INTERIM REMEDIAL ACTION WORK PLAN FOR FORMER PLATING SHOP NAS JACKSONVILLE FL

1/1/1995

EBASCO ENVIRONMENTAL

NAVY CONTRACT NUMBER N47408-92-D-3059
EBASCO ENVIRONMENTAL DIVISION

INTERIM REMEDIAL ACTION WORK PLAN

NADEP'S FORMER PLATING SHOP

NAS JACKSONVILLE, FLORIDA

REVISION 8

JANUARY 1995

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NAS JAX
OLD PLATING SHOP
WORK PLAN - RECORD OF REVISIONS
Interim Remedial Work Plan

Revision Number	Date	Description
0	05-07-93	Original draft
1	05-21-93	Original submittal
2	06-07-93	Revised to agree with closure plan
3	07-26-93	Included response to comments
4	10-08-93	Contract modification work added
5	10-29-93	General revision
6	11-12-93	General Revision
7	08-03-94	Contract modification work added
8	01-10-95	Revised to include CERCLA removal of soil and General Revisions

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ACRONYMS AND ABBREVIATIONS

ACM	Asbestos Containing Material
ACO	Administrative Contracting Officer
AMLGM	Amalgamation of liquid, elemental mercury contaminated with radioactive materials
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BIODG	Biodegradation of organics or non-metallic inorganics
BTEX	Benzene/Toluene/Ethylbenzene/Xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHOXD	Chemical or electrolytic oxidation
CHRIS	Chemical Hazardous Response Information System
C.M.U.	Concrete Masonry Unit
CPR	Cardiopulmonary Resuscitation
DD	Disposal Document
DEACT	Deactivation
DOD	Department of Defense
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
DTID	Disposal Turn-In Document
DW	Drinking Water
ECD	Electron Capture Detector
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ESQD	Explosive Safety Quantity Distance
ERT	Emergency Response Team
FAC	Florida Administrative Code
FASO	Fleet Aviation Specialized Operational Training Group
FDER	Florida Department of Environmental Regulations
FFA	Federal Facility Agreement
FID	Flame Ionization Detector
FSUBS	Fuel substitution
Gal	Gallon
GC/MS	Gas Chromatography/Mass Spectrometry
HSD	Halogen-Specific Detector
HLVIT	Vitrification of high-level mixed radioactive wastes
HMIS	Hazardous Material Information System
HPLC	High Pressure Liquid Chromatography
HSWA	Hazardous and Solid Waste Amendments
HW	Hazardous Waste
HWMP	Hazardous Waste Management Plan
HWSF	Hazardous Waste Storage Facility

ACRONYMS AND ABBREVIATION-(continued)

HWST	Hazardous Waste Storage Tanks
IMERC	Incineration of wastes containing organics and mercury
INCIN	Incineration
IRA	Interim remedial Action
IRP	Installation Restoration Program
IWTP	Industrial Waste Water Treatment Plant
LDR	Land Disposal Restriction
LOI	Letter of Intent
MACRO	Macroencapsulation with surface coating materials
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MCSFCO	Marine Corps Security Force Company
MEK	Methyl Ethyl Ketone
Mg	Magnesium
MILCON	Military Construction
MS	Mass Spectrometer
MSDS	Material Safety Data Sheet
MSL	Mean Sea Level
Na	Sodium
NADEP	Naval Aviation Depot
NAMTGD	Navy Aviation Maintenance Training Group Detachment
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NEESA	Naval Energy Environmental Support Activity
NFPA	National Fire Prevention Association
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	National Response Center
NSN	National Stock Number
OMD	Operations Maintenance Division
ORM	Other Regulated Materials
OSHA	Occupational Safety and Health Act
OTTO	A liquid monopropellant used in the propulsion of torpedoes
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethylene
PID	Photoionization Detector
PSD	Prevention of Significant Deterioration
PW	Public Works
PWC	Public Works Center
PWDED	Public Works Department Environmental Division
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act

ACRONYMS AND ABBREVIATION-(continued)

RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
RLEAD	Thermal recovery of lead
RMERC	Restoring or roasting in a thermal processing unit
RORGS	Recovery of organics
RTHRM	Thermal recovery of metals of inorganics from non-wastewaters
SCBA	Self-Contained Breathing Apparatus
SJRWMD	Saint Johns River Water Management District
SOP	Standard Operating Procedure
SOUTHDIV	Southern Division
SPCC	Spill Prevention Control and Countermeasures
STC	Single-Trip Containers
SWMU	Solid Waste Management Unit
TCA	Trichloroethane
TCE	Trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
TCP	Temporary Collection Point
TOC	Total Organic Carbon
TOP	Temporary Operation Permit
TOX	Total Organic Halogens
TREEO	Training, Research and Education for Environmental Occupations
TSCA	Toxic Substance Control Act
TSD	Treatment, Storage or Disposal Facility
USGS	United States Geological Survey
WWTS	Wastewater Treatment System

1.0 INTRODUCTION

1.1 Site History

The Naval Air Station - Jacksonville (NAS-JAX) is on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priority List (NPL). The Navy, as the lead agency, is addressing its responsibility, as identified in CERCLA, at NAS-JAX under its Installation Restoration Program (IRP). After placement of the station on the NPL, the Navy, the State of Florida Department of Environmental Protection (FDEP), and the Environmental Protection Agency (EPA) entered into a Federal Facilities Agreement (FFA). The FFA details the manner and means in which FDEP and EPA will interact with the Navy as the Navy implements the IRP at NAS-JAX.

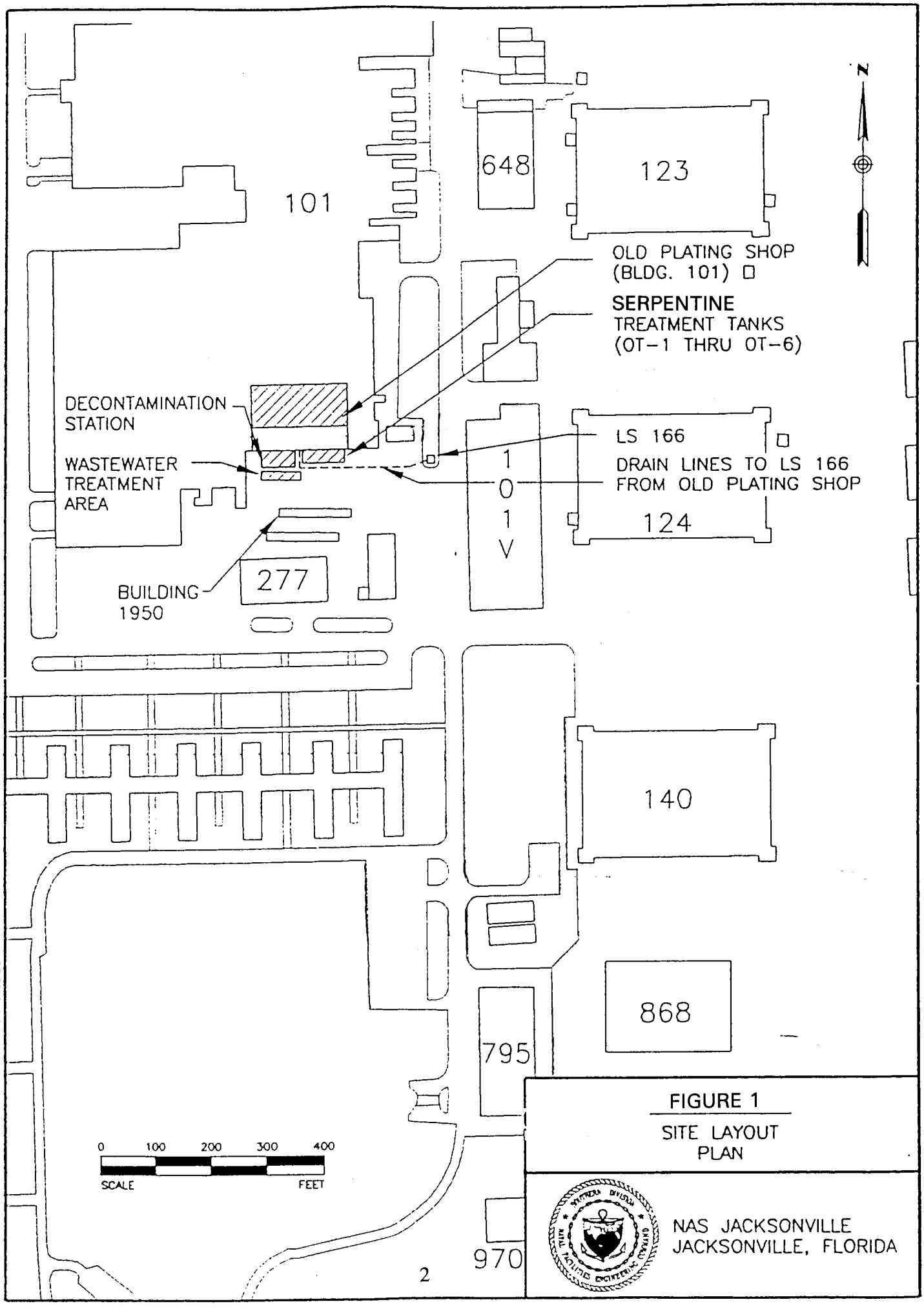
The industrial area at NAS-JAX is part of an area designated as Operational Unit 3 (OU3) in the IRP. The Area of Contamination (AOC) has been established and Remedial Investigation and Feasibility Study (RI/FS) activities planned for OU3. The old plating facility is located within Potential Source of Contamination (PSC) 11, (Building 101) of OU3. Figure 1 presents the location of Building 101 and the old plating shop within the industrial area of OU3.

The NAS-JAX is conducting this Interim Remedial Action (IRA) to address issues about hazardous substances which, if released, would pose a threat to public health or the environment. This action will not include the remediation of groundwater. A pre-determined amount of soil will be removed from the site; however, all remaining environmental media will be addressed by the OU3 RI/FS.

This IRA is being conducted in compliance with the Application for Closure Permit titled "OLD PLATING FACILITY - BUILDING 101 AND WASTE OIL TANK 101-3" submitted to FDEP in April 1993. Any activities of this IRA that affect the CERCLA studies of OU3 will be performed following all applicable, relevant, and appropriate requirements (ARARs) for such studies. This IRA Work Plan presents requirements for this project as stated in the Application for Closure Permit.

The Old Plating Facility began operations in the early 1940's and continued on through 1985, at which time a new plating shop was constructed. Plating activities at the old facility continued until operations ceased around February 1990.

All of the areas that are to be included in the IRA are shown within the project boundary presented on Figure 2. The Northeast (NE) Chrome Room shown on Figure 2 has historically been used for plating operations, and, as indicated in the figure, will be included in the IRA. Figure 3 presents the site layout of the tanks as found in the rooms of the old plating shop. Fifty six of the ninety tanks shown in this figure contained hazardous wastes. The tanks located in the NE Chrome Room were removed prior to this IRA. In addition to the NE Chrome Room, West Room, Chrome Room, and East Room, there is an abandoned serpentine wastewater treatment tanks located next to the southeast corner of the building (shown on Figure 1). These tanks will be removed and the resulting excavation will be backfilled. Significant deterioration has occurred in all three rooms of the facility, and numerous tanks, platform steel, and gratings



SOURCE: Application for Closure Permit
Attachment T, Part 1, Figure T-2, page T-33
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FIGURE 2
BUILDING 101
OLD PLATING SHOP
PROJECT BOUNDARIES

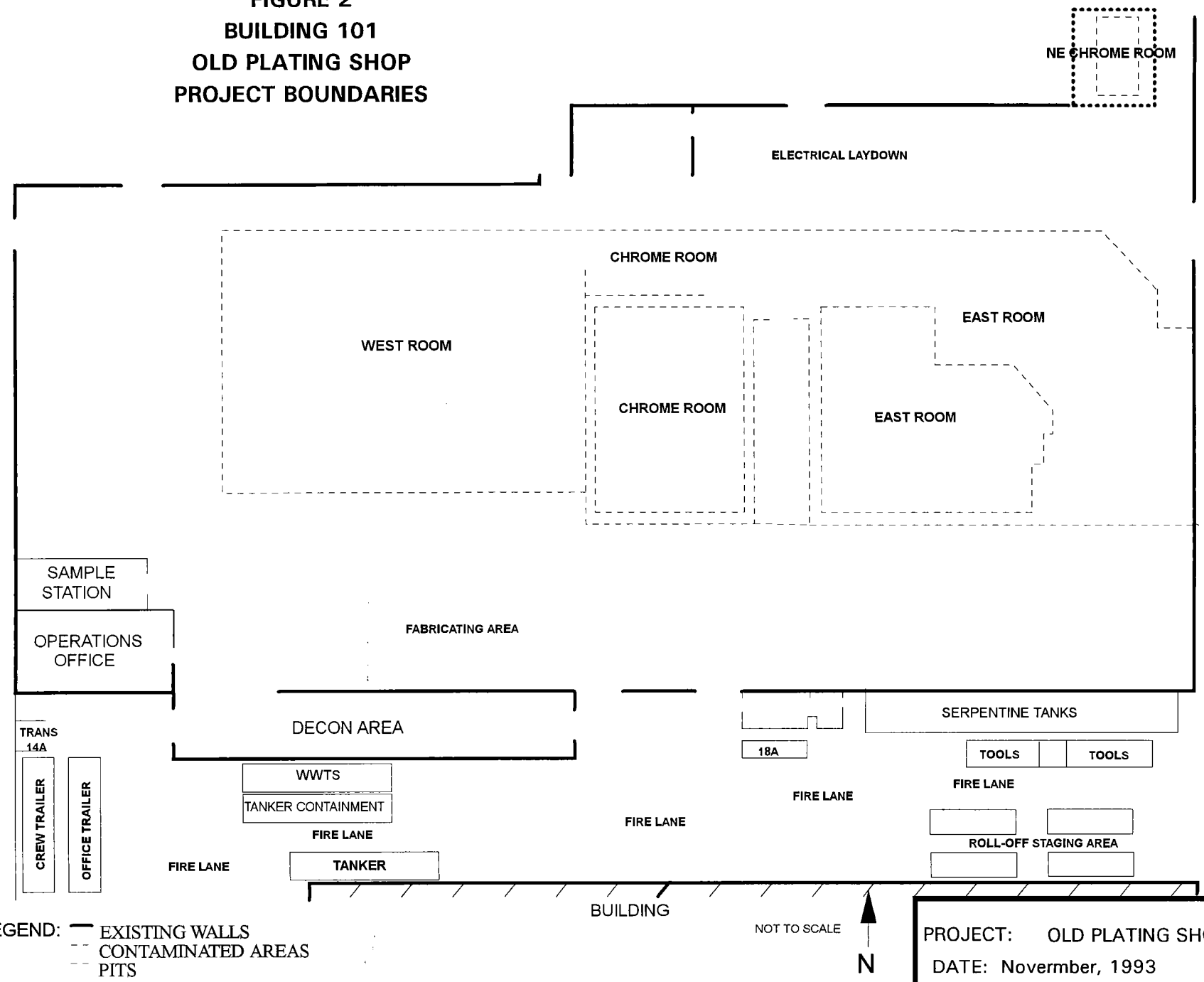

FIG2A.PRE Lotus Freelance

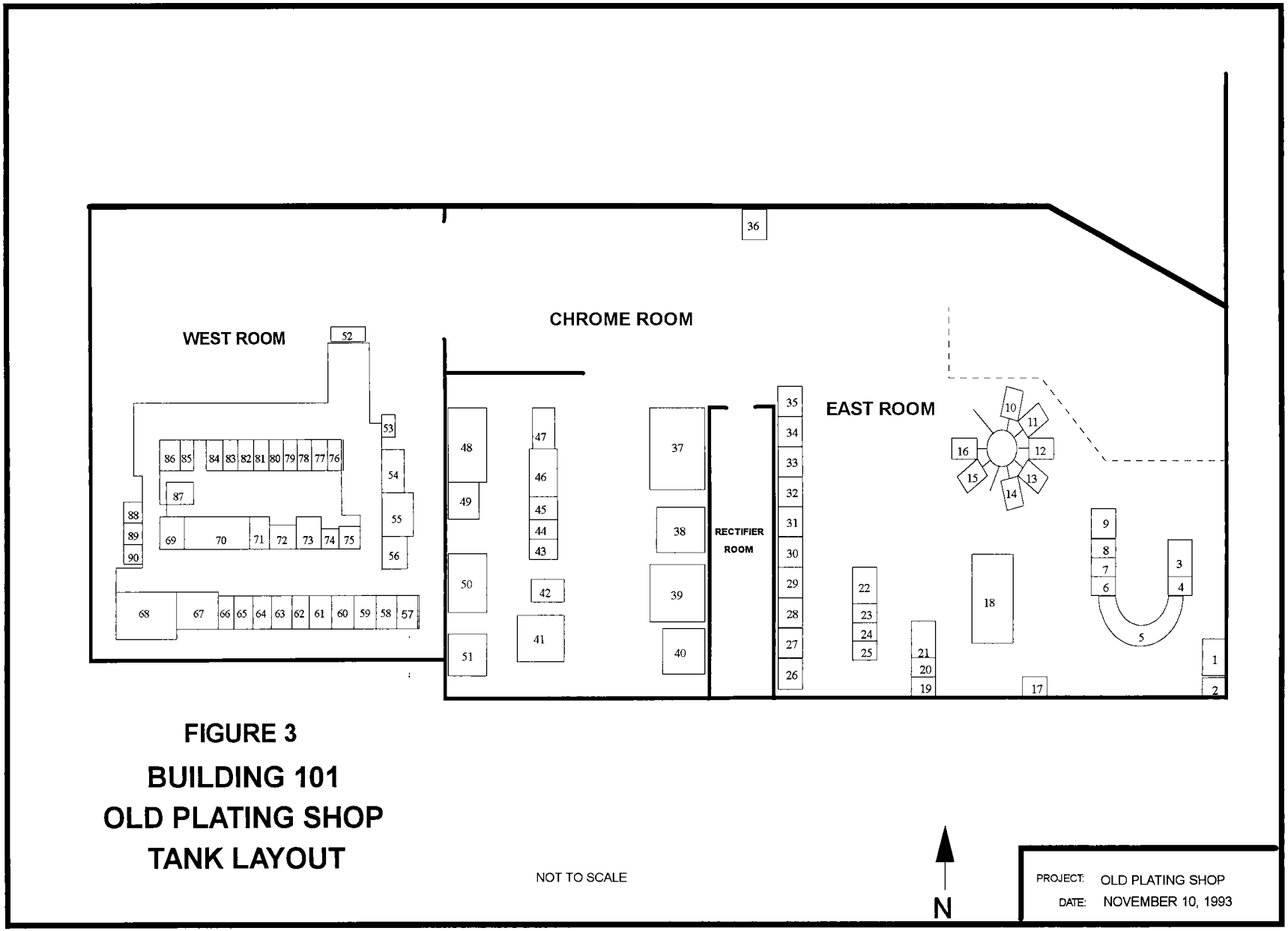

FIGURE 3

BUILDING 101
OLD PLATING SHOP
TANK LAYOUT

FIG3A.PRE Lotus Freelance

are corroded. Concrete flooring has also degraded, asbestos-containing pipe insulation has become friable, and small sections of the roof have collapsed.

1.2 Previous Investigations

During an emergency response removal action conducted in August 1992, waste remaining in the tanks was analyzed for ignitability, toxicity, pH, and the presence of reactive sulfide or cyanide. Samples were taken from 56 tanks containing waste that were previously designated as hazardous based on the plating process. Liquid samples were subjected to total metals analysis, and solid samples were anaylzed using the Toxicity Characteristic Leaching Procedure (TCLP). As a result of this removal action, ABB Environmental Services submitted the *Health Threat Evaluation for the Old Engine Processing Facility, Building 101*, to the Navy and FDEP for use in addressing remedial actions necessary to close the plating facility. The Health Threat Evaluation (HTE) identified which of the ninety tanks contained a listed RCRA waste and/or exhibited hazardous waste characteristics as defined by RCRA. The HTE reported that none of the tank samples exceeded the regulatory level for the characteristics of ignitability or reactivity; however, three contained waste characterized as being corrosive (i.e., pH $\leq$ 2.0). Forty tanks contained waste that exceeded regulatory toxic limits for metals (arsenic, cadmium, chromium, lead, mercury, and silver). In January 1993, liquids and sludges were removed from the plating tanks, and most of the friable asbestos pipe insulation was wrapped in plastic. A large quantity of the waste was removed and properly disposed of during the emergency response removal action. Building 101 tanks currently contain only residual wastes. Table 1 summarizes the results of the hazardous waste analyses for the tanks from Building 101 as reported in the HTE. Table 2 presents the RCRA Waste Codes (40 CFR Part 261) applied to the remaining residual waste and tanks to be removed during this IRA.

The project will commence with the removal and disposal of all asbestos containing material (ACM) from the three rooms. The asbestos abatement activities will take place one room at a time, isolating each room to prevent release of contamination during the activities. Once all ACM is removed, each section will be sampled for the presence of airborne asbestos fibers. If further cleaning is required, that section will be rinsed to remove all dust that has collected. The wastewater will be collected and treated prior to disposal.

Upon completion of asbestos removal, the tank systems designated as hazardous (Group A) will be removed. These tanks and their respective ancillary components will be removed, decontaminated, sampled, and delivered to the station for appropriate disposal based on the analytical results. As each room is cleared of the asbestos, this process will be repeated until Group A tank removal is complete.

The next task will involve the removal, decontamination, and recycling or disposal (as non-hazardous waste) of the remaining tanks, designated as Group B tanks. Ancillary components of Group B tanks will be treated in the same manner.

The final tasks will involve the removal of all duct work within the plating shop, re-routing all utilities, demolition of structure, removal of contaminated concrete (including serpentine tanks),

TABLE 1
SUMMARY OF BUILDING 101 WASTE ANALYSES

Tank	Group A or B Tank (1)	RCRA Characteristic Hazardous Waste Parameters (2)											
		TCLP Metals (mg/l)								Ignitability	Reactivity (mg/kg)		Corrosivity
		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Silver	Selenium	(Degree F)	Sulfide	Cyanide	pH
1	B	ND	0.54	ND	ND	ND	ND	ND	ND	>200	ND	ND	9.80
2	B	ND	0.79	ND	ND	0.17	ND	ND	ND	>200	ND	ND	10.30
5*	A	ND	ND	1.3	ND	0.30	ND	ND	ND	NA	NA	NA	8.80
6*	B	ND	ND	ND	ND	4.4	ND	ND	ND	NA	NA	NA	8.10
9	B	ND	1.1	0.014	ND	ND	ND	ND	ND	>200	ND	ND	8.60
11	A	ND	0.52	ND	ND	8.8	0.0028	ND	ND	>200	1.89	ND	9.80
12	A	ND	0.96	5.3	ND	0.05	0.0066	ND	ND	>200	5.36	ND	9.60
14*	B	0.41	ND	4.1	17.1	15.1	ND	ND	ND	NA	NA	NA	NA
15	B	ND	0.70	ND	0.33	ND	0.0033	ND	ND	>200	ND	ND	9.50
16	B	ND	0.76	0.70	ND	0.13	ND	ND	ND	>200	ND	ND	8.90
17*	A	0.84	ND	61,800	17.5	217	ND	ND	ND	NA	NA	NA	NA
22	A	ND	0.66	0.38	2.0	318	0.00092	0.44	ND	>200	8.78	ND	0.80
23	A	ND	0.70	0.086	0.014	76.6	ND	0.042	ND	>200	11.1	14.2	5.80
24*	A	ND	ND	27.0	78.6	13,900	ND	ND	ND	NA	NA	NA	NA
25*	A	6.0	ND	45.6	473	1,200	0.56	18.8	0.36	NA	NA	NA	NA
29	A	ND	0.68	ND	1.6	ND	ND	54.0	ND	>200	6.78	3.3	9.40
30	A	ND	0.29	ND	ND	ND	ND	4.8	ND	>200	7.18	12.1	9.20
33	A	ND	1.1	9.6	0.47	1.5	0.15	0.34	ND	>200	5.84	ND	4.60
38	A	ND	2.1	1.3	0.16	429	0.0014	ND	ND	>200	5.42	ND	8.40
39*	A	ND	ND	1.1	1,960	42.1	ND	ND	ND	NA	NA	NA	2.10
40*	A	0.079	ND	8.2	6,560	87.4	ND	ND	ND	NA	NA	NA	NA
41*	A	ND	ND	1.9	1,310	3.8	ND	ND	ND	NA	NA	NA	2.30
42*	B	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	7.50
43	B	ND	1.1	0.025	0.83	0.93	ND	ND	ND	>200	3.03	ND	7.00
44	A	ND	0.64	ND	45.4	17.2	ND	ND	ND	>200	6.51	ND	9.90
45*	A	0.37	ND	14.1	1,240	2,140	ND	ND	ND	NA	NA	NA	NA
46	A	ND	0.71	0.58	ND	791	ND	ND	ND	>200	5.83	14.9	6.80
47*	A	ND	ND	89.8	433,000	ND	ND	ND	ND	NA	NA	NA	NA
50*	A	ND	ND	ND	97.4	ND	ND	ND	ND	NA	ND	ND	4.40
Regulatory Level	-----	**5.0**	**100.0**	**1.0**	**5.0**	**5.0**	**0.2**	**5.0**	**1.0**	**<140 F**	**500 (4)**	**250 (4)**	**<2.0 or >12.5**

SEE NOTES AT END OF TABLE

SOURCE: ABB Environmental Services, Inc.

TABLE 1 (continued)
SUMMARY OF BUILDING 101 WASTE ANALYSES

Tank	Group A or B Tank (1)	RCRA Characteristic Hazardous Waste Parameters (2)											
		TCLP Metals (mg/l)								Ignitability	Reactivity (mg/kg)		Corrosivity
		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Silver	Selenium	(Degree F)	Sulfide	Cyanide	pH
51*	A	0.91	ND	12.8	69,700	272	ND	ND	ND	NA	NA	NA	NA
55	B	ND	0.79	0.40	ND	0.071	ND	ND	ND	>200	5.31	ND	7.70
57	A	ND	0.40	0.055	1.3	ND	ND	ND	ND	>200	3.32	7.8	9.50
59*	A	10.6	ND	693	315	393	ND	22.6	ND	NA	NA	NA	NA
61*	A	ND	ND	13.7	8.4	13.7	ND	ND	ND	NA	NA	NA	2.80
62	A	ND	0.58	0.070	0.17	ND	0.0009	ND	ND	>200	3.21	ND	10.40
64	A	ND	0.70	ND	ND	ND	0.063	ND	ND	>200	ND	11.1	9.50
68	A	ND	0.48	2.7	0.14	ND	ND	0.16	ND	>200	4.66	15.5	2.50
69	A	ND	0.31	2.2	1,730	ND	0.012	ND	ND	>200	ND	ND	1.00
70	A	ND	0.86	0.53	50.4	ND	0.0021	0.066	ND	>200	3.85	ND	3.70
71	B	ND	0.70	ND	0.17	ND	0.005	ND	ND	>200	2.38	ND	9.90
72	A	ND	0.76	4.0	ND	ND	ND	ND	ND	>200	5.36	ND	8.40
74	A	ND	0.66	1.3	0.33	1.2	ND	0.65	ND	>200	9.91	ND	9.50
77	A	ND	0.58	0.24	ND	3.6	0.40	0.11	ND	>200	4.50	ND	7.90
79	A (3)	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
82	A	ND	1.3	21.0	0.74	0.34	ND	2.9	ND	>200	7.03	1.3	3.40
84	A	ND	ND	1.1	ND	5.7	ND	ND	ND	>200	5.65	ND	4.30
85	A	ND	0.60	55.2	ND	808	1.5	0.52	ND	>200	6.38	ND	2.60
88	A	ND	0.84	26.2	2.4	194	0.017	0.87	ND	>200	ND	28.2	2.70
91*	B	ND	ND	ND	ND	5.1	ND	ND	ND	NA	NA	NA	5.80
92	A	ND	0.42	1,090	7.6	9.0	0.032	0.65	ND	>200	17.4	32.5	1.40
OT-1*	A	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
OT-2*	A	ND	ND	ND	11.0	ND	ND	ND	ND	NA	NA	NA	NA
OT-3*	A	ND	ND	ND	10.2	ND	ND	ND	ND	NA	NA	NA	NA
OT-4*	A	ND	ND	1.4	5.2	1.1	ND	ND	ND	NA	NA	NA	NA
OT-5*	A	ND	ND	4.2	18.7	20.6	ND	ND	ND	NA	NA	NA	NA
OT-6*	A	0.058	ND	5.3	40.5	15.9	ND	ND	ND	NA	NA	NA	NA
Regulatory Level	-----	**5.0**	**100.0**	**1.0**	**5.0**	**5.0**	**0.2**	**5.0**	**1.0**	**<140 F**	**500 (4)**	**250 (4)**	**<2.0 or >12.5**

NA - Not Analyzed
ND - Not Detected
NB - No Backup Data Available
OT - Outside Tank
[ ] - Exceeds Regulatory Limit

Notes:

SOURCE: ABB Environmental Services, Inc.

(1) - "DDDD Plan Concept, U.S. Navy Remedial Action Contract for Remediation of Sites Contaminated with Acids, Metals, and Bases",--Ebasco Environmental

(2) - September 1992 emergency response removal action - analytical data reports

(3) - Not included in Appendix B of Building 101 Health Threat Evaluation (2)...No Backup Data Available

(4) - Reactivity Advisory Limits for Cyanide and Sulfide (SW846, 3rd Edition; September 1986)

* - Denotes results derived from Total Metals analysis and not TCLP metals

TABLE 2: TANK SYSTEMS, HAZARDOUS WASTE CODES, AND ANALYSES				
TANK SYSTEMS	**APPLICABLE WASTE CODES**	**PARAMETERS**	**EPA/SW-846 METHOD**	**PRACTICAL QUANTITATION LIMIT**
Tanks: 17, 22, 24, 25, 40, 45, 51, 59, 69, 92; below floor piping; and floor sumps	D002	pH TOC TOX	150.1 415.2/9060 450.1/9020	N/A 1 mg/L 0.01 mg/L
Tanks: 25, 59; below floor piping; and floor sumps	D004	Arsenic TOC TOX	206.2 415.2/9060 450.1/9020	10 ug/l 1 mg/L 0.01 mg/L
Tanks: 5, 12, 17, 18, 24, 25, 33, 38, 39, 40, 41, 45, 51, 59, 61, 66, 68, 69, 72, 74, 82, 84, 85, 88, 92 and outside tanks 4, 5, and 6; and below floor piping; and floor sumps	D006	Cadmium TOC TOX	200.7 415.2/9060 450.1/9020	1 ug/l 1 mg/L 0.01 mg/L
Tanks: 17, 24, 25, 37, 39, 40, 41, 44, 45, 47, 48, 50, 51, 59, 61, 69, 70, 92, outside tanks 2, 3, 4, 5, & 6; below floor piping; and floor sumps	D007	Chromium TOC TOX	200.7 415.2/9060 450.1/9020	10 ug/l 1 mg/L 0.01 mg/L
Tanks: 11, 17, 22, 23, 24, 25, 38, 39, 40, 45, 46, 47, 51, 59, 61, 84, 85, 88, 92, outside tank 5 & 6; below floor piping; and floor sumps	D008	Lead TOC TOX	239.2 415.2/9060 450.1/9020	5 ug/l 1 mg/L 0.01 mg/L
Tanks: 77, 85, 25; below floor piping; and floor sumps	D009	Mercury TOC TOX	245.1 415.2/9060 450.1/9020	0.2 ug/l 1 mg/L 0.01 mg/

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TABLE 2: TANK SYSTEMS, HAZARDOUS WASTE CODES, AND ANALYSES				
TANK SYSTEMS	**APPLICABLE WASTE CODES**	**PARAMETERS**	**EPA/SW-846 METHOD**	**PRACTICAL QUANTITATION LIMIT**
Tanks: 25, 27, 28, 29, 31, 59, 76, 78, 79; below floor piping; and floor sumps	D011	Silver TOC TOX	200.7 or 272.2 415.2/9060 450.1/9020	1 ug/L 1 mg/L 0.01 mg/L
Tank: 92	F001	Tetrachloroethylene Trichloroethylene Methylene Chloride 1,1,1-trichloroethane Carbon Tetrachloride Chlorinated Fluorocarbons TOC TOX	624/8240 624/8240 624/8240 624/8240 624/8240 624/8240 415.2/9060 450.1/9020	5 ug/L 5 ug/L 5 ug/L 5 ug/L 5 ug/L * 1 mg/L 0.01 mg/L
Tanks: Outside Tanks 1, 2, 3, 4, 5, & 6	F006	Cyanide (total) Cyanide (free) Chromium Lead Nickel TOC TOX	335.2 412H 200.7 239.2 200.7 415.2/9060 450.1/9020	10 ug/L 10 ug/L 10 ug/L 5 ug/L 40 ug/L 1 mg/L 0.01 mg/L
Tank: 5	F007	Cyanide (total) Cyanide (free) Chromium Lead Nickel TOC TOX	335.2 412H 200.7 239.2 200.7 415.2/9060 450.1/9020	10 ug/L 10 ug/L 10 ug/L 5 ug/L 40 ug/L 1 mg/L 0.01 mg/L
Tanks: 3, 17, 18, 23, 27, 28, 29, 30, 31, 46, 54, 57, 62, 64, 66, 68, 76, 78, 79, 80, 82, 88 and 92	F008	Cyanide (total) Cyanide (free) Chromium Lead Nickel TOC TOX	335.2 412H 200.7 239.2 200.7 415.2/9060 450.1/9020	10 ug/L 10 ug/L 10 ug/L 5 ug/L 40 ug/L 1 mg/L 0.01 mg/L

* See Appendix A for analyte detection limits

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pressure washing and grouting of underground piping, and removal of required amount of soil. All material will be disposed in accordance with regulations.

The following sections outline the tasks that will be used to schedule and track the progress of this IRA. Any further revisions of this Work Plan required during the completion of this project will be covered by revisions or addenda. The official copy of this document will be retained at Southern Division, Naval Facilities Engineering Command.

The attachments of this Work Plan contain the specific operational plans for this IRA. The specific operational plans include the Sampling and Analysis Plan (Attachment A), the Health and Safety Plan (Attachment B), the Asbestos Abatement Plan (Attachment C), and the CQC Plan Addendum (Attachment D), The Project Schedule (Attachment E) and the Grouting Procedures (Attachment F).

This Work Plan is designed to meet the requirements of two regulatory programs: CERCLA and RCRA. The CERCLA scope of work surpasses the RCRA scope of work. To assist the RCRA reviewers, the portion of work that is of direct RCRA application is identified by a line on the left hand side of the page.

2.0 SCOPE OF WORK FOR THE INTERIM REMEDIAL ACTION

The following provides a description of the work to be performed.

In managing this project, the contractor will conduct all procurement activities, supply all craftsmen to the project, coordinate, manage, and supervise all construction activities on site, including inspection and management of subcontractor's work, provide technical, financial, and schedule status reports to the Navy, assure compliance with contract and regulatory requirements, and provide documentation to the Navy to support the CERCLA IRA. The tasks listed below will show the detail necessary to support the implementation of the IRA.

2.1 TASK 1 - Mobilization

During mobilization, the field office will be set up to include desks, tables, chairs, phones, and lights. The site perimeter will be secured with the use of fencing, gates, barricades, and signs, and all doors and access points to the work area will be secured to prevent unauthorized entry. The wastewater treatment system will be ordered, received, and positioned, and tankers for wastewater and treated water storage will be positioned. Health and Safety equipment/materials will be ordered and received, tools and construction equipment/materials will be procured. A craft trailer will be ordered and, upon arrival, wired for service. Portable toilets will be procured and staged. Cost/schedule tracking will begin. Craft personnel will be hired for mobilization assistance, and pre-employment physical examinations will be conducted on all personnel expected to be exposed to the contaminated area. These personnel will also be appropriately trained in hazardous waste operations as required by OSHA per 29 CFR 1910.120.

2.2 TASK 2 - Pre-dismantling Activities

Prior to any demolition (including asbestos removal), a utilities search will be performed to establish that all affected utility lines are no longer energized, and that each line is capped at the point of entry into Building 101. This effort will continue throughout the project. The area will also be properly lighted and made structurally safe for passage.

All existing drain lines leaving the plating shop will be securely sealed with expansion plugs. These lines will be decontaminated and grouted end to end prior to the completion of the project. Storm drains located south of the building and in the immediate vicinity of the decontamination/wastewater treatment areas, will be provided with emergency covers to restrict runoff of any potential release of contaminated water.

2.3 TASK 3 - Asbestos Abatement

The Asbestos Abatement section of this Work Plan is outlined in Attachment C. Prior to initiation of asbestos abatement activities, all drain lines located in the sumps of the building will be plugged to prevent the escape of any potentially hazardous materials. Any wastewater generated by the asbestos abatement activities will be pumped through a filter (to remove solids) to the wastewater storage tanker for eventual processing in the waste treatment system. Asbestos removed from within the plating shop walls will be assessed to determine if it has been contaminated by other hazardous substances. If analyses indicate contamination has occurred, the material will be disposed of in accordance with applicable regulations. All asbestos abatement personnel will be trained to meet all code requirements for asbestos workers. In addition, they will be 40-hour trained per 29 CFR 1910.120.

