Lite Tower Lt. Plt.	2011	3014-MH
1	16A4933.69	Sun Lite Tower Lt. Plt.	1038-08	60410-MH
1	16A4934.69	Sun Lite Tower Lt. Plt.	1033-06	60410-MH
1	18A4960.99	4" Marlowe Pump	628021	4DR4EL
1	18A4961.99	Hydraulic Plastonic Pump	3-3-81-1730	3X1.5X6AD-HP
1	18A4962.99	Electric Plastonic Pump	S835097	3X1.5X6AD-HP
1	18-4963.99	4" Gr.(Fabricated) Pump	750502N	54J20B
1	18A4964.99	2" Gorman Rupp Pump	763467	
1	18A4965.99	2" Gorman Rupp Pump	763466	
1	18A4966.99	2" Gorman Rupp Pump	738798	Diaphram
1	02-5018.58	'75 IH-TDC-Dozer-6-Way	UCO-1805	TD8C
1	02A5019.57	'76 IH-TD8E-Dozer-6-Way	5514	TD8E
1	02-5020.55	D6D Cat Dozer LGP	6X408	D60 LGP
1	02A5023.50	'79 D-3 Cat Widetrack DZR	6N1149	D3-LGP
1	02-5025.56	D85-E Komatsu Dozer	23824	D85E
1	24-5031	'67 Fruehauf Semi-Dump IL	FWG667803	
1	24-5033.98	'70 Fruehauf Tanker Trl.	MM510801	9000 Gal. Tanker
1	24-5034.98	'70 Fruehauf Tanker Trl.	MM510802	9000 Gal. Tanker
1	22A5043.93	'74 Chevy Pick-Up	CCY3341141047	C-30 *1 Ton
1	22-5044.93	'76 GMC Pick-Up Tk.B.Butz	TCL146F733228	15
1	22-5048.80	70 Chevy Flatbed Trk.	CE330F155461	C-30
1	22-5052.74	67 White Tandem Tractor	696737	4000
1	22-5053.93	'72 Chevy Pickup J.Truby	CCE14241566333	10
1	22-5058.74	67 White Tandem Tractor	696735	4000
1	22-5069.80	'69 GMC Flatbed Truck	EM50V-C067992	EM50V
1	24-5099	Atlantic Office Trl.	TRO-7	
1	12-5102.63	CAT 955K Endloader	85J757	955K
1	12-5109.65	71 977K Cat Endloader	11K-3301	
1	20-5210.72	Rome Harrow Plow	10TBW-1175	TBW-20
1	24A5431	4-Axle Utility Trl.	Shop Made	
1	18A5920.99	8 Inch Crisafulli Pump	7823	
1	22-5925	Ward Lefrance Fire Engine	9796C6	
1	22-6120.80	'66 Ford Lube Truck	C70EU906389	
1	06A8141.82	'82 Suburban/Fred S.	1G8EC16H7CF149324	Scottsd.10
1	99999	General Repair Number		

RESPIRATORY PROTECTION PROGRAM

OBJECTIVE

Workers must be protected from the detrimental effects of any vapors generated or released during remedial activity at the former Columbia Ribbon and Carbon site.

PURPOSE

A respiratory protection program will be instituted to protect the health and well-being of the employees. The training program will educate site personnel in the proper use of respiratory equipment and protective levels for any and all vapors which might be encountered during remedial activity. Continuous on-site air monitoring will be performed to ensure that exposure limits are not exceeded and to assist in the selection of the proper safety equipment to be worn. Instruction will also be supplied to workers in the proper operation of the respiratory equipment.

PROCEDURE

The respiratory protection program will include the following items; however, additional items may be added if deemed necessary by the Site Safety Officer.

1. The Principal Safety Officer and the Industrial Hygienist will perform an initial determination as to exactly which employees and what levels of respiratory protection are necessary for the site safety zones. Once this initial determination is made, the Site Safety Officer will perform this function in the field daily.

2. Air monitoring will be conducted to determine the concentration of airborne contamination.

3. Only NIOSH approved respirators will be used. Respirators will be selected according to the OSHA and ANSI standards as well as worst-case conditions anticipated for each particular work period.

4. Instruction and training:

   a. Medical Approval. Prior to work on site, documented approval will be obtained for employees to use a respirator. This approval will be obtained from the physician that has conducted the physical examination (including an examination of the pulmonary function) for each employee prior to the start of excavation activity at the site. This approval document will be available to the CO upon request.

   b. Respirator Fitting. The Site Safety Officer will conduct the fit testing procedure described under Section S.2.3 of this document.

PROCEDURE (CONTINUED)

4. Instruction and training: (Continued)

   c. Employee Instruction. The users will be instructed as to the usage, limitations and cleaning procedure of the respirator before they are allowed to start work at the site. Site personnel will be advised during the daily safety meetings as to the type of air contaminant they are being protected against for each phase of the operation.

5. Employees will be responsible for insuring that the respirator is functioning properly prior to each day of use.

6. Air-line or SCBA respiratory equipment will be inspected daily. Spare cylinders for this equipment will be kept on site.

7. When entering an enclosed area, vessel, pit, trench, etc., the following steps will be taken:

   a. Testing will be conducted prior to and during entry.
      1) Test of oxygen level.
      2) Test for the lower explosive limit (LEL).
      3) Test for toxic gases.

   b. Standby personnel will be present with approved rescue equipment, i.e.: harnesses, safety lines, self-contained breathing apparatus, etc.

Documentation of respirator use is important. All users of respirators will sign a form stating that he or she was properly fitted and instructed on the care and use of the respirator after the fit testing procedure.

RESPIRATORY EQUIPMENT INSPECTION AND MAINTENANCE

OBJECTIVE

Proper operation of respiratory equipment must be assured at all times.

PURPOSE

To prevent the exposure of employees to toxic vapors, all respiratory equipment must be inspected and repaired before use. All equipment must be disinfected to prevent the spread of viruses and pathogens.

PROCEDURE

The following procedures will be used in the inspection and maintenance of self-contained breathing apparatus masks and air purifying respirators. All respiratory equipment inspections will be recorded on the log form. Respiratory equipment found to be defective during inspection will be tagged for maintenance; and acceptable respiratory device is one with no defects.

1. Equipment Inspection Procedures.

INSPECTION PROCEDURE FOR THE WILLSON FILTER MASK

a. The mask is first cleaned of all outstanding dirt and debris.
b. Remove the side cartridge holders and the valve cover.
c. Inspect the cartridge holder for any signs of wear.
d. Check the gasket in the holder for signs of wear.
e. Check the valve on the back side of the cartridge holder.
f. Inspection of the exhalation valve for signs of water.
g. Check the head straps for any stretching or tears.
h. Check the face piece for any signs of wear, hardening or cuts.

INSPECTION PROCEDURES FOR THE SCOTT AIR PAK

a. Check all components for completeness:
   1) Face piece assembly.
   2) Cylinder and valves.
   3) Harness assembly.
   4) Regulator and hose.
b. Check the condition by finally examining:
   1) Face piece and breathing tube, including exhalation valve.
   2) Regulator and hose assembly, including nipple and coupling gasket.
   3) Harness and back frame.
c. Check for leaks by applying soap solution to:
   1) Valve to cylinder connection.
   2) Valve to hose connection.
   3) Relief device.
   4) Valve stem.
   5) Hose to regulator connection, expanding bubbles indicate leakage.

INSPECTION PROCEDURES FOR SCOTT AIR-LINE PRESSURE DEMAND RESPIRATOR

a. The mask is first cleaned of all outstanding dirt and debris.

Fit - Testing

This document is to certify that on this

Date_____

Employee_____ was qualitatively fit-tested

to wear a respirator.

The fit-testing was performed by_____

Signed (employee)_____

Employee Number_____

Date Completed_____

Respirator Monthly
Log

Type	Brand	Location	Inspect	Comments

WILLSON 1600, 1700 MASKS

FULL FACE

DATE	TIME	NUMBER	ISPECTION CHECK LIST							PARTS REPLACED
			FACE PIECE	CART HOLDER	HEAD STRAPS	EXH. VALVE COVER	EXH. VALVE DIAPH.	INHAL. VALVE DIAPH.	CART. HOLDER GASKET	

IV-33

WILLSON WIGW CANISTER MASK

DATE	TIME	NUMBER	INSPECTION CHECK LIST							PARTS REPLACE
			FACE PIECE	LENS	LENS RINGS	HOSE	EXHAL. VALVE COVER	EXHAL. VALVE DIAPHRAGM	HEAD STRAP	

WILLSON 1200 MASK

DATE	TIME	NUMBER	ISPECTION	CHECK		LIST			PARTS REPLACED
			WEAR, CUTS, OR HARDENING	GASKET	VALVE	CART. HOLDER	EXHAL. VALVE	HEAD STRAPS	

TRAINING PROGRAM

OBJECTIVE

All personnel entering the excavation area will be trained in the proper safety procedures as set forth in 40 CFR 265.16, 29 CFR 1910 and 29 CFR 1926. All personnel entering the hazardous waste site will be informed of the possible dangers and long-term hazards present at the former Columbia Ribbon and Carbon site.

PURPOSE

The purpose is: (1) to develop safe work habits among the work crew, and (2) to train and inform personnel involved with the site work on the hazards present at the site.

All of the legislation mentioned under the Objective, except for 40 CFR 265.16, has been enacted to insure a safe working environment for the labor force of America. Although 29 CFR 1910 and 29 CFR 1926 were not written with the removal of hazardous waste under field conditions in mind, the implementation of these rules is applicable.

PROCEDURE

The ACES team personnel working at the site will be highly trained professionals. Each member will undergo site-specific training to supplement previous hazardous waste management training experience. Past training has been comprehensive and will continue to be conducted by persons trained in hazardous waste management procedures.

Training these personnel is the responsibility of William R. Bunner (Safety and Training Rep.)

Key areas in the curriculum of the Safety Training that will take place prior to the site-specific training include:

- Hazard analysis investigations
- Approved standard operating procedures
- Safety equipment to be used
- Personal protective equipment to be worn
- Methods of decontamination
- Contingency plan implementation
- Area of restricted access
- Emergency procedures and plans
- Personal hygiene requirements

Site specific training will include:

- An explanation of the special hazards at the site which include the presence of: site specific hazards.

- The results of the hazard analysis investigations as they pertain to employee personnel.

- The review of the approved standing operating procedures as they apply to the employee safety.

- An explanation of the limits and operating procedures of the safety equipment to be used at the site.

- The standing operating procedures for personnel decontamination.

- The employee's role in, and the standing operating procedures for, implementing the contingency plan.

- Area of restricted access.

- Emergency procedures and plan.

- The "Buddy System" to be used at the site, the ACES team employees will not work alone in isolation but will be deployed in the contaminated zones in such a manner as to be in constant communication with each other. To fulfill the communications requirement of 40 CFR 265.32:

- The site crew will be in constant visual contact.

- Hand-held radios will be utilized by any workers out of hearing range.

- An alarm siren will be maintained in the command trailer to warn employees of any dangerous site conditions.

These procedures are in accordance with the "Buddy System" procedures outlined in the USEPA Occupational Health and Safety Manual Draft of August 29, 1980.

As part of the "Buddy System", the ACES team employees at the site will be instructed to inform the supervisor and their "Buddies" or co-workers of any new, unknown hazards that they detect and to observe their co-workers for unusual symptoms. Additionally, they will be able to provide first aid for heat exhaustion, heat prostration and heat stroke.

The personnel at the site will observe each other for any toxic exposure effects. Indications of adverse effects include:

a. Changes in complexion, skin discoloration
b. Changes in coordination
c. Changes in demeanor
d. Excessive salivation, pupillary response
e. Changes in speech pattern

Also, the Contractor team site personnel will inform the supervisor of nonvisual effects of toxic exposure such as:

a. Headaches
b. Dizziness
c. Blurred Vision
d. Cramps
e. Irritation of eyes, skin, or respiratory tract

Training records which document that previous training was comprehensive will be made available for review upon request by the Contracting Officer.

The length and scope of the training curriculum for the ACES team personnel, as required for field technicians in a minimum of forty (40) hours in training. This includes in house training, and out of house training (such as the 40 hour Hazardous Material Control course of Texas A & M University, seminars and previous on the job specific training.) The total amount of training is dependent on the employee's length of service with the Contractor.

In the course of the site-specific training the team will receive, the provisions of 40 CFR 265.16 will be covered. The purpose of this training is to ensure that the personnel working at the site are able to respond effectively to emergencies by familiarizing them with all relevant emergency procedures, which include use of emergency equipment and systems. This segment of the training will include a detailed description of the communications systems to be used at the site, the procedures for responding to fires and explosions, and the procedure for shutdown.

As part of the company policy, ACES requires that at least two (2) of the employees be trained in:

- First Aid (Red Cross Training) - 8 hours
- Cardiopulmonary Resuscitation (Red Cross Training) - 8 Hours
  This training is in full compliance with EM 385-1-1 since it is conducted by the Red Cross and other certified professionals.
- Respiratory Protection - 8 hours as specified in 29CFR1910.134
- Protective Clothing - 4 hours pertaining to 26CFR1910.134
- Use of Safety Equipment

ACEShas developed, and continues to develop, its own modular safety instruction program. ACES safety instruction consists of information that is needed by workers who are involved in cleaning up spills of hazardous materials and hazardous waste disposal operations.

This program not only is used to refresh and inform the management and foreman of their responsibilities in the field but also is geared to teach all field technicians and equipment operators in the proper handling of hazardous materials. The following topics are covered:

- Basic Supervision - 16 hours

In addition to the internal training program, ACES also provides its key employees with the following outside instruction:

JT Baker Hazardous Material Training
Microbiology of Activated Sludge
Personal Protection and Safety (USEPA)
Industrial Fire Brigade Workshop
Construction Safety Seminar

Production of Breathing Air and Its Storage
Gas Detector Operations
Air Sampling and Testing
Explosive, Corrosive, & Flammable Environments

ACES provides all field technicians and equipment operators with one week of classroom and hands on training given in the Hazardous Materials Control Course sponsored by Texas A&M. This course is geared to give high pressure training of personnel involved in hazardous material response. It allows every individual to participate at every decision level in hazardous material response.

ACES in conjunction with the Medical College of Ohio at Toledo has developed an employee medical surveillance program. All employees undergo an extensive medical examination. These examinations are repeated on a regular basis. Personnel are checked after any major operation or suspected exposure for any variance from the established baseline parameters.

Training records for ACES are currently maintained on their IBM System 34. As additional training is completed before (and during remedial site operations if new needs are determined) this information will be documented daily in the ACES's records and kept until the site is closed or until anytime beyond that, as stipulated by the State.

TRAINING MODULES
FOR
F/A HAZARDOUS WASTE TREATMENT, STORAGE & DISPOSAL
OCCUPATIONS

SUPERVISION

F/A COURSE: SUPERVISION and being SUPERVISED (16 hours)
MODULE: S1. ROLES & STYLES OF SUPERVISION
S2. PLANNING
S3. ORGANIZATION AND CONTROL
S4. STANDARDS AND EVALUATION
S5. MOTIVATION
S6. COMMUNICATION
S7. PROBLEM SOLVING
S8. DECISION MAKING AND THE FUTURE

HAZARDOUS MATERIALS

F/A COURSE: HANDLING HAZARDOUS MATERIALS (16 hours)
MODULE: H1. CHEMICAL CONCEPTS
H2. MANIFESTS.LABELS,PLACARDS
H3. CORROSIVES
H4. TOXICS
H5. FLAMMABLES
H6. ORGANICS/INORGANICS
H7. WATER REACTIVES/OXIDIZERS
H8. EXPLOSIVES/RADIOACTIVITY

F/A COURSE: HAZARDOUS MATERIALS EQUIPMENT (16 hours)

MODULE: E1. RESPIRATORY PROTECTION I
E2. RESPIRATORY PROTECTION II
E3. INTEGUMENT PROTECTION
E4. DECONTAMINATION
E5. GAS DETECTION
E6. CONFINED SPACE ENTRY (TANKS)
E7. SAMPLING
E8. INFORMATION RESOURCES

FIRST AID

MODULE: F1. RED CROSS MM FIRST AID (8 hours)
C1. CHEMICAL FIRST AID (4 hours)
CPR1. RED CROSS CPR (8 hours)

R.C.R.A.

F/A COURSE: ORIENTATION TO R.C.R.A.

MODULE: R1. NEW EMPLOYEE TRAINING
R2. ANNUAL R.C.R.A. REVIEW

FIRE BRIGADE

F/A COURSE: BASIC FIREFIGHTING CERTIFICATION (18 hours)module FF1

F/A COURSE: O.S.H.A. SUBPART(req.training)

MODULE: OT1. FIRST QUARTER CLASS
OT2. SECOND QUARTER CLASS
OT3. THIRD QUARTER CLASS
OT4. FOURTH QUARTER CLASS
OT5. ANNUAL HANDS ON CLASS

DRIVER TRAINING

F/A course: HAZARDOUS WASTE DRIVER

MODULE: D1. DRIVER REGULATIONS
D2. DRIVER S.O.P.& EMERGENCIES
D3. STATE REQUIREMENTS

HEAVY EQUIPMENT OPERATIONS

F/A COURSE: HAZARDOUS MATERIALS HEAVY EQUIPMENT OPERATIONS

MODULE: HE1. HAZARD RECOGNITION
HE2. S.O.P. & EMERGENCIES

SPECIAL COURSES

MODULE SC1. HAZARDOUS MATERIAL CONTROL COURSE-TEXAS A&M (40 hours)
SC2. MANAGEMENT and DISPOSAL of HAZARDOUS & CHEMICAL WASTES J,T, BAKER (16 hours)
SC3. HAZARDOUS MATERIALS SEMINARS

NOTE

Some of the content area topics may have been learned in other courses. Administrators, for example, may have learned principles of supervision in college courses or in other out-of-house seminars

MEDICAL SURVEILLANCE PROGRAM

OBJECTIVE

The objective of the project Medical Surveillance program is to insure that:

1) All employees who work at the site are medically fit to do so.

2) Adequate programs are in place to handle medically related problems, should any result from the site.

3) Follow-up medical monitoring can be provided, if such surveillance is warranted.

PURPOSE

The purpose of the medical program is to insure to the extent possible that all ACES employees who do cleanup work involving hazardous chemicals are in good health to permit detection of any chemically related health problems and to provide a mechanism to verify that such work has not resulted in employee ill health. Additionally, the Medical Surveillance Requirement of OSHA (29CFR1910, Sub part 2) and with NIOSH recommendation for such provisions.

PROCEDURES

The procedures for the project medical program for all ACES workers subject to exposure to hazardous materials have been coordinated with the Medical College of Ohio at Toledo. Medical examinations for Contractor personnel will be performed by the Medical College of Ohio at Toledo.

These procedures detail the medical examinations to be performed prior to starting operations at the site and are as follows:

1) Chest X-ray PA view, ILO interpretation
2) Electrocardiogram (EKG)
3) Pulmonary Function (Vital Capacity, FVC, FEV-1, FVC-5)
4) Visual Acuity
5) Audiogram
6) Complete Blood Count with Differential
7) Complete Urinalysis with Micro
8) SMA 26 Blood Chemistry
9) RPR (Serology)
10) T4 (Thyroid Function)
11) Physical Exam - Pulse, Blood Pressure, etc.
12) Medical History
13) Heavy Metals Screen (Urine analysis, State-of-the-Art)
    a. Cadmimum
    b. Chromium
    c. Lead
    d. Zinc
    e. Mercury
    f. Arsenic
    g. Bismuth
    h. Antimony

14) Evaluation of Ability of Employee to Use Respiratory Equipment
15) Pulmonary History

The standard program of medical examinations for workers exposed to hazardous conditions is outlined below. This program establishes baseline information for each worker and dictates the schedule for regular examinations.