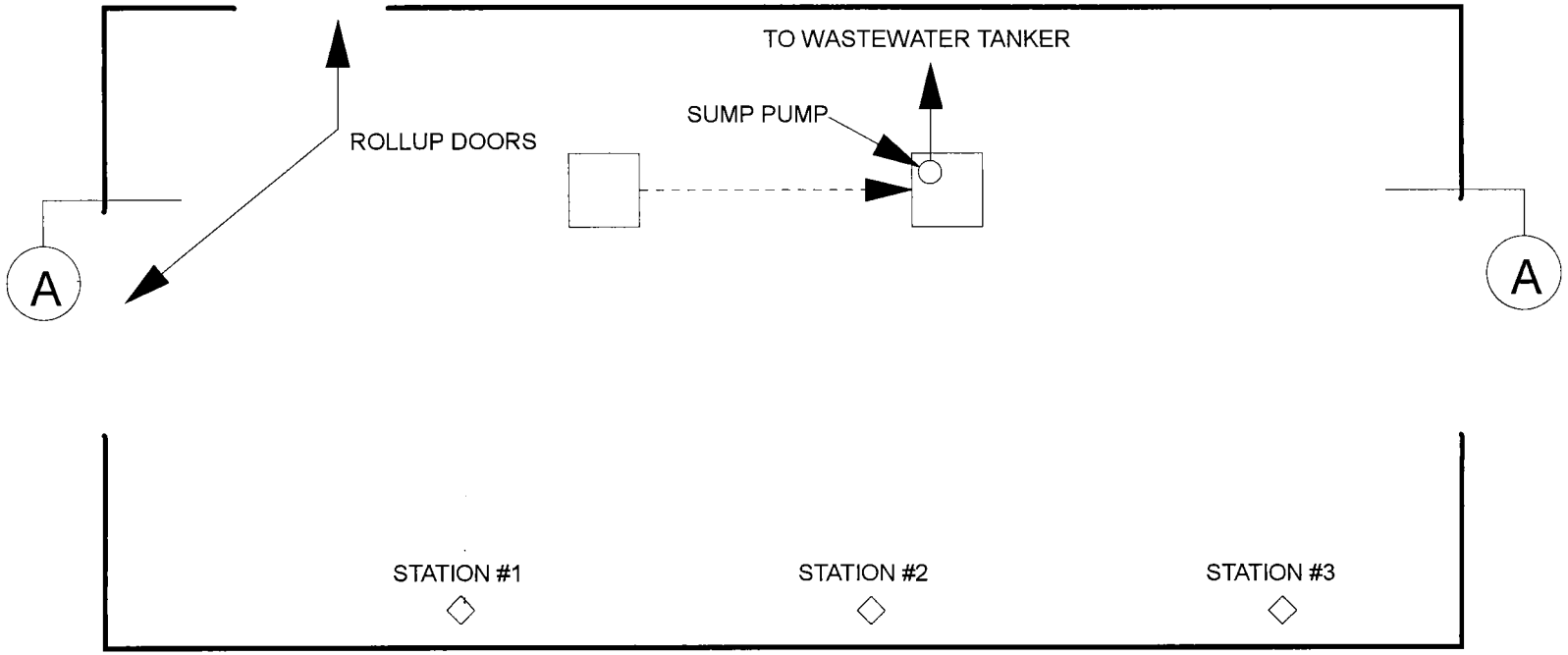
2.4 TASK 4 - Decontamination Station (Storing and transmitting electroplating shop decontamination fluids and contamination control)

A decontamination station will be established at the receiving area on the south side of Building 101, as presented in Figure 1. Figure 4 presents a plan view of the decontamination station. The area currently has a concrete floor with an integral sump and a metal roof. To further enclose the area, epoxy coated plywood walls and curb will be constructed around the perimeter, as detailed in the cross section A-A of Figure 5. A large door will be included in the east wall to allow materials to flow through the decontamination area in one direction. A large roll-up door already exists in the south wall of Building 101 at the west end of the receiving area. The tank system components will enter the decontamination station through that door.

The floor, curbs, and sump will be sealed with a thick, industrial grade, chemically resistant, epoxy coating system. The coating will be applied so that the minimum thickness is 12 mil and the slope to the sump is maintained. Sealing the concrete in this manner will prevent the concrete from becoming contaminated by the wash water and solids generated during decontamination. The sealant also will provide a non-slip surface for the personnel working in the decontamination station. The epoxy on the walls will prevent the wash water and solids from contaminating the plywood. Both decontamination station doors will be constructed of, or covered with, material that can also be decontaminated. The sump in the decontamination area

FIGURE 4

BUILDING 101
OLD PLATING SHOP
DECONTAMINATION AREA-PLAN VIEW



◇ - **PRESSURE WASHING STATION**

SEE CROSS SECTION A-A ON FIGURE 5

N

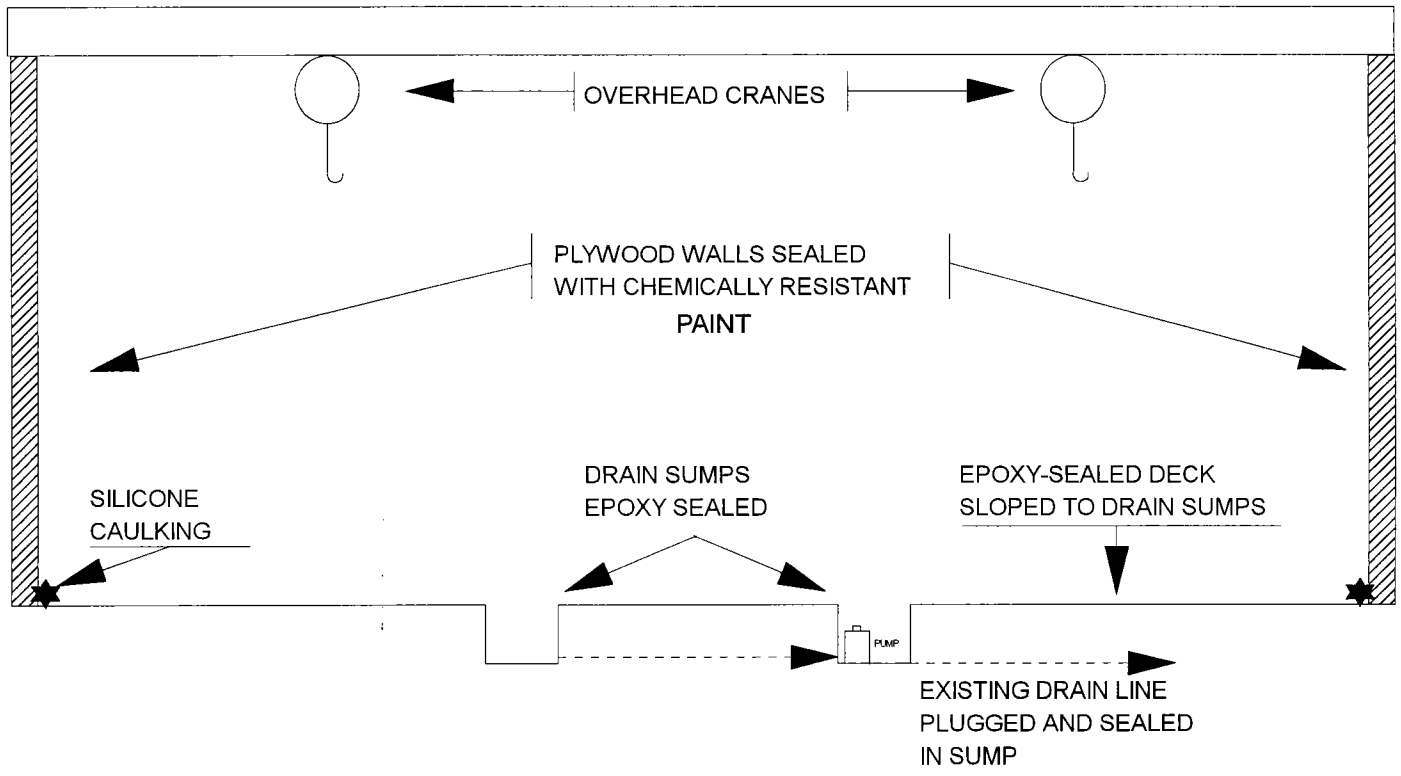
NOT TO SCALE

PROJECT: OLD PLATING SHOP

DATE: NOVEMBER 10, 1993

FIG4A.PRE Lotus Freelance

FIGURE 5
BUILDING 101
OLD PLATING SHOP
DECONTAMINATION AREA CROSS SECTION A-A



NOT TO SCALE

PROJECT: OLD PLATING SHOP
DATE: NOVEMBER 10, 1993

FIG5A.PRE Lotus Freelance

is connected to the base Industrial Wastewater Treatment facility. Before any closure activities begin, the piping will be sealed to ensure that no wastewater is discharged to the Industrial Wastewater Treatment facility prior to treatment onsite. Instead, the sump will be emptied using an industrial grade flexible hose connected to a submersible pump. The pump will have a float switch to ensure that the sump does not overflow, and the wastewater will be discharged to a stainless steel holding tank for storage prior to treatment.

When all closure activities have been completed, cleanup of the decontamination station will be accomplished using high-pressure water or steam. This wastewater will also be collected in the sump and pumped to the wastewater holding tank. Any items that cannot be adequately decontaminated and any disposable items used during the decontamination activities will be disposed as hazardous waste. Removal of the decontamination station structure will be addressed during the building demolition.

2.5 TASK 5 - Tank Removal

Following removal of all asbestos from a room of the plating facility, removal of the tank systems from that room will begin. Any residual fluids remaining in the tanks will be removed as much as practical prior to their being dismantled. Group A tank systems will be removed first. If access to any of the tanks is limited by active utility lines, the lines will be rerouted by qualified personnel. Also, the masonry portion of the south wall of the plating shop and nonstructural portions of other walls will be removed to facilitate tank removals. Again, the work will be completed by qualified personnel in a manner that will not impair the structural integrity of the building. Group B tanks will be relocated, if necessary, within the facility to gain access to Group A tanks. Each room of the plating facility provides secondary containment for spills that may occur. Any spills of residual liquid from the tank systems will be cleaned up immediately. Spills that occur during tank systems removal will be collected and a record made which includes the tank number, amount, type of spill and clean up action taken.

Accessible piping, valves, filters, and pumps associated with the plating tanks will be removed along with the tanks. Collection devices will be used to contain spills that occur during pipe cutting activities. The area inside Building 101 near the roll-up door at the west end of the receiving area will be used to stage items prior to decontamination. Piping located under the floor, or in any inaccessible location which contained hazardous waste, will be decontaminated in place. If necessary, to allow access to tanks or to ensure safe working conditions, other building components, such as platforms, doors, hatches, ducts, and steam lines also may be relocated within the facility. If removal of debris from the building during closure is necessary, the material will be decontaminated, as appropriate, and disposed of as either hazardous waste or non-hazardous waste. Decontamination and disposal details are provided in Tasks 6 and 7.

The first step in the removal of each tank system will be to disconnect the tank from the remaining tank system components. The tank then will be transported to the decontamination station using a telescoping boom rubber tire crane. If the tank is located in a portion of the facility that is inaccessible for the boom, the tank will be moved to accommodate the reach of the boom. If the tank is too large to be moved in this fashion, it will be cut into pieces. Small tanks will be moved to the decontamination station using a forklift. For each tank and associated

components, the date and means of removal will be recorded. Dismantled pieces of the same tank system will be tracked together.

Piping, pumps, filters, and other appurtenances will be removed from the plating rooms in a manner consistent with their size, configuration and location, and transferred to the decon area for washing prior to disposal. If decontamination of these items proves to be unsuccessful, they will be disposed of as hazardous waste.

2.6 TASK 6 - Decontamination Procedures (contamination control)

The hazardous waste tanks and associated appurtenances will be moved through the decontamination station from west to east using an existing overhead crane and hydraulic floor jack. Decontamination will be accomplished using high-pressure water or steam equipment, and each item will be triple rinsed. If visible contamination remains after the third rinse, the decontamination personnel will use hand-held scrapers to remove the contamination and the item will be rinsed again. If these methods are not successful in removing all visible contamination, the item will be disposed as hazardous waste.

The old wastewater treatment system tanks (Tanks OT-1 through OT-6, or serpentine tanks) and associated underground piping will be decontaminated in place. The tanks will be decontaminated by triple rinsing with high-pressure water or steam. The pipes will be decontaminated using high-pressure water jetting equipment. Following decontamination, all underground piping will be pressure grouted full from end to end. Detailed procedures for grouting are contained in Attachment F. The wastewater generated during decontamination will be contained in the decontamination area and removed using a submersible pump with a float switch. The water will be pumped to a DOT approved tanker through an industrial grade flexible hose. Again, visible contamination will be removed from the tanks using hand held scrapers.

Above-grade piping that is cleaned in place also will be decontaminated using high-pressure water jetting equipment. The wastewater from these pipes will be collected in the associated tank, if possible, or the nearest floor sump. The wastewater then will be pumped to the DOT approved tankers by a portable sump pump through an industrial grade flexible hose.

In addition to the decontamination station, the decontamination equipment, the interior of the tanker trucks, and the floor sumps will be cleaned using high-pressure water or steam. Each item will be triple rinsed. Wastewater generated during the cleaning will be collected and pumped to the DOT approved tanker or properly disposed. Rinsate samples will be collected for each decontaminated item and will be analyzed for the parameters applicable to that item. The applicable parameters are listed in Table 2. If laboratory results show that the rinsewater for an item contained no constituents at concentrations above the limits listed in Table 2, the item will be considered clean. Items that cannot be adequately decontaminated will be disposed.

2.7 TASK 7 - Tank System Disposal

Final disposition of each tank system component will depend on the nature of the item. For each item (tank or grouping of ancillary equipment) that is decontaminated, a rinse sample will be collected to confirm that decontamination is complete. The parameters of concern (POC) for each tank system are listed in Table 3. If the above decontamination method (Task 6) is unsuccessful, the tank systems will be disposed of as hazardous waste.

While waiting for laboratory analytical results, the tank system components will be identified and stored within the waste management area in a way as to protect them from weather. Piping that is cleaned in place will remain in place.

If laboratory results indicate that the rinse water from an item contains no hazardous waste constituents at concentrations greater than those in Table 2, the item will be appropriately disposed as nonhazardous waste. For rinsate samples collected using potable water, the rinsate analytical results will be compared to the background potable water results. If the concentrations of hazardous constituents in the rinsate sample do not exceed the corresponding level in the potable water sample, the pipe will be considered clean. Tank system components that cannot be adequately decontaminated will be disposed of at an appropriately licensed hazardous waste management facility. Arrangements for disposal of the tank systems will be made by the Defense Reutilization and Marketing Office (DRMO). Disposal of hazardous wastes will be contracted by the Navy to an appropriately licensed hazardous waste management facility.

All hazardous waste generated from the plating shop IRA that cannot be rendered nonhazardous through treatment will be disposed of at an appropriately licensed hazardous waste management facility. This will be done in accordance with the land disposal restrictions stated in 40 CFR Part 268 and adopted by reference in FAC Rule 17-730.183. Disposal will conform to RCRA regulations stated in the 40 CFR 260-268. Offsite disposal will also meet CERCLA offsite disposal requirements.

Storage, labeling, manifesting, and shipping of the hazardous waste items will be accomplished in accordance with 40 CFR Parts 262 and 263, as adopted by reference in FAC Rules 17-730.160(1) and 17-730.170(1), respectively.

2.8 TASK 8 - Wastewater Treatment and Disposal

Wastewater generated during decontamination activities will be collected in the decontamination area floor sump, then pumped to, and treated by a mobile wastewater treatment unit. Wastewater awaiting treatment, and reuse or disposal will be stored in an appropriately labeled tanker located adjacent to the decon area. The wastewater treatment system uses a water evaporation system to concentrate the wastewater contaminants and produces distilled water and a small volume of concentrated solution. Figure 6 shows a flow diagram illustrating the treatment process of the wastewater. The treatment system consists of two evaporators which sequentially concentrate any dissolved material in the decon wastewater. A diesel powered generator produces the electricity required to operate the entire wastewater treatment system. The first evaporator is a vapor compression evaporator. Vacuum is drawn on the chamber

TABLE 3: LIST OF GROUP A TANKS-OLD PLATING SHOP, BUILDING 101		
TANK	**PREVIOUS CONTENTS**	**POC**
3	Copper plating solution.	CN, Cr, Pb, Ni
5	Cadmium plating solution.	Cd, CN, Cr, Pb, Ni
11	Electrocleaner, federal specification P-C-535.	Pb
12	Water rinse after electroclean.	Cd
17	Sodium cyanide solution (dilute holding tank).	Cd, Cr, Pb, Cn, Ni
18	Cadmium plating solution.	Cd, CN, Cr, Pb, Ni
22	Lead - tin plating solution.	CN, Cr, Pb, Ni
23	Water rinse after lead - tin plate.	CN, Cr, Pb, Ni
24	Lead - tin plating solution.	Cd, Cr, Pb
25	Acid nickel stripping solution.	As, Cd, Cr, Pb, Hg, Ag
27	Silver plating solution.	Hg, CN, Cr, Pb, Ni
28	Silver strike solution.	Hg, CN, Cr, Pb, Ni
29	Pump stand contains silver plating solution.	Hg, CN, Cr, Pb, Ni
30	Silver plating solution.	Hg, CN, Cr, Pb, Ni
31	Empty prior to earliest recollection (1974), originally silver plating solution.	Ag, CN, Cr, Pb, Ni
33	Woods nickel strike solution.	Cd
37	Originally chromium plating solution, replaced with Type 1 aluminum anodize solution.	Cr
38	Water rinse after chrome plate or anodize.	Cd, Pb
39	Chromium plating solution.	Cd, Cr, Pb
40	Chromium stripping solution (caustic).	Cd, Cr, Pb
41	Catalyzed chromium plating solution.	Cd, Cr
44	Sodium hydroxide (dilute solution to neutralize acid).	Cr, Pb
45	Sulfuric acid activation solution.	Cd, Cr, Pb
46	Water rinse after chrome strip.	Pb, CN, Cr, Ni
47	Chromic acid reverse stripping solution.	Cr, Pb
48	Vapor degreaser - trichloroethylene replaced sodium dichromate solution.	Cr
49	Catalyzed chromium plating solution.	Cr
50	Chromium plating solution.	Cd, Cr, Pb
51	Chromium plating solution.	CN, Cr, Pb, Ni
54	Two bay tank: gold strike and gold plating solutions.	CN, Cr, Pb, Ni
57	Sodium hydroxide aluminum etch.	As, Cd, Cr, Pb, Ag

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TABLE 3: LIST OF GROUP A TANKS-OLD PLATING SHOP, BUILDING 101		
TANK	**PREVIOUS CONTENTS**	**POC**
59	Nitric acid/hydrofluoric acid for aluminum alloy.	Cd, Cr, Pb
61	Nitric acid for zincate process.	CN, Cr, Pb, Ni
62	Zincate immersion solution.	CN, Cr, Pb, Ni
64	Copper plating solution.	Cd, CN, Cr, Pb, Ni
66	Cadmium plating solution.	Cd, CN, Cr, Pb, Ni
68	Nickel sulfamate plating solution.	Cd, Cr
69	Hydrochloric acid replaced with Smut 60 #2.	Cr
70	Three bay tank: water rinse. Middle bay held 93113 #3 alumigold.	Cd
72	Water rinse.	Cd
74	Electroless nickel stripping solution.	Ag, CN, Cr, Pb, Ni
76	Silver plating solution.	Hg
77	Water rinse.	Ag, CN, Cr, Pb, Ni
78	Silver plating solution.	Ag, CN, Cr, Pb, Ni
79	Silver strike solution.	CN, Cr, Pb, Ni
80	Empty prior to earliest recollection (1974), labeled cyanide strike.	Cd, CN, Cr, Pb, Ni
82	Copper strike solution.	Cd, CN, Cr, Pb, Ni
84	Watts nickel strike.	Cd, Pb
85	Hydrochloric acid activation solution (1:1 HCL and water).	Cd, Pb, Hg
88	Sulfuric acid activation solution replaced with hydrochloric acid solution.	Cd, Pb, CN, Cr, Ni
92	Located in West room; for contents see analytical in Attachment L.	Cd, Cr, Pb, CN, Ni, TCE

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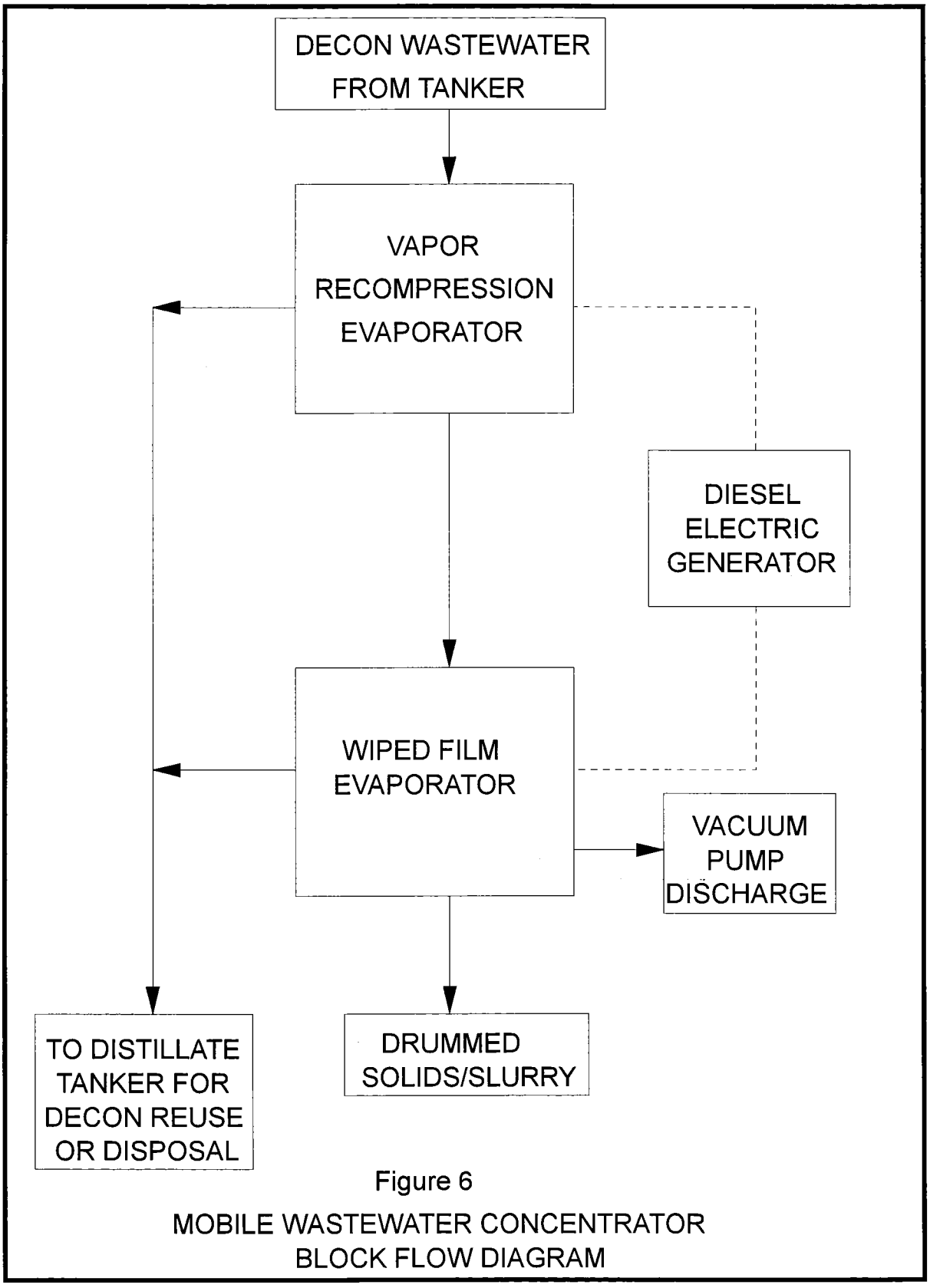


Figure 6

MOBILE WASTEWATER CONCENTRATOR
BLOCK FLOW DIAGRAM

FIG6A.PRE Lotus Freelance

containing the wastewater by an eductor through which distillate is pumped. Start-up heat is added to the wastewater from the diesel engine coolant via a heat exchanger. At approximately 135-140°F, boiling begins and the resultant vapor is compressed, adding more energy to the system and condensing the vapor to form distillate. The distillate is pumped to the distilled water tanker. Non-condensable gases present, such as carbon dioxide and nitrogen, are discharged to the atmosphere. Any volatile materials which may have been present in the decon wastewater would also be discharged at this point. Since the tanks in the electroplating shop have been empty for some time, it is highly unlikely that any volatile materials are still present in any of the tanks. Volatiles are therefore not expected as a component of the decon water.

The wastewater treatment system, including the storage tankers, will be established on site in a manner that is protective of human health and the environment and in compliance with all applicable regulations. The solids generated by the treatment process will be drummed and disposed at an appropriately licensed hazardous waste management facility in accordance with the land disposal restrictions. Based on user knowledge, the treatment process solids will be characterized and disposed in accordance with applicable regulations. Samples will be collected for verification of the waste characteristics. The distilled water generated by the treatment process either will be reused at the decontamination station or disposed at the NAS Jacksonville domestic wastewater treatment plant (WWTP). The WWTP effluent is discharged to the St. John's River in accordance with the NAS Jacksonville NPDES permit (permit number FL0000957) issued May 9, 1988. The NAS Jacksonville NPDES permit is referenced in Attachment A of *Application for Closure Permit, Old Plating Facility - Building 101 and Waste Oil Tank 101-3.*

As a precaution against the possible discharge of VOCs, vapors from the evaporator will pass through an activated carbon filter prior to discharge to the atmosphere. The discharge of the carbon filter will be monitored with an Organic Vapor Analyzer (OVA) to verify that all organic vapors have been removed. An automatic controller returns the distillate to the wastewater tanker if the conductivity of the distilled water should exceed 200 microcuries. The liquid in the evaporation chamber becomes more concentrated as the boiling continues. The level in the chamber is maintained by an automatic level controller which adds wastewater to replace that which evaporated. When the concentration of dissolved material in the chamber reaches the design value (about 70,000 mg/l), draw off of the concentrated solution is started by opening a manual valve until a specified rate is achieved. The flow rate is shown on a flow indicator. This solution is collected in a concentrate tank.

The second stage of the concentration is the wiped film evaporator. This unit consists of a heated cylindrical surface within a vacuum chamber. The concentrated solution from the previous evaporator is "wiped" on the surface of the heated cylinder. As it is, additional water is vaporized; further concentrating the solution to about 470,000 mg/l. The concentrate leaves the bottom of the evaporator and is pumped into drums. The vaporized water is condensed in a heat exchanger and pumped into the distillate tanker. The vacuum on the wiped film evaporator is maintained by a mechanical vacuum pump. Distillate produced by the wastewater treatment system and collected in the distilled water tanker will be reused as a water supply for the pressure washers in the decon area. Excess supply of distillate produced will be disposed into the Wastewater Treatment Plant (WWTP). The solids generated by the treatment process

will be drummed and disposed of at an appropriately licensed hazardous waste management facility in accordance with the land disposal restrictions. Distilled water generated by the treatment process will be either reused at the decontamination station or disposed of at the NAS-JAX Domestic Plant.

To ensure that the NPDES permit is not violated, each tanker of distilled water will be analyzed for the parameters listed in Table 4. The listed parameters are based on the hazardous waste constituents stored in the old plating shop and the discharge monitoring parameters for outfall Serial Number 001 listed on pages I-2 through I-6 of the NPDES permit. If the distilled water contains constituents at levels above (or below in the case of pH) prescribed limits, the water will be returned to the mobile treatment unit and reprocessed. Details of the wastewater sampling and analysis program are provided in the Sampling and Analysis Plan. Wastewater generated during closure that has been treated, analyzed, and found to meet the NPDES discharge limits will be transported to the WWTP by NAS personnel using the waste tankers.

If laboratory results show that the rinse water from an item contained no constituents at concentrations above the limits listed in Table 2, the item will be appropriately reused, recycled, or disposed as nonhazardous waste. For rinsate samples collected using potable water, the rinsate analytical results will be compared to the background potable water results. If the concentrations of constituents in the rinsate sample are equal to the corresponding level in the potable water sample, the pipe will be considered clean. If the rinsate sample from a tank or piece of equipment shows that the item is not clean, the decontamination process will be repeated. Tank system components that cannot be adequately decontaminated will be disposed as hazardous waste.

2.9 TASK 9 - Waste Storage Tankers (contamination control)

The wastewater generated during decontamination activities will be stored in tankers. One tanker will be used to store the wastewater prior to treatment and the other will be used to store the distillate prior to reuse or disposal. As shown on Figure 7, the wastewater tanker will be located at the south end of the mobile treatment unit, and the treated-wastewater tanker will be located between the wastewater tanker and the mobile wastewater treatment system.

Secondary containment that meets the requirements of 40 CFR Part 264.193 will be provided for the mobile wastewater treatment system. The secondary containment system will be capable of collecting accumulated liquid and preventing this liquid from migrating out of the containment system. The treatment system is located on an existing concrete pad. Secondary containment will be provided by constructing a concrete block wall around the trailer on which the system is mounted. The containment area will be approximately 12 feet x 40 feet with a 24-inch block wall. Any cracks or seams in the concrete will be sealed prior to use. The existing concrete slab on which the mobile treatment system is located and the inside of the block containment wall will be sealed with an epoxy waterproof coating. The wastewater treatment system has a residual capacity of about 80 gallons. The secondary containment area is designed to contain this volume plus the volume from a 25 year 24-hour rainfall event.

TABLE 4: NPDES PERMIT DISCHARGE LIMITS	
PARAMETERS	**DISCHARGE LIMIT (mg/l)**
Total Suspended Solids	30.0
pH	6.0<pH <8.5
Oil and Grease	15.0
Chemical Oxygen Demand	125
Cadmium	0.00179
Copper	0.03
Chromium	0.05
Cyanide	0.02
Lead	0.03
Mercury	0.0024
Nickel	0.1
Silver	0.001
Zinc	0.181
1,1,1-Trichloroethane	5.28
Trichloroethylene	0.41

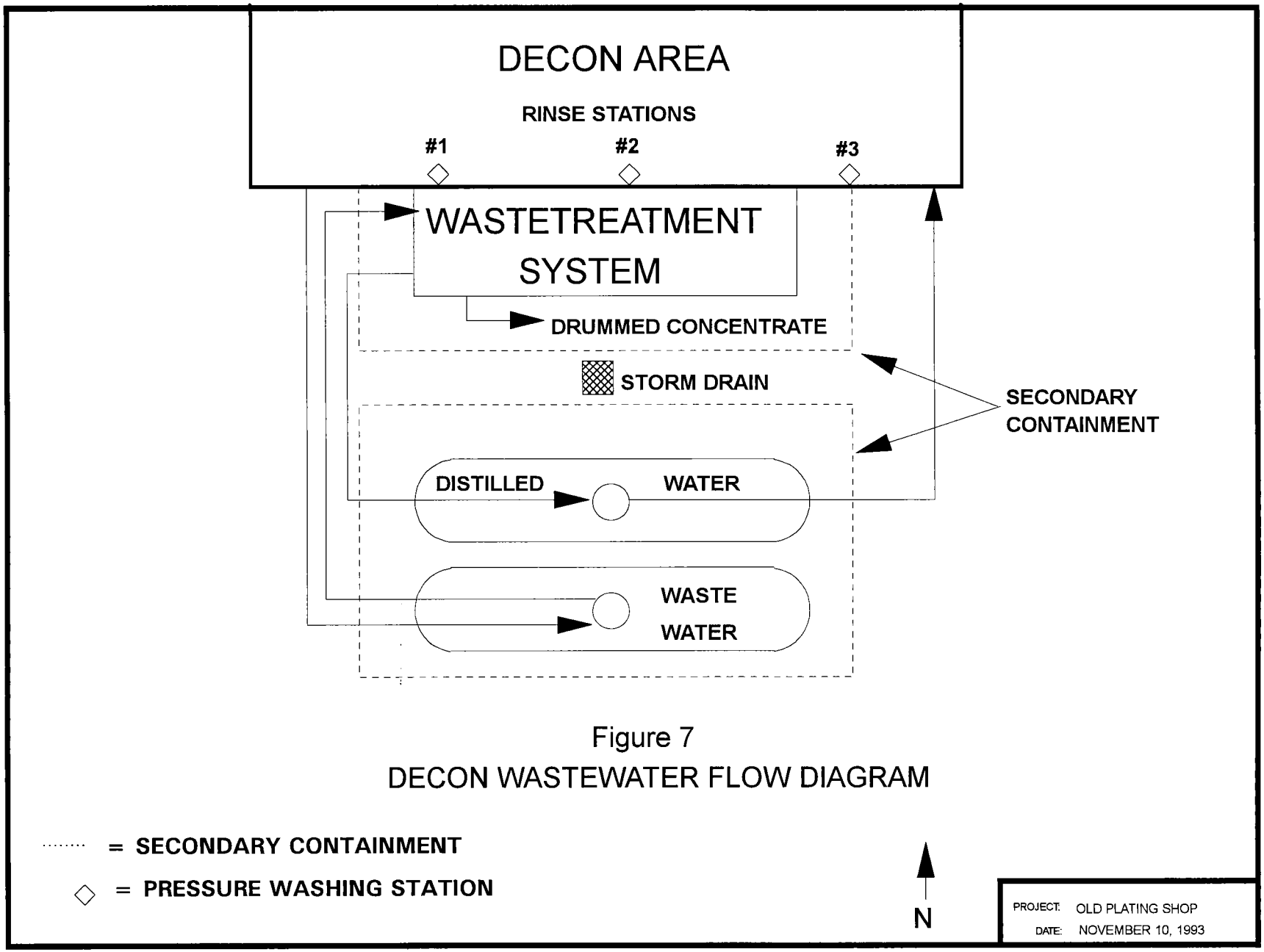


Figure 7
DECON WASTEWATER FLOW DIAGRAM

FIG7A.PRE Lotus Freelance

A large storm drain and grating is located between the wastewater treatment system and the two tankers. Therefore a separate secondary containment system will be provided to prevent possible release from the tankers. This containment area will be constructed of block. Cracks in the concrete and the interior surfaces will be sealed with waterproof epoxy in the same manner as the wastewater treatment containment area. All interconnecting piping between the wastewater treatment system and the tankers will be routed inside an 8-inch PVC pipe to provide secondary containment for the piping. Any rainwater which collects in the secondary containment areas must be considered hazardous and treated in the wastewater treatment system. To minimize the volume of rainwater which accumulates, a rain shed will constructed over the wastewater treatment system and the tankers.

2.10 TASK 10 - Hydraulic Lift Removal

The hydraulic lift stations are located north of the decontamination area within the building. These lift stations (Figure 8) will first be barricaded, ventilated and tested with an oxygen sensing explosimeter prior to beginning any work. After confirming a safe atmosphere, the lift cavity will be cleaned and the hydraulic fluid will be discharged to a drum which will be sealed, labeled, and turned over to the responsible NADEP facility for disposal.

All electrical connections/controls will then be terminated and the lift will be rigged for removal via the existing overhead crane. After rigging is complete, the designed support for the station will be removed. The station will be hoisted clear of the cavity and delivered to the Navy for storage or reuse. At this point the cavity will be cleared once again for final inspection and removal of all ancillary equipment prior to backfilling operations.

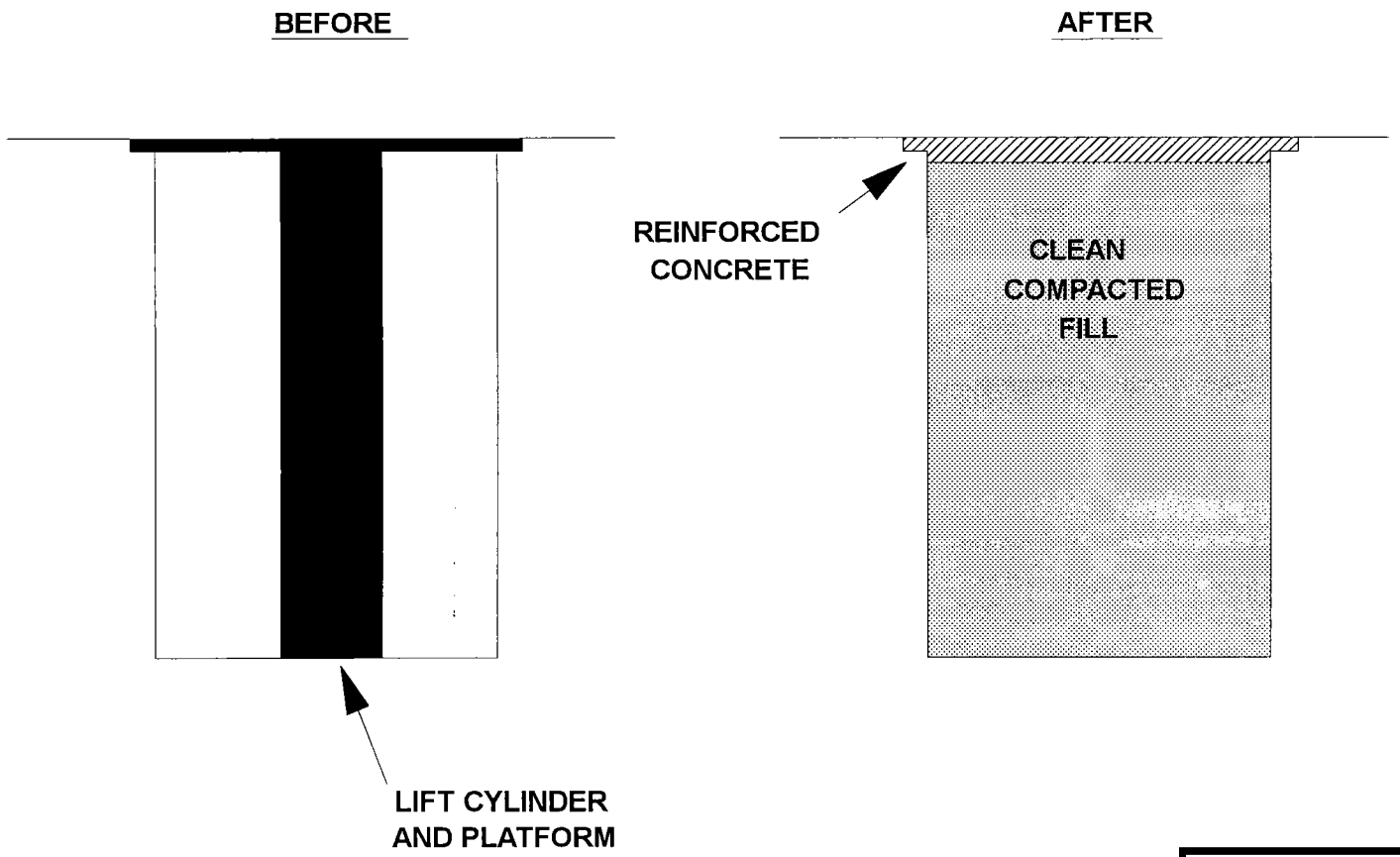
Backfilling operations will consist of filling the cavities with common fill and compacting with water and/or a plate compactor in four foot lifts up to eight inches from the top of the floor slab. A six millimeter polyethylene moisture barrier will be placed to cover the soil, and a matt of six inch by six inch wire will be placed with 3,000 psi concrete. The surface will be vibrated, broom finished, water cured. No traffic will cross the area for 72-hours.

2.11 TASK 11 - Materials Handling

Handling of materials after disposed material reaches the roll-offs shall be the responsibility of the Navy. The contractor will coordinate with NAS JAX to produce appropriate waste profiles and PWC JAX in producing manifests.