PROTOCOL FOR WORKERS AT RISK TO TOXIC EXPOSURE

1. Medical History and Physical

   a. For all workers at risk
      1) Initial, complete past/present medical history and physical examination for all full-time employees (includes pre-employment examination).
      2) Same for all special or part-time employees before special work assignments.

   b. Monitoring
      1) Semi-annual complete medical history and physical examination for all employees working at the site.
      2) Exit medical history and physical examination.
      3) Part-time and special employees - Focused history and physical examination within 30 days following special risk exposure.

A thorough medical examination will be given to any worker who experiences any illness during the project or who suffers an injury which results in loss of blood. This examination will take place as soon as applicable after the illness or injury and in no case will the worker be allowed to start work at the site again without first having this follow-up medical examination.

Whenever trucks enter the contaminated zone, they will be driven by an employee of the trucking firm who has undergone the physical examination outlined previously and has received the standard and site specific training including respiratory equipment training and certification for use (as needed). The regular truck driver will wait in the clean zone until his truck is returned to him following loading and decontamination.

A statement as to the physical fitness of the employee will be available to the CO upon request.

All other personnel involved with the site, including contractoral agents, state agencies, and visitors must, in order to enter the contaminated zone, show proof of medical testing to the on-site coordinator and the site safety officer or the personnel will be asked to sign a form stating that if given permission to enter and examine the site, said personnel shall be soley responsible for and shall keep, save and hold the State of New York, its employee and Contractor and its subcontractors from and against any and all costs and expenses in connection

therewith, on account of loss of life, propertyor injury or damage to the person, body or property of any person, agency or corporation where shall arise from or result directly or indirectly from said entry upon inspection of activity upon or in the vicinity of the site.

Once this is done, the personnel will then be briefed as to the hazards involved, and receive specific training in their areas.

Upon signing and agreeing with the site entry requirements, ACES will supply the necessary safety equipment for said personnel and escort the said personnel on site. All names, times and areas exposed to will be logged and kept on file in the command office.

SPECIAL MEDICAL PROCEDURES TO BE AVAILABLE

OBJECTIVE

A specific plan of action which will delineate the procedures to be used in the event of a medical injury or accident must be established for the former Columbia Ribbon and Carbon site.

PURPOSE

The ACES team special medical procedures are designed to minimize personal injury, illness and accident by quick and decisive action in the case of any incidents needing such.

PROCEDURE

The following ACES personnel are responsible for the development of emergency medical procedures and employee safety.

Director of Operations - FA - Fred Sander

Director of Safety and Training - FA - Bill Bunner

Technical Services Representative, Safety and Training - Bill Norris

The following contractor personnel are responsible for on-site coordination of emergency medical procedures.

Supervisor -

Site Safety Officer -

These people or the transport vehicle operator will be responsible for initiating emergency response procedures and allocating the resources to conduct the spill containment or other emergency operations.

ON-SITE EMERGENCY SITUATION

All emergency medical situations will be handled by the ACES Supervisor and Safety Officer.

In the event that additional assistance is needed, the following agencies may be contacted:

Nassau County Health Department	-	416-535-2406
New York DEC	-	518-457-7362
Poison Control Center	-	516-542-2323
Local Doctor - Dr. Pevry	-	516-676-3111
Hospital	-	516-676-5000
Police	-	516-676-1000
Fire	-	516-676-0366
Public Works	-	516-676-2000

MEDICAL EMERGENCY PROCEDURES

1) Physical Injury to Employees

- For minor injuries, routine first aid procedures will be used.
- For major injuries, an ambulance will immediately be called, first aides will get information about the nature of the injury from the victim if the victim is conscious. (Note: In cases of severe injury occurring in Zone 1, not involving the release of toxic gases from the site, the ambulance will be driven into Zone 1, to pick up the injured person. Decontamination of the worker, attendants, and the ambulance interior will take place subsequent to arrival at the hospital. Prior to leaving the site, the ambulance wheels will be sprayed for decontamination with extreme rapidity, and the driver will be accompanied by the Site Safety Officer who will direct the decontamination activity at the hospital. In instances where the injury resulted from a release of toxic gas and it is possible that an IDLH atmosphere still exists in the immediate vicinity of the injured worker, the worker will be carried from the area by properly protected co-workers, stripped of his outer garments, and placed in the ambulance.
- If the victim is unconscious, the first aides will check for vital signs.
- In the event of cessation of breathing and/or cessation of heartbeat, appropriately trained (qualified) first aides will administer cardiopulmonary resuscitation.
- In the event of bleeding, broken bones, shock, burns, heat exhaustion, heat stroke, seizure, insect sting, etc., the first aides will use the Red Cross approved measures for treatment.
- In the event that the injury is less serious but warrants further medical attention, the victim shall be transported to the local hospital.
- Fred Sander, Bill Bunner and the Dispatcher are to be immediately advised of any accident involving death, bodily injury or substantial property damage. The Project Manager will be notified as soon as possible in all cases.

2) CHEMICAL INJURY TO EMPLOYEE

- Immediate assessment shall be made as to what type of safety gear is necessary to enter the area to determine how ill or injured the victim is.
- Rescuers must check vital signs.
- An ambulance will immediately be called.
- Remove victim to fresh air and resuscitate if necessary.

2) Chemical Injury to Employee (Cont.)

- If clothing is contaminated and injuries permit, remove clothing and flood skin with copious amounts of water.
- If eyes are contaminated, irrigate immediately with copious amounts of water.
- Have patient transported to the hospital.
- Call ahead and notify the hospital to which victim(s) is being taken.
- Treatment for exposure to toxic chemicals, especially exposures to multiple chemical mixtures of unknown concentrations and amounts, is not knowledge that is readily available to most physicians and hospitals due to infrequent exposure occurrence. The Contractor team will notify the best and nearest source for this type of information.
- The Site Safety Officer will accompany the injured person to the hospital and advise the hospital of all data necessary.
- Fred Sander, Bill Bunner and ACES Dispatcher are to be immediately advised of any accident involving death, bodily injury or substantial property damage. The Project Manager will be notified as soon as possible in all cases.

PERSONAL HYGIENE REQUIREMENTS

OBJECTIVE

To institute basic procedures to insure body cleanliness of site personnel.

PURPOSE

The purpose of personal hygiene requirements is to develop safe work habits among the work crew, the work area and general good house-keeping activities in and around the job site.

PROCEDURE

ACES personnel working at the former Columbia Ribbon and Carbon site will be highly trained professionals with extensive experience working at hazardous waste sites. These individuals are well versed in the standard safety practices which include basic personal hygiene.

The personal hygiene requirements include:

- Only personnel having duties within the excavation and clean up area will be permitted to enter.
- Personnel entering the excavation and clean up area will be correctly protected by appropriate safety equipment and clothing.
- Personnel exiting the excavation and clean up area will decontaminate and remove all protective equipment and clothing before:
    1.) Eating
    2.) Smoking
    3.) Taking in liquids
    4.) Leaving the site for the day
    5.) Any other activity
- Personnel will shower as soon as possible at the end of the work day to insure decontamination procedures are complete.
- Personnel will be clean shaven each day (mustaches are not included) to permit a good seal when respiratory equipment is used.
- Personnel will report any unusual or different physical conditions (ill feeling, rash, etc.).
- Personnel will present themselves in a clean orderly fashion at all times.

EMERGENCY TELEPHONE NUMBERS

Project Name former COLUMBIA RIBBON and CARBON SITE Project No. _____

The following are the business and home telephone numbers where project key personnel can be reached at all times. In addition, the emergency telephone numbers of other vital agencies are listed:

	Business	Residence
Mike Barbara, P.E. Fred C. Hart CONTRACTOR'S PROJECT MANAGER	212-840-3990	516-938-0735
Power's Chemco Inc. Rep. John Biedry	516-676-4000	516-751-0626
Project Manager - Fred Sander	419-726-1521	419-287-4488
On-site Project Representative		

OTHER EMERGENCY TELEPHONE NUMBERS

OSHA REPRESENTATIVE	
FIRE	676-0366
AMBULANCE	676-1000
DOCTOR Dr. PERRY	516-676-3111
HOSPITAL	676-5000
POLICE	676-1000
GAS COMPANY	
ELECTRIC COMPANY	
WATER COMPANY	
TELEPHONE COMPANY	
Nassau County Health Dept.	516-535-2406
OTHER POISON CONTROL CENTER	516-542-2323
OTHER N.Y. D.E.C.	518-457-7362

All key personnel should have a copy of this information, and a copy should be posted in each field office in a prominent location.

ACCIDENT INVESTIGATION AND REPORTING

OBJECTIVE

The Contracting Officer and the operation's administrative units must be informed about any accidents which occur as part of the excavation operation.

PURPOSE

The pertinent details about accidents, damage, existing hazards, and actions taken to alleviate problems must be provided to the Project Manager, Site Safety Officer and the Site Supervisors.

PROCEDURE

In the event that an accident or some other incident such as an explosion, a theft of any hazardous material, or an exposure to toxic chemical levels occurs during the course of the project, the Contracting Officer will be telephoned within one hour and receive a written notification within 48 hours. In addition, reports will be filed with the Safety Officer. The report will include the following items:

- Name, organization, telephone number, and location of the contractor.
- Name and title of the person(s) reporting
- Date and time of accident/incident
- Location of accident/incident, i.e., building number, facility name.
- Brief summary of accident/incident giving pertinent details including type of operation ongoing at time of accident.
- Cause of accident/incident, if known
- Casualties (fatalities, disabling injuries)
- Estimated property damage, if applicable
- Nature of damage; effect on contract schedule
- Action taken by contractor to insure safety and security
- Other damage or injuries sustained (public or private)

ACES team members each file accident reports internally to monitor and control future incidents. The format of the accident report to be utilized at the site is shown in the following pages.