Three types of roll-off dumpsters will be provided to receive waste material as follows: Non-Hazardous Debris, Hazardous Debris/No Treatment Required, and Hazardous Debris/Treatment Required, respectively. The non-hazardous dumpster will receive the B tanks and appurtenances. Each roll-off dumpster will be removed for disposal as soon as it is full and replaced with an empty one. Before disposal, the disposal contractor will provide proof of required license, insurance coverage, and spill control plan. In addition, the disposal contractor will provide a letter from the landfill stating its current licensing, that it has no Notice of

FIGURE 8
LIFT STATION DETAILS



PROJECT: OLD PLATING SHOP
DATE: NOVEMBER 10, 1993

FIG8A.PRE Lotus Freelance

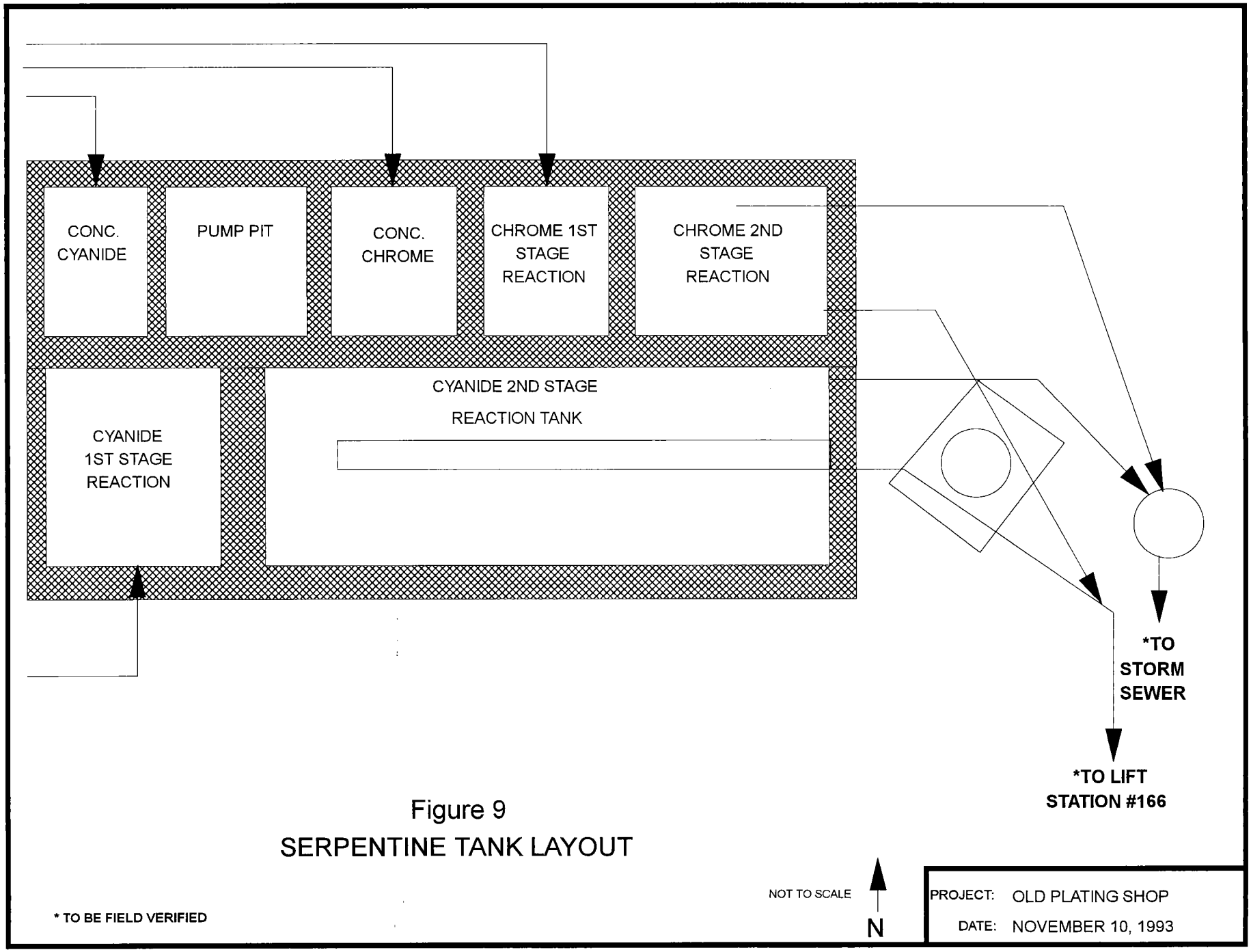


Figure 9
SERPENTINE TANK LAYOUT

FIG9A.PRE Lotus Freelance

Violation (NOVs), that it has available space to receive the waste, and that it will accept the waste. Also required is a copy of the cover-sheet of the disposal facility's permit showing its EPA permit number and a statement that it is not currently in violation any federal or state regulations.

2.12 TASK 12 - Removal and Grouting of Underground Lines

All below grade piping within the soil excavation area (see Figure 12 under Task 12) will be excavated and disposed as hazardous material. The below grade piping from the valve assembly pit (located east end of the decontamination area) to lift station 166 will be pressure washed or pigged as necessary to reach the established clean up criteria. High pressure water jetting or pressure washing is performed with pressures of 2000psi or greater. Upon decontamination of this piping, it will be grouted in place end to end taking care to prevent any voids. Grouting procedures are addressed in Attachment F.

2.13 TASK 13 - Serpentine Tank Removal

The serpentine tank is a below ground level concrete vault located outside Building 101 toward the east end of the south wall, as shown previously in Figure 1. The tank consists of compartments which provide flow channels with baffles on alternate sides (Figure 9). The baffles caused the wastewater to flow in a serpentine pattern through the tank. Such an arrangement provided retention time and mixing for the treatment chemicals added. The entire construction is concrete. Previous attempts made to decontaminate the concrete by pressure washing failed; therefore, the serpentine tank will be removed. The serpentine tank perimeter concrete will be sawcut within four feet of the tank's edge on all sides. A hydraulic ram will be mounted on an excavator and this "apron" concrete will be removed to expose existing sheet piling adjacent to the Metal Plating Shop and Chlorine Building. At this time, new sheet piling will be installed to maintain sidewall integrity during the demolition/backfill process. The tank will be demolished with the ram excavator and then loaded into rolloffs/trucks for disposal as hazardous waste. A sandy material will be utilized to bring the backfill to grade. Soil will be compacted in lifts to satisfy NTR requirements. Sheetpile will be cut below grade and left in place.

2.14 TASK 14 - Removal of Ductwork

In the earlier phase of the project, ventilation ductwork associated with the plating tanks was removed up to the level of the trusses of the plating shop. In this task, the remaining ductwork from the trusses to the air movers on the roof will be removed. The ductwork will then be triple rinsed in the decontamination area. The ductwork will be disposed as debris or scrap metal.

2.15 TASK 15 - Removal of Ventilators

The ventilators provided the power to pull the chemical fumes from the plating tanks and discharge it to the atmosphere through the roof (Figure 10). The ventilators and their associated ductwork will be removed, triple rinsed and disposed of as debris or scrap metal. Openings in

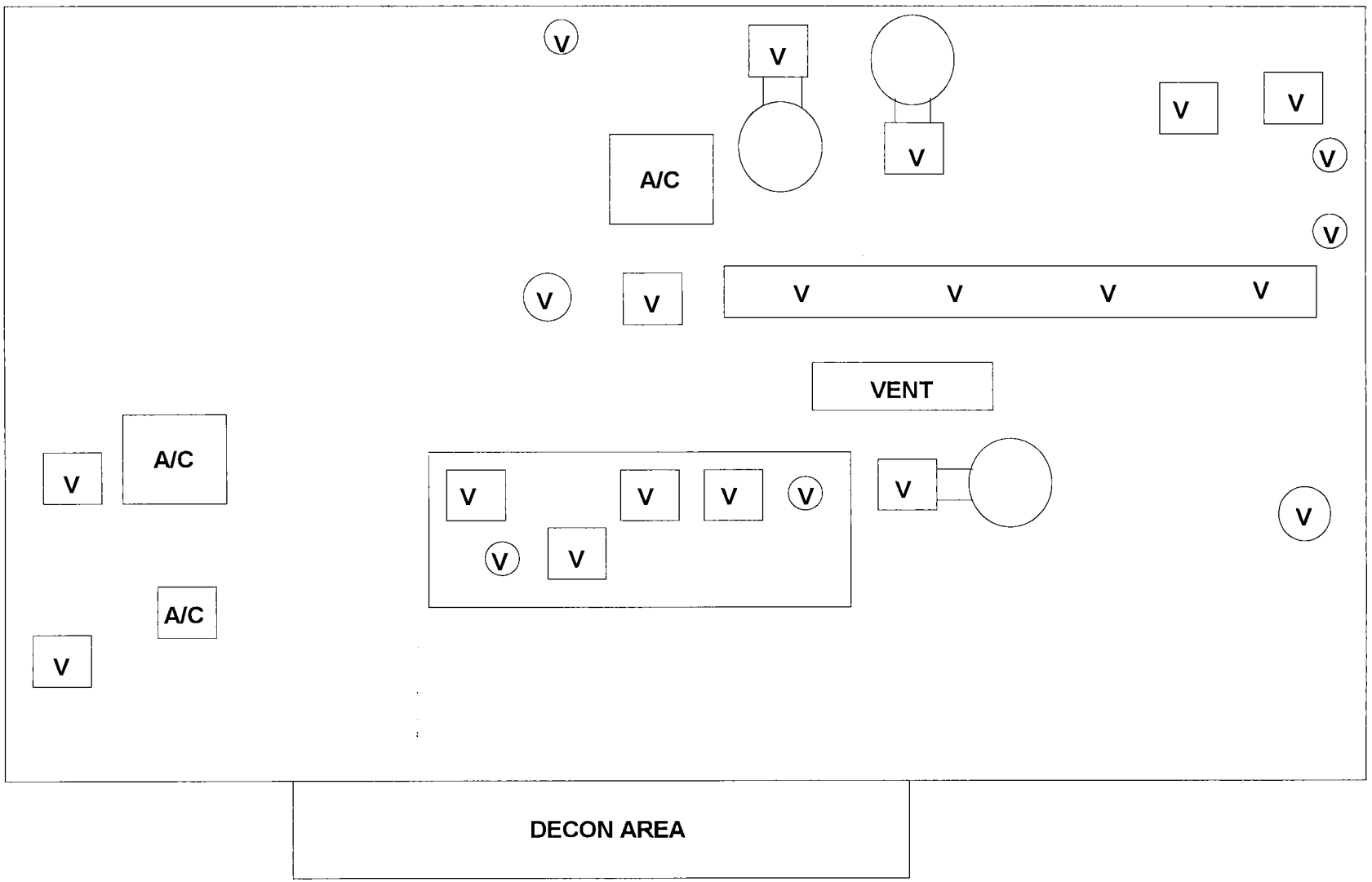


Figure 10

LOCATION OF ROOF EQUIPMENT

V = VENTILATION OPENING

NOT TO SCALE

N

PROJECT: OLD PLATING SHOP

DATE: NOVEMBER 10, 1993

FIG10A PRE Lotus Freelance

the roof through which the ducts discharged will be patched and made waterproof. Ventilation ducts extending through the roof and having adequate rain protection will be left in place.

2.16 TASK 16 - Removal of Asbestos and Transite

After all equipment removal and decon operations have been completed, the remaining asbestos insulation will be removed from piping. Also all remaining transite will be removed.

2.17 TASK 17 - Northeast Chrome Room

All waste storage tanks have previously been removed from this room. Remaining ventilation systems and piping systems, will be removed from the NE Chrome Room. The room will be decontaminated with pressure washers. Waste water will be pumped to the waste water tanker. Excavation and backfill will be as outlined in Task 2.30. Below grade piping leaving this area will be concrete plugged or pressure cleaned and grouted end to end as directed by the Navy. A concrete floor slab will be placed in this area to match existing surrounding conditions.

2.18 TASK 18 - IR Sampling

In support of the decontamination of the plating shop and the overall RI/FS activity, soil and groundwater samples will be taken to establish if hazardous waste has impregnated the underlying soil.

Concrete corings will be made in a grid pattern to determine if soils under the old plating facility are contaminated.

2.19 TASK 19 - Demolition of the Mezzanine Area

The mezzanine area floor between column lines 41 and 42 will be removed cutting the beams with chain saws and dropping the deck to grade at elevation 10'6". The deck will be disassembled to allow for salvage of the wooden beams and disposal of the secondary members as hazardous material.

2.20 TASK 20 - Overhead Crane Removal

The (4) underhung bridge cranes between column lines 41 and 42 and column lines 42 and 43 and (2) overhead cranes in the receiving area between column lines 43 and 44 will be disassembled and removed to a location to be determined by the ROICC. The buss along the crane girder will be de-energized and removed by electricians using a manlift. The crane girders for the underhung cranes will be unbolted and dropped down to grade with the use of a forklift and the crane bridge and trolley for the underhung cranes will be lowered to grade with the use of a small hydraulic crane. The over-head cranes and crane girders in the receiving area will be removed by crane after demolition of the roof between column lines 43 and 44.

2.21 TASK 21 - Reconstruction of 208 and 480 Volt Network

2.21.1 General

The 480 volt and 208 volt network installation and demolition work activities are sequenced to ensure the continuation of electrical service to all areas or equipment such that existing circuits will remain energized. The primary objective in the activity sequence is to isolate the electrical circuits in the plating facility to allow the installation and demolition work to progress without impacting surrounding areas or buildings and to efficiently work in a timely manner.

The 480 volt network that is fed from substation no. 18 provides electrical service to the welding school and the Advanced Composite Repair 94338. Electrical service to these areas is not to be disconnected. We will investigate the costs of an east/west duct bank or alternate power source to facilitate the isolation of substation No. 18 as specified on the plan drawings before service to the substation can be de-energized. The 208 volt network that is within the boundaries of the demolition of the Metal Plating Shop will be isolated from the overall network by the opening of disconnect switches, disconnecting cables, and prior installation of the GSE feeder from electrical vault #3 Junction Box. Temporary power for construction activities will have to be re-supplied from substation no. 14 before substation No. 18 can be de-energized.

The raceway and cable demolition of the existing 480 and 208 volt systems shall be coordinated with the building structural demolition. The demolition will only occur after the networks are isolated and de-energized.

2.21.2 Network Outages

Two power outages are planned for the project. The first outage will be used to isolate the 208 volt system in the plating facility from the rest of the network. This outage will be scheduled after the GSE feeder is installed and coiled in electrical vault #3. The second outage will be used to tie in tap boxes and reconnect the new network with the base network. This will return the 208 volt network back to its original design. The temporary power load will be shifted to substation no. 14 during the first outage.

2.21.3 Substation No. 18

Substation no. 18 cannot be isolated from the 26.4 kv base distribution system as detailed on drawing no. 5205599 since it supplies power to other areas. The loads that are still connected are the welding school and the Advanced Composite Repair. For expediency, we will isolate the substation to remove conduit and cable terminations that are unused so that these can be removed. The substation will then remain in service until an east/west ductbank is installed or an alternate design is agreed upon.

2.21.4 208 Volt Isolation

The 208 volt network will be isolated from the site network using the following steps. This method will allow us to isolate the 208 volt system in the plating facility without disrupting

electrical service to the balance of the network. The new network raceway and cable will be installed after the first shutdown and completed prior to the second shutdown.

Steps for the Installation of the New 208 Volt Network

1. Provide feeders to the power panels in the GSE.
2. Run S.O. cable for the new temporary power feeder.
3. Shutdown #1.
    A. Tie-in GSE cables outside electrical vault #3.
    B. Disconnect network cables in substation no. 14.
    C. Tie-in temporary power cables at substation no.14.
    D. Open disconnect switch at line 39 and use lock-out procedures.
    E. Cut or disconnect and tag cables in the junction box at column H38.
    F. Disconnect cables at electrical vault #3.
4. Install new network raceway and cable and prepare for tie-in.
5. Shutdown #2.
    A. Tie network at electrical vault #3.
    B. Tie network at substation no. 14.
    C. Reconnect cables at the cable tap box at column **38** and tie into relocated lug box.
    D. Close disconnect switch at column line 39.

Note: All cables shall be tested prior to energizing.

2.22 TASK 22 - Electrical Demolition

Demolition of the electrical system's 480 volt distribution, lighting and receptacles will involve pulling back wire and removal of all lighting fixtures, receptacles, electrical equipment, panels, junction boxes, conducts, and switches from the demolition area not previously removed in the Metal Plating Shop area. Removal will be accomplished from scaffolds and lifts. Branch circuits that cross from adjacent space to the demolition area shall be terminated on the inside wall of the adjacent space. Materials will be disposed of as debris or scrap metal. Lamps will be turned over to NADEP.

The 208V network demolition will begin after the plating facility is isolated from the base network and lock-out procedures are secured. Conduits with cables will be cut into sections that best facilitate removal from the building. Copper cable and conduits will be placed on pallets and delivered to the base recycling facility or DRMO.

Cable tap boxes will be removed and inspected. If the enclosure and internal components are in a safe, operable condition, that will be reused, as noted in the plan drawings. All other electrical equipment removed will be sent to the base recycling facility or DRMO.

2.23 TASK 23 - Piping and Mechanical

2.23.1 Piping Demolition

Piping systems will be removed after they are isolated from their respective systems. Pipe will be cut into sections that best facilitate the removal from the building and acceptable handling size. All piping will be purged before cutting to ensure safe operations. Underground piping will be removed to the limits of the excavation.

2.23.2 Hot Water Tank

The hot water heater and accessory piping located at column C38 will be removed following NADEP's relocation of the condensate pressure pump. This equipment cannot be moved until the condensate return loop is changed by NADEP. When this work is completed, the hot water heater will be removed to recycling.

2.23.3 Water Riser

The water riser located at column line B38 supplies the plating facility and has two additional branch lines that service other areas. The branch that supplies the plating facility will be capped at the valve and secured. The disposition of the two service lines that extend north of column line 28 into other areas of Building 101 will be subject to directions provided by the NADEP. Since the decon area potable water is supplied from this riser, a temporary service will be routed from the small surface shop located adjacent to the plating facility. The actual location/availability of the decon service/source will be determined by the NADEP.

2.23.4 Fire Protection

The fire protection piping main located at column A39 has two risers radiating from it. These two risers are labeled No. 1136 and No. 1137. The 6" fire protection riser No. 1137 is to be extended to column I40 and tie into the fire protection system in the small surface shop area. This piping will be installed in concert with the steam and condensate return piping. Fire protection riser No. 1136 serviced the plating shop area. This riser will be capped above the valve located at column A39 and locked out. The existing water bell and fireman's connection muzzle will have to be relocated. The location of these will be as directed by the base Fire Marshall. Fire protection riser No. 1137 now follows column line A north to other areas in building 101. The disposition of this line will be as directed by the NADEP. A fire protection outage for the system riser in the plating facility and the small surface shop will be required for tie-ins. All work will be coordinated with NADEP and the local Fire Marshall.

2.23.5 HVAC System

The outdoor HVAC unit will be disconnected from service after the construction management personnel move to the construction trailers. The HVAC unit will then be taken to DRMO unless directed otherwise. Air conditioning duct work will be removed and handled as non-hazardous scrap.

2.23.6 Piping Supports/Hangers

Supports and hangers for piping will be reviewed as final routing plans are finished. The pipe support details per the plan drawing will be utilized where practical and constructable. Where interferences or routing plans require additional support details, a coordinated design with Mr. Tarverdi of Burns and McDonnell will be developed to facilitate installation. Supports and hangers will lead the pipe installation to maintain the continuous flow of work.

2.23.7 Compressed Air

The compressed air flows south down column line A from the contiguous shop area. Three isolation valves are located at column A43. From here, the piping travels east and west to the Hanger and the GSE. Another compressed air source supplies the Hanger area from a different location. A construction valve will be installed in the small surface shop to isolate the compressed air from the plating facility. The valve on column A43 can be closed to isolate the plating facility on the east end. Once these valves are closed, the east/west piping in the plating facility will be removed. The new 6" air piping will be installed along with the steam and condensate return piping. Once this is complete, the network will be tied back together. The compressed air piping network will require two shutdowns, one for the installation of the construction valve in the small surface shop, and the other for the final network tie-in.

2.23.8 Steam Supply and Condensate Return

Removal- Steam supply in the piping located in Building 101 is not in service now. The supply valve in the Hanger area will be closed and tagged out to ensure safe working conditions until the scheduled base heating start-up on November 1st. With these conditions in place, the demolition of steam and condensate piping in the plating are will begin immediately. All lines will be checked for pressure release prior to demolition.

Reinstallation- The new steam and condensate piping will begin after field routing plans, hanger and supports, drip pockets, and trap areas are approved. The hangers and supports will be installed prior to piping. All pipe systems will be installed in the supports at the same time. Prior notice will be given to the NADEP when piping crews anticipate working in active shop areas. All welding and burning operations will have fire watches.

Hangers, supports, and piping sections will be pre-fabricated on the floor whenever possible. The fabrication area will be located within the plating facility area to avoid interferences with operational shop areas. Pre-fabricated sections will also reduce the amount of welding required in high ceilings and areas where fire hazards exist.

All welders will be tested to ensure they meet all standards and requirements as set by ANSI B31.1.Welding inspections will be an on-going function by supervisory personnel. All welds will be visually examined to meet acceptance standards.

The piping system will be tested hydrostatically as specified after completion of the piping.

2.23.9 Process Lines

The drain lines for acid, concentrated chrome, dilute chrome, concentrated cyanide, dilute cyanide, caustic, and overflow will be capped. Underground lines will be capped at the limits of the excavation. Caps will be welded when practical.

2.23.10 Miscellaneous Piping Systems

Piping entering the plating facility between columns E38 and D38 will have caps welded at the penetration point to the demolition area. Pipes will have upstream valves secured and pipes purged before welding.

2.23.11 Insulation

The piping insulation will be subcontracted to a competitive bidder per the project specification section 15250 and project specific commercial requirements. Insulation will be performed following roof demolition. The insulation will be exterior grade where applicable and will not be installed until all pipe inspections are complete.

2.24 TASK 24 - Thru Bolt Column Lines A and J

Install 5/8" galvanized thru bolts 4' on center along column lines A and J prior to demolition of the roof trusses. Penetrations will be drilled through the masonry block wall, bolts installed and attached to plates bolted to the existing steel.

2.25 TASK 25 - Demolition of Roof Structure

Demolition of the roof, roof trusses and purlins and columns will be accomplished with the use of a crane and clam bucket. The roof will be cut at the limits of demolition to facilitate the removal of the roof without disturbing the adjacent facilities along column lines 38, A and J. Removal of the Chlorine Building and a portion of the column line 43 wall at the doorway between column lines D and E will facilitate greater access for the loading and removal of debris. The structure will be wrecked in sections moving from the south and east toward the north and west to develop a greater working area and maintain the receiving area for any decontamination needs for as long as possible. Materials will be disposed of non-hazardous materials.

2.26 TASK 26 - Demolition of Column 43 and office Area

The masonry wall along column line 43 and the brick walls, stairs, and mezzanine bounded by column lines 42 and 43 and column lines I and J will be removed by the 150 tone crane and clam bucket after demolition of the roof structure. The material will be disposed of as debris and scrap metal.

2.27 TASK 27 - Removal of Doors

The roll-up doors located between columns C43 and H43, columns A38 and A39, columns I38 and I39, and columns J42 and J43 will be removed by rolling the door up, supporting the door with a forklift, unbolting the assembly, and lowering it to grade to be loaded and transported to a location to be determined by the ROICC.

2.28 TASK 28 - Demolition of Metal Plating Shop Slab

Removal of the Metal Plating Shop concrete slab will involve saw cutting along the boundaries for the demolition area. The slab will be broken into sections with the use of an excavator mounted ram and remove. The slab removed as shown on Figure 11 will be disposed as hazardous material. All concrete will be sampled in accordance with the field sampling and analysis plan and disposed of accordingly. Figure 11 shows the extent of concrete to be removed. Upon the completion of rubble removal, a protective plastic barrier of adequate millage will be placed over soil exposed to rain or run-off. A sump, or sumps, will be established, as necessary, for the purpose of collecting any run-off that might collect on top of this barrier. Collected water will be processed through the onsite WWTS.

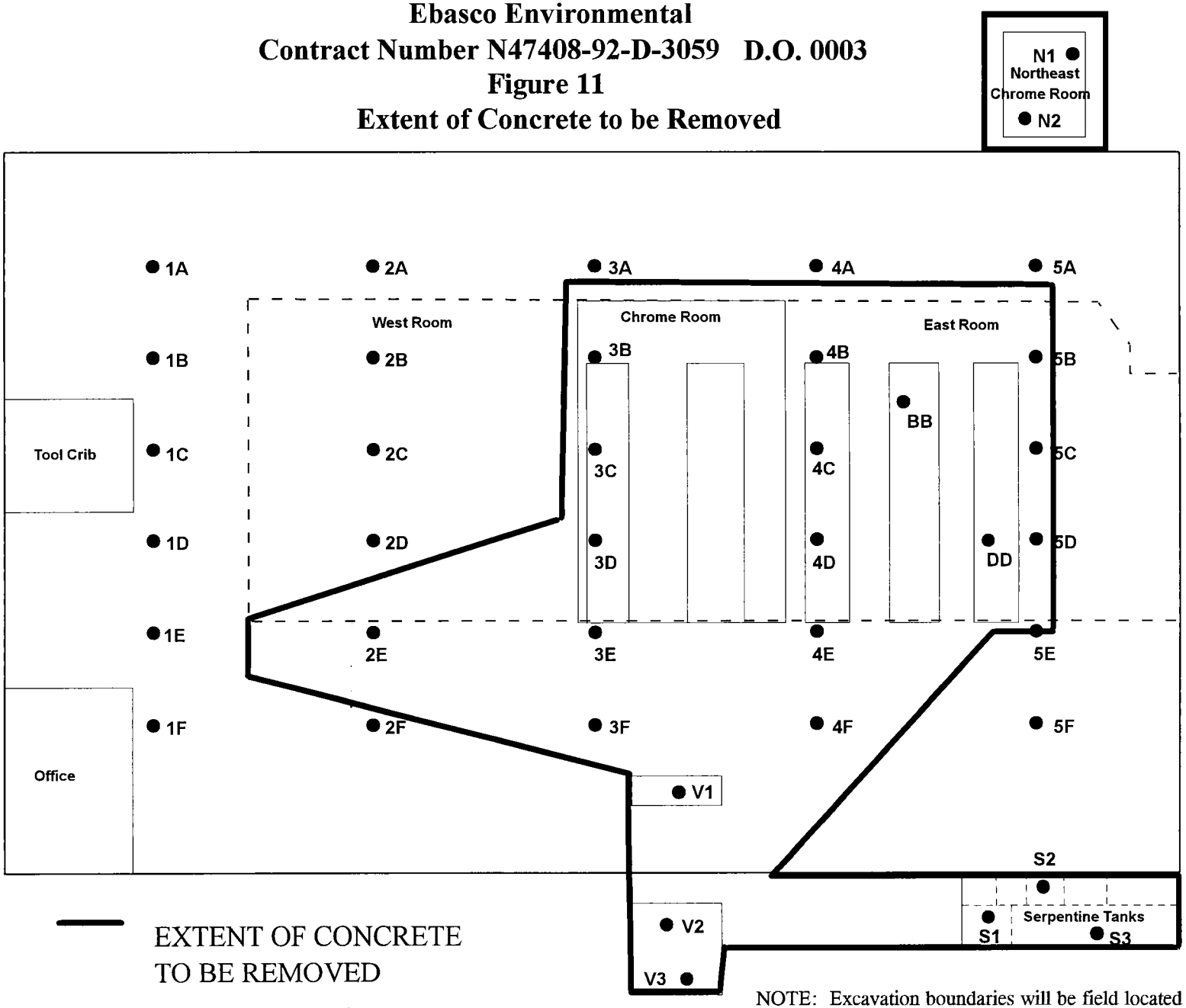
2.29 TASK 29 - Excavation and Backfilling Metal Plate Shop Area

The excavation of the Metal Plating Shop area after removal of the concrete slab area will be accomplished with an excavator equipped with at least a 1 cubic yard bucket. Material will be deposited in hazardous material roll-offs. The extent of the soil removal will be within the boundaries indicated on Figure 12 to within one foot of groundwater. Throughout soil removal the weather barrier and related collection sump(s) will be removed to allow access for excavation activities and re-established upon their completion. Any excavated materials that are water laden will be temporarily stockpiled on a poly barrier to allow the water to separate into a collection area. Water absorbent materials will be placed in roll-offs prior to the loading of soil. The soil will be sampled at adequate intervals along the side walls for the parameters shown in Table 5. The analytical results will be compared to the soil target levels shown on this table. Prior to backfilling, a field survey will be performed to limits of excavation (eg. depth, location and final dimensions). Backfilling operation will consist of filling the area removed with common fill and compacting with a roller compactor in lifts that will allow the development of a compacted effort that is acceptable to the NTR. A weather protective barrier, typical of that mentioned previously, will be maintained until final capping of the excavated areas or the installation of a subgrade membrane type barrier.

2.30 TASK 30 - Demolition of the Receiving Area Decontamination Station

After all closure activities have been completed and the receiving area decontamination station has been cleaned, using high pressure water, the receiving area structure will be dismantled by removing the walls, roof panels, and disassembling the building steel. Following the demolition, the materials will be disposed of as debris and scrap metal.

NAS-JAX Plating Shop
Ebasco Environmental
Contract Number N47408-92-D-3059 D.O. 0003
Figure 11
Extent of Concrete to be Removed

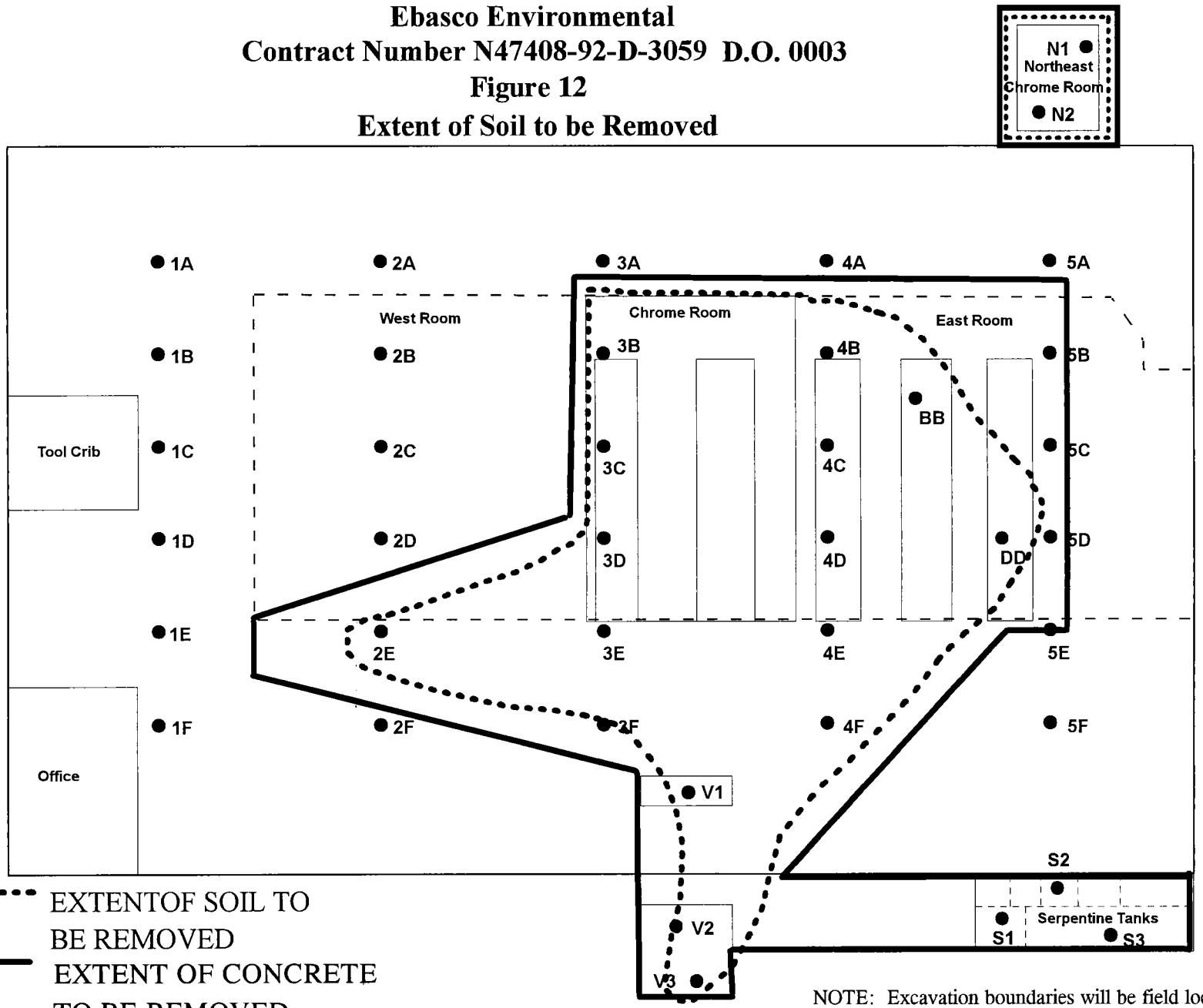


NOTE: Excavation boundaries will be field located by using sampling locations as reference points.

FIG11A.PRE Lotus Freelance

January 10, 1995

NAS-JAX Plating Shop
Ebasco Environmental
Contract Number N47408-92-D-3059 D.O. 0003
Figure 12
Extent of Soil to be Removed



NOTE: Excavation boundaries will be field located by using sampling locations as reference points.

NOT TO SCALE

FIG12A.PRE Lotus Freelance

January 10, 1995

TABLE 5: TARGET LEVELS FOR SOIL REMAINING IN THE EXCAVATION	
PARAMETERS	**TARGET LEVEL (mg/kg)**
Semi-Volatile Organic Compounds (mg/kg)	
Benzo(a)anthracene	32.2
Chrysene	46.7
Metals (mg/kg)	
Cadmium	821
Chromium (hexavalent)	25.9
Lead	400
Nickel	1050
Thallium	2.81
Volatile Organic Compounds (mg/kg)	
2-Butanone	45.8
Chloromethane	0.617
4-Methyl-2-Pentanone	6.96
Trichloroethene	0.374

NOTE: Soil remaining in the excavations will be below these target levels.

Source: SOUTHNAVFACENGCOM

2.31 TASK 31 - Construct Concrete Masonry Walls

Construction of the concrete block wall along column line 38, and the door closures along column line A, will involve roughing the concrete surfaces to receive the block walls, drilling and also, anchoring #6 reinforcing bar dowels. Erection of the block walls will also include door frames, embedded items, penetrations, grouting, cleaning, and testing of mortar and grout.

2.32 TASK 32 - Painting

The painting will include field coating of interior and exterior new and existing surfaces. Hollow metal doors and frames, rolling surface doors, C.M.U. walls, all structural and miscellaneous steel, piping supports and hangers.

Work will be performed using both commercial and industrial grade coatings and will be applied per manufacturer's recommended procedures. All steel subject to rust will be hand-cleaned or power tooled in compliance with the SSPC prior to coating. All block will be free of dust, dirt, and alligation and then coated by brush and roller methods to assure penetrating coverage. Coatings will match those of existing structures.

2.33 TASK 33 - Demobilization

Demobilization will involve the removal from site of the field office and craft trailers to include all furnishings and discontinuation of phone and electrical services. The waste water treatment system will be disassembled, decontaminated, and removed from the site. Tankers for wastewater treatment system and treated wastewater will be decontaminated and removed. Secondary contaminated areas for the water storage treatment area will be washed down using high pressure water. The water will be collected and drummed, the area will be tested for contamination and when determined to be clean, demolished and removed as debris.

3.0 SCHEDULING

A revised schedule for this delivery order is shown in Attachment E. This schedule will be updated weekly and provided to the Navy as an attachment to the weekly construction meeting minutes.

4.0 HEALTH AND SAFETY PLAN

The Site-Specific Health and Safety Plan addresses the Plating Shop operations remediation and is presented as Attachment B.

5.0 SAMPLING PLAN

Sampling on this project is designed to:

- Confirm the removal of all friable asbestos and other ACM from within the project's boundary.
- Confirm that hazardous materials identified previously as being present in a given tank has been removed, as complete as practical, by the decontamination procedure.
- Confirm that the mobile waste treatment unit effluent is of sufficient quality to be discharged into the NAS-JAX WWTP.
- Support waste disposal requirements.
- Determination of residual contamination.
- Provide information necessary for health and safety concerns.

The detailed Sampling and Analysis Plan (SAP) provides the location, frequency and acquisition methodology for sampling. The quality control/quality assurance section of the SAP provides the analytical protocols for the stated parameter's laboratory quality control requirements. The Quality Assurance Plan (QAP) provides analytical protocols for the stated parameters and laboratory quality control requirements. The SAP with the QAP and FSP is located in Attachment A.

6.0 QUALITY ASSURANCE PLAN

The laboratory selected to perform the analytical work has an approved Quality Assurance Plan (QAP) in force in accordance with Chapter 17-160, FAC.

Attachment A

Sampling and Analysis Plan

Attachment B

Site Health and Safety Plan

Attachment C

Asbestos Abatement Plan

Attachment D

CQC Plan Addendum

Attachment E

The Project Schedule

Attachment F

The Grouting Procedures

Attachment A

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN

OLD PLATING SHOP

NAVAL AIR STATION

JACKSONVILLE, FL

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1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) is submitted with the Work Plan to provide direction in the field sampling activities. The Quality Assurance Plan (QAP) of the SAP describes the sampling protocols and analytical methods to be utilized. The Field Sampling Plan (FSP) of the SAP details the sampling methods and shipping procedures to utilized. The Work Plan should be referenced for additional details and background information.

1.1 OBJECTIVE

The purpose of the SAP is to provide guidance for sampling to determine the final disposition of waste generated from the remedial action of the Old Plating Shop and to determine that the site is clean.

1.2 BACKGROUND

NAS Jacksonville is included on the CERCLA National Priority List (NPL) of contaminated sites. The Navy is addressing its CERCLA responsibilities at NAS Jacksonville under the federal Installation Restoration Program (IRP). The manner and means in which the Navy will perform remedial actions at the site and interact with the Florida Department of Environmental Protection (FDEP) and the U.S. Environmental Protection Agency (USEPA) are detailed in a Federal Facilities Agreement (FFA). The industrial area at NAS Jacksonville is designated Operational Unit #3 (OU#3). The area of contamination (AOC) at OU#3 has been established and a Remedial Investigation and Feasibility Study (RI/FS) are underway. The old plating shop is located at Potential Source of Contamination #11 (PSC #11), which is within OU#3.

1.3 SITE HISTORY/BACKGROUND

The electroplating facility at NAS Jacksonville began operating in the early 1940s. Tin, copper, cadmium, lead, nickel, silver, chromium, and gold electroplating were continued through 1985 when the new plating shop was completed. Interim plating activities continued at the old facility until February 1990. A concrete wastewater treatment system provided pretreatment for wastewater generated in the plating shop. Following pretreatment the wastewater was discharged to the domestic wastewater treatment facility. The wastewater pretreatment system was last used on June 4, 1978.