SUPERVISOR'S ACCIDENT REPORT

Department Name_____ Work_____
Name of Employee_____ Occupation_____
Date of Accident Month_____ Day____ Year____ A.M./P.M._____
What Duties Were Being Performed at Time Of Accident?_____

How Did the Accident Happen?_____

Extent of the Injury or Illness and Part of Body Affected_____

Was Medical Treatment Beyond First Aid Administered?
Yes No Unknown If yes, explain_____

Lost Workdays Yes No Unknown

SUPERVISOR'S EVALUATION

One entry is to be made below in A or B for each accident. Indicate the corresponding code number for either A or B from the lsit on the inside cover that you feel was the most direct cause of teh accident. If not listed, please explain. Indicate the measures you have taken to prevent a recurrence.

A. Unsafe Condition . . . . . _____
Other_____
Preventive Measures Taken,_____

B. Unsafe Act . . . . . _____
Other,_____
Preventive Measures Taken,_____

IF YOU FEEL THERE WAS A CONTRIBUTORY CAUSE TO THE UNSAFE ACT, INDICATE BY MARKING THE APPROPRIATE BOX.

☐ 1. The employee was not instructed to do the job properly.

☐ 2. Standard operating procedures regarding safety and health practices for employees were not developed, implemented or enforced.

☐ 3. The employee was not placed into a job he could perform in a safe or healthful manner.

Additional Comments_____

Supervisor _____ Date_____

OSHA No. 101
Case or File No. _____

Form approved
OMB No. 44R 1453

Supplementary Record of Occupational Injuries and Illnesses

EMPLOYER

1. Name _____

2. Mail address _____
(No. and street) (City or town) (State)

3. Location, if different from mail address _____

INJURED OR ILL EMPLOYEE

4. Name _____ Social Security No. _____
(First name) (Middle name) (Last name)

5. Home address _____
(No. and street) (City or town) (State)

6. Age _____ 7. Sex: Male_____ Female_____ (Check one)

8. Occupation _____
(Enter regular job title, *not* the specific activity he was performing at time of injury.)

9. Department _____
(Enter name of department or division in which the injured person is regularly employed, even though he may have been temporarily working in another department at the time of injury.)

THE ACCIDENT OR EXPOSURE TO OCCUPATIONAL ILLNESS

10. Place of accident or exposure _____
(No. and street) (City or town) (State)

If accident or exposure occurred on employer's premises, give address of plant or establishment in which it occurred. Do not indicate department or division within the plant or establishment. If accident occurred outside employer's premises at an identifiable address, give that address. If it occurred on a public highway or at any other place which cannot be identified by number and street, please provide place references locating the place of injury as accurately as possible.

11. Was place of accident or exposure on employer's premises? _____ (Yes or No)

12. What was the employee doing when injured? _____
(Be specific. If he was using tools or equipment or handling material, name them and tell what he was doing with them.)

13. How did the accident occur? _____
(Describe fully the events which resulted in the injury or occupational illness. Tell what happened and how it happened. Name any objects or substances involved and tell how they were involved. Give full details on all factors which led or contributed to the accident. Use separate sheet for additional space.)

OCCUPATIONAL INJURY OR OCCUPATIONAL ILLNESS

14. Describe the injury or illness in detail and indicate the part of body affected. _____
(e.g.: amputation of right index finger at second joint; fracture of ribs; lead poisoning; dermatitis of left hand, etc.)

15. Name the object or substance which directly injured the employee. (For example, the machine or thing he struck against or which struck him; the vapor or poison he inhaled or swallowed; the chemical or radiation which irritated his skin; or in cases of strains, hernias, etc., the thing he was lifting, pulling, etc.)

16. Date of injury or initial diagnosis of occupational illness _____
(Date)

17. Did employee die? _____ (Yes or No)

OTHER

18. Name and address of physician _____

19. If hospitalized, name and address of hospital _____

Date of report _____ Prepared by _____
Official position _____

DECONTAMINATION PROCEDURES

OBJECTIVE

To ensure that personnel or equipment in the contaminated zone do not spread or carry hazardous material into a clean zone.

PURPOSE

By setting up a zone of reduction or decontamination area, all equipment and personnel must decontaminate before a total exit from the contaminated zone occur.

PROCEDURE

Due to the anticipated hazards of the site, the ACES personnel and equipment that work in the contaminated zone will have total decontamination done while exiting the site. This will include gross decontamination of outer clothing, washing and rinsing of inner clothing with specific decon solutions, removal of inner clothing (and disposal if needed), showering and redressing into street clothes before exiting into the clean zone. A decontamination trailer will be on site to assist in these activities. The trailer is equipped with a clean area and contaminated side separated by showers.

LEVEL C DECONTAMINATION

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:

- 2 piece, hooded, chemical-resistant splash suit
- Respirator, filtering cartridge or canister
- 1 piece, outer protection Tyvek
- Hard Hat and eye protection
- Chemical resistant boots
- Boot covers (if necessary)
- 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: Tyvek, Boot Covers, and Glove Wash

Scrub outer boot covers and gloves with decon solution or detergent/ water.

Equipment: container (20-30 gallons)
decon solution
or
detergent water
2-3 long-handle, soft-bristle scrub brushes

Station 3: Tyvek, Boot Cover and Glove Rinse

Rinse off decon solution from Station 2 using copious amounts of water. Repeat as many times as necessary.

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

Station 4: Tape Removal

Remove tape around boots and gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
plastic liners

Station 5: Tyvek, Boot Cover Removal

Remove Tyvek and Boot Covers and deposit in container with plastic liner.

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

Station 6: Outer Glove Removal

Remove outer gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
plastic liners

Station 7: 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 8: Suit/Safety Boot 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
2-3 long-handle, soft-bristle scrub brushes

Station 9: Canister or Mask Change

If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boots covers donned, and joints taped. Worker returns to duty.

Equipment: canister (or mask)
tape
boot covers
gloves

Station 10: 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 11: 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 12: Inner Glove Wash

Wash inner gloves with decon solution or detergent/water that will not harm skin. Repeat as many times as necessary.

Equipment: decon solution
or
detergent/water
basin or bucket

Station 13: Inner Glove Rinse

Rinse inner gloves with water. Repeat as many times as necessary.

Equipment: water
basin or bucket
small table

Station 14: Facepiece Removal

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

Equipment: container (30-50 gallons)
plastic liners

Station 15: Inner Glove Removal

Remove inner gloves and deposit in container with plastic liner.

Equipment: container (20-30 gallons)
plastic liners

Station 16: 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 17: Field Wash

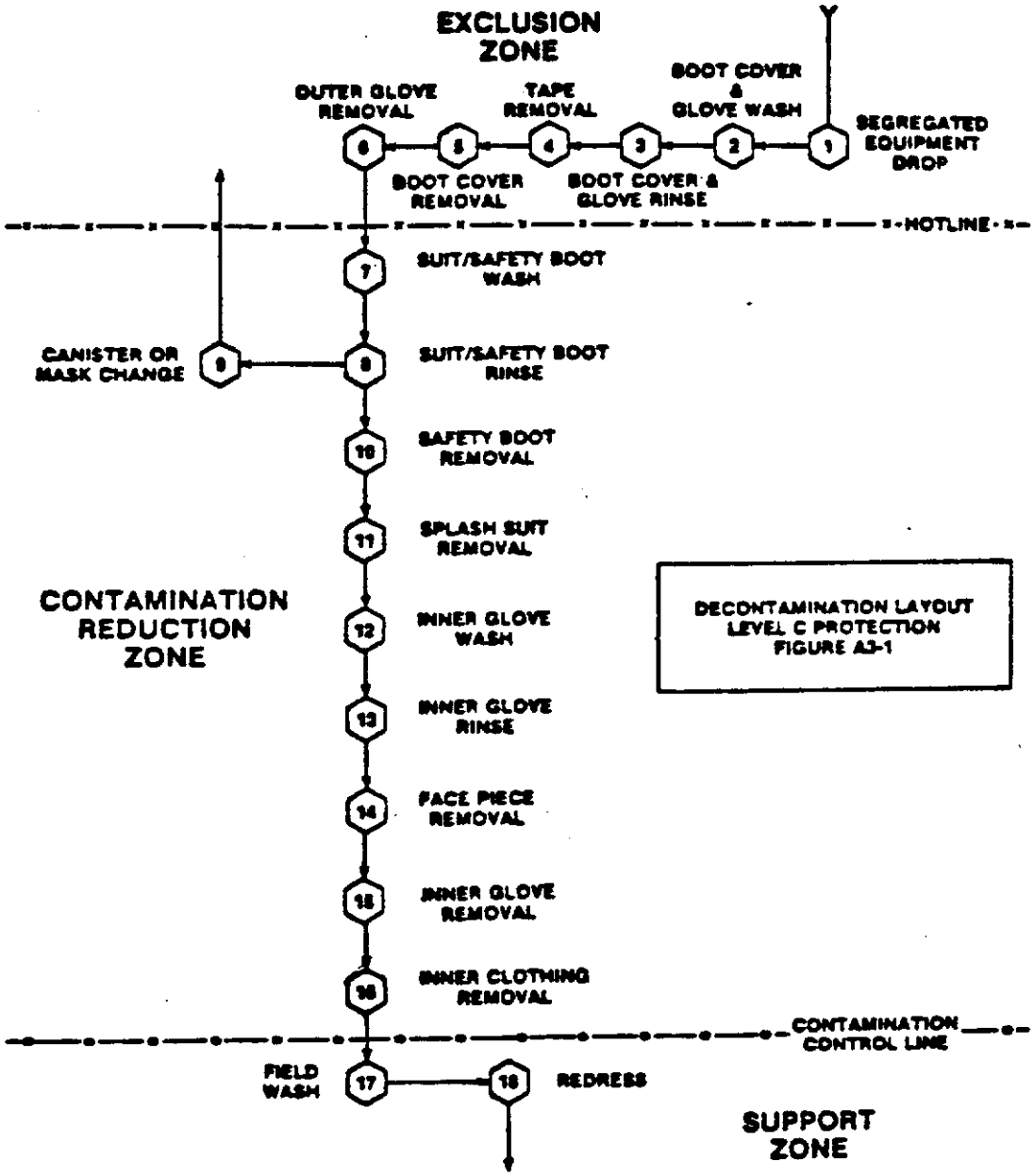
Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available.