The old plating shop contains ninety tanks and associated pipes, pumps, and filters in three rooms: the East Room, the West Room, and the Chrome Room. The wastewater treatment tanks, an additional six tanks, are located just outside the building, at the southeast corner. Drain lines from floor drains and tank drain connections run under the building floor to the outside wastewater treatment tanks and to Lift Station 166. Lift Station 166 is currently in operation and is not included in the closure plan. Table A-1 lists the tanks, by number, the previous contents of each tank, and the capacity of each tank. The location of each tank inside the old plating shop is shown in Figure A-1. The old wastewater treatment tanks (tanks OT-1 through OT-6) are located outside of Building 101 and are shown on Figure A-2.

TABLE A-1 LIST OF TANKS

TANK	PREVIOUS CONTENTS	GROUP	CAPACITY (GALLONS)
1	Empty prior to earliest recollection (1974), originally tin plating solution.	B	45
2	Tin plating solution.	B	90
3	Copper plating solution.	A	300
4	Water rinse for copper and cadmium cyanide plating.	B	190
5	Cadmium plating solution.	A	1300
6	Water rinse after acid activation (HCL).	B	190
7	Hydrochloric acid activation solution (1:1 HCL and water).	B	190
8	Water rinse after caustic.	B	190
9	Sodium hydroxide solution.	B	500
10	Vapor degreaser - trichloroethylene replaced with 1,1,1-trichloroethane.	B	180
11	Electrocleaner, federal specification P-C-535.	A	293
12	Water rinse after electroclean.	A	293
13	Full strength hydrochloric acid, federal specification O-H-765.	B	260
14	Black oxide solution.	B	260
15	Black oxide solution.	B	260
16	Water rinse for black oxide.	B	260
17	Sodium cyanide solution (dilute holding tank).	A	130
18	Cadmium plating solution.	A	1466
19	Hydrochloric acid cadmium stripping solution (1:1 HCL and water).	B	250
20	Water rinse.	B	120
21	Bright dip for brass.	B	120
22	Lead - tin plating solution.	A	309
23	Water rinse after lead - tin plate.	A	90
24	Lead - tin plating solution.	A	75
25	Acid nickel stripping solution.	A	75
26	Water rinse.	B	120
27	Silver plating solution.	A	140
28	Silver strike solution.	A	120
29	Pump stand contains silver plating solution.	A	140
30	Silver plating solution.	A	140

TABLE A-1 LIST OF TANKS (continued)

TANK	PREVIOUS CONTENTS	GROUP	CAPACITY (GALLONS)
31	Empty prior to earliest recollection (1974), originally silver plating solution.	A	140
32	Water rinse after nickel plate.	B	190
33	Woods nickel strike solution.	A	140
34	Water rinse after acid activation (HCL).	B	164
35	Hydrochloric acid (30% to 50% acid in water).	B	164
36	Vapor degreaser - trichloroethylene replaced with 1,1,1-trichloroethane.	B	105
37	Originally chromium plating solution, replaced with Type 1 aluminum anodize solution.	A	600
38	Water rinse after chrome plate or anodize.	A	300
39	Chromium plating solution.	A	45
40	Chromium stripping solution (caustic).	A	450
41	Catalyzed chromium plating solution.	A	375
42	Water rinse for catalyzed chrome plate.	B	450
43	Hot water rinse.	B	100
44	Sodium hydroxide (dilute solution to neutralize acid).	A	100
45	Sulfuric acid activation solution.	A	100
46	Water rinse after chrome strip.	A	100
47	Chromic acid reverse stripping solution.	A	100
48	Vapor degreaser - trichloroethylene replaced sodium dichromate solution.	A	450
49	Catalyzed chromium plating solution.	A	75
50	Chromium plating solution.	A	730
51	Chromium plating solution.	A	346
52	Vapor degreaser - trichloroethylene replaced with 1,1,1-trichloroethane.	B	165
53	Water rinse.	B	140
54	Two bay tank: gold strike and gold plating solutions.	A	10
55	Water rinse after electroclean.	B	570
56	Alkaline cleaner.	B	650
57	Sodium hydroxide aluminum etch.	A	105
58	Water rinse after caustic etch.	B	105
59	Nitric acid/hydrofluoric acid for aluminum alloy.	A	105
60	Water rinse after nitric acid dip.	B	105

TABLE A-1 LIST OF TANKS (continued)

TANK	PREVIOUS CONTENTS	GROUP	CAPACITY (GALLONS)
61	Nitric acid for zincate process.	A	105
62	Zincate immersion solution.	A	105
63	Water rinse after zincate.	B	210
64	Copper plating solution.	A	105
65	Water rinse after copper plate.	B	105
66	Cadmium plating solution.	A	650
67	Three bay tank: water rinse.	B	1975
68	Nickel sulfamate plating solution.	A	2000
69	Hydrochloric acid replaced with Smut 60 #2.	A	660
70	Three bay tank: water rinse. Middle bay held 93113 #3 alumigold.	A	2000
71	Sodium hydroxide, electrocleaner P-C-535.	B	900
72	Water rinse.	A	675
73	Nickel stripping solution (Metex strip aid replaced with Enthone N122).	B	900
74	Electroless nickel stripping solution.	A	200
75	Demineralized water.	B	350
76	Silver plating solution.	A	180
77	Water rinse.	A	275
78	Silver plating solution.	A	180
79	Silver strike solution.	A	180
80	Empty prior to earliest recollection (1974), labeled cyanide strike.	A	180
81	Water rinse.	B	180
82	Copper strike solution.	A	180
83	Water rinse.	B	180
84	Watts nickel strike.	A	180
85	Hydrochloric acid activation solution (1:1 HCL and water).	A	180
86	Water rinse.	B	210
87	Hydrochloric acid (1:3 HCL and water).	B	250
88	Sulfuric acid activation solution replaced with hydrochloric acid solution.	A	420
89	Water rinse.	B	420
90	Woods nickel strike replaced with nitric acid aluminum desmut solution.	B	660

TABLE A-1 LIST OF TANKS (continued)

TANK	PREVIOUS CONTENTS	GROUP	CAPACITY (GALLONS)
91	Located in West room; for contents see analytical in Attachment L.	B	Unknown
92	Located in West room; for contents see analytical in Attachment L.	A	Unknown
OT-1	Wastewater treatment.	A	20,000
OT-2	Wastewater treatment.	A	included with OT-1
OT-3	Wastewater treatment.	A	included with OT-1
OT-4	Wastewater treatment.	A	included with OT-1
OT-5	Wastewater treatment.	A	included with OT-1
OT-6	Wastewater treatment.	A	included with OT-1

NOTE: Group A tanks are hazardous waste tanks. Group B tanks are non-hazardous waste tanks.

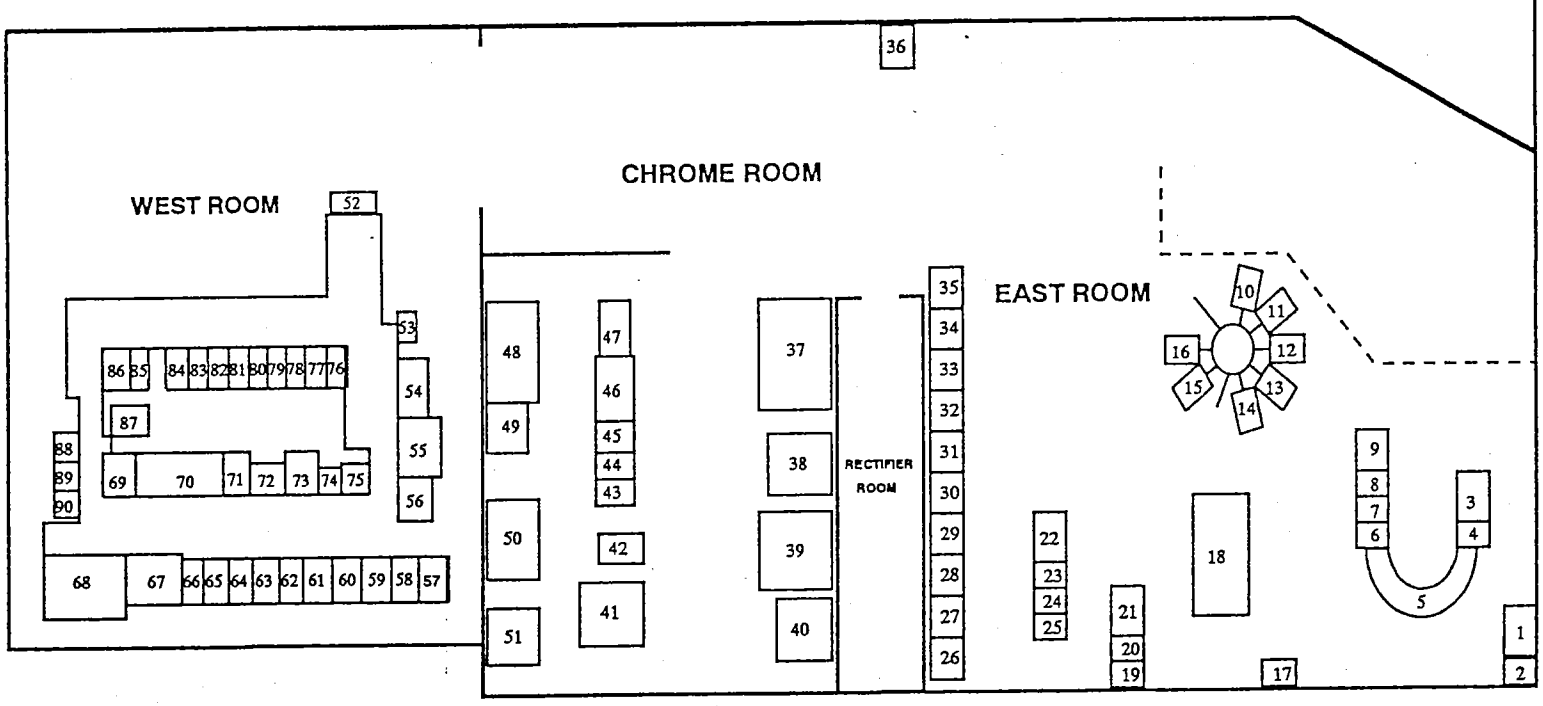
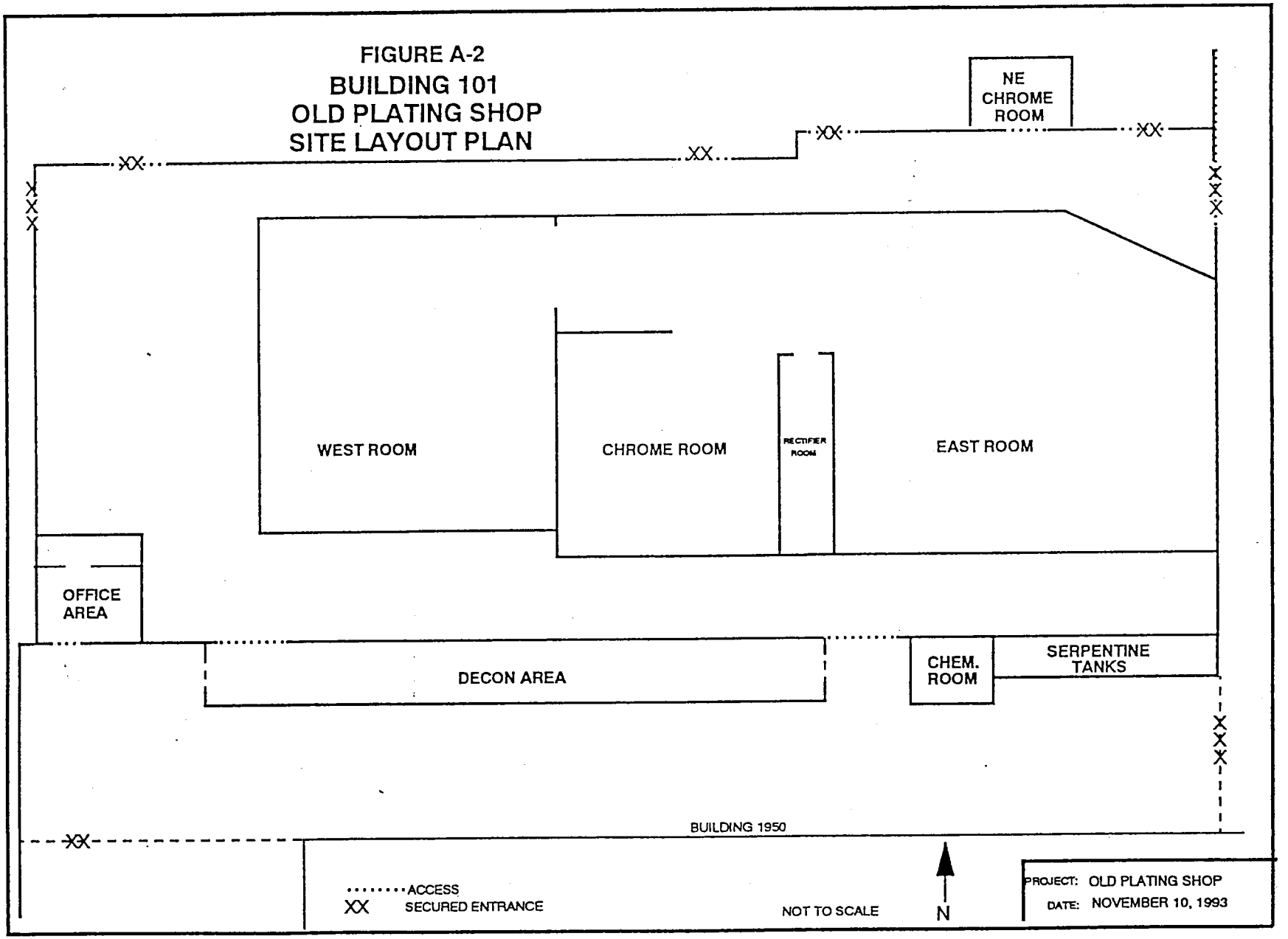


FIGURE A-1

BUILDING 101
OLD PLATING SHOP
TANK LAYOUT

H&SFIGA-1.DRW

FIGURE A-2
BUILDING 101
OLD PLATING SHOP
SITE LAYOUT PLAN

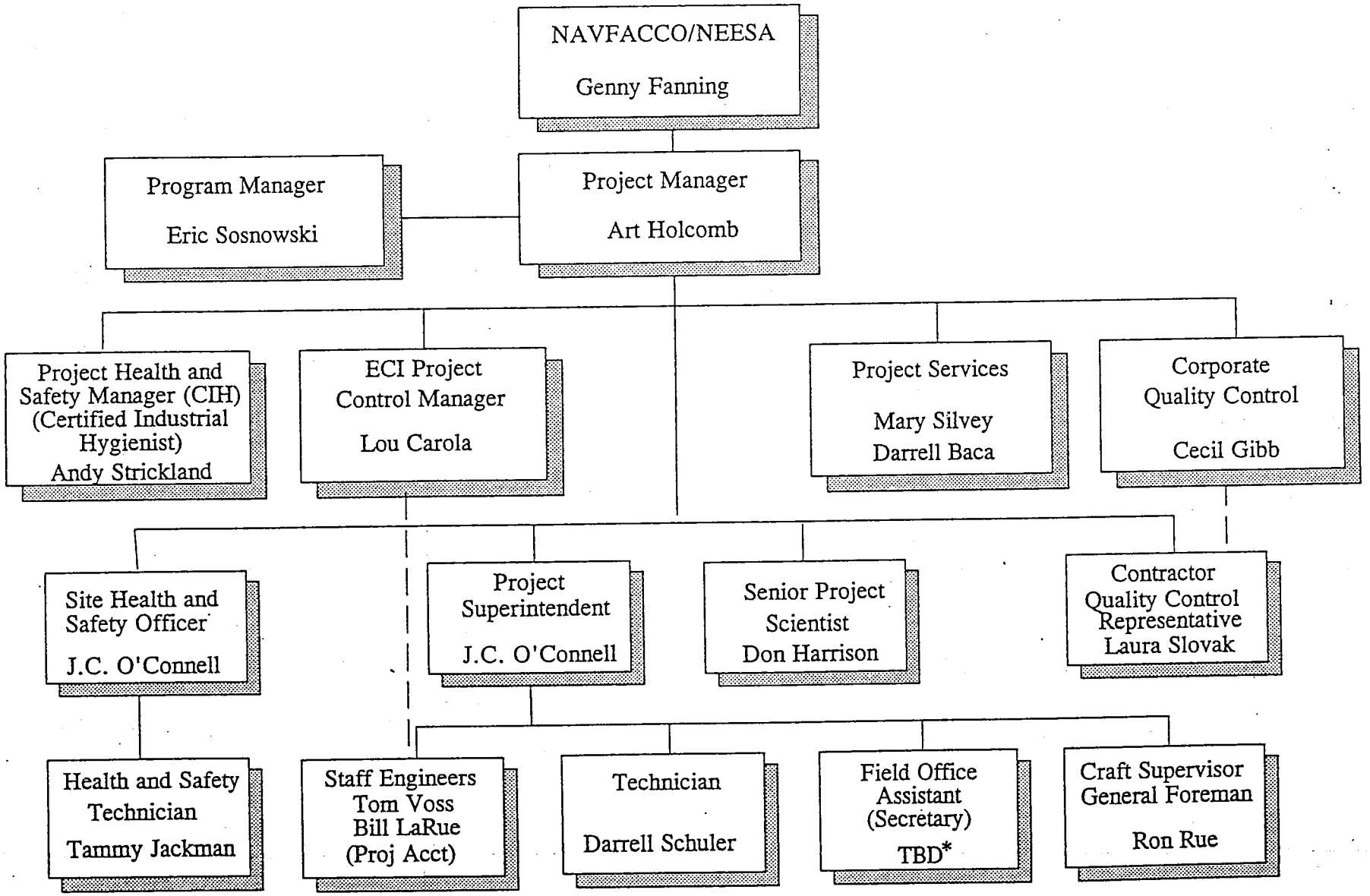


H&SFIGA2.DRW

The tank systems in the electroplating facility have been divided into two categories based on knowledge of the plating process and recent analytical testing. Group A tank systems held materials that contained hazardous constituents and, consequently, stored hazardous waste when plating operations ceased. Group B includes all remaining tank systems. Fifty-six of the ninety-six tank systems, including tanks OT-1 through OT-6, are considered hazardous waste tank systems. A tank system is defined as a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system [FAC 17-730.020(1) and 40 CFR §260.10]. Consequently, only the fifty-six hazardous waste tanks and their associated ancillary equipment, including the underground pipes to the wastewater pretreatment system (tanks OT-1 through OT-6) and to Lift Station 166, are addressed by this closure plan. The hazardous waste tanks are indicated on Table A-1 and on Figure A-1.

The maximum hazardous waste inventory for the electroplating facility was approximately 38,000 gallons, the total hazardous waste tank capacity. Between November 3 and November 11, 1992, all of the tanks were emptied to the extent practicable. The plating solutions and sludges were drummed individually and characterized using TCLP or total constituent analyses and knowledge of the plating processes. After characterization, the wastes were disposed by Laidlaw Environmental Services or treated at the facility's permitted Industrial Wastewater Treatment Plant.

FIGURE A-3
EBASCO ENVIRONMENTAL
QUALITY CONTROL PLAN ADDENDUM
NAS - JACKSONVILLE
ORGANIZATION CHART



2.0 QUALITY ASSURANCE PLAN

2.1 PROJECT ORGANIZATION

Figure A-3 is a depiction of the Project Organization.

2.2 LAB QUALIFICATIONS

CH2M HILL is the analytical laboratory which will be used for this project. It is approved by the Florida Department of Environmental Protection (FDEP). Figure A-4 is a copy of the cover to CH2M HILL "COMPREHENSIVE QUALITY ASSURANCE PLAN", which is approved by FDEP.

2.3 QUALITY ASSURANCE/QUALITY CONTROL

A random Quality Assurance/Quality Control (QA/QC) method will be used during sampling which includes duplicate samples. Matrix spike/matrix spike duplicates will be performed by the in-house laboratory. The QA/QC will be done in accordance with EPA Level 3. This will identify the introduction of contamination unrelated to the material being sampled. The quality control procedures and sampling frequency for the QA/QC samples will follow the analytical laboratory's FDEP approved Comprehensive Quality Assurance Plan. Level 3 QA/QC requirements are as follows:

2.3.1 PRECLEANED EQUIPMENT BLANK

These blanks will be collected from sampling equipment that has been brought to the site precleaned and ready for use. At least one equipment blank shall be collected for each water and solid matrix analytical group. These blanks will be collected when the equipment **first arrives on-site** prior to sampling episode.

2.3.2 FIELD CLEANED EQUIPMENT BLANK

These blanks shall be collected from sampling equipment **after** the equipment has been cleaned in the field. Samples will be collected at a rate of 1 per day for each piece of equipment used at some point during the work day.

2.3.3 FIELD DUPLICATES

Duplicates for water are collected by sampling from successively collected volumes (i.e., pour sample water over equipment filling one bottle and then the next bottle immediately afterwards with the water still flowing). Duplicate samples will be collected at a rate of 1 per 10 samples collected (10%).

FIGURE A-4

COMPREHENSIVE QUALITY ASSURANCE PLAN

for

870546/8
7019, 7019
TLH-55L
Starche

CH2M HILL
One Innovation Drive, Suite C
P.O. Box 370
Alachua, FL 32615-0370
904/462-3050

Prepared by

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Andres Romeu, Organics Department Manager — 4/29/92 (Date)

Isaac Lynch, Inorganics Department Supervisor — 4/29/92 (Date)

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MAY 4
Dept. of Environme...
Quality Assuranc

Kathryn Starcher, LQAC — 4/30/92 (Date)

DER QA Officer — 11-19-92 (Date)

APPROVED

SECT-1R.QAM-1

2.3.4 QC SAMPLE OF DECON WATER BLANK

A sample of the treated water which is used to decontaminate and wash down items on-site will be taken and analyzed with each group of samples being sent to the laboratory.

2.4 SAMPLE CONTAINERS

Sample containers will be provided by CH2M HILL analytical laboratory. Sample containers will be certified clean by the laboratory. The laboratory will provide shipping coolers for shipment to the laboratory and Ebasco will provide conventional ice to pack the coolers, so that samples are cooled to 4°C (39°F). Upon completion of sample collection, samples will be packed in iced coolers. The ice will not be free standing but rather placed in zip-lock plastic bags to prevent melted ice water from soaking the sample containers. Preservatives will **not** be added to the sample containers to avoid the release of free cyanide. Sample containers will be supplied by the laboratory. Preservation methods and sample container type can be found in Table A-2. Table A-2 is a summary of the analytical methods used to analyze rinsewater, groundwater, and soil samples. Tables A-3 and A-4 contain a list of target analytes and target compounds, respectively. Table A-5 identifies the tank systems, the Hazardous Wastes codes associated with them, the analytical methods, and the detection limits associated with each method.

Each sample container will be affixed with labels that properly identify the sample prior to collection. Sample collection will be conducted by qualified personnel trained in collecting and handling environmental samples.

The cleaning rinsewater used will be clean potable water. For sample collection, the rinsewater will be clean potable water for underground pipes and deionized water for all other items. The samples will be collected in accordance with the procedures outlined below. Samples will be collected in clean and properly decontaminated containers. Decontamination of sample containers is discussed below. Personnel collecting samples will wear protective clothing (chemical resistant gloves, safety glasses, etc.). When applicable, rinsate samples will be collected at locations where the final rinsewater outfalls from the piping or a structure. Samples collected from basins and other structures with no practical outfalls may be collected from standing rinsewater provided that the structure in contact with the standing water has been subject to the same decontamination. Final rinsate samples from large tanks involve collection of sheet-flowing run-off water. Sheet flow runoff will be collected after the rinsewater has had maximum contact time with the walls and flooring of the structures.

When required, sludge samples from the decontamination rinsewater treatment process will be taken using properly decontaminated stainless steel sampling spoons. The sludge sample will be placed into a clean, and labeled 32-ounce wide mouth glass jars, as supplied by the laboratory. The jars will be filled to the top leaving no headspace. The sludge is not to be packed into the jar. The jar should be lightly tapped on the bottom to help settle sludge.

TABLE A-2
ANALYTICAL METHODOLOGIES, SAMPLING CONTAINERS,
AND PRESERVATION REQUIREMENTS

PARAMETERS	EPA/SW-846 METHOD	MATRIX	SAMPLING CONTAINER	PRESERVATIVE
Volatile Organic Compounds	624/8240	soil & water	**water:** 2-40 ml. glass bottles with teflon lined septum **soil:** 4 ounce glass bottles with teflon lined cap	**water & soil:** Cool to 4 degrees Celsius
Base-Neutral Extractables	625/8270	soil & water	**water:** Two 2.5 liter polyethylene or glass **soil:** 16 ounce glass with teflon lined cap	**water & soil:** Cool to 4 degrees Celsius
Total Organic Carbon	415.1/9060	water	**water:** 250 ml. polyethylene or glass **soil:** 4 ounce polyethylene or glass	**water:** Cool to 4 degrees Celsius;, H_2SO_4 to pH<2
Total Organic Halides	450.1/9020	water	**water:** 500 ml. glass bottle with teflon lined cap	Cool to 4 degrees Celsius; H_2SO_4 to pH<2
Metals (Al, Sb, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Mg, Mn, Ni, K, Ag, Na, V, Zn)	6010/200.7	soil & water	**water:** 1 liter polyethylene or glass **soil:** 8 ounce polyethylene or glass	**water & soil:** Cool to 4 degrees Celsius **water:** HNO_3 to pH<2

TABLE A-2
ANALYTICAL METHODOLOGIES, SAMPLING CONTAINERS,
AND PRESERVATION REQUIREMENTS
(CONTINUED)

PARAMETERS	EPA/SW-846 METHOD	MATRIX	SAMPLING CONTAINER	PRESERVATIVE
Arsenic	206.2	soil, sediment, water	**water:** 1 liter polyethylene or glass **soil/sediment:** 8 ounce polyethylene or glass	**water, soil, & sediment:** Cool to 4 degrees Celsius **water:** HNO_3 to pH<2
Lead	7421/239.2	soil, sediment, water	**water:** 1 liter polyethylene or glass **soil:** 4 ounce glass bottles with teflon lined cap	Cool to 4 degrees Celsius
Mercury	7410/245.1	soil, sediment, water	**water:** 250 ml. polyethylene or glass **soil:** 4 ounce polyethylene or glass	**water, soil, & sediment:** Cool to 4 degrees Celsius **water:** HNO_3 to pH<2
Selenium	7740/270.2	soil, sediment, water	same as metals (200.7)	same as metals (200.7)
Silver	200.7 272.2 6010	groundwater, soil, sed., surface water	**water:** 1 liter polyethylene or glass **soil:** 8 ounce polyethylene or glass	**water & soil:** Cool to 4 degrees Celsius **water:** HNO_3 to pH<2
Thallium	7841/279.2	soil, sediment, water	same as above	same as above

TABLE A-2
ANALYTICAL METHODOLOGIES, SAMPLING CONTAINERS,
AND PRESERVATION REQUIREMENTS
(CONTINUED)

PARAMETERS	EPA/SW-846 METHOD	MATRIX	SAMPLING CONTAINER	PRESERVATIVE
Cyanide	9012M/335.2	soil, sediment, water	**water:** 1 liter polyethylene or glass **soil:** 4 ounce polyethylene or glass	**soil & water**: Cool to 4 degrees Celsius; **water**: NaOH to pH>12
pH	150.1	water	**water:** 100 ml polyethylene or glass **soil:** 4 ounce polyethylene or glass	**water & soil:** Cool to 4 degrees Celsius
Conductivity	120.1	water	**water**: 500 ml polyethylene or glass	Cool to 4 degrees Celsius

TABLE A-3
TARGET ANALYTE LIST
(CONTINUED)

Parameter	Matrix	Analysis	Practical Quantitation Limit Water = ug/L Soil = mg/kg
Nickel	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	40 4
Potassium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	Dependent on ECP Conditions
Selenium	Water Soil/Sediment	270.2 CLP-M 7740 CLP-M	5 1
Silver	Ground Water Surface Water Soil Sediment	200.7 CLP-M 272.2 CLP-M 6010 CLP-M	10 1 1
Sodium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	50 5
Thallium	Water Soil/Sediment	279.2 CLP-M 7841 CLP-M	30 1
Yttrium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	10 5
Zinc	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	20 2
Cyanide	Water Soil/Sediment	335.2 CLP-M 9012 CLP-M	10 5

TABLE A-3
TARGET ANALYTE LIST

Parameter	Matrix	Analysis	Practical Quantitation Limit Water = ug/L Soil = mg/kg
Metals			
Aluminum	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	50 5
Antimony	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	30 3
Arsenic	Water Soil/Sediment	206.2 CLP-M 7060 CLP-M	5 0.5
Barium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	2 0.2
Beryllium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	2 0.2
Cadmium	Ground Water Surface Water	200.7 CLP-M 213.2 CLP-M	5 0.2
Calcium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	500 50000
Chromium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	6 0.6
Cobalt	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	10 1
Copper	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	6 0.6
Iron	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	20 2
Lead	Water Soil/Sediment	239.2 CLP-M 7421 CLP-M	2 0.25
Magnesium	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	50 5
Manganese	Water Soil/Sediment	200.7 CLP-M 6010 CLP-M	2 0.2
Mercury	Water Soil/Sediment	245.1 CLP-M 7410 CLP-M	0.2 0.002

TABLE A-4
TARGET COMPOUND LIST

Parameters	Practical Quantitation Limit [31]	
	Water Ug/L	Soils ug/kg
Volatile Organics (624 CLP-M)		
Acetone	10	10
Benzene	5	5
Bromodichloromethane	5	5
Bromoform	5	5
Bromomethane	10	10
2-Butanone	10	10
Carbon Disulfide	5	5
Carbon Tetrachloride	5	5
Chlorobenzene	5	5
Chloroethane	10	10
2-Chloroethylvinyl ether	10	10
Chloroform	5	5
Chloromethane	10	10
Dibromochloromethane	5	5
1,1-Dichloroethane	5	5
1,2-Dichloroethane	5	5
1,1-Dichloroethane	5	5
trans-1,2 Dichloroethene	5	5
1,2-Dichloropropane	5	5
cis-1,3-Dichloropropene	5	5
trans-1,3-Dichloropropene	5	5

TABLE A-4
TARGET COMPOUND LIST
(CONTINUED)

Parameters	Practical Quantitation Limit [31]	
	Water Ug/L	Soils ug/kg
2-Hexanone	10	10
Ethyl Benzene	5	5
4-Methyl-2-pentanone	10	10
Methylene Chloride	5	5
Styrene	5	5
1,2,2,2-Tetrachloroethane	5	5
Tetrachloroethene	5	5
Toluene	5	5
1,1,1-Trichloroethane	5	5
1,1,2-Trichloroethane	5	5
Trichloroethene	5	5
Vinyl Acetate	10	10
Vinyl Chloride	10	10
Xylenes (Total)	5	5
Misc. Volatile Organics (624 CLP-M)		
n-Butyl Acetate	50	50
Ethyl Acetate	50	50
Base/Neutral Extractables (TCL) (625)CLP-M)		
Acenaphthene	10	330
Acenaphthylene	10	330
Anthracene	10	330

TABLE A-4
TARGET COMPOUND LIST
(CONTINUED)

Parameters	Practical Quantitation Limit [31]	
	Water Ug/L	Soils ug/kg
Benzo(a) anthracene	10	330
Benzo(b) fluoranthene	10	330
Benzo(k) fluoranthene	10	330
Benzo(ghi) perylene	10	330
Benzo(a) pyrene	10	330
Benzyl Alcohol	10	330
Butyl benzyl phthalate	10	330
Bis (2-chloroethoxy) methane	10	330
Bis (2-chloroethyl) ether	10	330
Bis (2-chloroisopropyl) ether	10	330
Bis (2-ethylhexyl) phthalate	10	330
4-Bromophenyl phenyl ether	10	330
4-Chloroaniline	10	330
2-Chloronaphthalene	10	330
4-Chlorophenyl phenyl ether	10	330
Chrysene	10	330
Dibenz (a,h) anthracene	10	330
Dibenzofuran	10	330
Di-n-butyl phthalate	10	330
1,2-Dichlorobenzene	10	330
1,3-Dichlorobenzene	10	330

TABLE A-4
TARGET COMPOUND LIST
(CONTINUED)

Parameters	Practical Quantitation Limit [31]	
	Water Ug/L	Soils ug/kg
1,4-Dichlorobenzene	10	330
3,3-Dichlorobenzidine	20	670
Diethylphthalate	0	330
Dimethylphthalate	10	330
2,4-Dinitrotoluene	10	330
Di-n-octylphthalate	10	330
Fluoranthene	10	330
Fluorene	10	330
Hexachlorobenzene	10	330
Hexachlorobutadiene	10	330
Hexachlorncyclopentadiene	10	330
Hexachloroethane	10	330
Indeno (1,2,3-cd) pyrene	10	330
Isophorone	10	330
2-Methylnaphthalene	10	330
Naphthalene	10	330
2-Nitroaniline	50	1700
3-Nitroaniline	50	1700
4-Nitroaniline	50	1700
Nitrobenzene	10	330
N-Nitrosodi-n-propylamine	10	330

TABLE A-4
TARGET COMPOUND LIST
(CONTINUED)

Parameters	Practical Quantitation Limit [31]	
	Water Ug/L	Soils ug/kg
Phenanthrene	10	330
N-Nitroso-diphenylamine	10	330
Pyrene	10	330
1,2,4-Trichlorobenzene	10	330
Acid Extractables (TCL) (625)CLP-M)		
Benzoic Acid	50	1700
4-Chloro-3-methylphenol	10	330
2-Chlorophenol	10	330
2,4-Dichlorophenol	10	330
2,4-Dimethylphenol	10	330
2,4 Dinitrophenol	50	1700
4,6-Dinitro-2-methylphenol	50	1700
2-Methylphenol	10	330
4-Methylphenol	10	330
4-Nitrophenol	50	1700
2-Nitrophenol	10	330
Pentachlorophenol	50	1700
Phenol	10	330
2,4,5-Trichlorophenol	10	330
2,4,6-Trichlorophenol	10	330

TABLE A-5
TANK SYSTEMS, HAZARDOUS WASTE CODES, AND ANALYSES

TANK SYSTEMS	APPLICABLE WASTE CODES	PARAMETERS	EPA/SW-846 METHOD	PRACTICAL QUANTITATION LIMIT
Tanks: 17, 22, 24, 25, 40, 45, 51, 59, 69, 92; below floor piping; and floor sumps	D002	pH TOC TOX	150.1 415.2/9060 450.1/9020	N/A 1 mg/L 0.01 mg/L
Tanks: 25, 59; below floor piping; and floor sumps	D004	Arsenic TOC TOX	206.2 415.2/9060 450.1/9020	5 ug/l 1 mg/L 0.01 mg/L
Tanks: 5, 12, 17, 18, 24, 25, 33, 38, 39, 40, 41, 45, 51, 59, 61, 66, 68, 69, 72, 74, 82, 84, 85, 88, 92 and outside tanks 4, 5, and 6; and below floor piping; and floor sumps	D006	Cadmium TOC TOX	200.7 415.2/9060 450.1/9020	5 ug/l 1 mg/L 0.01 mg/L
Tanks: 17, 24, 25, 37, 39, 40, 41, 44, 45, 47, 48, 50, 51, 59, 61, 69, 70, 92, outside tanks 2, 3, 4, 5, & 6; below floor piping; and floor sumps	D007	Chromium TOC TOX	200.7 415.2/9060 450.1/9020	6 ug/l 1 mg/L 0.01 mg/L
Tanks: 11, 17, 22, 23, 24, 25, 38, 39, 40, 45, 46, 47, 51, 59, 61, 84, 85, 88, 92, outside tank 5 & 6; below floor piping; and floor sumps	D008	Lead TOC TOX	239.2 415.2/9060 450.1/9020	2 ug/l 1 mg/L 0.01 mg/L
Tanks: 77, 85, 25; below floor piping; and floor sumps	D009	Mercury TOC TOX	245.1 415.2/9060 450.1/9020	0.2 ug/l 1 mg/L 0.01 mg/L

TABLE A-5
TANK SYSTEMS, HAZARDOUS WASTE CODES, AND ANALYSES
(Continued)

TANK SYSTEMS	APPLICABLE WASTE CODES	PARAMETERS	EPA/SW-846 METHOD	PRACTICAL QUANTITATION LIMIT
Tanks: 25, 27, 28, 29, 31, 59, 76, 78, 79; below floor piping; and floor sumps	D011	Silver TOC TOX	200.7 or 272.2 415.2/9060 450.1/9020	5.0;0.5 ug/L, resp. 1 mg/L 0.01 mg/L
Tank: 92	F001	Tetrachloroethylene Trichloroethylene Methylene Chloride 1,1,1-trichloroethane Carbon Tetrachloride Chlorinated Fluoro-carbons TOC TOX	624/8240 624/8240 624/8240 624/8240 624/8240 624/8240 415.2/9060 450.1/9020	5 ug/L 5 ug/L 5 ug/L 5 ug/L 5 ug/L * 1 mg/L 0.01 mg/L
Tanks: Outside Tanks 1, 2, 3, 4, 5, & 6	F006	Cyanide (total) Cyanide (free) Chromium Lead Nickel TOC TOX	335.2 9012M 200.7 239.2 200.7 415.2/9060 450.1/9020	5 ug/L 5 ug/L 6 ug/L 2 ug/L 15 ug/L 1 mg/L 0.01 mg/L
Tank: 5	F007	Cyanide (total) Cyanide (free) Chromium Lead Nickel TOC TOX	335.2 412H 200.7 239.2 200.7 415.2/9060 450.1/9020	5 ug/L 5 ug/L 6 ug/L 2 ug/L 15 ug/L 1 mg/L 0.01 mg/L
Tanks: 3, 17, 18, 23, 27, 28, 29, 30, 31, 46, 54, 57, 62, 64, 66, 68, 76, 78, 79, 80, 82, 88 and 92	F008	Cyanide (total) Cyanide (free) Chromium Lead Nickel TOC TOX	335.2 412H 200.7 239.2 200.7 415.2/9060 450.1/9020	5 ug/L 5 ug/L 6 ug/L 2 ug/L 15 ug/L 1 mg/L 0.01 mg/L

* See Table A-4 for analyte detection limits

2.5 SAMPLE CUSTODY

2.5.1 SAMPLE IDENTIFICATION

After sample collection, all sample containers will be labeled with an identification number that uniquely identifies the sample. The sample identification number will contain the following:

1) Plating Shop (PS). (on every sample)
2) Equipment ID. (see below for details)
3) Event #. (consecutive numbering starting with 001)
4) Tank # (if appropriate)

Equipment ID will be one of the following:

AT - A Tanks
AE - Ancillary Equipment
OT - Other Equipment not associated with A Tanks

2.5.2 LOG BOOK DOCUMENTATION

A sampling log book will be maintained to provide a permanent record of field sampling activities.