Equipment: water
soap
tables
wash basins/buckets
field showers

Station 18: Redress

Put on clean clothes. A dressing trailer is needed in inclement weather.

Equipment: tables
chairs
lockers
clothes



DECONTAMINATION LAYOUT
LEVEL C PROTECTION
FIGURE A3-1

C. FULL DECONTAMINATION (SIT. 1) AND THREE MODIFICATIONS

SIT	STATION NUMBER																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X									
3	X						X	X		X	X			X	X	X	X	
4	X						X	X	X									

Situation 1: The individual entering the Contamination Reduction Corridor is observed to be grossly contaminated or extremely skin-corrosive substances are known or suspected to be present.

Situation 2: Same as Situation 1 except individual needs new canister or mask and will return to Exclusion Zone.

Situation 3: Individual entering the CRC is expected to be minimally contaminated. Extremely skin-corrosive materials are not present. No outer gloves or boot covers are worn. Inner gloves are not contaminated.

Situation 4: Same as Situation 3 except individual needs new canister or mask and will return to Exclusion Zone.

OTHER AREAS OF DECONTAMINATION

A. Exiting for Breaks, Restroom, Lunch

During periods of exiting from the contaminated zone for breaks, restroom or lunch, the Contractor personnel will follow their amendments.

1) If there is heavy contamination, the employee will proceed through total decontamination before exiting.

2) If there is not heavy contamination, the Contractor employees will go through decontamination down to removal of work clothes. The employee will then wash his face, neck, hands and arms before moving to the break area.

B. Exits for minor emergencies

During periods of minor emergencies that exiting of the contaminated zone would be necessary, Contractor personnel will follow these amendments.

1) The worker will go through gross decontamination, drop outer garments in the area and receive first aid at that time.
2) If the accident is not serious, the worker, after being treated, will return to the contaminated area after redressing.
3) If the accident is serious, the worker will be immediately transported to the hospital.

C. Equipment Decontamination

Any equipment that can be decontaminated (some hand tools cannot be and will be disposed of) will be scrapped in the contaminated zone to remove gross contamination. It will then be brought to the decon pad and washed with decon solutions, rinsed and finally steam cleaned, to ensure total decon.

Decontamination and Rinse Solution

The decontamination solutions will be solutions of water and chemical compounds designed to react with and neutralize specific contaminants. The temperature and contact time will also be considered to insure complete neutralization. However, the contaminants will not always be known and it will be necessary to use a decontamination solution that is effective for a variety of contaminants.

Less extensive procedures for decontamination can be established when the type and degree of contamination through analysis become known or the potential for transfer of the contaminants is judged to be minimal. These procedures generally involve one or two washdowns and fewer precautionary measures in removing clothing.

In extreme situations when there may be a question of the efficacy of decontamination, protective clothing may be discarded after use or tested for the degree of decontamination.

Level C (at a minimum) protection will be worn by all persons involved in the decontamination operation.

Preparation of Decontamination Solutions

Decontamination solutions will be designed to react with and neutralize the specific, potential contaminants involved with the exhumation effort.

However, since the contaminants at an uncontrolled waste site will be unknown in many cases, it is necessary to use a decontamination solution that is effective for a variety of contaminants. Several of these general purpose decontamination solutions are listed below:

DECON SOLUTION A - A solution containing 5% sodium carbonate (Na_2CO_3) and 5% trisodium phosphate (Na_3PO_4).

DECON SOLUTION B - A solution containing 10% trisodium phosphate ($Na_3 PO_4$).

DECON SOLUTION C - A solution containing 5% trisodium phosphate (Na_3PO_4). This solution can also be used as a general purpose rinse.

DECON SOLUTION D - A dilute solution of hydrochloric acid (HCl).

USES OF GENERAL PURPOSE DECON SOLUTIONS

	TYPE OF HAZARD SUSPECTED	SOLUTION	DIRECTIONS TO PREPARE
1.	Inorganic acids, metal processing wastes	A	To 10 gallons of water, add 4 pounds of sodium carbonate (soda lime) and 4 pounds of trisodium phosphate. Stir until evenly mixed.
2.	Heavy metals: mercury, lead, cadmium, etc.	A	Same as #1 above.
3.	Pesticides, fungicides, chlorinated phenols, dioxins, and PCB's	B	To 10 gallons of water, add 8 lbs of trisodium phosphate. Stir with wooden or plastic stirrer until evenly mixed.
4.	Cyanides, ammonia, and other non-acidic inorganic wastes	B	Same as #3 above.
5.	Solvents and organic compounds such as trichloroethylene, chloroform, and toluene	C (or A)	To 10 gallons of water, add 4 pounds of trisodium phosphate. Stir until evenly mixed.
6.	PBB's and PCB's	C (or A)	Same as #5 above.
7.	Oily, greasy unspecified wastes	C	Same as #5 above.
8.	Inorganic bases, alkali, and caustic waste	D	To 10 gallons of water, add 1 pint of concentrated hydrochloric acid. Stir with a wooden or plastic stirrer.

AIR MONITORING

Objective

Air monitoring of the Columbia Ribbon and Carbon site will be provided to insure proper safety and exposure limits are kept.

Purpose

Air monitoring at the Columbia Ribbon and Carbon site, using real-time monitoring and personnel monitoring must be done to insure correct selection of respiratory equipment and provide data documentation of personnel exposure to pollutants.

Procedure

The following air monitoring program is designed to provide comprehensive data to determine the exposure of on-site and off-site personnel to airborne hazardous chemicals. The information provided by the program is both 8-hour time averages as well as instantaneous readings of the pollutant concentrations. Included in the program are personnel and area monitors, in the form of direct reading instruments, which give a real-time readout of pollutant levels and collection dosimeters, which collect and concentrate pollutants for subsequent laboratory analysis to obtain time-weighted averages. There are three basic types of monitors in the program:

1. Area monitoring, in the form of collection media/sampling pumps and direct reading instruments, which will provide data documenting off-site pollutant migration. (This will provide near real time monitoring data.)

2. Personnel monitors, in the form of collection dosimeters pumps, which will provide data documenting personnel exposure to pollutants.

3. Real-time monitors, in the form of direct-reading instruments, which will be used to supplement data obtained from 1 and 2 above, providing instantaneous measures of pollutant levels.

AIR MONITORING (Cont.)

Three basic types of air monitoring, for this site, will be done using at least one of each of the equipment from each group:

Area Monitoring

Foxburo Century 128 Organic Vapor Analyzer
MSA Sample Pump and assorted tubes
HNU Photoionizer

Real Time Monitoring

Foxburo Century 128 OVA
HNU Photoionizer
Dynamation Explosion Meter
Bachrach TLV Sniffer

Personnel Monitoring

3M #3500 Organic Vapor Monitoring badges

Each morning, before site work begins, the Site Safety Officer will monitor the work zone using both area and Real time monitoring equipment. Data generated by direct reading instruments will be instantaneously used to modify personnel protection requirements and to institute site control measures. All direct reading instrumentation will be equipped with alarms which will warn the operator when a preset limit has been exceeded; the Site Supervisor will be notified of such an event as soon as possible. USEPA ERT guidelines will be used as the action level limits. These limits are as follows:

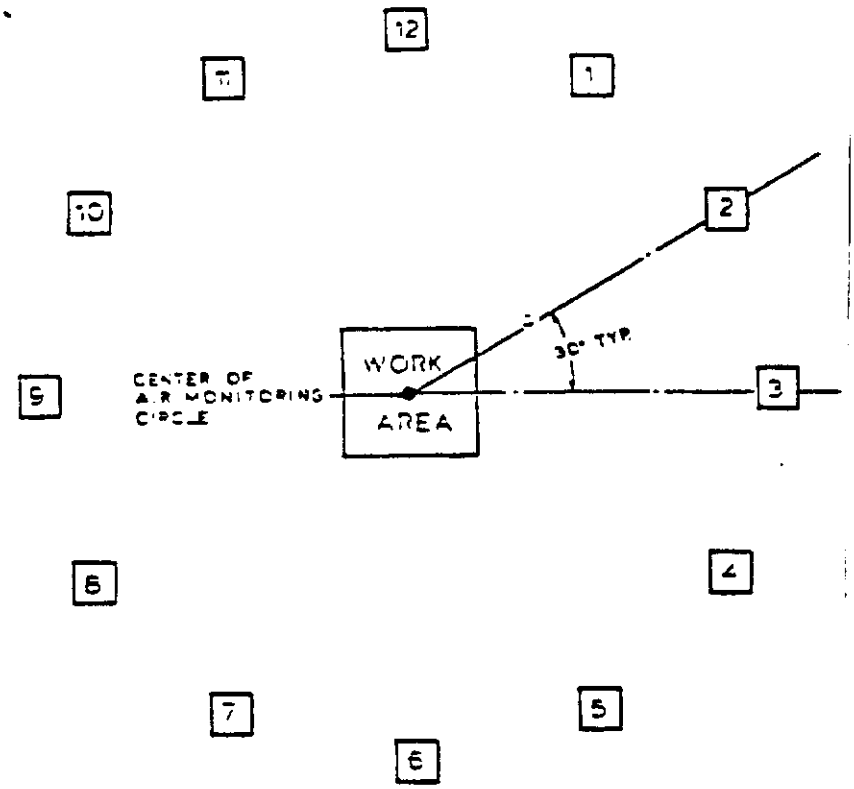
0	-	5 ppm above ambient air	Level C
5	-	500 ppm above ambient air	Level B
500	-	1000 ppm above ambient air	Level A

During the course of the day, the Site Safety Officer (or assigned personnel) will monitor the surrounding work area using area monitors. Monitoring stations will be set up prior to site work beginning and a history of the data will be collected. Any time during the remedial action work that there is a change in these readings, work will be stopped and the cause investigated. The area monitoring stations shall be checked at least four times during the day; twice in the a.m. and twice in the p.m. These results will be

AIR MONITORING (Cont.

checked using a different area monitoring tool (i.e., HNU vs. OVA). Sample tubes of specific compounds will be pulled as deemed necessary by the Site Safety Officer or the Site Supervisor.

SAMPLING STATIONS FOR AIR MONITORING:



Real time monitoring will be done during the course of the work day to insure correct safety protection. Areas that will be closely monitored are: 1) Staging area, 2) Excavation area, 3) new work areas, 4) Spills or leaks and clean zones. All data from these inspection will be logged.

AIR MONITORING (Cont.)

Personnel entering the contaminated zone will as deemed necessary be given a 3M organic vapor monitoring badge. This badge will be attached to the worker in or near the breathing zone. At the end of the work period involved, the Site Safety Officer will collect the badges and send these to an independent lab for analysis. These results will show what levels the worker is exposed to.

Air monitoring results from all three sources of sampling (personnel, area, and real-time) will determine appropriate safety procedures and action levels. The action levels are USEPA ERT levels and are the same as those found in the Health and Safety Plan (Determination of proper safety equipment) and are included here by reference. In addition, if at any time during the course of the remedial action operation, the audio-visual alarms during any monitoring procedures go off, operations will be immediately terminated and all site personnel will proceed to a safe area upwind of the site.

CONTINGENCY PLANS FOR ACCIDENT AND SPILL EMERGENCY RESPONSE

OBJECTIVE

To limit the environmental and human exposure if an accidental spill of material occurs on site, during transportation, or during disposal.

PURPOSE

In the event of an uncontrolled spill of hazardous materials, it is imperative to contain the spill and limit the environmental exposure. Clean up procedures should be performed in a methodical but timely manner which will limit the time of exposure but also insure against further accidental spillage of material.

PROCEDURE

To this end, ACES proposes to respond to all on-site and transportation events with the following equipment.

1 - Backhoe

2 - 100' 126 Sorbent Sweep Boom

Sufficient reserves of 156 & 151 Sorbent Pads

1 - Hazardous Materials Response Trailer which contains the following:

Decontamination shower and eye wash
Variety of hand tools
Every level of respiratory protection
Every level of skin protection
Dressing and sanitary facilities
Hazardous Materials Response Library

In the event of an uncontrolled spill, the following procedure will be followed.

1. The site of the spill will be contained by the use of earthen dikes, booms, or other suitable means.

2. The site will be secured and all unofficial personnel will be prevented from having site access.

3. If unknown vapors are being emitted, a determination for possible evacuation will be made and all necessary agencies will be contacted.

CONTINGENCY PLANS FOR ACCIDENT AND SPILL EMERGENCY RESPONSE (Cont.)

The Contracting Agent and all necessary regulatory agencies will be notified of the incident.

The following assessments will then be made:

Physical site assessment
Need for on-site treatment
Method for on-site removal
On-site safety requirements
Disposal site acceptance
Transportation requirements

Following assessment, on-site clean up procedures will be initiated and followed to completion. The contaminated material will be transported and disposed at an EPA approved facility.

I. CONTINGENCY PLANS

Contingency plans for a variety of situations are presented below. These plans are structured around specific situations which could occur during the excavation operation and also incorporate the SPCC measures of 40 CFR 265.52.

A. Contingency Plans for:

1. Physical Injury to Employee

- For minor injuries, routine first aid procedures will be used.

- For major injuries, an ambulance will immediately be called, first aides will get information about the nature of the injury from the victim if the victim is conscious. (NOTE: In cases of severe injury occurring in Zone 1, not involving the release of toxic gases from the site, the ambulance will be driven into Zone 1 to pick up the injured person. Decontamination of the worker, attendants, and the ambulance interior will take place subsequent to arrival at the hospital. Prior to leaving the site, the ambulance wheels will be sprayed at the decontamination pad with extreme rapidity, and the driver will be accompanied by the Site Safety Officer who will direct the decontamination activity at the hospital. In instances where the injury resulted from a release of toxic gas and it is possible that an IDLH atmosphere still exists in the immediate vicinity of the injured worker, the worker will be carried from the area by properly protected co-workers, sprayed down with the water hose to remove contaminants or stripped of his outer garments, and placed in the ambulance.)

- If the victim is unconscious, the first aides will check for vital signs.

- In the event of cessation of breathing and/or cessation of heartbeat, appropriately trained (qualified) first aides will administer cardiopulmonary resuscitation.

- In the event of bleeding, broken bones, shock, burns, heat exhaustion, heat stroke, seizure, insect sting, etc., the first aides will use the Red Cross approved measures for treatment.

- In the event of a serious injury in which the victim cannot be moved, both paramedic ambulance and physician shall be called.

- In the event that the injury is less serious but warrants further medical attention, the victim shall be transported to the local hospital.

- Fred Sander, Bill Bunner, ACES Dispatch and the Contracting Officer shall be immediately advised of any accident involving death, bodily injury or substantial property damage.

*NOTE: It is impossible to list all contingency actions chronologically since many will be carried out simultaneously.

2. Chemical Injury to Employee

- Call paramedics

- Notify Poison Control Center

- Immediate assessment shall be made as to what type of safety gear is necessary to enter the area to determine how ill or injured the victim is.

- Rescuers must check vital signs.

- Remove victim to fresh air and resuscitate if necessary.

- If clothing contaminated and injuries permit, remove clothing and flood skin with copious amounts of water.

- If eyes contaminated, irrigate immediately with copious amounts of water for 15 minutes minimum.

- Have patient transported to the hospital.

- Call ahead and notify the hospital to which the victim(s) is being taken.

- As soon as the fire is extinguished, cleanup any spilled material, contaminated run-off or soil and containerized and dispose of properly.

3. Localized Fire

- Call Fire Department.

- Immediately notify Fred Sander, Bill Bunner, ACES Dispatch and Contracting Officer.

- Move all people in the area upwind a safe distance.

- Decide whether or not it would be advisable to attempt initial fighting of the fire.

- If deemed advisable to attempt fighting of fire, then do so with the most appropriate means, i.e., water, fogging, foam, halon extinguishers, covering with soil.
- Advise and direct the Fire Department upon arrival, of the nature of the fire.
- Assist the Fire Department if requested, e.g., with dirt moving.
- As soon as the fire is extinguished, cleanup any spilled material, contaminated run-off or soil. Containerize and dispose of this material properly.

4. Uncontrolled Fire Releasing Toxic Gases

- Call the Fire Department
- Move all people in the area upwind to a safe distance.
- Render first aid to any needing it.
- Call the Poison Control Center.
- Notify the Police, State and USEPA.
- Immediately notify Fred Sander, Bill Bunner, ACES Dispatch and Contracting Officer.
- Notify all possible downwind entities that will be affected, places of employment, airport, etc.
- Stand by to assist the Fire Department with information about the nature of the material on fire, the nature of the toxic gases, the site, with heavy equipment, with specialized equipment, (i.e., chemical suits, decontamination unit, etc.)
- As soon as the fire is extinguished, cleanup any spilled material and contaminated run-off or soil, containerize and dispose of properly.

5. Ruptured Drum(s) emitting Unknown Gas/Vapor

- Notify the Fire Department, Police Department, the Poison Control Center and the Contracting Officer.
- Immediately notify Fred Sander, Bill Bunner, ACES Dispatch and the Contracting Officer.

5. Ruptured Drum(s) Emitting Unknown Gas/Vapor (Continued)

- Move all people in the area upwind to a safe distance.
- Render first aid as needed.
- Notify downwind entities that might be affected.
- Either approach the drum(s) in totally encapsulated chemical suits and attempt to patch the drum(s) or overpack in a recovery drum(s) or attempt to cover the drum(s), if possible with soil until the most appropriate and safe remedial actions can be determined.
- More attention should be given to trying to mitigate the gas/vapor release than to try to determine the nature of the material.
- Upon patching, plugging or containerizing the leaking drum(s) cleanup any spilled material or contaminated soil, containerize and dispose of properly.

6. Ruptured Drum(s) Emitting Known Toxic Gas/Vapor

- Notify the Fire Department, Police Department, the Poison Control Center and the Contracting Officer.
- Immediately notify Fred Sander, Bill Bunner, ACES Dispatch and Contracting Officer.
- Move all people in the area upwind to a safe distance.
- Render first aid as needed.
- Notify downwind entities that might be affected.
- Approach the drum(s) in totally encapsulated suits (if warranted) and make detector tube determinations of ambient concentrations.
- Attempt to knock vapors down with water mist if appropriate.
- Attempt to patch the drum(s) or overpack in a recovery drum(s) (if the substance warrants it) attempt to cover drum(s) with soil until the most appropriate (and safest) remedial response can be determined.

- Upon patching, plugging or containerizing the leaking drum(s) cleanup any spilled material or contaminated soil, containerize and dispose of properly.

7. Ruptured Drum(s) Emitting Known Explosive Gas/Vapor

- If the explosivity readings exceed 20% LEL notify the fire Department, the Poison Control Center, and the Police Department.

- Move all people in the area upwind to a safe distance in relation to the explosion hazard.

- Shut off downwind ignition sources on site.

- Advise police and fire officials of the nature of the material and the possible need to shut off downwind ignition sources at off-site entities.

- Notify the downwind entities that might be affected.

- Notify the airport administration.

- Attempt to knock vapors down with mist if appropriate.

- With the agreement of the Fire Department and the Engineer, approach the drum in totally encapsulated suits (if appropriate) and attempt to patch the drums or to overpatch in recovery drums or attempt to cover the drums with soil until the most appropriate (safest) remedial actions can be determined.

- Upon patching, plugging or containerizing the leaking drums, cleanup any spilled material or contaminated soil, containerize and dispose of properly.

8. Spill of a Dangerous or Potentially Dangerous Material

- Notify the Fire Department, the Poison Control Center, Fred Sander, Bill Bunner, ACES Dispatch and the Contracting Officer.

- Move all people in the area to a safe location.

- Using binoculars, attempt to ascertain the nature of the material via labels, drum markings, etc.

8. Spill of a Dangerous or Potentially Dangerous Material (Continued)

- Determine the appropriate level of personal protective equipment to use. If the substance is unknown, use Level A protection.