The sample identification number will be logged in the field log book, along with the following information:

1) sampling personnel
2) date and time of collection
3) type of sampling
4) method of sampling
5) sampling matrix or source (groundwater, surface water, soil or sediment)
6) results of field screening
7) intended analyses
8) preservation method
9) sample characteristic observations
10) affect to sampling procedure observations

Prior to sample collection, the sample label is completed in waterproof ink. The sample label will contain the sample number, date and time of collection, sampling matrix or source, intended analyses, preservation method and initials of sampler. The completed label is then typically secured to the sample container with clear, wide tape.

3.0 FIELD SAMPLING PLAN

3.1 DECONTAMINATION SAMPLING

The sample will be collected by pouring deionized water over or through the item. The water will be collected in a clean plastic container and then poured into the appropriate sample bottles for shipment to the laboratory. Due to the large volume of water required to flush underground pipes, they will be flushed with potable water instead of deionized water. Again, the rinsate sample will be collected in a clean plastic container and poured into laboratory bottles for shipment. Also, a background sample of potable water will be collected and analyzed for all applicable parameters.

One rinsate sample will be collected for each potentially hazardous decontaminated item and will be analyzed for the parameters applicable to that item. The applicable parameters for each hazardous tank system are listed in Tables A-2 and A-5 in section 2.0. While waiting for laboratory analysis results, the hazardous waste tank system components will be stored in a clean, enclosed area located within the waste management area. Tanks OT-1 through OT-6 and appurtenances that are cleaned in place will remain in place.

Additional samples will be collected for other equipment suspected of being contaminated based on its appearance (corroded, coated with unknown substance, etc.) and/or its location relative to hazardous A Tanks and their associated components. The Quality Control Representative along with the samplers will determine additional sampling.

Listed in Table A-6 are the types of structures from which samples will be collected. Also listed for each structure type is the medium of the sample to be taken, the number of samples per structure, and the sample type. Sample types vary between outfall, sheet flow, and run-off. Outfall refers to flow out of pipe ends. Sheet flow refers to rinsewater flowing along the surface of a given structure. Run-off refers to rinsewater that has flowed off of a structure and then been collected. Run-off rinsewater must run onto a clean surface put into place specifically for run-off sample collection, or the sample water must run directly into a clean sample container. This step minimizes sample contamination. The tank system ID number will identify the origin of each sample and will be written on the sample container and recorded in the Contractor Sampling Log Book as discussed in section 2.5.2.

3.2 SOIL SAMPLING

Soil samples will be taken to establish if hazardous waste has impregnated the underlying soil. Concrete corings will be made in a grid pattern to determine if soils under the old plating facility are contaminated. Soil samples at each coring will be taken at three levels: at 6-inches, 18-inches, and water table depth. In addition, six additional locations will be sampled; one in the inside valve pit, two (one at each end)in the outside valve box, and one in each bay of the serpentine tank (three total). Locations of soil samples is shown in Figure A-5.

TABLE A-6 STRUCTURES TO BE SAMPLED

STRUCTURE TYPE	SAMPLE MEDIUM	SAMPLE FREQUENCY	SAMPLE TYPE
A-Tanks	Rinsewater	1 per tank	Run-off
Buried Pipe Segments	Rinsewater	1 per pipe segment	Outfall
Aboveground Pipe Segments	Rinsewater	1 per pipe segment	Outfall
Pumps and Filters	Rinsewater	1 per group	Run-off
Concrete, Pretreatment Structures (OT-1 thru OT-6)	Rinsewater	1 per tank	Sheet flow
Decon Equipment	Rinsewater	1 per piece of equipment	Run-off
Decon Station	Rinsewater	1 per wall and floor sample	Sheet flow
Tanker Truck Interior	Rinsewater	1 per baffle section	Outfall
Sumps	Rinsewater	1 per sump	Run-off
Mobile Treatment Unit Drummed Solids	Concentrate	1 each drum	Grab

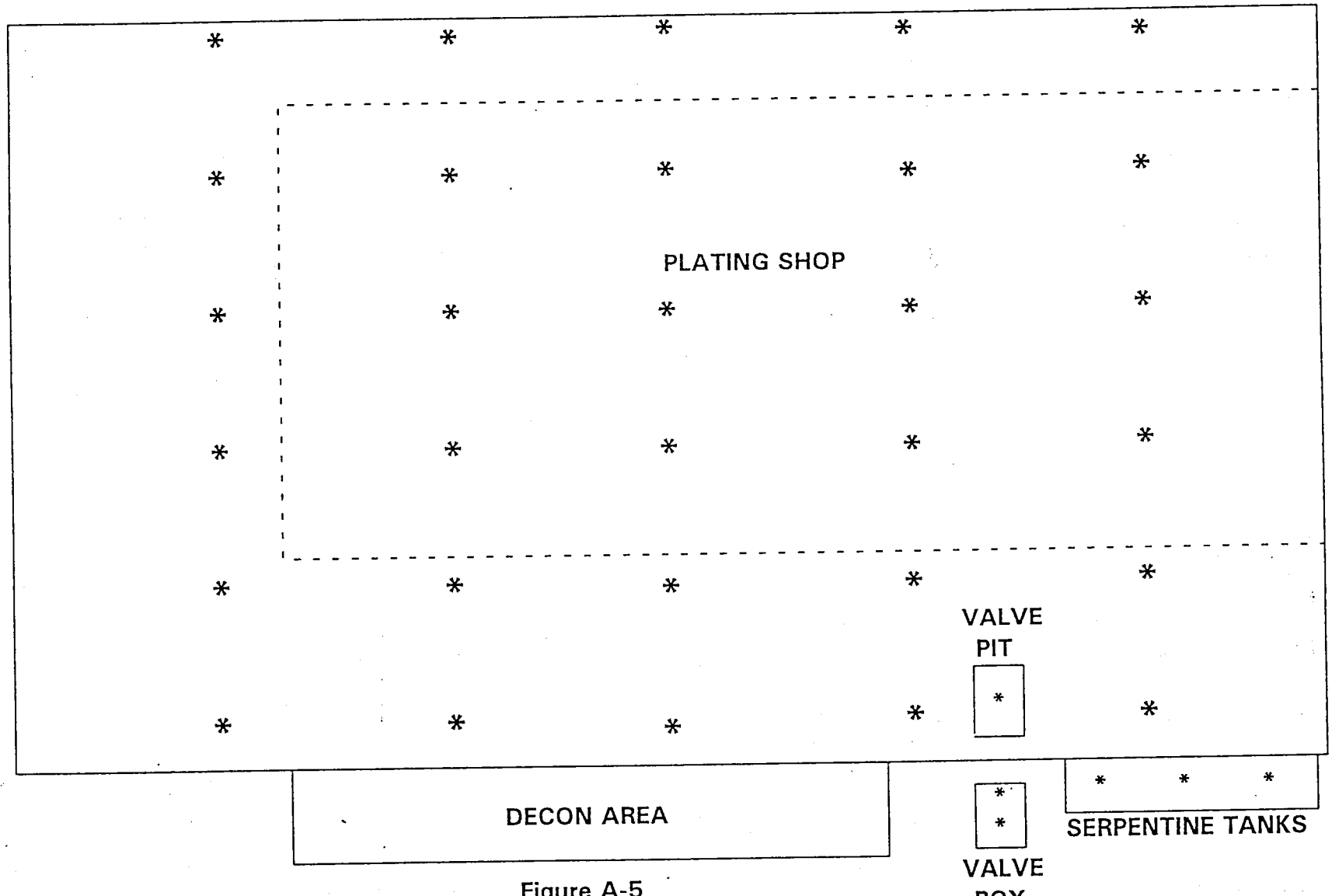

Figure A-5

CONCRETE BORING LOCATIONS
(proposed)

Corings will be done using concrete coring equipment to break through the concrete. Once through the concrete, stainless steel hand augers will be used to collect soil samples. The samples will be collected in laboratory provided containers. The samples will be composited to collect a homogeneous sample which represents that sample depth. Stainless steel spoons and bowls may be needed to assist in mixing sample. There will not be preservation of samples on-site to prevent the release of cyanide gas.

The soil samples will be analyzed for the same parameters as the A Tank Systems listed in Tables A-2 and A-5.

An organic vapor analyzer (OVA) will be used during coring and soil sampling operations to detect the presence of volatile organic compounds. All samples will be screened with the OVA and the results recorded in the sampling log book.

3.3 ASBESTOS SAMPLING

Air monitoring for the presence of asbestos will be conducted in each plating shop room after asbestos removal activities are completed. Confirmation of the absence of friable asbestos will allow personnel to begin tank removal activities in Level D protection. Details of the asbestos removal and air monitoring are given in Attachment C.

Asbestos removed from the three plating rooms is assumed to be contaminated with hazardous materials and will be disposed accordingly.

3.4 TREATED WATER SAMPLING

The mobile waste treatment plant to be used on this project concentrates chemical salts by evaporating the water from them. The products of the treatment system is distilled water and a relatively small volume of highly concentrated non-volatile salts. The salts will contain all the heavy metals from the decontamination activities and must be disposed of as hazardous waste.

The distilled water from the mobile waste treatment system should contain no hazardous materials. As each treated water tanker is filled and ready for disposal, a sample of its contents will be analyzed for the presence of hazardous constituents.

The samples from the treated water will be collected via the distillate tank. The lid from the tank will be removed and the sample containers will be dipped to collect the water. Gloves must be worn to prevent contamination. Each sample will be analyzed for the parameters listed in Tables A-2 and A-5.

3.5 HYDRAULIC OIL SAMPLING

During the removal of the hydraulic lifts (TASK 10), the hydraulic oil must be drained from the two systems. Prior to disposal, this fluid must be sampled and analyzed for possible PCB content.

The hydraulic fluid from each unit will be pumped into separate 55-gallon closed head drums provided by NADEP. Each drum will be sampled using a drum thief and the sample analyzed for PCBs by EPA Method 8080 (Modified). Drums will be properly labeled and stored until analytical results are completed. DRMO will be contacted and informed of the analytical results for appropriate disposal of the material.

3.6 GROUNDWATER SAMPLING

Groundwater samples will be obtained from a temporary well point which will installed during coring activities. The following procedures will be used in the collection of groundwater samples:

1. Groundwater samples will not be collected until the well point have reached equilibrium with the aquifer.
2. Immediately prior to collecting a sample, the static water level below the top of the well casing will be measured with a steel water level tape, electric water level tape, or acoustic well sounder and recorded in the field logbook.
3. Prior to collecting a sample , the water in the temporary well point will be purged until it is clear. Purging will be accomplished by manual bailing with a disposable Teflon™ bailer.
4. Pre-sampling purge water will be containerized in DOT approved drums, then emptied into the waste water treatment system.
5. The standard well sampling technique is by a separate precleaned Teflon™ bailer. Clean braided nylon cord is typically used for bailers. A separate piece of cord is used for sampling each well point, and is discarded after one use.

3.7 CONCRETE SAMPLING

3.7.1 East Room, Chrome Room, Northeast Chrome Room, and Serpentine Tanks

Composite samples of concrete will be taken from the floor and walls of the East Room, Chrome Room, and Northeast Chrome Room, and from the external walls, internal walls, and floor of the Serpentine Tanks (See Figure A-6). The samples will be analyzed for TCLP Metals and cyanide. The sample will be obtained by coring through the concrete with an electrical concrete corer. Once the cores have been removed from the concrete, electric saws will be used to divide the concrete core into samples one inch thick to determine the penetration of contaminants into the concrete. Potable water will be used to suppress dust during the coring and saw cutting operations.

Three concrete cores will be composited for each sample to provide sufficient material for analyses. Three samples will be taken for each location; one from each of three depths: 0"-1", 1"-2", and 2"-3". Homogenization of the samples will be performed by the laboratory which will grind together the 1" thick disks for each sample.

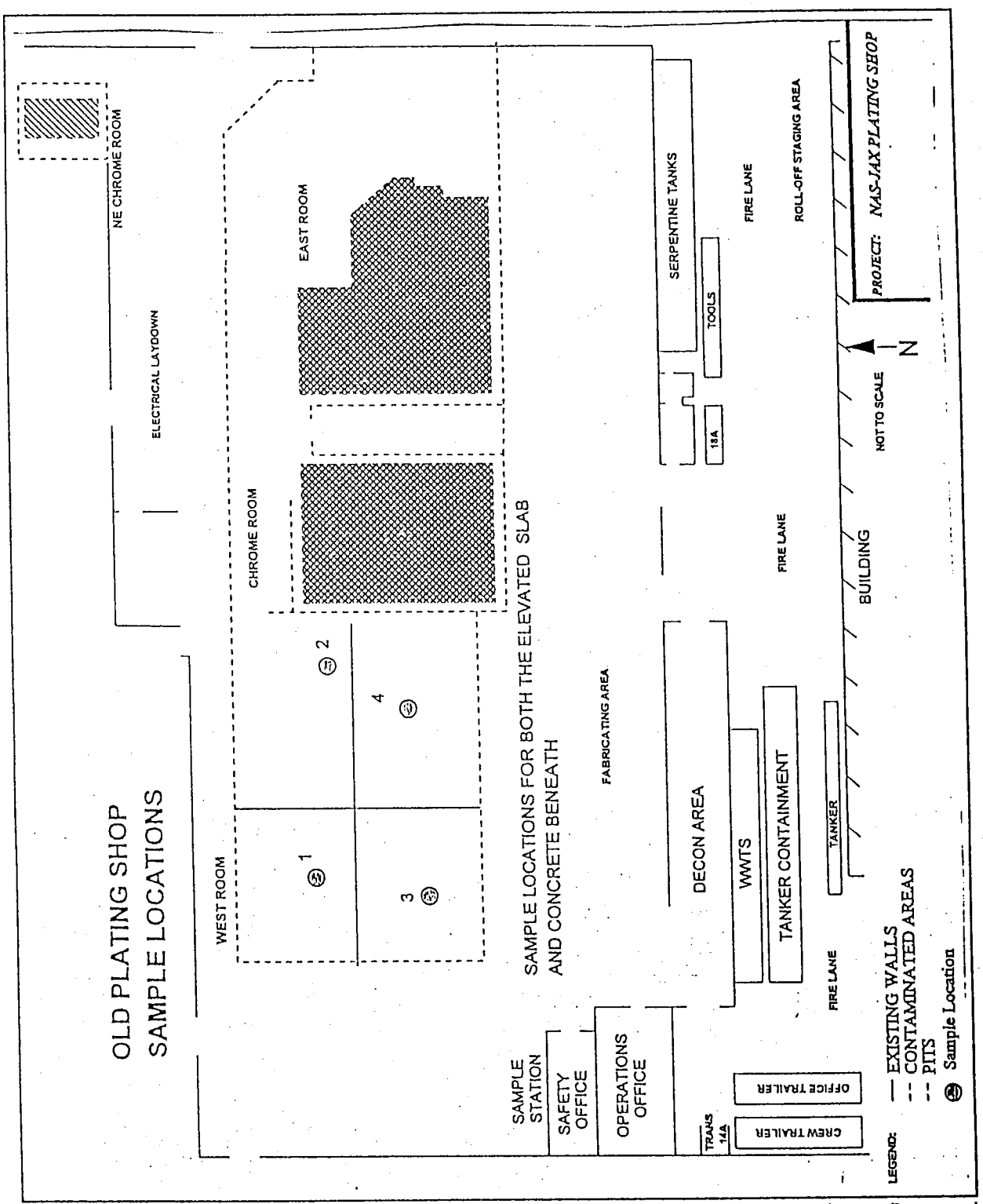

Figure 3-5-1 Concrete Sampling Locations for East Room, Chrome Room, Northeast Chrome Room and Serpentine Tanks.

3.7.2 West Room

Four concrete cores will be cut through the floor of the West Room (See Figure A-6). The cores will penetrate the elevated concrete slab of the West Room and the original concrete floor. Using a concrete saw, approximately 1 inch will be cut from the top of each core from the elevated slab. These 1-inch disks will form a composite sample which will be analyzed for TCLP metals. The four cores from the original concrete floor will be analyzed for TCLP metals as discrete samples. Potable water will be used to suppress dust during concrete coring and saw cutting operations. Homogenization of the samples will be performed by the laboratory.

3.8 ROOF SAMPLING

3.8.1 Roof Rock

Field analyses of rinsate samples for chromium will be performed on a minimum of 30 samples of rock from the roof. The samples will be collected in a 5 by 5 grid pattern, with additional samples taken in discolored areas and on the raised areas of the roof (See Figure A-7). Additional samples will be taken at the discretion of the CQC Representative dependent on results of field sampling. Laboratory confirmation of field analytical results will be performed on twenty percent of the initial samples to determine the accuracy of the Chromium Test Kit used. Results of the analyses will be used to determine the extent rock is to be removed from the roof.

Samples of rock from the roof will be taken for TCLP metals analyses. A total of four samples will be taken from the following locations on the roof: immediately south of the area where rock was removed, immediately west of the area where the rock was removed, on the mezzanine roof, and from areas more than fifteen feet from the mezzanine and removed rock areas. The samples will be composite samples representing the average over the entire areas listed above.

Sampling will be performed to determine if the rock used as roofing material is radioactive. A composite sample will be taken from the roof to determine the activity level and the primary radioactive component of the roof rock.

3.8.2 Other Roof Material

Samples of roof material will be taken using a grid system (see Figure A-8). The sampling grid system will identify areas of contaminated materials and satisfy disposal requirements. Nine samples and a field duplicate will be analyzed for TCLP metals. One of the samples will be analyzed for asbestos and PCBs. At the request of the Navy, full TCLP analyses will be performed on any sample which exceeds the maximum concentrations for toxicity.

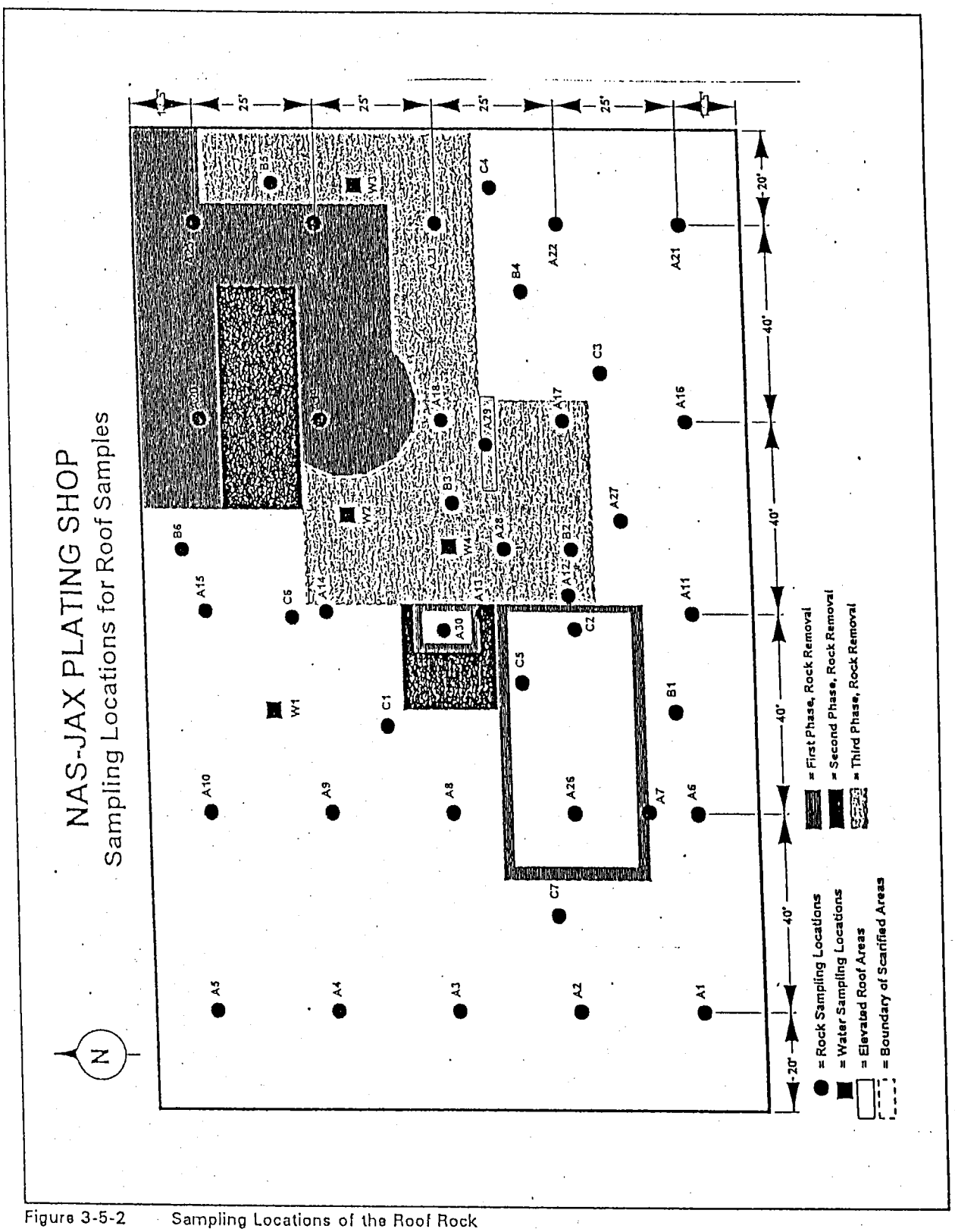

Figure 3-5-2 Sampling Locations of the Roof Rock

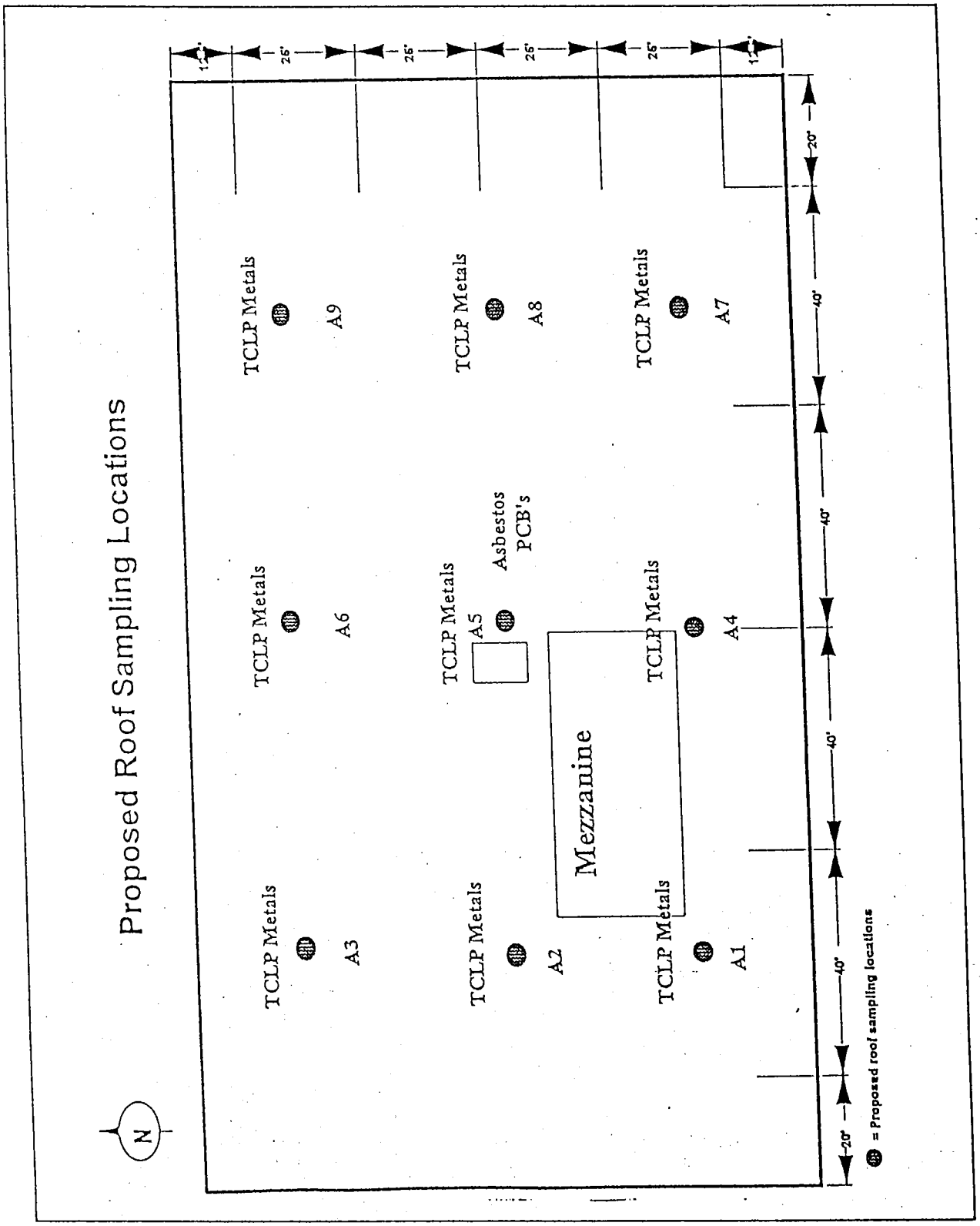

Figure 3-5-3 Proposed Sampling Locations for Roof Material

3.9 SAP FIELD CHANGES

Changes to the SAP will be done using a Field Change Request Form (FCR) and with the approval of the Project Manager and Site Superintendent (see Figure A-9).

3.10 ON-SITE FIELD LABORATORY SCREENING METHODS

A calibrated flame ionization detector (FID)(i.e. OVA 128) or photo ionization detector (PID)(i.e. HNu or Microtip) organic vapor analyzer will be utilized to monitor the bore holes and breathing zones during coring activities, to determine if any organic material may be present that would necessitate upgrading of protection level. The OVA will also be used to detect the presence of volatiles in the soil. The results will be recorded in the field sampling log book.

3.11 PACKAGING AND SHIPPING SAMPLES

Samples are packed for shipping in ice chests and coolers. Wet ice sealed in "zip-lock" or other plastic bags (to inhibit cross contamination of samples by meltwater) is placed with the samples in the cooler to maintain the samples at a temperature of about 4° Celsius during shipping.

Samples to be shipped to the laboratory will have information transcribed to a sample chain-of-custody form as shown in Figure A-10. This chain-of-custody form is signed as "relinquished" by the principal sampler or responsible party. A request-for-analysis form that identifies the samples and instructs the laboratory on which analysis to use, is also completed by the sampler or responsible party. Both forms are sealed in a waterproof bag and are placed inside the cooler.

Following packing, the cooler lid is sealed with strapping tape. Two custody seals are signed and dated and are affixed about two corners of the cooler, across the seal of the lid, and are additionally covered with clear tape.

The sample coolers are typically hand carried to the laboratory. If shipping is necessary, an overnight express carrier is used. A copy of the bill of lading is retained and becomes part of the sample chain of custody documentation.

Upon receipt by the laboratory, samples proceed through an orderly sequence specifically designed to ensure continuous integrity of both sample and its documentation.

All samples received by the laboratory are carefully checked for label identification, and completed, accurate chain-of-custody records. If there is any evidence of tampering (i.e. the cooler seal has been broken), the laboratory will notify the Project Superintendent.

FIGURE A-6

Ebasco Services Incorporated
Field Change Request
-Sampling-

SITE _____ EBASCO CHARGE NO. _____ FIELD CHANGE NO. _____

LOCATION _____ DATE _____

DISCRIPTION:

_____

_____

_____

REASON FOR CHANGE:

_____

_____

_____

_____

_____

RECOMMENDED DISPOSITION:

_____

_____

_____

_____

_____

QUALITY ASSURANCE REPRESENTATIVE (SIGNATURE) DATE

DISPOSITION:

_____

_____

_____

_____

_____

SITE SUPERINTENDENT (SIGNATURE) DATE

DISTRIBUTION: PROJECT MANAGER
OTHERS AS REQUIRED: _____

_____

FCRSAMP.

FIGURE A-7

CH2M HILL
QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M HILL Project # ☐☐☐☐☐☐☐☐.☐☐.☐☐

Purchase Order #

Project Name

Company Name/CH2M HILL Office

Project Manager & Phone #
Mr. [ ]
Ms. [ ]
Dr. [ ]

Report Copy to:

Requested Completion Date:

Sampling Requirements
SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

Sample Disposal:
Dispose ☐ Return ☐

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS

LAB TEST CODES

ANALYSES REQUESTED

SHADED AREA – FOR LAB USE ONLY

Lab 1 #

Lab 2 #

Quote #

Kit Request #

Project #

No. of Samples

Page

of

COC Rev

Login

LIMS Ver

Ack Gen

REMARKS

LAB 1 ID

LAB 2 ID

Sampled By & Title (Please sign and print name) Date/Time

Received By (Please sign and print name) Date/Time

Received By (Please sign and print name) Date/Time

Received By (Please sign and print name) Date/Time

Work Authorized By (Please sign and print name)

Relinquished By (Please sign and print name) Date/Time

Relinquished By (Please sign and print name) Date/Time

Relinquished By (Please sign and print name) Date/Time

Shipped Via
UPS BUS Fed-Ex Hand Other____

Shipping #

Remarks

HAZWRAP/NESSA: Y N

QC Level: 1 2 3 Other: ____

COC Rec ICE

Ana Req TEMP

Cust Seal Ph

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yellow - LAB, Pink - Client
REV 11/92 FORM 340

3.12 SAMPLING EQUIPMENT DECONTAMINATION

The contractor will provide a manned and operating sampling decontamination station that provides the area, supplies, and trained personnel able to conduct sampling equipment decontamination procedures properly. All wash and rinse fluids will be contained, collected, and disposed of properly. The sampling equipment decontamination procedure is as follows:

(1) Rinse sampling equipment with potable water immediately after use.
(2) Clean with hot potable water and Alconox. Scrub all surfaces thoroughly with a brush to remove all traces of contaminant.
(3) Rinse with potable water then rinse with deionized water.
(4) Rinse twice with reagent grade isopropyl alcohol.
(5) Allow equipment to air dry and wrap or cover the equipment in clean aluminum foil.

4.0 APPROVAL

By their signature, following, the undersigned certify that this Field Sampling Analysis Plan will be utilized for the collection of samples during the Interim Remedial Action of the building 101 at the Naval Air Station, Jacksonville, Florida.

APPROVALS:

_____ Date:_____
Art Holcomb, Project Manager

_____ Date:_____
J.C. O'Connell, Project Superintendent

_____ Date:_____
Donald Harrison, Quality Control Representative

5.0 REFERENCES

Ebasco Services, "Final ADDD Work Plan For Interim Remedial Action At The NAS-JAX Building 101 Site", Jacksonville, Florida, July 1993.

SEC Donohue, "Application For Closure Permit Old Plating Facility - Building 101 and Waste Oil Tank 101-3 for Naval Air Station," Jacksonville, Florida, April 1993.

Attachment B

Site Health and Safety Plan

INTERIM REMEDIAL ACTION

BUILDING 101

NAVAL AIR STATION

JACKSONVILLE, FLORIDA

SITE HEALTH AND SAFETY PLAN

CONTRACT NO. N47408-92-D-3059

DELIVERY ORDER 0003

Prepared by:

Ebasco Environmental
a Division of
Ebasco Services, Inc.
Santa Ana, California

INTRODUCTION

This Site Health and Safety Plan (SHSP) has been prepared to address the hazards associated with Interim Remedial Action of Building 101W at the Naval Air Station (NAS), Jacksonville, Florida. The following information is given for quick reference, as part of this plan.

CLIENT:	NAVAL FACILITIES ENGINEERING COMMAND PORT HUENEME, CA
SITE:	BUILDING 101W, NAVAL AIR STATION
PLAN DATE:	JUNE 1993

By their signature, following, the undersigned certify that this Site Health and Safety Plan will be utilized for the protection of the health and safety of workers during the IRA of the Building 101W at the Naval Air Station, Jacksonville, Florida.

APPROVALS:

A B Holcomb _____ Date: 5-24-93
A. B. Holcomb, Project Manager

_____ Date: 5-24-93
J. C. O'Connell, Site Health and Safety Officer

R. W. Strickland _____ Date: 5-24-93
A. Strickland, Project Health and Safety Manager

NAS JAX
OLD PLATING SHOP
SITE HEALTH AND SAFETY PLAN-RECORD OF REVISIONS

Revision Number	Date	Description
0	5-24-93	Original draft
1	6-9-93	Revised to agree with closure plan
2	11-4-93	Contract modification work added
3	11-9-93	General Revisions

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1.0 PURPOSE

This Site Specific Safety and Health Plan (SHSP) contains the requirements for protection of site personnel and the general public during the Interim Remedial Action (IRA), of Building 101W at the Naval Air Station, Jacksonville, Florida.

The protection of site workers and environmental safety and health are major concerns during site operations. The purpose of this plan is to assure safe and healthful working conditions at the site. The safety and health organization and procedures have been established based on an analysis of potential hazards, and personnel protection measures have been chosen based on these risks.

The SHSP will be read by all site personnel prior to any worker commencing operations and followed by all contractors, subcontractors, and visitors.

1.1 REGULATIONS AND GUIDELINES

All tasks associated with the Interim Corrective Measures of Building 101W, at the Naval Air Station will be performed in accordance with the applicable requirements of the following publications:

- USACE Safety and Health Requirements Manual (EM 385-1-1, Oct. 1992)
- OSHA Requirements, 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response
- 40 CFR 260, EPA's General Regulations for Hazardous Waste Management System
- 40 CFR 270, EPA Regulations for Federally Administered Hazardous Waste Permit Programs
- OSHA Requirements, 29 CFR 1926, Safety and Health Regulations for Construction
- OSHA Requirements, 29 CFR 1910.95, Occupational Noise Exposure
- OSHA Requirements, 29 CFR 1926.59, Hazard Communication Standard
- OSHA Requirements, 29 CFR 1910, Safety and Health for General Industry

1.2 EMERGENCY PHONE NUMBERS

AFFILIATION (NAME)	PHONE NUMBER
BASE SECURITY	(904) 772-2662
LOCAL POLICE	911
BASE FIRE DEPARTMENT	(904) 772-3333
LOCAL FIRE DEPARTMENT	911

AFFILIATION (NAME)	PHONE NUMBER
BASE AMBULANCE	(904) 772-3333
ORANGE PARK MEDICAL CENTER	(904) 276-8580
POISON CONTROL CENTER	(800) 292-6678
NATIONAL RESPONSE CENTER	(800) 424-8802
ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION IV	(404) 347-3931
PROJECT HEALTH AND SAFETY MANAGER	(303) 980-3610
These numbers will be accessible to all site personnel.	

1.3 TASK DESCRIPTION

OBJECTIVE: The objective of this work is to remove and dispose of all asbestos containing material (ACM) and the removal and disposal of tank systems and associated piping.

Tasks to be completed at this site include:

1) Site mobilization
2) Pre-dismantling activities - utilities search; two hydraulic lifts will be dismantled and filled; seal existing drain lines on-site
3) Asbestos abatement
4) Establish decontamination station (storing and transmitting electroplating shop decontamination fluids and contamination control)
5) Tank system removal (includes A and B tanks, and associated appurtenances)
6) Decontamination Procedures (contamination control) - triple rinse using high pressure washers
7) Tank system disposal - for final disposition, a rinse sample will be collected from each contaminated item
8) Wastewater treatment and disposal - wastewater will be collected in the decontamination area floor sump, then pumped to, and treated by a mobile wastewater treatment unit
9) Waste storage tankers (contamination control) - construct a secondary containment system
10) Hydraulic lift removal - drain hydraulic fluids, remove lifts, fill pit with fill dirt and cap with concrete

11) Materials handling - 3 roll-off dumpsters: non-hazardous debris, hazardous debris/no treatment required, and hazardous debris/treatment
12) Grouting underground lines - fill using pressure grouting equipment
13) Decontamination and filling of the serpentine tanks - decontaminate, fill and add concrete cap
14) Removal of ductwork - all remaining ductwork and air movers on the roof will be removed
15) Removal of ventilators - ventilators and associated ductwork will be removed; patch and waterproof openings in roof
16) Decontamination of walls
17) Removal of asbestos and transite - after all equipment removal and decon operations have been completed, the remaining asbestos insulation will be removed from piping; all remaining transite will be removed
18) Northeast chrome room - remove remaining ventilation systems and piping systems; decontaminate room
19) Sampling - soil and groundwater samples will be taken via concrete corings; soil samples will be collected at three levels: 6-inches, 18-inches, and water table depth
20) Demolition of the mezzanine area - remove wood deck at elevation 26'-5" between column lines 41 and 42 between column lines E and G
21) Overhead crane removal - remove overhead cranes in the receiving room, column line 42 to 43, and column line 41 to 42, girders and electrical bus
22) Demolition of non-essential electrical systems - remove 480 volt distribution system, lighting, and receptacles
23) Reconstruction of 208 and 480 volt network - reroute and energize the systems to allow for building demolition
24) Electrical demolition - remove wire, lighting fixtures, receptacles, electrical equipment, panels, junction boxes, conduit and switches
25) Piping and mechanical - reroute steam supply, condensate return, compressed air, and fire protection systems, reinsulate and tie-in
26) Thru Bolt Column Lines A and J - install 5/8" diameter galvanized bolts through the concrete masonry unit walls
27) Demolition of roof structure - remove the built-up roof, wood roof, deck, purlins, trusses, and columns between column lines A and I and column lines 38 to 43
28) Demolition of column line 43 and office area - remove 8" concrete masonry unit wall, column line 43, brick walls, and mezzanine over the office area
29) Removal of doors - move existing roll-up doors to new locations
30) Demolition of metal plating shop slab - remove concrete slab from the area defined at the metal plating shop
31) Excavation and backfilling metal plate shop area - remove contaminated soil in the area of the metal plating shop and replace with clean fill
32) Asphalt cap - 2" cap to cover the backfilled area of the metal plating shop
33) Demolition of the receiving area decontamination station - remove the built-up roof, siding, and structural steel
34) Construct concrete masonry walls - erect new wall along column line 38 as

roof, siding, and structural steel

34) Construct concrete masonry walls - erect new wall along column line 38 as enclosure for fire protection equipment

35) Erection of siding and flashing - erect siding along column line 38 to provide closure for the area northeast of the metal plating shop

36) Painting - field coating of interior and exterior new and existing surfaces, hollow metal doors, frames, roll-up service doors, concrete masonry unit walls, structural steel, piping supports, and hangers

37) Demobilization - remove field office trailers including furnishings, electrical services, wastewater treatment facilities, and containment area

2.0 SITE DESCRIPTION/HISTORY/LOCATION

The industrial area at NAS is designated as Operable Unit 3(OU#3) (See Figures 1 and 2). The Area of Contamination (AOC) has been established and Remedial Investigation and Feasibility Study (RI/FS) activities are underway in OU#3. The old plating facility is located in and on Potential Source of Contamination (PSC) #11-Building 101 which is within OU#3.

The Old Plating Facility began operations in the early 1940's, continuing operations through 1985, when a new plating shop was constructed. Interim plating activities continued until approximately February 1990, when all operations ceased.