- Contain the leaking material to prevent spread by using an earthen dike, channeling, sorbent, gel, etc. (as is appropriate based upon the known or unknown nature of the material).

- Suppress vapor emission with water mist or foam if appropriate.

- Approach drums in appropriate personal protective equipment and attempt to patch, plug or overpack in recovery drums, or

- Attempt to cover with soil until the most appropriate (safest) remedial action can be determined.

- Upon patching, plugging or containerizing leaking drums, cleanup any spilled material or contaminated soil, containerize and dispose of properly.

*NOTE: If misting with water or foam is used for vapor knock door down, then the run-off must be collected, containerized and disposed of properly.

EMERGENCY RESPONSE AND SPILL CONTROL

OBJECTIVE

To effectively contain, treat and remove any hazardous materials spilled during the transportation of the excavation material operation on site or along the transport route.

PURPOSE

In the event of an uncontrolled spill of hazardous materials, it is imperative to contain the spill and limit the environmental exposure. Cleanup procedures will be performed in a methodical but timely manner which will limit the time of exposure but also insure against further accidental spillage of material.

PROCEDURE

a. The Contractor team will have on-site at all times, the means and facilities necessary to prevent the contamination of soils, waters, or atmosphere caused by the discharge of potentially hazardous materials due to a transportation incident.

b. For the duration of the exhumation operations, the Contractor team will have on site the proper equipment and trained personnel to enact general or specific emergency measures required to contain and remove any materials, soils, sludges or liquids that became contaminated due to spillage in transit. All collected material of this nature will be properly containerized and analyzed to determine proper disposal methods. All spilled materials or "hot spot" soils will be properly containerized in drums or trucks, and transported for on site storage or treatment with similar materials.

c. The Contractor team will maintain on-site manuals which recommend proper spill response procedures and the recommended treatment and disposal techniques for 487 inorganic industrial compounds, each major class of organic compound, and 551 pesticides and herbicides. The procedures are set forth in studies sponsored by the EPA and offer the best practical solution to the cleanup of a hazardous material spill.

d. Specific measures that may be necessary to prevent harmful substances from entering surface waters and ground waters are listed on the following pages.

In addition, the on-site computer terminal will be able to access various data bases to rapidly obtain remedial information regarding virtually any type of material spill.

1. Spills in Air

Technique	Method	Use	Advantages	Disadvantages
Isolation	Bag, over pack or transfer contents of damage drums	Lighter than air vapors	Removes hazards from air	None
Mist Knock Down	Spray fine mist into air	Water-soluble low-lying vapors	Removes hazard from air air	Create water pollution problem and must be contained in solution
Fans or blowers	Disperse air by directing blower toward it	Very calm and sheltered areas	Can direct air away from populated areas	Not at all effective if any wind. Need large capabity of blowers. Hard

2. Spills on Land

Technique	Application or Construction Method	Use	Advantages	Disadvantages
Isolation	Over pack or transfer contents of drums	Leaking or damaged drums	Greatly reduces degree of soil contamination	None
Dikes earthen	Create with bulldozer or earthmoving equipment to compact earth (height depends on earth type)	Flat or sloped surface	Material on site construct with common equipment. Construct quickly	Natural permeability of soil seepage through ground surface composition of soil not suitable in all cases.
Excavation	Bulldozer or earthmoving equipment; line if possible	Soft Ground Natural cavitation	Material on site construct with common equipment	Move large amounts of material. Natural permeability of soil. Surface of soil not suitable in all cases.
Excavation and dikes	Bulldozer or earthmoving equipment; line if possible	Soft Ground	Need less space than for separating material on site. Construct with common equipment	Move large amount of material. Natural permeability of soil surface of soil not suitable in all cases.

3. Spills in Water-Heavier than Water Spills

Techniques	Application or Construction Method	Use	Advantages	Disadvantage
Natural excavation and dikes	None	Where a natural barrier exists	No construction needed	Cannot control area which contains the spill
Construction of excavations and dikes	Dredges; hydraulic or vacuum pumps	If bottom can be moved	Material is on site	Hard to construct. Stirred up bottom may cause dispersion and increased turbidity

4. Spills in Water-Soluble or Miscible Spills

Methods	Application or Construction Materials	Use	Advantages	Disadvantages
Sealed booms	Boom Device to anchor	Contain depth Limited volumes Leaking container	Contain entire depth of water	Deployment difficult Not used for large bodies. Difficult to get good seal.
Diversion of uncontaminated flow	Earthmoving equipment	Special area where topography is right	Can put cleaned water into diverted stream Used for flowing water	Difficult to move large amounts of earth. Clear area. Need impermeability of ground
Diversion of contaminated flow	Block entrance with sandbags, sealed booms or dikes	Special area where topography is right	Can put clean water back into stream. Used for flowing water	Difficult to move large amounts of earth. Clear area needed. Impermeability of ground.
Gelling Agent	Gels, dispersion devices; use eperienced	If small volumes	Stop flowing containment of a Stop permeation	Hard to obtain. Cannot use in large area. Must haul to dispose.
Containment of entire waterbody	Diking Materials. Earthmoving equipment. Sandbags, etc. Lining	For entirely contaminated area	Can allow containment of a large waterbody Materials on site. Easily constructed	Not all waterbodies have containable overflow. Permeability. May be an unstable condition.

5. Spills in Water-Floating Spills

Method	Application or Construction Materials	Use	Advantages	Disadvantages
Booms	Varies, need deployment device	Not too much current	Used on large area. Many varieties not easily clogged. and contain	Current speed less than 0.7 knots. Not used in fast water.

6. In-situ Treatment of Contained Spills

Method	Application or Required Materials	Advantages
Neutralization	Acids/Bases	On-site treatment reduces the potential for spills.
Precipitation	Bases/Proprietary agents	Reduces potential for spills and reduces volumes for disposal.
Absorbtion	Proprietary agents	Sequesters the pollutant and reduces disposal volumes.
Absorption	Activated Carbon and Resins	Sequesters the pollutant and reduces disposal volumes.
Oxidation	Hydrogen peroxide Chlorine	Destroys or converts pollutants to a less toxic compound.
Reduction	Sulfur dioxide Ferrous sulfate Sodium bisulfite	Converts the pollutant to a more treatable form.
Hydrolysis	Bases/Acids	Destroys or converts the pollutant to less toxic compounds.
Recycle	N.A.	Utilize where possible the resources and needs of local industries.
Land Treatment	N.A.	For certain organic wastes the uses of natural soil nicrobes for biodegradation is the fastest most environmentally sound method of treatment.
Detonation	N.A.	As a last resort shock sensitive material can be destroyed on-site to reduce dangers to the public.

CONTINGENCY PLANS FOR INFORMATION POSTERS

OBJECTIVE

To inform all personnel of safety rules, hazards as related to the site, emergency phone numbers, first aid stations, evacuation routes and rally points, and accident reports.

PURPOSE

In the event of any emergencies, all Contractor employees will be informed of all information in order to handle the situation correctly and quickly.

PROCEDURE

Outside the Command Trailer will be an enclosed poster containing the following information.

1) Daily Safety Meeting Log
2) Emergency Phone numbers
3) Evacuation Rules, Routes and Rally Point
4) Communication Symbols and Signals
5) Accident Report Forms
6) Medical Procedures

SAFETY DATA SHEET -

Date / / Taken by_____( )

Weather:

_____

_____

_____

_____

_____

Pre-site readings: Time ( )

OVA Background:
Perimeter areas:
Site:
Explosion meter:
Perimeter:
Site:
O_2 meter:
Perimeter:
Site:

Other Readings:

_____

_____

_____

_____

_____

_____

_____

_____

Work area: _____

_____

_____

Work Planned: _____

_____

_____

_____

Changes during the day: _____

_____

Dress of the day:

_____

_____

_____

_____

_____

_____

_____

Other _____

_____

Special notes (hazards, etc.):

_____

_____

_____

_____

_____

_____

_____

Okayed by:

(SSO) x_____

(SS) x_____

EMERGENCY TELEPHONE NUMBERS

Project Name former COLUMBIA RIBBON and CARBON SITE Project No. _____

The following are the business and home telephone numbers where project key personnel can be reached at all times. In addition, the emergency telephone numbers of other vital agencies are listed:

	Business	Residence
Mike Barbara, P.E. Fred C. Hart CONTRACTOR'S PROJECT MANAGER	212-840-3990	516-938-0735
Power's Chemco Inc. Rep. John Biedry	516-676-4000	516-751-0626
Project Manager - Fred Sander	419-726-1521	419-287-4488
On-site Project Representative		

OTHER EMERGENCY TELEPHONE NUMBERS

OSHA REPRESENTATIVE	
FIRE	676-0366
AMBULANCE	676-1000
DOCTOR Dr. PERRY	516-676-3111
HOSPITAL	676-5000
POLICE	676-1000
GAS COMPANY	
ELECTRIC COMPANY	
WATER COMPANY	
TELEPHONE COMPANY	
Nassau County Health Dept.	516-535-2406
OTHER POISON CONTROL CENTER	516-542-2323
OTHER N.Y. D.E.C.	518-457-7362

All key personnel should have a copy of this information, and a copy should be posted in each field office in a prominent location.

EVACUATION ROUTES AND RALLY POINTS

OBJECTIVE

Evacuation routes and rally points are necessary to ensure that all personnel are accounted for in the case of an emergency or evacuation.

PURPOSE

All personnel shall report to a predetermined rally point through routes and report to the office their location in order to be accounted for. If someone does not report in, a search will be started.

PROCEDURE

For the site, ACES has identified four (4) rally points and will be marked by flags.

1) Northeast Guardhouse
2) Southeast corner of available area
3) Southwest corner of available area
4) Northwest Gate

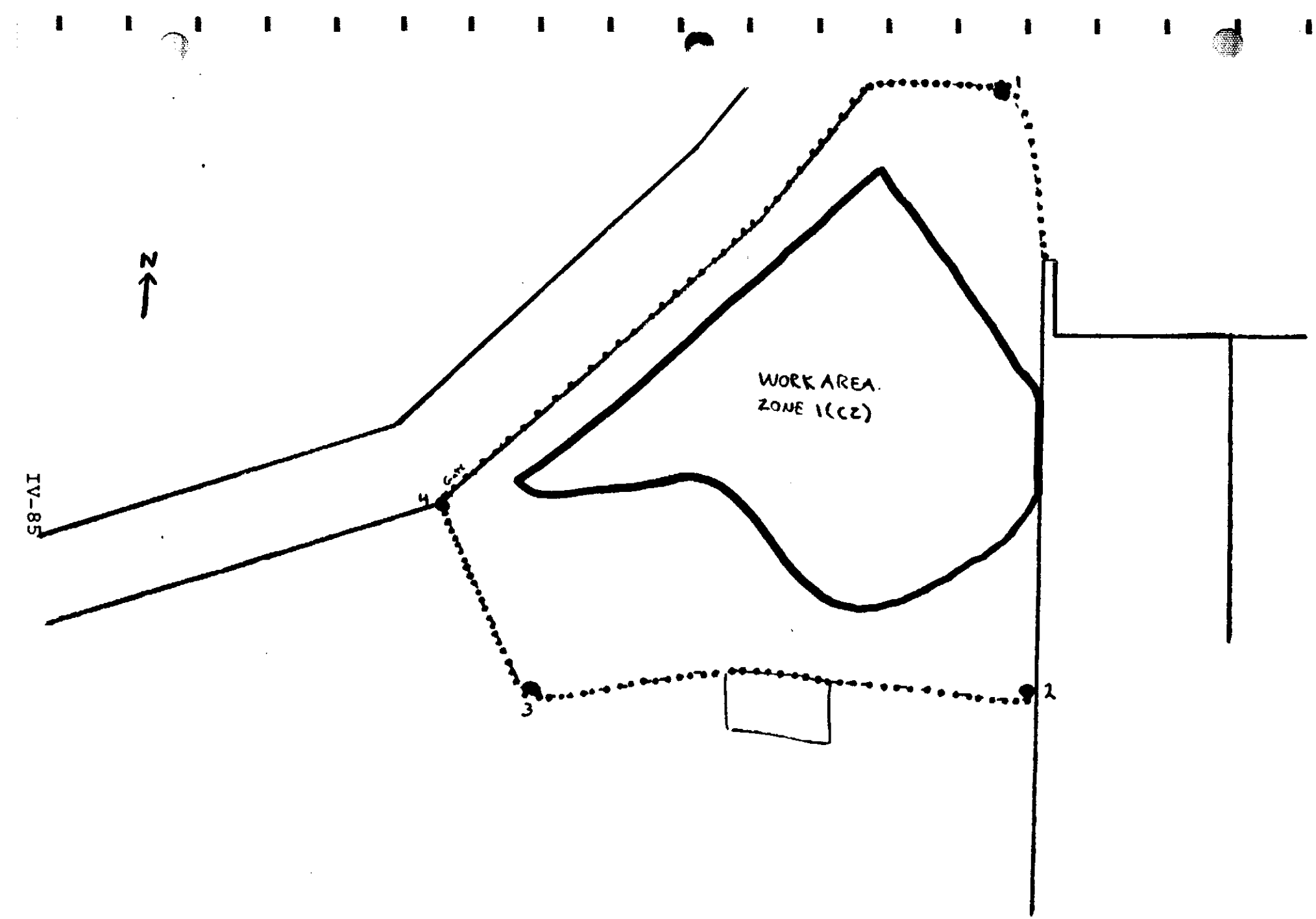
See attached map.

Evacuation routes will be as follows (dependant on wind direction):

During the daily safety meeting, the wind direction, and the area of waste will be determined. The ACES workers will be notified as to the best route of evacuation due to these conditions. Due to the limited area of the site, visual record of all workers should be self evident.

An example of this is: Wind S-10 mph. out of the East. Work is being performed in the South area of the site, by the pond. Workers will be instructed to evacuate to points 2 or 1, and call in. When at all possible, evacuation shall be done so that personnel do not pass through a problem area.

Evacuation can be signalled from any point on the site. If there is an emergency, the ACES worker will call the Supervisor or Safety Officer and notify him of the situation. If it is necessary to order an evacuation of the site, the Supervisor will sound the alarm with three long blasts, and three short blasts. Once this is done, all personnel will leave the area via the closest upwind rally point and call in to the Command Trailer as soon as possible.



FORMER COLUMBIA RIBBON AND CARBON SITE

COMMUNICATION SOP

OBJECTIVE

Internal communications are necessary at a hazardous waste site for effective working condition.

PURPOSE

Due to the size of the site, communication between the command trailer and the Contractor field workers must be done via radio 2-way communications.

PROCEDURE

Internal communication to be used among the work zones to:

- Alert team members to emergencies.
- Pass along safety information, such as air time left.
- Communicate changes in work scope.
- Maintain site control.

Verbal communication at the site can be impeded by on-site background noise and the use of personal protective equipment. For example, speech transmission through a respirator can be poor, and hearing can be impaired by protective hoods and respirator air flow. For effective communication, commands will be prearranged and additional audio or visual cues can help convey the message.

Internal Commands:
At the site, Contractor personnel will use the following communication codes:

Device	Type of Communications	Signal
2-way Radio	To each other	assigned radio numbers
	To command/non emergency	assigned radio numbers
	To command/emergency	code Red/assigned #
Compressed Air Horn	To field/non emergency	one long, one short blast
	To field/emergency	3 long, 3 short blasts
Siren	To field/emergency evacuation ordered	continuous blast
Visual	To field/emergency	flare/smoke (support area only)

(Cont'd)

COMMUNICATION (CONT.)

Device	Type of Communication	Signal
Visual	To each other	
	Air OK	Thumbs up
	Air not OK	Thumbs down
	No air	Hands clutching throat
	Distress/need assistance	Arms waved in circle over head
	Break, lunch, end of day	Two hands together, break apart
Visual	To field/evacuate area	Arms waved in a circle over head

External communication is used between on-site and off-site personnel to:

- Coordinate emergency response.
- Report to management.
- Maintain contact with essential off-site personnel.

The primary means of external communication are telephone and radio. If telephone lines are not working at the site, all team members should know the location of the nearest telephone, and the correct change and necessary telephone numbers should be easily available in the Support Zone.

FORMESSYACESS

ACCIDENT REPORT

Name of Employee _____ Occupation _____
Job/Accident Location _____
Date of Accident Month _____ Day _____ Year _____ A.M./P.M. _____
What Duties Were Being Performed at Time Of Accident? _____

How Did the Accident Happen? _____

Extent of the Injury or Illness and Part of Body Affected _____

First Aid on the Job _____
Was Medical Treatment Beyond First Aid Administered?
Yes No Unknown If yes, explain _____

Medical Treatment: Hospital _____
Medical Treatment: Private Physician _____
Lost Workdays: Yes ☐ No ☐ No. of Days Off _____
This accident was caused by:
☐ Unsafe Condition(s): Describe: _____

Preventive Measures Taken, _____

☐ Unsafe Act(s): Describe: _____

Describe by marking the appropriate box:

1. The employee was not instructed to do the job properly. ☐
2. Standard operating procedures regarding safety and health practices for employees were not developed ☐, implemented ☐, or enforced. ☐
3. The employee was not placed into a job he could perform in a safe or healthful manner. ☐

Preventive Measures Taken, _____

☐ Other: Describe: _____

Preventive Measures Taken, _____

Additional Comments _____

Investigator _____ Date _____
Measures Taken to prevent reoccurance: _____

OSHA No. 101
Case or File No. _____

Form approved
OMB No. 44R 1453

Supplementary Record of Occupational Injuries and Illnesses

EMPLOYER

1. Name _____
2. Mail address _____
(No. and street) (City or town) (State)
3. Location, if different from mail address _____

INJURED OR ILL EMPLOYEE

4. Name _____ Social Security No. _____
(First name) (Middle name) (Last name)
5. Home address _____
(No. and street) (City or town) (State)
6. Age _____ 7. Sex: Male_____ Female_____ (Check one)
8. Occupation _____
(Enter regular job title, *not* the specific activity he was performing at time of injury.)
9. Department _____
(Enter name of department or division in which the injured person is regularly employed, even though he may have been temporarily working in another department at the time of injury.)

THE ACCIDENT OR EXPOSURE TO OCCUPATIONAL ILLNESS

10. Place of accident or exposure _____
(No. and street) (City or town) (State)
If accident or exposure occurred on employer's premises, give address of plant or establishment in which it occurred. Do not indicate department or division within the plant or establishment. If accident occurred outside employer's premises at an identifiable address, give that address. If it occurred on a public highway or at any other place which cannot be identified by number and street, please provide place references locating the place of injury as accurately as possible.
11. Was place of accident or exposure on employer's premises? _____ (Yes or No)
12. What was the employee doing when injured? _____
(Be specific. If he was using tools or equipment or handling material, name them and tell what he was doing with them.)
13. How did the accident occur? _____
(Describe fully the events which resulted in the injury or occupational illness. Tell what happened and how it happened. Name any objects or substances involved and tell how they were involved. Give full details on all factors which led or contributed to the accident. Use separate sheet for additional space.)

OCCUPATIONAL INJURY OR OCCUPATIONAL ILLNESS

14. Describe the injury or illness in detail and indicate the part of body affected. _____
(e.g.: amputation of right index finger at second joint; fracture of ribs; lead poisoning; dermatitis of left hand, etc.)
15. Name the object or substance which directly injured the employee. (For example, the machine or thing he struck against or which struck him; the vapor or poison he inhaled or swallowed; the chemical or radiation which irritated his skin; or in cases of strains, hernias, etc., the thing he was lifting, pulling, etc.)
16. Date of injury or initial diagnosis of occupational illness _____
(Date)
17. Did employee die? _____ (Yes or No)

OTHER

18. Name and address of physician _____
19. If hospitalized, name and address of hospital _____

Date of report _____ Prepared by _____
Official position _____