The plating shop consists of three separate rooms. These rooms are the East Room, the Chrome Room, and the West Room. More than 90 tanks were used in plating operations at the facility. Many of these tanks contained hazardous materials that were used in the plating process. There is a fourth room (Northeast Chrome Room) which is not part of the original plating shop.

Significant deterioration has occurred in all three rooms of the facility. Numerous tanks, platform steel, and grating have become corroded, concrete flooring has degraded, and asbestos-containing pipe insulation has become friable. Although liquids and sludges were removed in January 1993 from the plating tanks, and the friable asbestos pipe installation has been wrapped in plastic, conditions have continued to deteriorate. This is evidenced by the collapse of small roof sections and other structural distress.

2.1 SITE CONTAMINATION CHARACTERIZATION

The tanks in the East, Chrome, and West rooms are classified into two groups. Group A consists of those tanks which previously contained hazardous materials, and subsequently contained hazardous wastes once operations at the facility were discontinued. A listing of these tanks and the pollutants of concern are shown in Table 1. Group B consists of the remainder of tanks not included in Group A. Figures 3 through 5 delineate Group A and Group B tanks. The old plating shop is also contaminated with asbestos containing material (ACM). The tanks and tank systems in the Northeast Chrome Room have already been removed. The only remaining appurtenances is ductwork and ventilation system.

TABLE 1

LIST OF GROUP A TANKS

OLD PLATING SHOP
BUILDING 101 - NAS JACKSONVILLE

TANK	PREVIOUS CONTENTS	POC
3	Copper plating solution.	CN, Cr, Pb, Ni
5	Cadmium plating solution.	Cd, CN, Cr, Pb, Ni
11	Electrocleaner, federal specification P-C-535.	Pb
12	Water rinse after electroclean.	Cd
17	Sodium cyanide solution (dilute holding tank).	Cd, Cr, Pb, Cn, Ni
18	Cadmium plating solution.	Cd, CN, Cr, Pb, Ni
22	Lead - tin plating solution.	CN, Cr, Pb, Ni
23	Water rinse after lead - tin plate.	CN, Cr, Pb, Ni
24	Lead - tin plating solution.	Cd, Cr, Pb
25	Acid nickel stripping solution.	As, Cd, Cr, Pb, Hg, Ag
27	Silver plating solution.	Hg, CN, Cr, Pb, Ni
28	Silver strike solution.	Hg, CN, Cr, Pb, Ni
29	Pump stand contains silver plating solution.	Hg, CN, Cr, Pb, Ni
30	Silver plating solution.	Hg, CN, Cr, Pb, Ni
31	Empty prior to earliest recollection (1974), originally silver plating solution.	Ag, CN, Cr, Pb, Ni
33	Woods nickel strike solution.	Cd
37	Originally chromium plating solution, replaced with Type 1 aluminum anodize solution.	Cr
38	Water rinse after chrome plate or anodize.	Cd, Pb
39	Chromium plating solution.	Cd, Cr, Pb
40	Chromium stripping solution (caustic).	Cd, Cr, Pb
41	Catalyzed chromium plating solution.	Cd, Cr
44	Sodium hydroxide (dilute solution to neutralize acid).	Cr, Pb
45	Sulfuric acid activation solution.	Cd, Cr, Pb
46	Water rinse after chrome strip.	Pb, CN, Cr, Ni
47	Chromic acid reverse stripping solution.	Cr, Pb
48	Vapor degreaser - trichloroethylene replaced sodium dichromate solution.	Cr

TABLE 1 (continued)

LIST OF GROUP A TANKS

OLD PLATING SHOP
BUILDING 101 - NAS JACKSONVILLE

TANK	PREVIOUS CONTENTS	POC
49	Catalyzed chromium plating solution.	Cr
50	Chromium plating solution.	Cd, Cr, Pb
51	Chromium plating solution.	CN, Cr, Pb, Ni
54	Two bay tank: gold strike and gold plating solutions.	CN, Cr, Pb, Ni
57	Sodium hydroxide aluminum etch.	As, Cd, Cr, Pb, Ag
59	Nitric acid/hydrofluoric acid for aluminum alloy.	Cd, Cr, Pb
61	Nitric acid for zincate process.	CN, Cr, Pb, Ni
62	Zincate immersion solution.	CN, Cr, Pb, Ni
64	Copper plating solution.	Cd, CN, Cr, Pb, Ni
66	Cadmium plating solution.	Cd, CN, Cr, Pb, Ni
68	Nickel sulfamate plating solution.	Cd, Cr
69	Hydrochloric acid replaced with Smut 60 #2.	Cr
70	Three bay tank: water rinse. Middle bay held 93113 #3 alumigold.	Cd
72	Water rinse.	Cd
74	Electroless nickel stripping solution.	Ag, CN, Cr, Pb, Ni
76	Silver plating solution.	Hg
77	Water rinse.	Ag, CN, Cr, Pb, Ni
78	Silver plating solution.	Ag, CN, Cr, Pb, Ni
79	Silver strike solution.	CN, Cr, Pb, Ni
80	Empty prior to earliest recollection (1974), labeled cyanide strike.	Cd, CN, Cr, Pb, Ni
82	Copper strike solution.	Cd, CN, Cr, Pb, Ni
84	Watts nickel strike.	Cd, Pb
85	Hydrochloric acid activation solution (1:1 HCL and water).	Cd, Pb, Hg
88	Sulfuric acid activation solution replaced with hydrochloric acid solution.	Cd, Pb, CN, Cr, Ni
92	Located in West room; for contents see analytical in Attachment L.	Cd, Cr, Pb, CN, Ni, TCE

2.0 SITE DESCRIPTION/HISTORY/LOCATION

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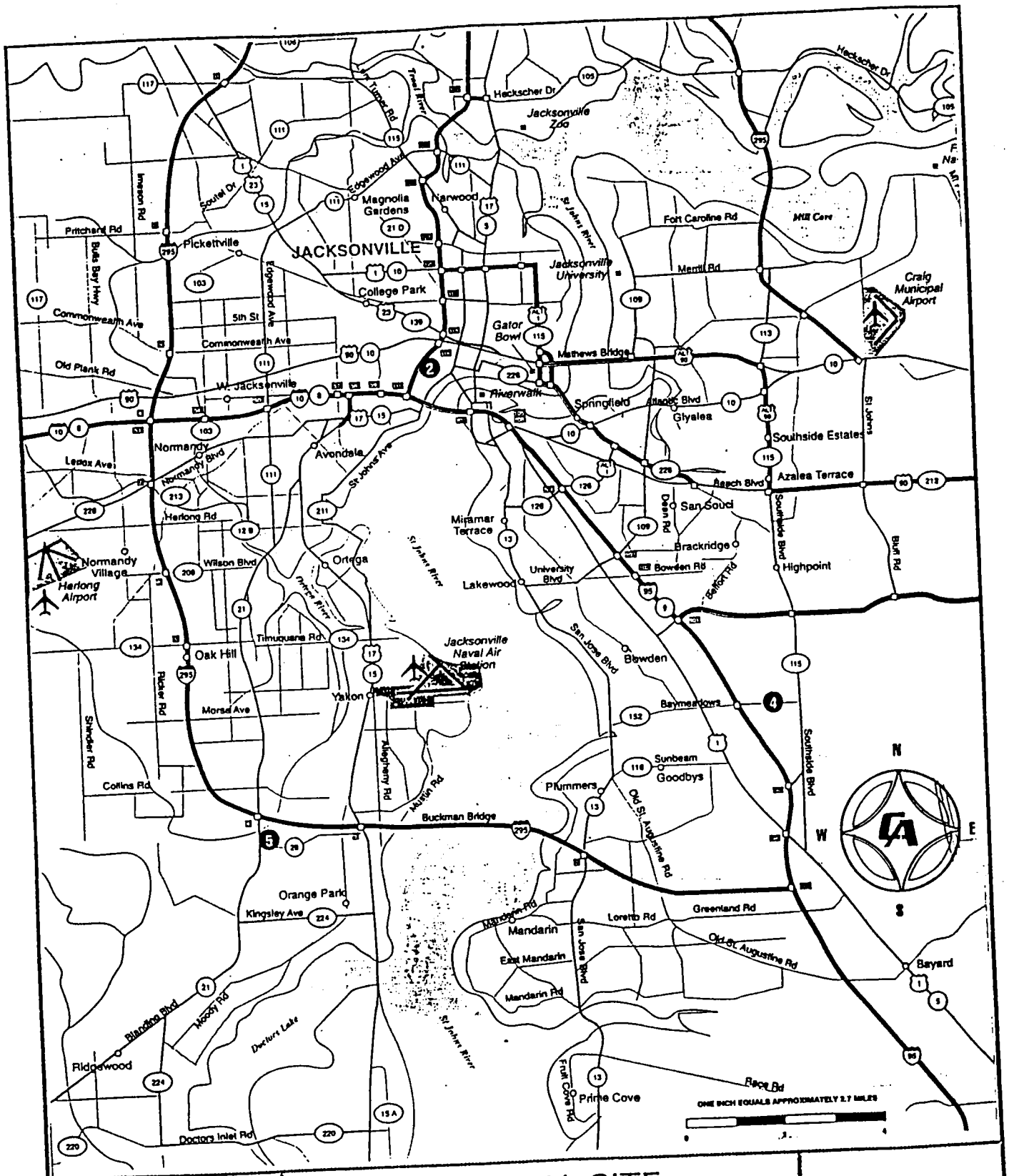
Significant deterioration has occurred in all three rooms of the facility. Numerous tanks, platform steel, and grating have become corroded, concrete flooring has degraded, and asbestos-containing pipe insulation has become friable. Although liquids and sludges were removed in January 1993 from the plating tanks, and the friable asbestos pipe installation has been wrapped in plastic, conditions have continued to deteriorate. This is evidenced by the collapse of small roof sections and other structural distress.

2.1 SITE CONTAMINATION CHARACTERIZATION

The tanks in the East, Chrome, and West rooms are classified into two groups. Group A consists of those tanks which previously contained hazardous materials, and subsequently contained hazardous wastes once operations at the facility were discontinued. A listing of these tanks and the pollutants of concern are shown in Table 1. Group B consists of the remainder of tanks not included in Group A. Figures 3 through 5 delineate Group A and Group B tanks. The old plating shop is also contaminated with asbestos containing material (ACM). The tanks and tank systems in the Northeast Chrome Room have already been removed. The only remaining appurtenances is ductwork and ventilation system.

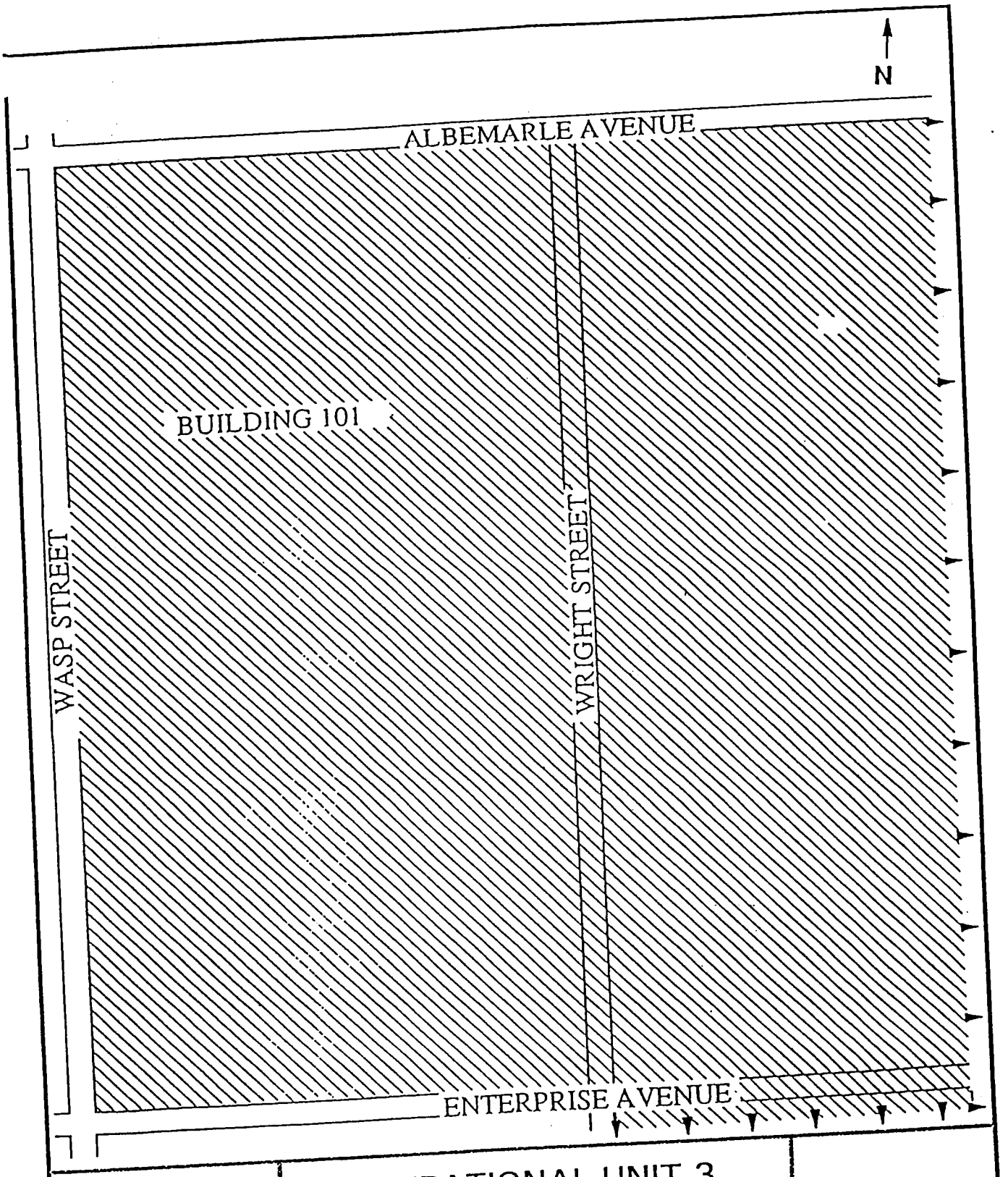


EBASCO

GENERAL SITE LOCATION MAP

NAVAL AIR STATION JACKSONVILLE, FL

FIGURE 1

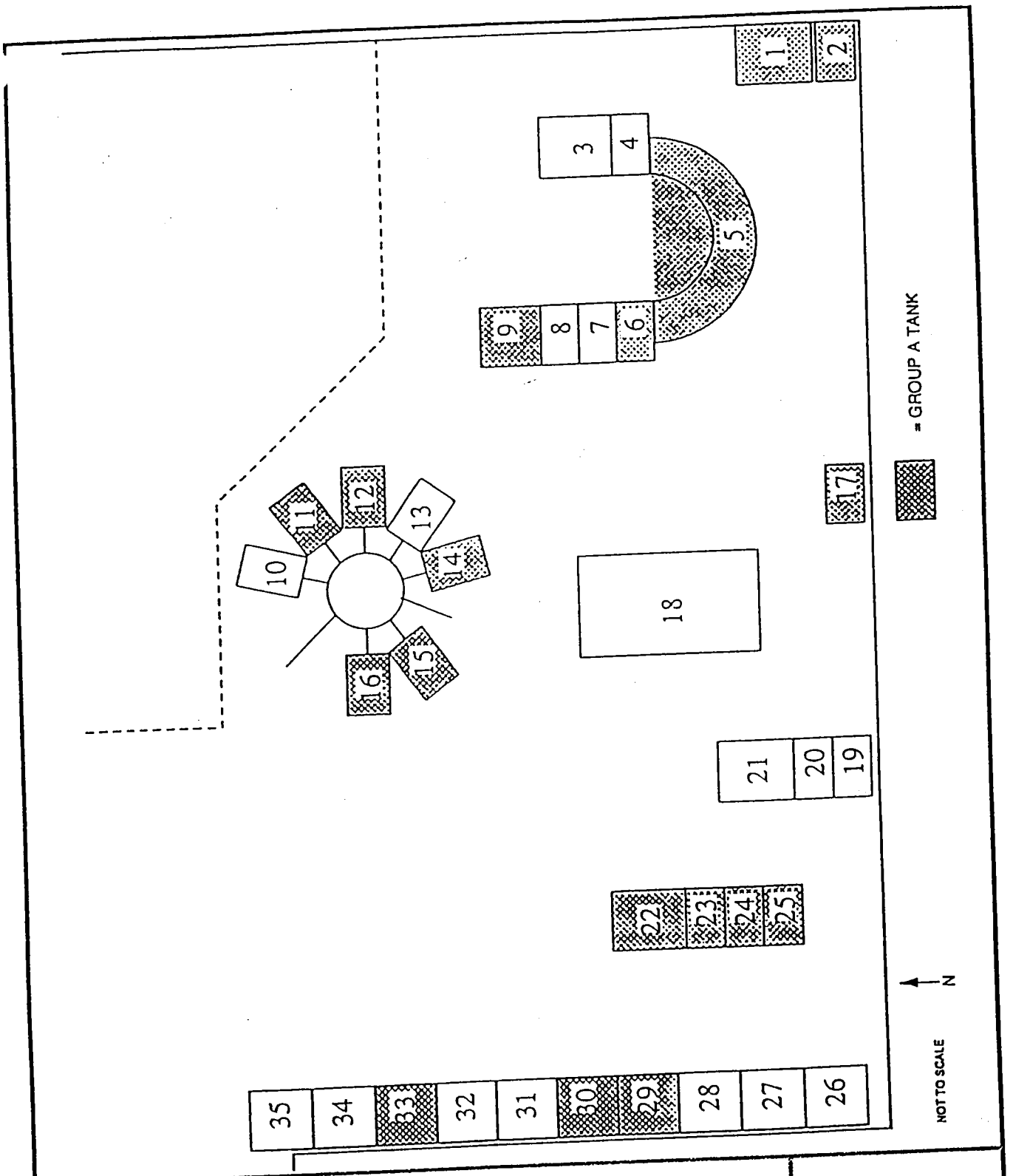


EBASCO

OPERATIONAL UNIT 3

NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 2

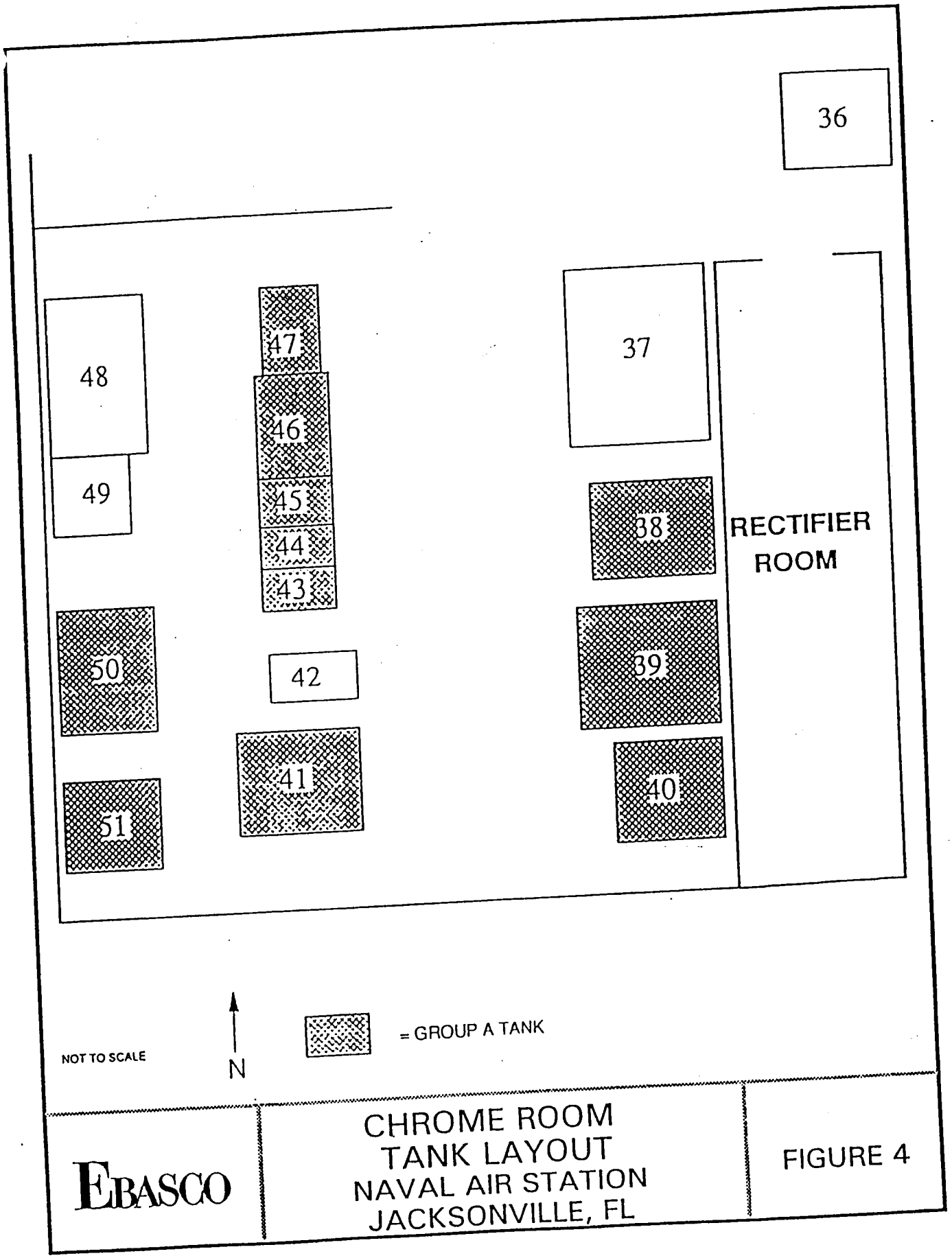


EBASCO

EAST ROOM TANK LAYOUT

NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 3

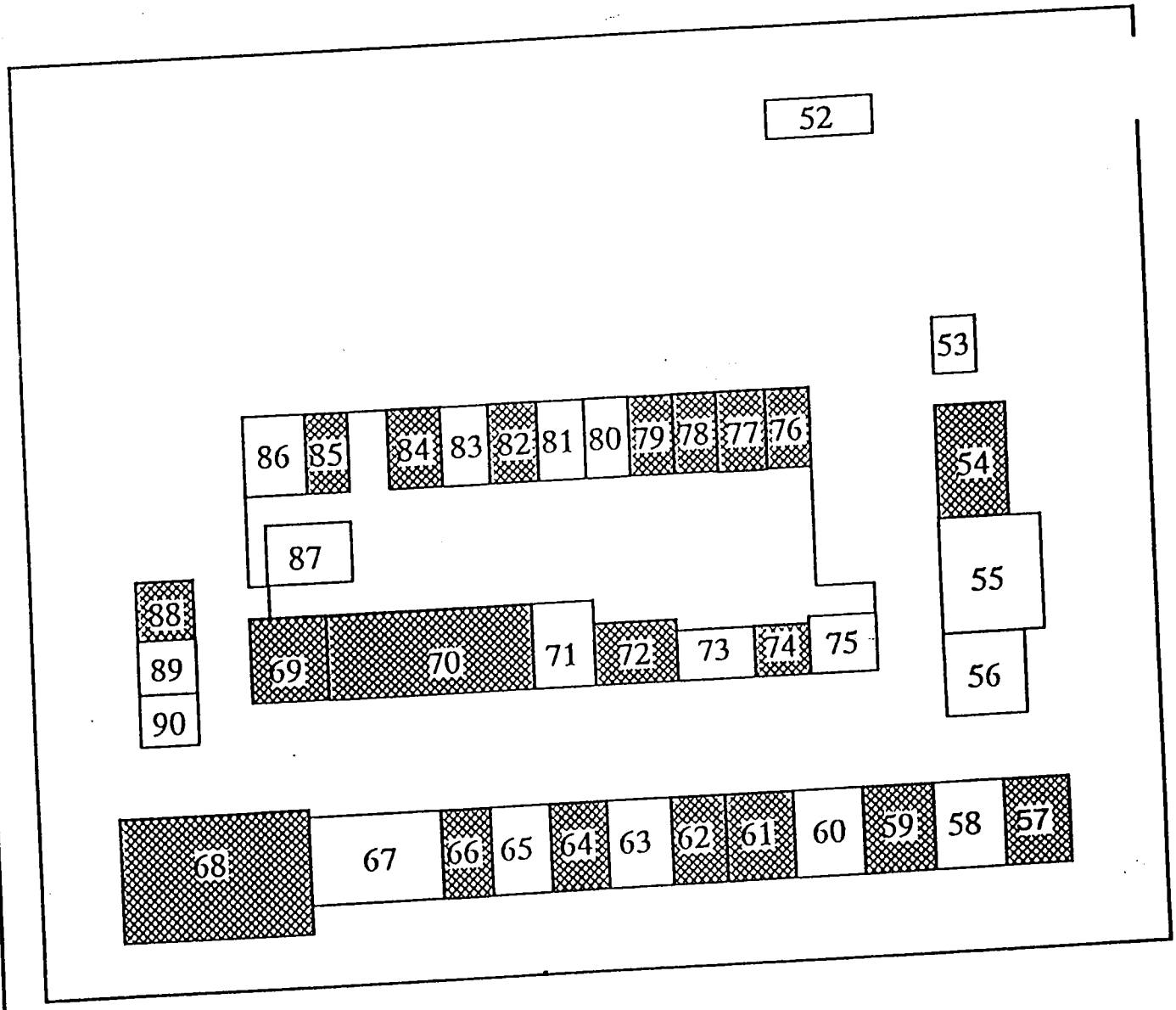


EBASCO

CHROME ROOM
TANK LAYOUT
NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 4

FIGURE 5
WEST ROOM
TANK LAYOUT



3.0 SAFETY AND HEALTH ORGANIZATION

3.1 HEALTH AND SAFETY PERSONNEL DESIGNATIONS

This Site Health and Safety Plan has been prepared in accordance with OSHA regulations set forth in 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response and the Ebasco Health and Safety Program). The following sections briefly describe the health and safety personnel designations and associated responsibilities which will be employed for this Interim Remedial Action.

3.2 PROJECT HEALTH AND SAFETY MANAGER

The Project Health and Safety Manager (PHSM) has overall project responsibility for development and implementation of this Site Health and Safety Plan (SHSP) and conformance with OSHA requirements. The PHSM will be responsible for the performance of field audits, and health and safety-related operations to check conformance with the procedures described herein and with the Ebasco Program. He will also be consulted when any changes to this plan or modification of any procedures are required or requested or when any new activities are proposed. The PHSM will be responsible for the development of any new safety protocols and procedures necessary for field operations and will also be responsible for the resolution of any outstanding safety issues which arise during the performance of site work. Health and safety-related duties and responsibilities will be assigned only to qualified individuals by the PHSM. Authorization for personnel to perform work on site, relative to medical exams and training, must be cleared through the PHSM.

3.3 SITE HEALTH AND SAFETY OFFICER

The Site Health and Safety Officer (SHSO) will be present on site during the performance of field operations and will be responsible for health and safety activities and the delegation of duties to any other H&S staff in the field. The SHSO will be responsible for implementing the SHSP, assuring that appropriate personal protective equipment is used, verifying that communication systems are in place, monitoring conformance with safety and emergency procedures, giving daily safety briefings as appropriate, and maintaining safety equipment. The SHSO may participate in other site activities when this does not interfere with his/her primary responsibility as SHSO. The SHSO will also be responsible for the setup and execution of decontamination procedures. The SHSO has stop-work authorization which will be executed upon determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. The SHSO reports directly to the Project Health and Safety Manager.

3.4 HEALTH AND SAFETY TECHNICIAN

The Health and Safety Technician (HST) shall be an optional position to assist the SHSO as deemed necessary. The HST's primary responsibility is to conduct air monitoring, evaluate the air monitoring data, and to ensure that field operations are conducted safely. HST's will have documented proficiency in the use, calibration, and maintenance of instrumentation/equipment required to perform their duties. The number of HST's on-site will depend upon the number of field operations occurring simultaneously. HST's will also be responsible for ensuring that all

SHSP requirements are followed by site workers. HST's will also be responsible for the control of specific field safety operations and all related activities such as calibration of monitoring instruments, personnel field decontamination, monitoring of worker heat stress, distribution of safety equipment, and conformance with all other procedures established by the SHSO. HST's have stop work authorization in case of an imminent safety hazard or potentially dangerous situation; after stopping work, HST's will immediately consult with the SHSO.

3.5 PROJECT MANAGER

The off-site Project Manager (PM) oversees all aspects of the project, including health and safety and all on-site activities.

3.6 RECORDKEEPING RESPONSIBILITIES

It will be the duty of the SHSO to develop, maintain, and submit to the Resident Officer in Charge of Construction (ROICC) upon request the following:

- Verification of site-specific training
- Equipment maintenance and calibration logs
- Employee/visitor logs
- All monitoring results
- Verification of medical surveillance participation
- Field Change request

Copies of logs, safety meetings, equipment calibration and repair records (field), Field Change requests, sign-in and visitor logs etc. must be forwarded to the ROICC upon request. All visitors will be escorted by the SHSO or the HST.

4.0 HAZARD/RISK ASSESSMENT

The potential hazards associated with the tasks for the Old Plating Shop are both chemical and physical. The potential for encountering chemical hazards will depend on the characteristics of the individual site, the types of chemicals which were disposed of or stored at the site, and the type of operation performed at the site. The potential for encountering physical hazards, such as heat stress, noise, and other hazards due to motor vehicle operation, use of heavy equipment and power tools will be present depending on the type of work being performed. Overall hazard level for the planned site activities is low. Good general safety consciousness on the part of employees will promote an accident-free project.

4.1 CHEMICAL HAZARDS

Chemical exposure hazards are expected to be relatively low. The potential chemical hazards identified at the site are listed in Table 1 and are as follows: metals (arsenic, chromium, lead, silver, barium, cadmium, nickel, mercury), cyanide, sulfide, trichloroethylene (TCE) and asbestos containing material (ACM).

The above listed contaminants will potentially be present during all tasks with the exception of ACM, which will only be present during ACM removal operations. During coring and soil sampling, volatile organic compounds may be encountered. The presence for volatiles will be monitored during those operations.

A summary of potential contaminants' exposure standards and characteristics is presented in Table 2. These standards and characteristics will be used to establish the appropriate Action Levels, personal protective equipment, monitoring equipment and safety equipment needed to safely (at lowest risk possible) perform all actions related to the IRA.

TCE is a volatile organic compound, however volatiles are not considered to be a significant hazard, since the tanks are empty and the TCE would have volatilized. TCE vapor may cause irritation of throat, depresses the central nervous system, and is a potential carcinogen. TCE has a synergistic effect when combined with alcohol. Inhalation would be the primary route of exposure.

Cyanide is a rapidly acting poison. Deaths form acute exposure are due to chemical asphyxia at the cellular level. The potential for exposure to cyanide whether it be inhalation, absorption, ingestion or skin and eye contact is extremely low.

The asbestos subcontractor, Jensco, and Occupational Health Conservation, Inc. is responsible for removal of ACM and will address the tasks and hazards associated with ACM removal in their SHSP. Ebasco's SHSO or HST will do periodic visual inspections to insure that the contractor is conducting work in accordance with their SHSP. Also, anyone entering the area where ACM removal is being conducted will follow the contractor's SHSP and must wear the appropriate personal protective equipment. The subcontractor must submit their SHSP prior to beginning work to Ebasco for review and approval.

Table 2
Summary of Contaminants and Exposure Standards

COMPOUND	OSHA PEL (mg/m^3) TWA	OSHA PEL (mg/m^3) STEL	ACGIH TLV (mg/m^3) TWA	ACGIH TLV (mg/m^3) STEL	IDLH (mg/m^3)	ROUTES OF EXPOSURE	SYMPTOM OF EXPOSURE
Barium	0.5		.5		1100	Inhalation Ingestion Skin/Eye Contact	Upper respiratory irritation, gastroenteritis, muscle spasm, slow pulse, extrasystole, hypokalemia, eyes and skin irritant, skin burns
Cadmium	0.2		.01		50	Inhalation Ingestion	Pulmonary edema, dyspnea, cough, chest tight substernal pain, headache, chills, muscle aches, nausea, vomit, diarrhea, anosmia, emphysema, proteinuria, mild anemia, carcinogen
Lead	0.05		.15		100	Inhalation Ingestion Skin/Eye Contact	Lassitude, insomnia, constipation, abdominal pain, colic, anemia, tremors, wrist drop
Silver	0.01		.01			Inhalation Ingestion Contact	Blue-gray eyes, nasal septum, throat, skin, skin irritant, ulceration, gastrointestinal disturbance
Cyanide	5		5		50	Inhalation Ingestion Absorption Skin/Eye Contact	Asphyxia and death can occur; weakness, headache, confusion; nausea, vomiting; increased rate respiration; slow gasping respiration; irritates eyes, skin
Chromium	.5		.5			Inhalation Ingestion	Histologic fibrosis of lungs
Arsenic			.2			Inhalation Absorption Contact Ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal tract disturbances, peripheral neuropathy, respiratory irritation, hyperpig of skin, potential carcinogen
Mercury	.01	.03	.01		10	Inhalation Absorption Ingestion Skin/Eye Contact	Paralysis, ataxia, dysarthria, vision, hearing disturbances, spastic, jerky, dizziness, salivation, lacrimation, nausea, vomit, diarrhea, constipation, skin burn, emotional disturbance
Nickel	1		1			Inhalation Ingestion Skin/Eye Contact	Headache, vertigo, nausea, vomiting, epigastric pain, substernal pain, coughing, hyperpnea, cyanosis, weak, leukocytosis, pneumonitis, delirium, convulsions, potential carcinogen
TCE	50 ppm	200 ppm	50	200	1000 ppm	Inhalation Ingestion Skin/Eye Contact	Headache, vertigo, visual disturbances, tremors, somnia, nausea, vomiting, irritant eye, dermatitis, cardiac arrhythmias, paralysis, potential carcinogen

mg/m^3	micrograms per cubic meter	TLV	Threshold Limit Value
PEL	Permissible Exposure Limit	IDLH	Immediately Dangerous to Life or Health
ppm	parts per million		

The route of exposure to metals is via ingestion of dust or inhalation of dust or fumes. The effects range from eye to skin irritation, and from upper respiratory problems to the central nervous and reproductive systems. Metal poisoning is a cumulative action via ingestion; therefore, smoking, drinking or eating will be prohibited in work areas where dust is produced. The exposure via inhalation or ingestion is low to moderate at this site. The main source of lead exposure at this site is to lead based paint during torch cutting and sawing operations.

4.2 PHYSICAL HAZARDS

4.2.1 HEAT STRESS

Workers may be required to wear protective clothing which effectively isolates the body from evaporative cooling and which could result in adverse health effects if not correctly managed. High ambient temperatures can result in various symptoms including heat fatigue and physical discomfort, stemming from the increase of body temperature. The HST and SHSO will be alert for the signs and symptoms of heat stress and will inform the workers of safe work practices necessary for each operation. Table 3 identifies the signs and symptoms of heat stress.

In order to establish a proper work/rest regimen, the WBGT (wet bulb globe temperature), oral temperature and/or heart rate will be used in conjunction with the work load required to perform each task. Light work examples include sitting or standing or performing light hand or arm work. Moderate work includes walking about with moderate lifting and pushing or use of coated overalls and respirators. Heavy work corresponds to pick and shovel-type work or the use of full body protective clothing, it must be assumed that any activity involving this type of clothing will be considered heavy work.

The work/rest regimen selected using the WBGT procedure will be used as a guideline. Table 4 outlines the work/rest regime guidelines when workers are wearing impermeable protective clothing.

During hot weather, the Site Health and Safety Officer will be responsible for instructing site personnel to take frequent rest/water breaks. Ice and water will be available at all times. When the ambient temperature reaches 70° F, site personnel will be observed for symptoms of heat stress. If showing outward signs of heat stress such as fatigue, irritability, anxiety, and decreased concentration, and dexterity of movement, personnel will be transported to hospital. Large fans will be set up to ventilate and cool the area, as necessary.

4.2.2 EQUIPMENT SAFETY

Many of the hazards to be encountered during this project relate to the operation of motor vehicles, heavy equipment, and the use of hand tools. Good, common-sense safety practices and personal awareness will be necessary to reduce the possibilities for injuries. Additional information on construction equipment safety is provided in section 8.4.

Table 3
Signs and Symptoms of Heat Stress

- **Heat rash** may result from continuous exposure to heat or humid air.

- **Heat cramps** are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:

  - muscle spasms
  - pain in the hands, feet, and abdomen

- **Heat exhaustion** occurs from increased stress on various body organs including inadequate blood circulation due to cardio-vascular insufficiency and/or dehydration. Signs and symptoms include:

  - pale, cool, moist skin
  - heavy sweating
  - dizziness
  - nausea
  - fainting

- **Heat stroke** is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. **IMMEDIATE ACTION MUST BE TAKEN TO COOL THE BODY BEFORE SERIOUS INJURY AND DEATH OCCUR.** Competent medical help must be obtained. Signs and symptoms are:

  - red, hot, usually dry skin
  - lack of or reduced perspiration
  - nausea
  - dizziness and confusion
  - strong, rapid pulse
  - coma

Taken from: Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH/OSHA/USCG/EPA, October 1985.

Table 4
Permissible Heat Exposure Threshold Limit Values

Work/Rest Regimen	WORK LOAD		
	Light	Moderate	Heavy
Continuous Work	30.0 (86)	26.7 (80)	25.0 (77)
75% Work-25% Rest, each hour	30.6 (87)	28.0 (82)	25.9 (78)
50% Work-50% Rest, each hour	31.4 (89)	29.4 (85)	27.9 (82)
25% Work 75% Rest, each hour	32.2 (90)	31.1 (88)	30.0 (86)
As workload increases, the heat stress impact on an unacclimatized worker is exacerbated. For unacclimatized workers performing a level of work, the permissible heat exposure TLV should be reduced by approximately 2.5°C			

Reference: American Conference of Governmental Industrial Hygienists Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 1992-1993.

4.2.3 NOISE

Protection from worker exposure to on-site noise will comply with 29 CFR 1910.95, Occupational Noise Exposure. Protection will be provided when the sound levels exceed an eight-hour, time-weighted average of 85 A-weighted decibel scale dBA. The work areas will be evaluated using a sound level meter. High noise areas will be designated and hearing protection devices in the form of ear plugs or ear muffs will be worn by workers in the high noise areas. Hearing protection (ear plugs) is required new noise sources above 85 dBA.

5.0 TRAINING

5.1 BASIC HEALTH AND SAFETY TRAINING

Personnel (including subcontractor personnel) operating at the site must have completed the necessary training as required by 29 CFR 1910.120(e). Members of the field team will have completed 40 hours of off-site health and safety training plus 3 days of supervised field training and eight hours of refresher training, if appropriate. Personnel in a supervisory position will have completed 8 hours of supervisory training.

Training program content must include the following subjects:

- toxicology
- risk assessment and hazard control
- physical and chemical properties of hazardous materials
- medical surveillance
- hazard communication
- site health and safety planning
- site safety
- confined spaces
- heat stress and cold stress
- respiratory protection
- protective clothing
- decontamination
- monitoring instrumentation

5.2 SITE HEALTH AND SAFETY TRAINING

The SHSO will conduct a site-specific Health and Safety (H&S) briefing covering the major items found in this SHSP and other areas related to H&S at this site. All working personnel are required to participate in this training on the first day they report to the site. At this training session each person will sign and receive a copy of this SHSP.

Site-specific training will be provided for all employees, contractors and subcontractors who plan to enter the exclusion zone or contamination reduction zone at the site and who have met the requirements of 29 CFR 1910.120. Training will be conducted before job start-up and as needed. The SHSO will conduct initial site-specific training prior to job start-up to ensure that employees have a thorough understanding of the SHSP, standard operating procedures, and physical and chemical hazards of the site. This training will be conducted as necessary as new employees enter the exclusion zone or contamination reduction zone. However, the SHSO must be provided at least 24-hour notice of such requirements.

5.3 SAFETY BRIEFINGS

In accordance with 29 CFR 1910.120 (i)(2)(ii), pre-entry briefings will be held prior to initiating any site activity. All visitors will have necessary training and medical surveillance prior to visiting the site and all safety briefings of personnel should be documented and all who attend should sign the sign-in sheet. A safety briefing is a daily task even if the work does not change. Safety briefings will be given by the SHSO.

5.4 FIRST AID AND CPR

The Health and Safety Manager will identify those individuals having First Aid and CPR training. These courses will be consistent with the requirements of the American Red Cross. At least two people with First Aid and CPR training will be present during all site operations.

5.5 DOCUMENTATION

Documentation of training requirements is the responsibility of each employer. Written documentation verifying compliance with 29 CFR 1910.120 (e)(3), (e)(4) [as applicable] and (e)(8) must be submitted to the SHSO before entering the exclusion or reduction zones. Documentation of workers; current training credentials (40 Hour Training, 8 Hour Refreshers, 8 Hour Supervisory and medical, respirator clearance) will be kept on-site in the office trailer and submitted to the Resident Officer in charge of Construction on request. Subcontractors will provide the required copies of training certificates and clearances prior to beginning field work. No one will be allowed to work on site without the appropriate training and medical clearances.

5.6 HAZARD COMMUNICATION

In accordance with the OSHA regulation 29 CFR 1926.59 Hazard Communication Standard, copies of all material safety data sheets (MSDS) for regulated chemical materials used during site operations or found on-site will be kept in the support zone or by the SHSO and made available upon request. The MSDS training will be conducted by the SHSO in accordance with 29 CFR 1926.59 and contractors hazard communication program. Training will include, but not be limited to all hazards or potential hazards associated with the IRA and any regulated chemical materials on-site. Labeling of secondary containers will comply with 29 CFR 1926.59.

6.0 ZONES, PROTECTION, COMMUNICATIONS

6.1 SITE ZONATION

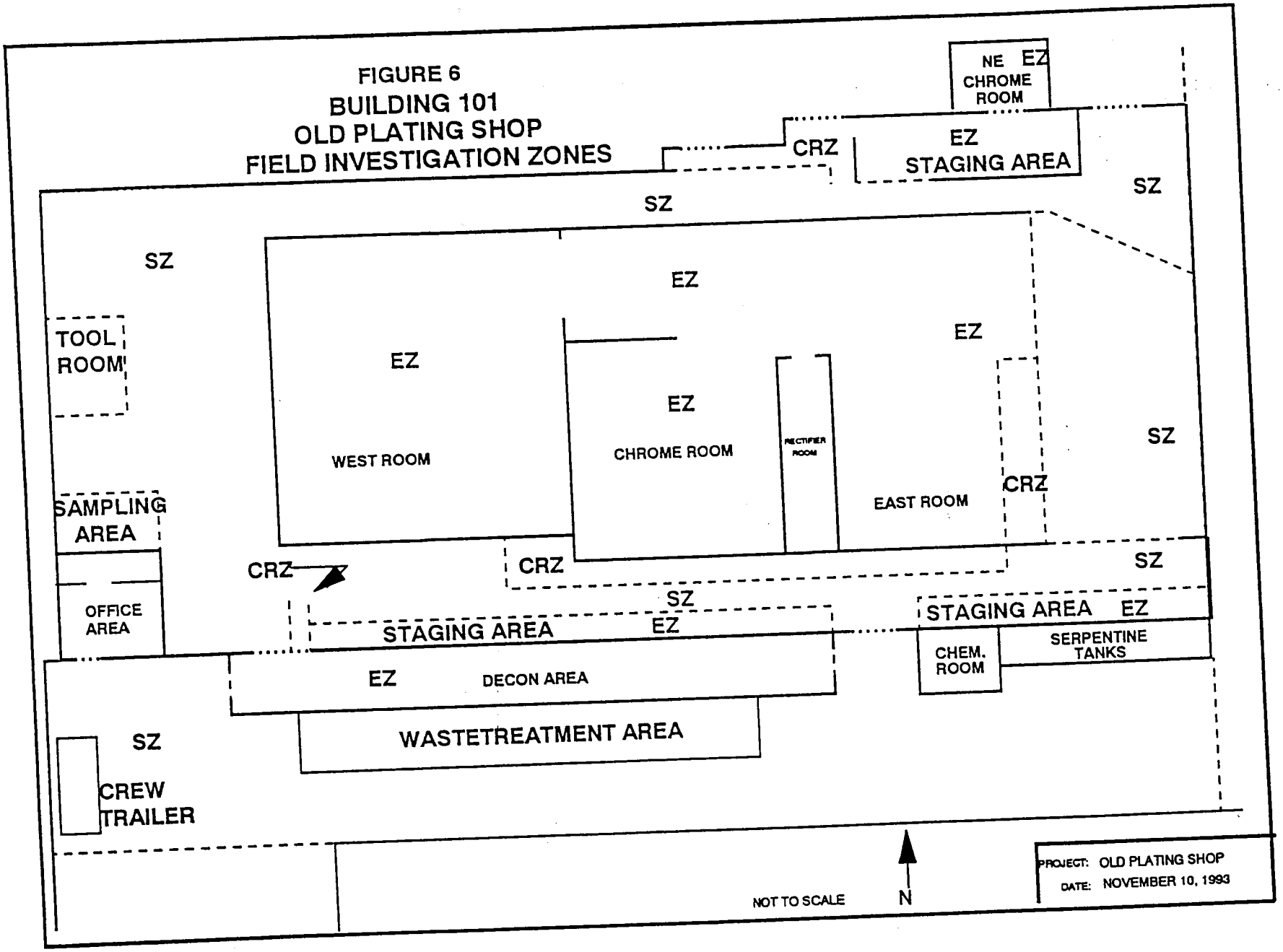
In areas where personnel will be conducting work involving contaminated material, a restricted area (the Exclusion Zone) will be clearly marked or identified by cones, tape, or other means. Other restricted areas may include storage areas, sources of combustible gases or air contaminants and other dangerous areas identified during the conduct of the investigation. No personnel are allowed in the Exclusion Zone without: a buddy; the proper personal protective equipment; medical authorization; and training certification.

The Contamination Reduction Zone (CRZ) will be established between the Support Zone and the Exclusion Zone and is to be utilized for personnel and equipment decontamination. The Exclusion Zone and the CRZ will be identified and isolated in such a way as to provide for full public safety and to preclude interference with operations by vehicles and pedestrians. The work area/zones will utilize existing barriers as well as ropes, barricades and other similar means to establish and isolate the work area.

The Support Zone is considered the uncontaminated area. The Support Zone will contain provisions for team communications and emergency response. Safety equipment to include emergency eyewash, fire extinguishers, first aid kit, air horn and other appropriate equipment will be located at the SZ and transported to work locales as necessary. The majority of site operations will be controlled from this location as well as site access of authorized persons. The support facility can be used as a potential evacuation point. No potentially contaminated personnel or materials are allowed in this zone except appropriately packaged/decontaminated and labeled samples and drummed wastes. See Figure 6 for general depiction of Field zones (will be modified as work progresses).

6.2 PERSONAL PROTECTION

The level of protection worn by field personnel will be defined and controlled by the on-site SHSO. Selection, use, and maintenance of personal protective equipment (PPE) will be in accordance with the Ebasco PPE Program and the Ebasco Respirator Protection Program which is included in Appendix A. Action Levels for respiratory protection are provided in Table 5. Site-specific procedures are not expected to deviate from these. Basic levels of protection for general operations are provided below and are defined in this Section; however these levels may change based on results of invasive site activities or new information. Documentation and approval of field changes will be performed on a "Field Change Request" form, Figure 7.



FILE: H&SFIG6.DRW

Table 5

Action Levels for Respiratory Protection

AIR MONITORING FOR ORGANIC VAPORS	
0 - <1 ppm above background	Level D
1 - 5 ppm above background	Level C/C Modified depending on nature of exposure
Greater Than 5 ppm above background	Shut down operation and ventilate area.
MONITORING FOR BENZENE (detector tubes)	
0 - < 1 ppm above background	Level D
1 - < 5 ppm above background	Level C
5 ppm above background	Shut down operations and ventilate area
DUST MONITORING (VISUAL)	
Background airborne dust	Level D
Visible dust generated and/or above background visual observation and judgement by the SHSO	Level C

The expected level of protection for airborne dust will be Level D. The SHSO may upgrade to Level C if operations produce visible dust and/or if operations are conducted in or near known areas of high contamination. Dust control measures will be employed to minimize above-background levels of airborne dust in the worker's breathing zone.

EBASCO SERVICES INCORPORATED

FIELD CHANGE REQUEST

SITE NAME _____ EBASCO CHARGE NO. _____ FIELD CHANGE NO. _____

TO _____ LOCATION _____ DATE _____

DESCRIPTION:

_____

_____

_____

REASON FOR CHANGE:

_____

_____

_____

RECOMMENDED DISPOSITION:

_____

_____

_____

_____

_____ DATE _____

FIELD OPERATIONS LEADER (SIGNATURE)

DISPOSITION:

_____

_____

_____

_____

_____ DATE _____

SITE MANAGER (SIGNATURE)

DISTRIBUTION:
PROGRAM MANAGER
HEALTH AND SAFETY MANAGER
PROJECT MANAGER
FIELD OPERATIONS LEADER
QUALITY ASSURANCE MANAGER

OTHERS AS REQUIRED: _____

EBASCO

FIELD CHANGE REQUEST FORM
NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 7

The following is a list of tasks and required PPE and respiratory protection required:

TASKS	INITIAL LEVEL OF PPE	INITIAL LEVEL OF RESPIRATORY PROTECTION
Site mobilization	D	D
Pre-dismantling activities	D	D
Asbestos abatement	Contractor SHSP	Contractor SHSP
Establish decontamination station	D	D
Tank system removal	D/C[1]	D/C[2]
Decontamination Procedures (contamination control)	C	D
Tank system disposal	D	D
Wastewater treatment and disposal	D	D
Waste storage tankers (contamination control)	D	D
Hydraulic lift removal	D/C[3]	D
Materials handling	D	D
Grouting underground lines	D	D
Decontamination and filling of the serpentine tanks	D/C[3]	D
Removal of ductwork	D	D/C[2]
Removal of ventilators	D	D/C[2]
Decontamination of walls	C	D
Removal of asbestos and transite	Contractor SHSP	Contractor SHSP
Northeast chrome room	D	D/C[2]
Sampling - soil and groundwater samples	D/C[3]	D

1 D/C indicates: for normal work, Level D PPE is required; work in the trenches will require Level C PPE.

2 D/C indicates: for normal removal operations, Level D respiratory is required; for removal operations involving torch cutting and or sawing material with lead based paint, Level C respiratory protection is required.

3 D/C indicates: for operations involving dry substances, Level D PPE is required; for operations where a potential splash hazard (hazardous substances) exists, Level C PPE is required.

6.3 PROTECTIVE EQUIPMENT

For Tasks Requiring Level C Protection:

- Full face air-purifying respirator (APR) equipped with combination cartridges for dust and organics
- 1/2 mask air-purifying respirator (APR) equipped with combination cartridges for dust and organics
- Chemical protective suit (PVC nylon coveralls)
- Cutting goggles for flame cutting
- Gloves, inner (vinyl surgical type)
- Gloves, outer (nitrile or neoprene*)
- Boots (chemical protective, steel toe and shank)
- Booties (if needed)
- Hearing protection (as applicable)
- Hard hat

For Tasks requiring Level D Protection:

- Work clothes (disposable tyvek coveralls, leather coveralls for flame cutting)
- Boots/shoes (safety)
- Safety glasses with side shields (as applicable)
- Faceshield (when potential for splash hazards)
- Hard hat
- Gloves (work gloves, or nitrile/neoprene* gloves depending on potential for contamination)
- Hearing protection (as applicable)

* Neoprene gloves will be used when using paint stripper

Level B work is not cleared for this site.

In selecting PPE for this site it is important to note that: (1) concentrations of the potential contaminants are expected to be extremely low as compared to "pure" or highly concentrated forms of the compounds; and (2) protective suits or gloves will have a limited exposure time to the contaminants, as personnel change these items approximately every two to three hours during field activities (or immediately if they become grossly contaminated); therefore, the potential for exposure to any contaminants would most likely be from contact with rinse water. For these reasons, it is very unlikely that contaminant penetration will occur as long as the protective material is reasonably impermeable to the contaminants. Therefore, consistent with protective clothing information from vendors and other sources, PVC nylon coveralls, Tyvek and nitrile/neoprene gloves should provide adequate barriers against dermal contact with the contaminants at this site.

It should be noted that this SHSP makes provisions for adjustment of protection levels. The type of equipment used and the overall level of protection should be reevaluated periodically as the amount of information about the site increases, and as workers are required to perform different tasks. The level of protection appropriate for the task and working conditions will be determined by the SHSO.

Protection levels may be upgraded or downgraded based on monitoring results or physical conditions (e.g., generation of dust) on-site. Changes in protection levels will be made in accordance with the following criteria:

Reasons to Upgrade:

- Known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas or vapor emission.
- Change in work task that will increase contact or potential contact with hazardous materials.
- Request of the individual performing the task.

Reasons to Downgrade:

- New information indicating that the situation is less hazardous than originally thought.
- Change in site conditions that decreases the hazard.
- Change in work task that will reduce contact with hazardous materials.

6.4 SAFETY EQUIPMENT

Basic emergency and first aid equipment will be available at a designated location in the SZ and at the location of the operation, as appropriate. It will include air horns, eye wash, first aid kit, fire extinguishers, and other safety-related equipment. The operating condition of emergency and first aid equipment will be checked periodically. Decontamination equipment and supplies will be located in the contamination reduction corridor.

6.5 COMMUNICATIONS

- Routine site communications will take place face-to-face and via two-way radios. Each team will be supplied with portable radios for communication with support facilities.
- Base Telephones - Base Telephones for emergency use will be available. The location of the nearest base phone will be given to all workers and posted prior to commencing work. Emergency numbers will be maintained by the SHSO, HST and posted in the Support Zone.
- Air horns - These will be maintained at the SZ for initiation of emergency evacuation procedures. Emergency evacuation will be communicated by 3 blows on airhorn or vehicle horn.
- Hand signals - These will be employed by downrange field teams along with utilizing the buddy system. These signals are also very important when working with heavy equipment. They shall be known by the entire field team before operations commence and covered during site-specific training.

Signal	Meaning
Grip partner's wrist or place both hands around waste	Leave area immediately, no debate!
Hands on top of head	Need assistance
Thumbs up	OK, I'm all right, I understand
Thumbs down	No, negative

7.0 MONITORING PROCEDURES FOR SITE OPERATIONS

7.1 MONITORING FOR ORGANIC VAPORS

Invasive operations include coring, and collection of soil samples during coring activities. Monitoring will be performed by the SHSO during the performance of invasive operations. A calibrated flame ionization detector (FID)(i.e. OVA 128) or photo ionization detector (PID)(i.e. HNu or Microtip) organic vapor analyzer will be utilized to monitor the bore holes and breathing zones during coring activities, to determine if any organic material may be present that would necessitate upgrading of protection level.

In addition, a combustible gas indicator (CGI) will be used to monitor the work zone and bore holes. If CGI measurements in the work zone area are equal to or greater than 10% of the Lower Explosive Limit (LEL), work can continue with caution using spark-proof tools and continuous monitoring; if the area measurements exceed 20% of the LEL all operations must cease, the area must be evacuated and permitted to ventilate; if inside bore hole measurements exceed 20% of the LEL, all operations must cease and the area must be evacuated and permitted to ventilate. The SHSO will periodically check the CGI readings for the area to determine if the work may proceed. The SHSO will monitor to determine when operations may resume.

Monitoring will also be performed by the SHSO or HST during the removal operations in trenches and during the removal of the hydraulic lift stand which will require workers to go into an area approximately 12 feet deep by 6 feet by 6 feet wide. A Combustible Gas Indicator (CGI) will be used to monitor the working area.

7.2 MONITORING FOR DUST

Based on the nature of the job, virtually no ambient air monitoring for dust will be employed. Initially visual observation will be employed. In the event of excessive airborne dust, as determined by visual observation by the SHSO, Level C respiratory protection will be required. Dust suppression techniques (wetting with water, oil, foams, chemicals, etc.) will be implemented. If necessary due to increased and persistent dust levels, monitoring using a Mini ram™ may be employed.

7.3 MONITORING FOR NOISE

Noise monitoring will be conducted to determine high noise areas. High noise areas (exceed 85 dBA) will be designated and hearing protection devices in the form of ear plugs or ear muffs will be worn by workers whenever they are in the high noise areas. Hearing protection will be required during coring operations and during use of heavy equipment.

7.4 PERSONAL MONITORING

Initially no personal monitoring will be conducted. If however, conditions indicate a need, personal monitoring will be implemented.

7.5 MEDICAL SURVEILLANCE PROCEDURES

Ebasco employees and subcontractors who perform field work at this site will be required to actively participate in a medical surveillance program as required by 29 CFR 1910.120. A release for work will be confirmed by the PHSM or designee before an employee can begin on-site activities.

Copies of the physician's statement certifying an individual medically fit to work on a hazardous waste site will be maintained for site personnel. The exam will be taken annually at a minimum. Additional medical testing may be required by the PHSM in consultation with the SHSO if an overt exposure occurs or if other site conditions warrant further medical surveillance.

8.0 ACCIDENT PREVENTION AND SAFETY CONSIDERATIONS FOR SITE OPERATIONS

8.1 GENERAL

Field work will be performed under the level of personal protection described in Section 6.2. This section describes safety-related procedures. The SHSO will insure that all aspects of accident prevention plan and site safety and health plan are followed.

8.2 HEAVY EQUIPMENT DECONTAMINATION

A high pressure washer or steam cleaner will be utilized to decontaminate the construction equipment at the decontamination facility. Personnel should exercise caution when using a steam cleaner. The high pressure steam can cause severe burns. Protective gloves, splash glasses, hard hats, steel-toed boots, and polycoated Tyvek suits or rain gear will be worn when using the cleaning equipment. All water from the decontamination process will be captured and containerized and then properly disposed.

8.3 CONFINED SPACE ENTRY

Confined Space Entry work may be implemented at this site due to the layout of the Old Plating Shop. The potential confined spaces include trenches containing piping associated with the tank systems and the hydraulic lift stand. Ebasco's guidelines and procedures for confined space entry are provided in Appendix B. Monitoring with a CGI will be conducted when in a confined space.

8.4 PRESSURIZED EQUIPMENT

Personnel should exercise caution when using pressure washers and pressure grouting equipment. The high pressure can cause severe lacerations and abrasions. Protective gloves, faceshields, hard hats, steel-toed boots, and PVC nylon coveralls will be worn when using the pressure washers. Protective gloves, faceshields, hard hats, and steel-toed boots will be worn when using pressure grouting equipment.

8.5 CORING OPERATIONS

The SHSO will be present on site during coring operations and will provide health and safety monitoring to ensure that appropriate levels of protection and safety procedures are utilized. The proximity of chemical, water, sewer, and electrical lines will be established prior to the commencement of any invasive activities.

8.6 TORCH CUTTING

Before cutting material coated with lead based paint, the paint must be removed via paint stripper. The paint must be stripped within 3 inches of cutting area in all directions. The area where stripper was

applied must be rinsed thoroughly with water and then dried prior to cutting with acetylene torch. Level C respiratory protection is required (1/2 mask air purifying) along with Level D PPE (cutting goggles, leather gloves, hard hat, leather coveralls, and steel-toed boots). Paint must be removed before cutting (neoprene gloves must be worn for stripping paint).

8.7 CONSTRUCTION

General Information

- Be your brother's keeper. Consider what you do in terms of the hazard it may create for others.
- Ask your supervisor if you do not know how or are in doubt as to the safe way of doing you job.
- No running at any time, except in extreme emergencies.
- Minimum requirements on construction sites and in shop are long pants, a shirt with the shoulders covered, and good work shoes. Torn ragged, or frayed items should not be worn because they can catch on obstructions or machine parts, or otherwise cause you to trip or fall.
- Know where emergency exits are, and how to get to them. Don't block them with material or equipment.

Housekeeping

- Clean work areas and storage areas encourage better accident prevention, and make the work easier to do.
- Dispose of trash and scrap in proper containers. This includes lunch papers, soft drink cans, banding straps, wood, rags, paper cups, etc.
- Keep tools, material, and equipment stored in an orderly manner, and in their proper places. This prevents unnecessary damage, and helps you to find them when you need them.
- Keep stored material, scrap, an other tripping hazards out of roads and walkways, off stairs. and away from emergency equipment. If it's in a walkway and it's not moving, it does not belong there.
- Cords, cables, and hoses crossing roads or walkways are to be covered to prevent tripping or damage, or are to be supported overhead-at least 7 feet above walkways, 14 feet above roads.
- Area sweeping requires the area to be secured off with tape and Level D PPE/Level C respiratory protection. Floor sweeping compound will be used.

Fire Prevention

- Control "open flame" tools and equipment
- Protect nearby combustible materials from heat, flames, sparks, and slag by moving or covering them.
- Keep flammables in closed containers. Use safety cans.
- Complete site specific fire training which includes: fire watch responsibilities, types of fire extinguishers, procedures for operating fire extinguisher, and fire watch schedules.

- Fire watch responsibilities: inspect area for fire hazards prior to beginning work, constantly observe hot work, thoroughly cool and spray down with water for a minimum of ten minutes after completion of work, inspect area for 30 minutes after completion of hot work. Must have fully charged fire extinguisher and pressurized water hose present.

Personal Protective Equipment

- Head
  - Hard hats area required at all times on construction sites. They are also required at other locations where overhead hazards exist. Bump hats are not permitted.
- Eyes and Face
  - Spectacle type safety glasses are required when hitting steel on steel, grinding, drilling, sawing, vibrating concrete, etc. or when working near someone else who is creating flying particles.
  - Burning goggles area required for gas welding and burning, Minimum density - #3
- Safety Belts
  - Required when working from any support or surface where possibility of falls exist, or where guardrails are not installed.
  - Required when working from suspended platforms if suspension consists of one or two cables.
  - Tie off to a solid support. Tie off as short as possible allowing no more than a 3½ foot fall.

Manual Hand Tools

- Every tool is designed for a specific use. Do not misuse. Inspect daily for defects.
- Keep tools in proper working condition-clean, sharp, oiled, dressed, and adjusted.
- Mushroomed chisels, drills, etc., cause dangerous flying objects. Keep them dressed.
- Never hit hardened steel with hardened steel, such as hitting a hatchet with a hammer.
- Don't use "cheaters" to increase capacity. Get a bigger sized tool.
- Carry tools in proper sheath, belt bag, or box. Points down!!
- Know how to shut it off before turning it on. No locked "on" switches on hand held power tools.
- Eye protection is required for protection from flying particles.
- Inspect for weak or loose parts before connecting to power supply.
- Power activated tools shall be inspected daily before use for proper operation of their safety devices. You must be authorized by your supervisor to operate this equipment.
- Power supply must be properly attached to tool, and to source. Electric tools must be grounded (or "double insulated").
- Check area for other people before starting tool. Warn people nearby.
- Be prepared for jamming of rotating tools. Have good footing, good balance, and watch out for nearby obstructions. Check yourself for loose clothing.
- Shut off and bleed down air hose before disconnecting air tools. Unplug electric cords.
- Store in safe place when not in use. Protect from weather, dirt, water.
- Tools must be GFCI (ground fault circuit interrupter) protected.

Material Hoists

- Not to be used for hoisting people.
- Secure material to prevent it from shifting.

Cranes (Mobile)

- Solid footing. Use outriggers with rubber tired cranes.
- Barricade area of swing of counterweight.
- Keep boom, lines, and loads at least 15 feet away from electric power lines. Minimum distance increases above 50,000 volts. Power lines must be de-energized to work closer than the minimum distance.
- The operator should avoid swinging loads over workmen's heads.
- Only one signalman at any one time.
- Equipment shall be inspected before each use and all deficiencies corrected before further use.

Cranes

- Know the crane capacity and the weight to be lifted before lifting.
- Be sure air space and walkway are clear before moving bridge or trolley.
- Visually inspect stings and hoisting equipment prior to each use.
- Maintain annual inspection reports of cranes at the site.

Forklifts

- You must be trained and have authorization by your supervisor before operating this equipment.
- Keep Forks spread as far apart as possible. Check stability of load before moving it.
- Look in direction of travel before moving and during moving. Watch out for overhead hazards!!
- Back down grades when carrying a load.
- No riders, unless a passenger seat is provided.
- Forks are not to be used as an elevator or as a work platform.
- Lower forks all the way down before leaving the equipment.

Mechanical Material Handling

- Know the weight of the load to be moved.
- Know the capacity of the equipment to be used to move the load.
- Use tag lines to control the load. Keep tag ling free of your body, and free of obstructions during movement of the load.

Manual Material Handling

- Leg muscles are stronger than back muscles. Lift with your legs not your back. Bend knees keep back straight.
- Plan before you lift - consider weight, size, shape, path of travel, and set down location. Get help if necessary.

- Protect your hands and fingers from rough edges, sharp corners, metal straps. Keep hands and fingers out of pinch points between the load and other objects.

Overhead Work

- No one is to be unprotected under overhead work.
- Erect barricades, signs, or other devices to warn people of the work overhead. Respect the barricades or signs put up by others.
- Covered walkways are needed where people must pass under overhead work.

Ladders

- General
  - Inspect for defects. (When defects are found the ladder is to be withdrawn immediately from use.) Set ladder feet on solid foundation.
  - Only one man is allowed on a ladder at one time.
  - Use ladders for climbing - not for material skids, walkways, or work benches.
  - Face the ladder while climbing up or down, and while working from it. Use safety belt when falls are possible.
  - Both hands are needed for climbing. Use a handline for material.
  - No metal ladders are to be used.
  - Store safely to prevent damage from vehicles, materials, etc.
  - Side rails and cleats or rungs of ladders must be kept clear and free of lines, hoses, cables, wires, oil, grease, and debris.
  - Never use ladders in a horizontal position, as a support for other materials, or as a platform.

- Straight and Extension Ladders
  - Correct slope of ladder is 1:4.
  - Secure ladder from slipping. Non-slip feet on bottom, and tie off with rope at top.
  - Extend ladder 3 feet above top landing when ladder is to be used for access to the landing.
  - Do not take extension ladders apart to get two ladders.
  - Keep hands off rungs while extending or lowering extension section. Be sure latches are in place before climbing.

- Stepladders
  - Open fully. Lock spreaders. Do not use as a straight ladder.
  - Do not stand or step on top platform.
  - Keep loose tools off steps and top platform.
  - Tie off stepladder if longer than 12 feet.

Scaffolds

- All scaffolds will be constructed in accordance with applicable OSHA regulations. All scaffolds will have a "Scaffold Safety" tag prior to use to indicate that the scaffold was built according to accepted standards and has been inspected by the foreman who erected the scaffold. Scaffolds

without a tag shall not be used until inspected and tagged.

- Safety belts will be used on scaffolds which do not have a complete hand rail installed.
- Any scaffold which has a "Danger Unsafe Scaffold" tag shall not be used,
- All scaffold tags described in this section are to be removed only by the foreman who attached the tag, his supervisor of the Safety Supervisor. When a tag is removed, it shall be destroyed so it will not be inadvertently attached to another scaffold.
- Lean-to scaffolds and makeshift platforms are prohibited.
- All scaffolds should be adequately designed to carry, without failure, four (4) times the maximum intended load. At no time shall any scaffold be overloaded.

Compressed Gas Cylinders

- Always keep cylinders upright. Using strong wire, rope, or chain, chain cylinders to a wall in the vertical position. Alternately, keep chained in cylinder buggy.
- Do not drop or roll the cylinders.
- Use a rack for lifting cylinders to and from upper elevations.
- Replace caps when gauges are removed.
- Store oxygen cylinders 20 feet away from other cylinders, or separate by a solid divider. Do not store any cylinders inside a building.
- Keep oil and grease away from oxygen valves.
- Cylinders are to be kept at a safe distance or shielded from welding and cutting operations. They are not to be placed where they can contact an electric circuit.
- Cylinders in storage shall be kept away from sources of heat and shall be protected against the direct rays of the sun.
- Any attempt to mix gases in a cylinder, refilling the cylinder, or using it for purposes other than intended by the supplier shall be prohibited.
- Empty cylinders shall have their valves closed and shall be marked EMPTY for identification.
- The use of hammers for opening cylinders is prohibited. If a valve can not be opened by hand, the supplier should be notified.
- Before a regulator is connected to a cylinder valve, the valve should be cracked (opened slightly and then closed) to clean the valve of any dust or dirt.

Hoses and Hose Connections

- Use only hose made especially for welding and cutting.

- Unnecessarily long lengths of hose should be avoided. Care should be taken that the hose does not become kinked or tangled, and that the hose is protected from being run over by trucks, stepped on, or otherwise damaged.

- All hose should be frequently inspected for leaks, worn places, and loose connections. Discard any length of hose which a flashback has occurred and burned in. A flashback burns the inner walls and renders the hose unsafe for use.

Welding and Burning

- General
  - All welding or burning will be done in accordance with applicable OSHA regulations. Workers engaged in welding or cutting must wear a welding helmet or safety goggles, equipped with suitable filter lenses.
  - No welding or burning shall be performed on any staged material suspended by means of fiber or synthetic rope.
  - A fire watch equipped with a proper fire extinguisher and water supply hose shall be assigned to all welding and burning operations. A proper fire extinguisher should be placed near all hot work locations.
  - Either general, mechanical, or local exhaust ventilation shall be provided whenever welding or burning is performed in a confined space.
  - All employees performing welding or burning operations on painted surfaces shall wear a respirator equipped with cartridges designed to protect against metal fumes.

- Electric
  - Keep leads out of walkways.
  - Shield arcs to protect others from direct arc rays.
  - Remove rod from electrode holder before laying it down. Put rod butts in a container, not on the floor.
  - Proper grounding from work to machine is a must.
  - Turn off machine at end of shift.

- Gas
  - Keep hoses out of walkways.
  - Check area-sides and below- for possible fire hazards.
  - Remove gauges at end of shift and replace cap on cylinder. Tool boxes used to store hose and gauges are to be ventilated.
  - Use soapy water when checking for leaks.
  - Before using fuel gas cylinders -
    * Always crack cylinder valve before connecting gauges to clean dirt.
    * Open cylinder valve slowly and leave wrench in position while cylinder is in use.
    * A regulator shall always be used on fuel gas cylinders.
    * The cylinder valve shall always be closed before removing regulation.
    * When fuel gas cylinders connected to gauges have a leak it will be repaired or removed from service and tray away from the work area.

Electrical and Lighting

- Adequate lighting shall be provided throughout the building and in all active work areas to avoid hazards due to lack of light.
- All temporary and permanent electrical work, installation, and wire capacities shall conform to the National Electrical Code and other applicable Federal, state, and local codes.
- Only qualified electricians familiar with code requirements shall be allowed to perform electrical work.
- No "hot work" is allowed without authorization from your supervisor.
- No employees shall be permitted to work close enough to an unprotected electrical power circuit

so that he may contact the unprotected electrical power circuit in the course of his work unless the employee is protected against electrical shock by de-energizing, grounding, or guarding the circuit by effective insulation of other means.

- Temporary lighting circuits require guards over the bulbs. Metal guards must be grounded.
- Ground wire in circuit is for your protection. Do not bypass or damage it.
- Keep extension cords out of water, and mud, and 7 feet above walkways.
- Disconnect switches must be labeled to show the equipment or service they feed. Check before operating. Operate disconnect switch with your left hand and turn your face to the right.
- Always shut down electrical equipments before servicing, repairing, or investigating questionable function. Follow the Danger Tag warning.
- In areas where flammable liquids, vapors, fumes, dusts, or gases are present, approved explosion-proof electrical lighting shall be used.

8.8 DEMOLITION

Preparations

- All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building before demolition work is started. All other operations which may be effected by the building demolition shall be notified in advance.
- Prior to permitting employees to start demolition operations, an engineering survey should be made, by a competent person, of the structure to determine the condition of the framing and walls; the presence of asbestos or other harmful substances; and the possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be effected shall also be similarly checked. Appropriate control measures shall be established to prevent injury or exposure to harmful substances.
- Where a hazard exists to employees falling through walls or roof openings, the opening shall be protected and/or roped off to a height of approximately 42 inches.
- Unauthorized entry into the wrecking area shall be prohibited at all times.
- Only those stairways, passageways, and ladders designed as means of access to the structure of buildings, shall be used. Other access ways shall be entirely closed off at all times.
- Warning signs and barricades shall be installed around the hazardous waste areas.
- No wall section, which is more than one story in height, shall be permitted to stand alone without lateral bracing unless the wall was originally designed and constructed to stand without such lateral support, and is in a condition safe enough to be self-supporting. All walls shall be left in a stable condition at the end of each shift.
- Walls, which serve as retaining walls to support adjoining structures, shall not be demolished until the adjoining structures have been properly underpinned.
- Walls, which are to serve as retaining walls against which debris will be piled, shall not be so used unless capable of safely supporting the imposed load.
- Mechanical equipment shall not be used on working surfaces unless such a surface is of sufficient strength to support the imposed load.

Mechanical and Steel

- Steel construction shall be dismantled column length by column length, and tier by tier.
- Any structural member being dismembered shall not be overstressed.
- Steel members should be lowered from the structure and never allowed to drop. Tag lines

shall be used to control material being lowered.

- Safe access shall be provided for workers.
- The area surrounding the structure should be barricaded a minimum distance from the wall of 1 1/2 times the height of the wall.
- No workers shall be permitted in any area, which can be adversely affected by demolition operations, when clamming is being performed.
- The crane boom and loadline shall be as short as possible.
- When pulling over walls or portions thereof with a clamshell bucket, or by attachment of a rope, all steel members affected shall have been previously cut free.

8.9 TRENCHING AND EXCAVATION

All trenching and excavation will be done in accordance with OSHA regulations. Prior to opening an excavation or trench, an effort shall be made to determine whether underground installation (sewer, water, fuel, electric lines, etc.) will be encountered and if so, where such underground installations are located. Navy personal shall be contacted and advised of proposed work prior to the start of actual excavation or trench. When the excavation or trench approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation.

Necessary barricades, posting and lighting shall be provided for the protection of the public and employees at the trench or excavation. In locations where oxygen deficiency or toxic gaseous conditions are possible, air in the excavation or trench shall be tested. In excavations and trenches in which employees may be required to enter, excavated or other material shall be effectively stored and retained at least 2 feet or more from the edge of the excavation.

When personnel are required to work in trenches or excavated areas, all slopes should be excavated in accordance with OSHA regulations. The determination of the angle or repose and design of the supporting system shall be based on careful evaluation of pertinent factors such as: depth of cut; possible variation in water, content of the material while the excavation is open; anticipated changes in materials from exposure to air, sun, water, or loading imposed by structures, equipment, overlying material, or stored material and vibration from equipment, traffic or other sources.

Daily inspections of excavations and trenches shall be made by a competent person. If evidence of possible cave-ins or slides is apparent, all work in the excavation or trench shall cease until the necessary precautions have been taken to safeguard the employees.

9.0 DECONTAMINATION PROCEDURES

9.1 CONTAMINATION PREVENTION

One of the most important aspects of decontamination is the prevention of contamination. Good contamination prevention should minimize worker exposure. Procedures for contamination avoidance include:

Personnel

- do not walk through areas of obvious or known contamination;
- do not handle or touch contaminated materials directly;
- make sure all personal protective equipment has no cuts or tears prior to donning;
- fasten all closures on suits, covering with tape, if necessary;
- particular care should be taken to protect any skin injuries;
- do not carry cigarettes, gum, etc. into contaminated areas.

Heavy Equipment

- take care to limit the amount of contamination that comes in contact with heavy equipment;
- if contaminated tools are to be placed on non-contaminated equipment for transport to the decontamination pad, use plastic to keep the equipment clean.

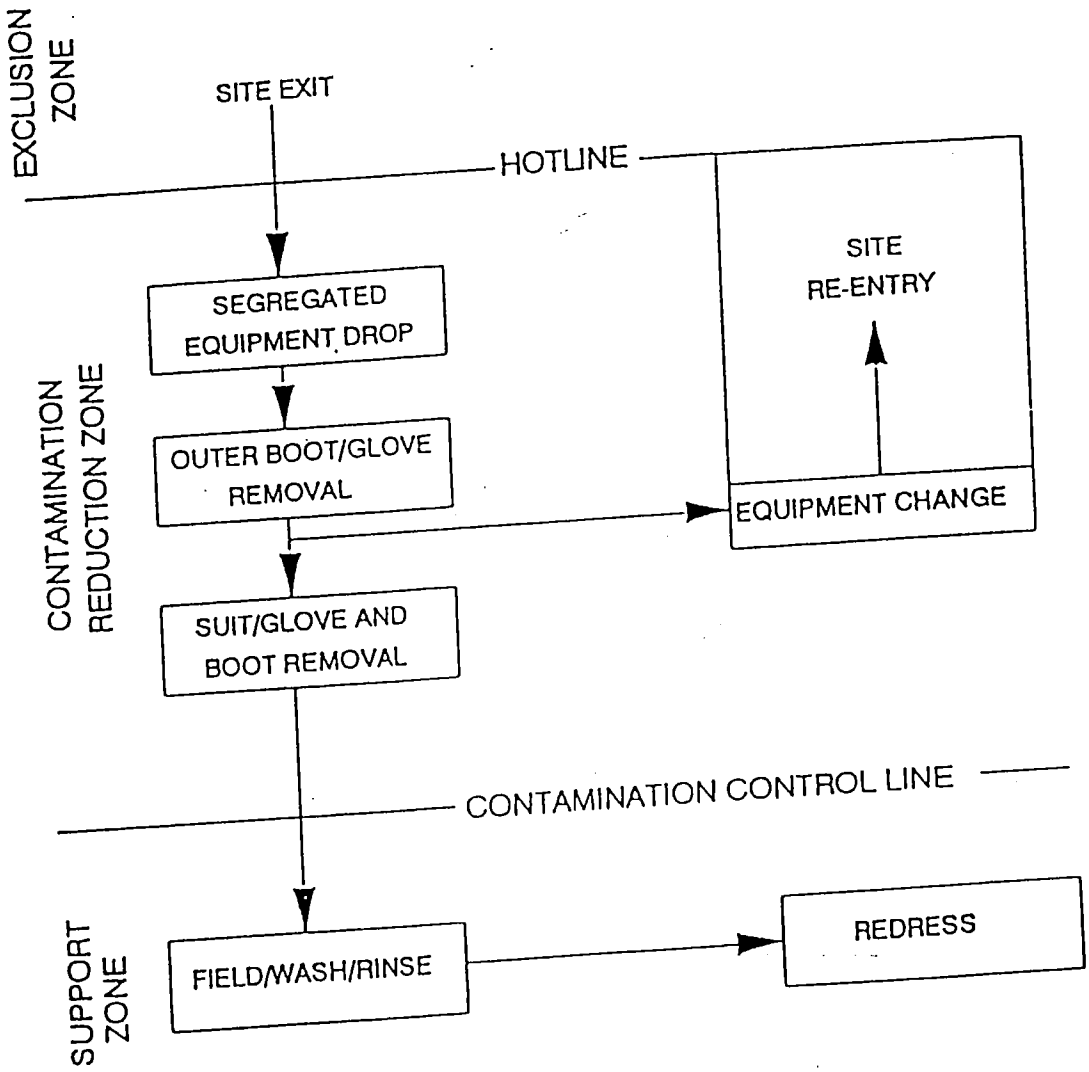
9.2 DECONTAMINATION

Personnel and equipment exiting the Exclusion Zone shall be thoroughly decontaminated. Discarded protective clothing will be disposed of in plastic bags. Figure 8 illustrates typical decontamination procedures for Level D (summarized in Table 6). Figure 9 illustrates typical decontamination procedures for Level C (summarized in Table 7). Specific decontamination procedures will be utilized as appropriate, depending on the level of operation performed by the individual. Safety briefings shall explain these decontamination procedures for personnel and portable equipment for the various protection levels indicated in Section 6.0.

All components (tanks, platforms, gratings, piping, exhaust hoods and ducting, etc.) will be decontaminated prior to final disposition (disposal or recycling). Roof-mounted air handling units will be removed, decontaminated,and scrapped or recycled. The following paragraph outlines the establishment of this decontamination process.

9.3 DECONTAMINATION STATION

The main decontamination area is set up in contamination reduction Zone A which is located on the south side of building 101W (Figure 6). This area is currently under cover with open sides. These open ends will be enclosed to prevent rinse water and possible contaminants from inadvertently escaping. An existing sump, centrally located in the area, will be used for collecting fluids/solids. although this sump is part of the station's industrial drain system, all exits, paths (i.e., piping) from the sump will be sealed.



EBASCO

LEVEL D DECONTAMINATION

NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 8

Table 6

Level D Decontamination Procedures (Summarized)

ACTIVITY	PROCEDURES	ITEMS SUGGESTED
1. Equipment drop	Drop equipment (hard hats, tools, samples, etc.) on plastic labeled, "EQUIP." Decon Tech will decon equipment	1. Plastic sheet (10' X 10') labeled, "EQUIP"
2. Glove and boot wash/rinse*	Enter "HOT" side of decon zone. Wash/rinse gloves and boots by spraying with detergent solution and rinse solution while standing in appropriate tubs. Scrub as needed.	1. Plastic sheet (15' x 30') divided in half and labeled "HOT" and "CLEAN". 2. Wash tubs (2) 3. Pump sprayer (2) 4. Detergent 5. Scrub brush 6. Duct tape
3. Chemical protective clothing drop (if worn)	Remove gloved and suite with in-side-out method. Drop into "CONTAMINATED" trash can. Take off rubber boots and step off directly onto the "CLEAN" side. No contaminated items are allowed in the "CLEAN" side at any time.	
4. Personnel/wash	Wash/rinse face and hands in wash basin. Use hand cleaner, if preferred.	1. Wash basin 2. Paper towels 3. Portable shower 4. Soap 5. Hand cleaner
5. Redress	Change into street clothes.	
6. Equipment pick-up	Equipment decontned by Decon Tech may be picked up.	

* This step may be omitted if disposable outer garments are worn.
Proceed directly to step 3

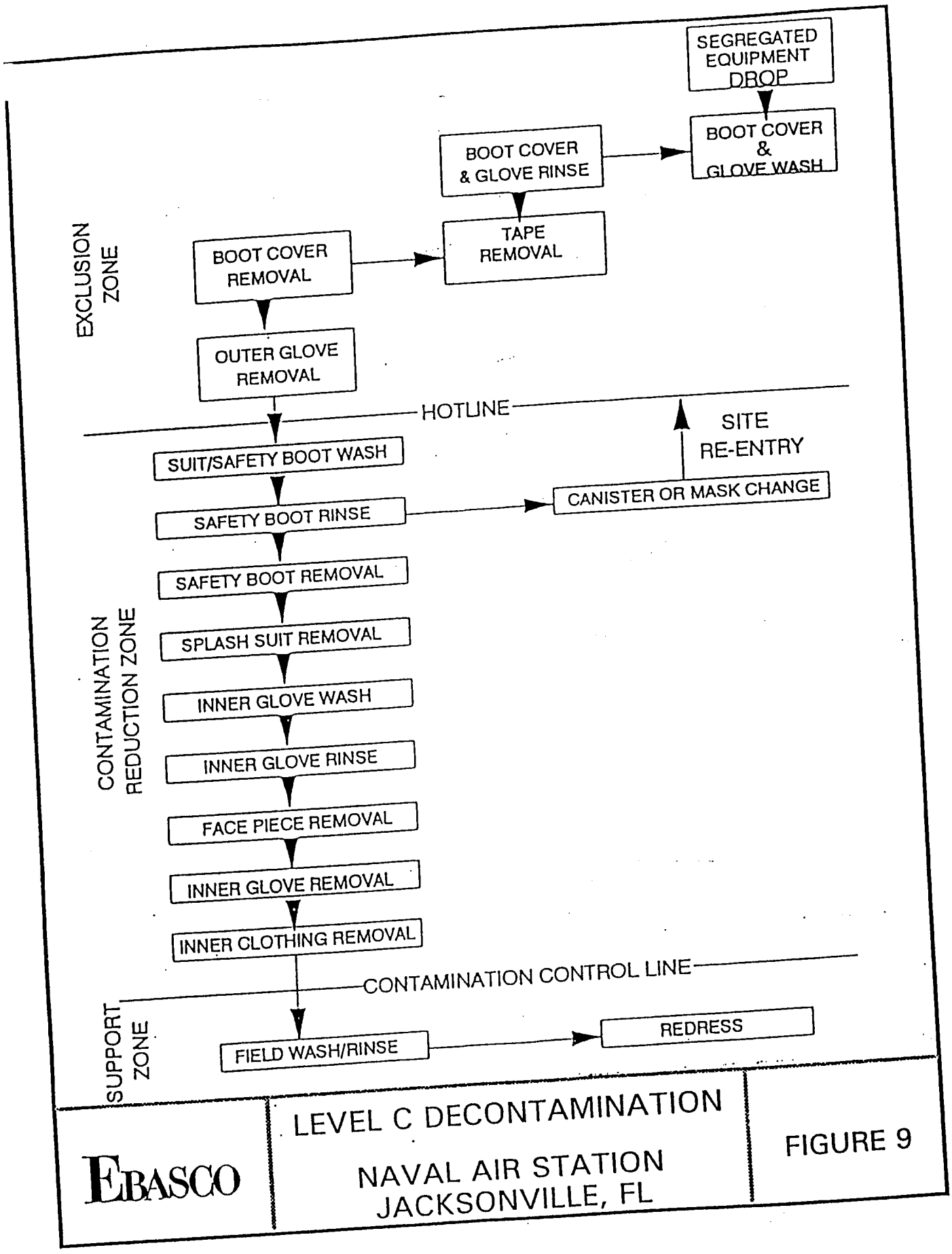

SEGREGATED EQUIPMENT DROP
BOOT COVER & GLOVE WASH
BOOT COVER & GLOVE RINSE
TAPE REMOVAL
EXCLUSION ZONE
BOOT COVER REMOVAL
OUTER GLOVE REMOVAL
HOTLINE
SITE RE-ENTRY
SUIT/SAFETY BOOT WASH
SAFETY BOOT RINSE
CANISTER OR MASK CHANGE
SAFETY BOOT REMOVAL
CONTAMINATION REDUCTION ZONE
SPLASH SUIT REMOVAL
INNER GLOVE WASH
INNER GLOVE RINSE
FACE PIECE REMOVAL
INNER GLOVE REMOVAL
INNER CLOTHING REMOVAL
CONTAMINATION CONTROL LINE
SUPPORT ZONE
FIELD WASH/RINSE
REDRESS
EBASCO
LEVEL C DECONTAMINATION
NAVAL AIR STATION
JACKSONVILLE, FL
FIGURE 9

Table 7

Level C Decontamination Procedures (Summarized)

ACTIVITY	PROCEDURES	ITEMS SUGGESTED
1. Equipment drop	Drop equipment (hard hats, tools, samples, etc.) on plastic labeled, "EQUIP." Decon Tech will decon equipment	1. Plastic sheet (10' X 10') labeled, "EQUIP"
2. Glove and boot wash/rinse*	Enter "HOT" side of decon zone. Wash/rinse gloves and boots by spraying with detergent solution and rinse solution while standing in appropriate tubs. Scrub as needed.	1. Plastic sheet (15' x 30') divided in half and labeled "HOT" and "CLEAN". 2. Wash tubs (2) 3. Pump sprayer (2) 4. Detergent 5. Scrub brush 6. Duct tape
3. Chemical protective clothing drop (if worn)	Remove gloved and suite with in-side-out method. Drop into "CONTAMINATED" trash can. Take off rubber boots and step off directly onto the "CLEAN" side. No contaminated items are allowed in the "CLEAN" side at any time.	
4. Respirator removal and decontamination	Hand respirator to Decon Tech for decon.	
5. Personnel/wash	Wash/rinse face and hands in wash basin. Use hand cleaner, if preferred.	1. Wash basin 2. Paper towels 3. Portable shower 4. Soap 5. Hand cleaner
6. Redress	Change into street clothes.	
7. Equipment pick-up	Equipment deconned by Decon Tech may be picked up.	

* This step may be omitted if disposable outer garments are worn. Proceed directly to step 3

Materials to be decontaminated will flow through the decontamination station in one direction (i.e. west to east). Once rinsing is complete, all components will be placed in a contamination-controlled storage area pending laboratory analysis of wipe samples taken from each component. Those items meeting cleanup requirements will be delivered to station salvage or recycling operations. Those components not meeting cleanup requirements will either be redecontaminated or evaluated for other disposition (e.g. disposal as hazardous waste). The decontamination process will consist of high-pressure triple rinsing with either water or steam. Overhead cranes may be used to move the various components through the decontamination process.

Decontamination fluids will be collected in a floor sump. These fluids will then be pumped to a temporary holding tank, from which they will be fed to a mobile wastewater treatment unit.

10.0 GENERAL SITE SAFETY PROCEDURES

Hazards due to normal site activities can be reduced by using common sense and following safe practices. Running and horseplay are expressly forbidden. Disciplinary action may be taken against any employee not complying with provisions of the SHSP.

10.1 ADDITIONAL WORK PRACTICES

Personnel must keep the following prudent guidelines in mind when conducting field activities: Refer to SHSO for specific concerns for each individual site task. Do not climb over/under drums, or other obstacles. Always employ the buddy system. Practice contamination avoidance, on and off-site. Plan activities ahead of time. Use caution in regard to pedestrian and vehicular traffic from surrounding locations. Apply immediate first aid to any cuts, scratches, abrasions, etc. Be alert to your own physical condition. Watch your buddy for signs of fatigue, exposure, etc. A work/rest regime will be initiated when ambient temperatures and protective clothing create a potential heat stress situation. No work will be conducted without adequate light or without appropriate supervision. Task safety briefings will be held prior to onset of task work. Know your Health and Safety Plan.

Practices forbidden on-site include:

1) entering or performing any activity at the site without express permission of and supervision by the Site Health and Safety Officer;
2) smoking, eating, drinking, chewing gum or tobacco; applying cosmetics; storing utensils, food or food containers; or urinating while on site (break areas will be provided for these activities);
3) entering restricted portions of the site without a baseline medical examination, proper safety training, a buddy and appropriate PPE;
4) approaching or entering an area where toxic or explosive concentrations of gases or dusts may exist without proper equipment available to enable safe entry and exit and without appropriate support personnel;
5) igniting flammable liquids, using improvised heating devices (barrels, etc.), space heaters, or open fires;
6) utilization of respiratory protective devices by employees without proper training and fit testing or with facial hair such that a proper seal is not formed; and
7) leaving the work site prior to the completion of appropriate decontamination procedures (except in cases of extreme and/or immediate danger to life, i.e., explosion, fire, gas release, etc.).
8) Alcoholic beverage intake will be prohibited during project operations. Ebasco has a drug-free work place policy. Personnel under the influence of alcohol or recreational or illegal drugs will not be allowed on site, and will face disciplinary action.

Proper hygiene practices will be observed.

11.0 DISPOSAL PROCEDURES

All waste disposal activities will be performed in accordance with the station's standard waste handling procedures and IRP ARARs. Some of the these requirements are the proper identification, handling, packaging, and labeling of wastes generated on the station.

11.1 SOLID NON-HAZARDOUS WASTE

Wastes that fall into this category include lumber, refuse, debris, and other non-contaminated wastes that can be disposed as non-hazardous. Sampling and analysis may be used to verify wastes as non-hazardous. These wastes will be appropriately disposed.

11.2 SOLID HAZARDOUS WASTES

Solid waste that is determined to be hazardous either by sample analysis or previous identification, will be handled in accordance with the station's hazardous waste procedures. These wastes will be properly packaged, labeled, and manifested in accordance with the station's hazardous waste program, which will include off-site transportation and disposal or treatment as required by the station's RCRA permit. Typical wastes included under this program are tanks for which decontamination is not feasible, PCB-containing light ballasts, solids and sludges from tanks, sumps, and trenches, contaminated items that cannot be decontaminated, and discarded personnel protection equipment (PPE) items.

11.3 LIQUID NON-HAZARDOUS WASTE

All non-treated liquids and non-hazardous waste liquids resulting from this IRA, will be processed by the station's domestic wastewater treatment plant.

11.4 LIQUID HAZARDOUS WASTES

All hazardous liquids will be either processed by the mobile wastewater treatment plant and appropriately disposed of or will be packaged in appropriate containers for disposal in accordance with the station's procedures and RCRA permit. In similar fashion to that required for solid hazardous waste, the liquids will be sampled, packaged,labeled, and manifested as appropriated for the ultimate disposition of the material.

12.0 EMERGENCY PLAN

As a result of the hazards on site and the conditions under which operations are conducted, the possibility of an emergency situation developing exists. An emergency plan is required by OSHA (29 CFR 1910.120) to be available for use and is included below. A copy of this plan shall be posted in the Support Zone.

Careful consideration has been given to the relative possibility of fire, explosion, or release of vapors, dusts, or gases which may impinge on nearby facilities. The most likely off-site impact from this investigation involves the potential for increased airborne particulates as a result of ACM removal activities. Dust control measures will be employed as necessary to preclude any possibility of off-site dust migration.

12.1 SITE EMERGENCY COORDINATOR

The SHSO will act as Site Emergency Coordinator (EC) and as such, shall implement this emergency plan whenever conditions at the site warrant such action. The coordinator will be responsible for assuring the evacuation, emergency treatment, emergency transport of site personnel as necessary, and notification of emergency response units and the appropriate management staff. Prior to site activities, the EC will notify the local fire, police and rescue authorities identified in Section 1.0 to alert them of potential emergency situations that may arise due to site activity.

12.2 EVACUATION

In the event of an emergency situation, such as fire, explosion, significant release of particulates, etc., an air horn will be sounded by the SHSO or HST for three 5-second intervals indicating the initiation of evacuation procedures. All personnel in both the restricted and nonrestricted areas will evacuate and assemble near the Support Zone or other safe area as identified by the Site Emergency Coordinator. The Site Emergency Coordinator will have authority to initiate proper action if outside services are required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The SHSO must see that access for emergency equipment is provided and that all combustion apparatus has been shut down once the alarm has been sounded. Once the safety of all personnel is established, the Fire Department and other emergency response groups will be notified by telephone of the emergency. If applicable, an emergency involving chemical contamination requires that the emergency response groups as well as the hospital be notified. Then, other personnel listed in Section 12.6 shall be notified.

12.3 IN THE EVENT OF OVERT PERSONNEL EXPOSURE (skin contact, inhalation, ingestion):

SKIN CONTACT: Wash/rinse affected area thoroughly with copious amounts of soap and water, then provide appropriate medical attention if required. Eyewash will be provided on site at the Support Zone. Eyes should be rinsed for at least 15 minutes following chemical contamination.

12.3 IN THE EVENT OF OVERT PERSONNEL EXPOSURE (continued)

INHALATION: Move to fresh air and if necessary decontaminate/transport to hospital. SHSO will provide medical data sheets to appropriate medical personnel as requested.

INGESTION: Decontaminate/transport to hospital. SHSO will provide medical data sheets to appropriate medical personnel as requested.

PUNCTURE WOUND OR LACERATION: Decontaminate/transport to hospital for professional medical attention. SHSO will provide medical data sheets to appropriate medical personnel as requested.

12.4 IN EVENT OF PERSONNEL INJURY

Apply emergency first aid as necessary. Decontaminate and transport the individual to nearest medical facility if needed. In life-threatening situations, decontaminate only to the extent necessary to protect those providing aid. For major medical emergencies, medical personnel will be called to transport individuals to the medical facilities. The SHSO will supply medical data sheets to appropriate medical personnel as requested and complete all accident reports and give to PHSM.

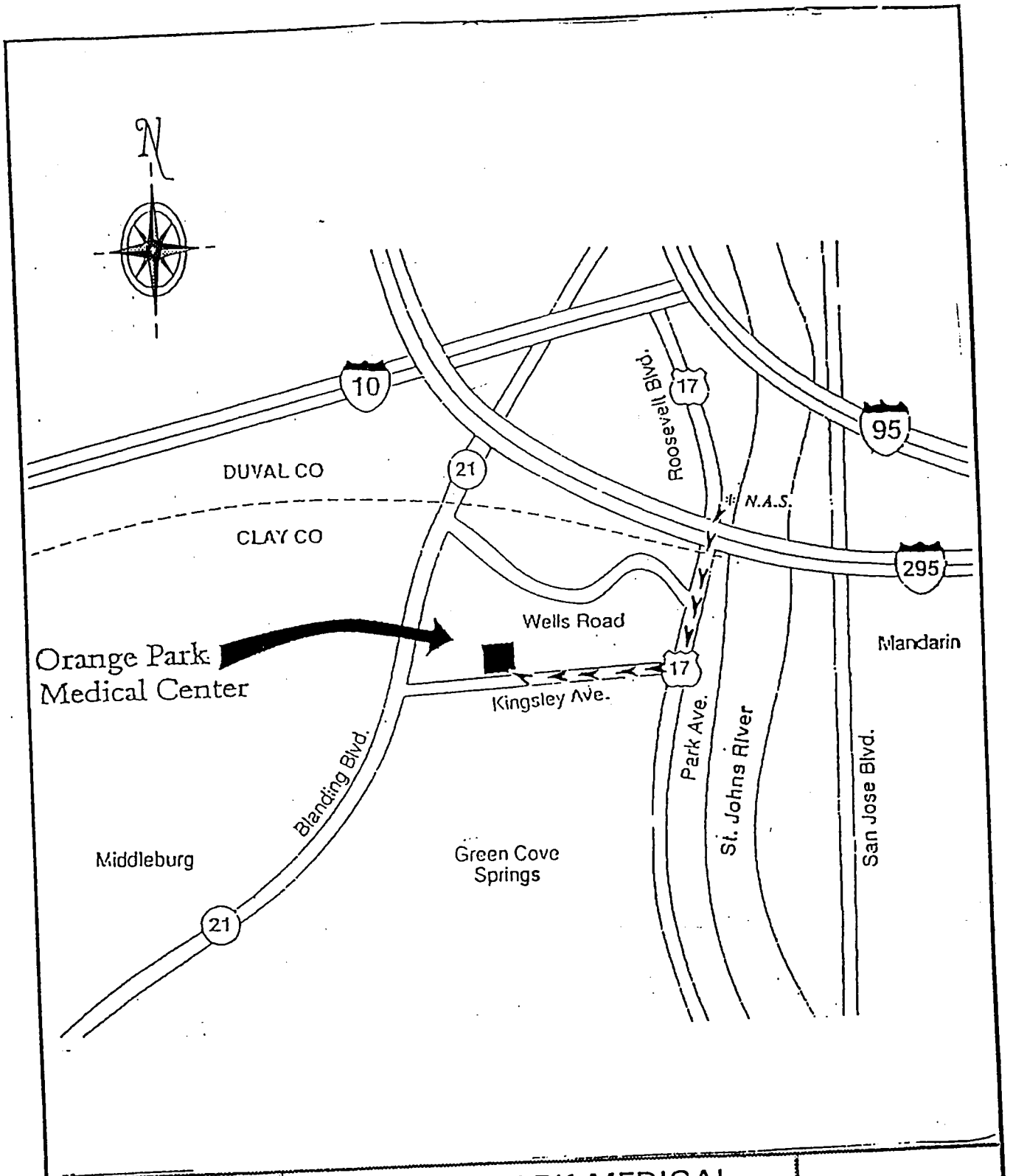
The base hospital will only be used for emergencies. The Orange Park Medical Center will be used for medical services and will be notified of the nature of operations prior to beginning work. If the SHSO determines that emergency transport is not necessary, he may transport the patient by car to the hospital. The SHSO and HST will drive the route to the hospital before field activities are begun. The route to the Base Hospital is shown in Figure 10 and the route to the Orange Park Medical Center is shown in Figure 11.

Directions to Orange Park Medical Center: Exit NAS through the main gate and head south on US Hwy 17 to Kingsley Ave. Turn right (east) onto Kingsley Ave., Orange Park Medical Center is located on the right side of the road approximately 3 to 3 1/2 miles.

Directions to Base Hospital: Exit site via gate located on Enterprise Ave. and turn left. One block down turn right onto Wasp St. and continue one block and turn left onto Saratoga Ave. Continue on Saratoga Ave. for approximately one mile and turn left onto Child St. Hospital is approximately one mile down the road and the right side.

12.5 IN EVENT OF POTENTIAL OR ACTUAL FIRE OR EXPLOSION

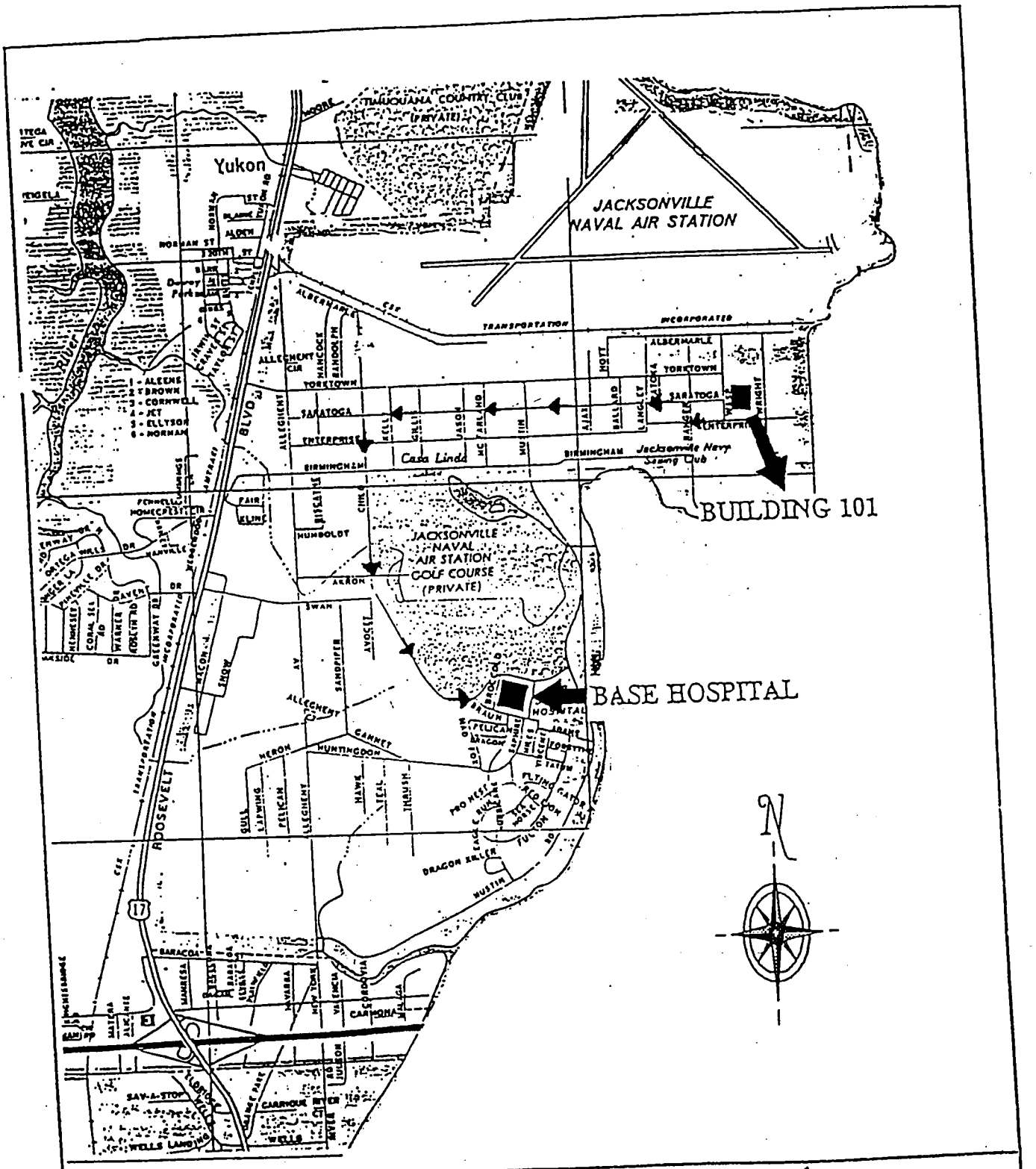
Personnel shall immediately evacuate the site, then sound an air horn for three 5-second intervals. The fire and police departments and other appropriate response groups shall be notified. Portable fire extinguishers will be used to suppress the fire. In the observance of smoke, the area will be thoroughly investigated for potential fire.



EBASCO

ORANGE PARK MEDICAL CENTER ROUTE
NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 10



EBASCO

BASE HOSPITAL ROUTE

NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 11

12.6 IN EVENT OF ENVIRONMENTAL INCIDENT (spread of contamination outside work site):

Secure spread of contamination if possible. Notify local police and fire departments to inform them of the possible need for nearby evacuation. If a significant release has occurred, the National Response Center should be contacted. Those groups will alert National or Regional Response Teams as necessary. Following these emergency calls, the remaining personnel listed below shall be notified.

JOB TITLE	NAME	PHONE NUMBER
Site Superintendent	J.C. O'Connell	(904)573-9948
SHSO	James Morning	(904) 573-9948
PHSM	Andrew Strickland	(303)980-3610
Resident Officer in Charge of Construction	Larry Blackburn Mike Wadel	(904)772-5571 (904)772-5571

12.7 IN EVENT OF ADVERSE WEATHER CONDITIONS

In the event of adverse weather conditions, the SHSO will determine if work can continue without sacrificing the health and safety of all field workers. Some of the items to be considered by the SHSO prior to determining if work should continue are:

- Heavy rainfall
- Potential for heat stress
- Treacherous weather-related working conditions
- Limited visibility
- Potential for electrical storms

13.0 INCIDENT REPORTING

13.1 INCIDENT INVESTIGATION

Upon receiving a report of incident occurrence on this site, the Health and Safety Officer will investigate the circumstances surrounding the incident. The Health and Safety Manager may also participate in the investigation of serious incidents. Appendix C, Standard Incident Report and Follow-up Form, may be used to assist in the investigation.

13.2 INCIDENT REPORTING

All serious mishaps requiring emergency response will be reported immediately by telephone to the Health and Safety Manager. A written report and/or memo will be forwarded to the Health and Safety Manager within 24 hours of the incident. The report form should be detailed and also contain recommendations to prevent recurrence. Government form ENG Form 3394, JUN 88, will also be completed and submitted to the Resident Officer in Charge of Construction for serious contractor accidents. The USACE CA-1 and CA-2 must be completed and turned in to the ROICC for any occupational injury or illness associated with these projects.

13.3 INCIDENT FOLLOW-UP REPORT

The incident follow-up report (Appendix C) will be distributed within one week of the incident.

14.0 AUTHORIZATIONS

Personnel authorized to enter the restricted areas while Ebasco is conducting field operations must be certified by the Project Manager and the PHSM. Authorization will involve completion of appropriate training courses, medical examination requirements, and review of this SHSP. Personnel must utilize the buddy system or trained escort, and check in with the Site Manager and the SHSO.

Contractor Personnel Authorized to Perform Work On-site:

1. Donald Harrison
2. Chris Monaco
3. Darrell Schuler
4. Mike Mendoza
5. Mike Barron
6. J.C. O'Connell
7. Arthur Holcomb
8. Tammy Jackman
9. Andrew Strickland
10. Laura Slovak

Other Personnel Authorized to Enter Site:

1. Subcontractor Personnel
2. Subcontractor Personnel

15.0 MEDICAL DATA SHEET

The brief Medical Data Sheet shown in Figure 12 will be completed by on-site personnel and will be kept in the SZ during the conduct of site operations. It is in no way a substitute for the Medical Surveillance Program requirements consistent with the Ebasco Corporate Health and Safety Program for Hazardous Waste Sites. This data sheet will accompany any personnel when medical assistance is required or if transport to hospital facilities is required.

EBASCO SERVICES INCORPORATED

PROJECT _____

NAME _____ HOME TELEPHONE _____

ADDRESS _____

AGE _____ HEIGHT _____ WEIGHT _____ BLOOD TYPE _____

ALLERGIES _____

PARTICULAR SENSITIVITIES _____

DO YOU WEAR CONTACTS? _____

PROVIDE A CHECKLIST OF PREVIOUS ILLNESSES OR EXPOSURES TO HAZARDOUS CHEMICALS: _____

WHAT MEDICATIONS ARE YOU PRESENTLY USING? _____

DO YOU HAVE ANY MEDICAL RESTRICTIONS? _____

PHYSICIAN _____ TELEPHONE _____

EBASCO

MEDICAL DATA SHEET

NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 12

16.0 FIELD TEAM REVIEW

Each field team member shall sign this section after site-specific training is completed and before being permitted to work on site.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provisions contained therein.

Site/Project: Building 101W, Naval Air Station, Jacksonville, Florida

Name Printed	Signature	Date

17.0 REFERENCES

American Conference of Governmental Industrial Hygienists, Inc., 1992, Documentation of the threshold limit values and biological exposure indices; 6th Ed., ACGIH, Cincinnati, Ohio.

American Conference of Governmental Industrial Hygienists, Inc., 1987, Guidelines for the selection of chemical protective clothing; Third Edition, ACGIH, Cincinnati, Ohio, February 1987.

American Conference of Governmental Industrial Hygienists, Inc., 1992-1993, Threshold limit values for chemical substances and physical agents in the work environment and biological exposure indices; ACGIH, Cincinnati, Ohio.

Ebasco Services Incorporated, 1992, Ebasco Services safety and health manual.

Federal Acquisition Regulation, F.A.R. Clause 52.236-13: Accident Prevention.

NIOSH/OSHA/USCG/EPA, 1985, Occupational safety and health, guidance manual for hazardous waste site activities; October 1985.

Sax, N. Irving, 1992, Dangerous properties of industrial materials, 8th Ed; Van Nostrand Reinhold Co. Inc., New York, NY.

U.S. Army Corps of Engineers, 1987, Safety and health requirements manual; EM 385-1-1, revised October 1992.

U.S. Department of Labor, Occupational Safety and Health Administration, 1989, 29 CFR Part 1910 Hazardous waste operations and emergency response, final rule, March 6, 1989; Construction industry standards, 29 CFR 1926; and General industry standards, 29 CFR 1910.

U.S. Environmental Protection Agency, 1988, Standard operating safety guides; July, 1988.

U.S. Environmental Protection Agency, no date, Response safety decision-making; Course manual, Office of Emergency and Remedial Response, Hazardous Response Support Division.

APPENDIX A

Ebasco Respirator Protection Program

CONTENTS

5.0 PROCEDURES

This procedure meets the requirements of OSHA Standard 29CFR 1910.134, Respiratory Protection. Respiratory protection shall be worn to protect employees from health hazards when engineering or administrative controls are not feasible or are ineffective in reducing exposures to acceptable levels.

5.1 Selection of Respiratory Protective Equipment

All respiratory equipment utilized on EED projects shall be approved by NIOSH/MSHA. The type of respiratory protection selected will be based upon potential hazards at a specific site, as described in the site-specific Health and Safety Plan (HASP). Selection of appropriate respiratory protection shall be approved by the RHSM and/or a Certified Industrial Hygienist (CIH) as described in Procedure HS-3. The HASP shall provide information concerning the hazards on site and shall define the type of respiratory protection to be utilized by personnel for that site.

Three types of respiratory protection are available:

1. Self-Contained Breathing Apparatus (SCBA),

2. Air supplied devices, and

3. Air purifying devices.

To select which type of respiratory protection is appropriate for a given project, the following questions must be answered:

1. Is there a possibility of an oxygen deficient atmosphere?

contaminants have been identified, and measured concentrations are within limits that can be effectively removed by the respirator cartridges. Half-face respirators may be used only if specifically approved for a particular project by the RHSM.

5.2 TRAINING

Personnel required to use respiratory protection shall be trained in the selection, use and maintenance of the equipment. Respiratory protection training shall be included as part of the initial health and safety training, 8 hour refresher, and site-specific training described in Procedure HS-1. Site-specific respiratory protection training shall include:

1. Hazard identification to include symptoms of exposure,

2. Use of engineering controls to minimize exposure, and an explanation of why engineering controls are not feasible,

3. A description of the type of respiratory protection chosen and the protection provided to the employee,

4. Assurance that the employee understands the protection capabilities and limitations of the method of respiratory protection utilized,

5. A thorough demonstration of the selected method of respiratory protection to include use, troubleshooting and maintenance, followed by hands-on training by the employee, and

6. A description of the on-site storage and maintenance facilities for maintaining respiratory protection equipment.

5.3 Fit Testing

A qualitative fit test shall be conducted for each employee during the initial 40 hour health and safety training course and/or at site-specific training and annually thereafter during the annual refresher course. Fit testing may also be performed when a condition which may effect the face fit of the respirator has occurred, such as weight gain or loss, dental work or facial surgery or deformity.

Employees shall be clean shaven during fit testing and at all times during exclusion zone activities or situations which may warrant respirator use. If corrective eyeglass lenses are required, the employee shall be provided with a second pair of lenses for use with the employees' respirator. Contact lenses shall not be worn during respirator use.

The qualitative fit test will utilize irritant smoke and shall consist of the following:

1. High efficiency particulate cartridges shall be used.

2. The individual shall properly don and wear the respirator for at least 10 minutes while taking part in normal physical activities.

3. The individual shall perform positive and negative pressure tests to determine whether a proper seal has been formed. If the test fails, the respirator shall be removed and re-fitted; if the test again fails, a different respirator shall be tested until a proper fit is obtained.

4. A smoke tube containing stannous chloride or titanium tetrachloride shall be used for the irritant smoke. Initially, the individual being tested will be advised to close their eyes due to the irritant nature of the smoke. If no smoke is detected, the individual shall be instructed to open their eyes and continue with the test.

5. The smoke shall be directed and maintained at the face to mask seal during the entire test.

6. The test subject shall perform normal breathing, deep breathing, shall turn his or her head from side to side, nod his or her head up and down, shall speak slowly and shall bend over to test the seal during the test.

7. If the individual detects the smoke, a different respirator shall be tested until a proper fit is obtained.

5.4 Records

A record of the fit test shall be maintained utilizing the fit test record form (Attachment A). Records of employee respiratory protection training shall be maintained in accordance with Procedures HS-1 and HS-7.

5.5 Cleaning and Storage

The following procedure shall be followed for cleaning and storage of respiratory protection equipment at the job site:

1. All personnel requiring respirators will be issued their own personal respirator.

2. At that point, it is each person's responsibility to clean, disinfect and care for their respirator in accordance with the training they have received.

3. Personal respirators shall be cleaned and disinfected after each day's use, or more frequently, if necessary.

4. Respirators for emergency use shall be cleaned, disinfected, and inspected after each use and on a monthly basis.

5. Routine cleaning shall consist of:

   a. Removal of Filters
   b. Wash in disinfecting solution
   c. Rinse in clean water
   d. Air dry

6. Routine inspection shall consist of the following:

   a. Check all connections for gaskets and "O" rings and proper tightness.

   b. Check the condition of the face piece and its parts for tears, cracks, abrasions or brittleness.

   c. Check the condition of the connecting air tube (if applicable).

   d. Check the condition of the headband for tears, cracks, abrasions or brittleness.

   e. Inspect all rubber or elastic parts for pliability and signs of deterioration.

   f. Report any worn, missing, or broken parts to health and safety personnel on site.

7. Clean and dry respirators shall be stored in zippered, plastic bags. These bags shall be placed in a clean, dry, place out of direct heat and sunlight; preferably each employee's assigned locker.

5.6 Surveillance of Work Area Conditions and Employee Exposure

To determine the respiratory protection required, the work area shall be monitored for contaminant concentrations as required by the site-specific HASP during an initial site

reconnaissance (see also Health and Safety Field Procedure HSF-1, Air Monitoring). Preferably, sampling should be in the breathing zone of the exposed employee. Both time-weighted average and peak concentrations of the contaminant shall be determined before selecting the type of respirator to be used. Continued, periodic sampling throughout the project will assure proper respirator protection factors are maintained.

5.7 Inspection and Evaluation of the Program

The HSO shall determine if employees are utilizing their respirators properly and are adequately caring for their assigned respirators. If the situation warrants, additional training concerning respirator use and maintenance may be necessary.

5.8 Medical Surveillance

Site personnel shall meet the medical surveillance requirements of OSHA 29CFR 1910.120 and Procedure HS-2 for respirator use prior to engaging in any field work requiring them to wear or be prepared to wear a respirator. Personnel judged medically unfit to wear a respirator shall be notified in writing by the HSS and shall be excluded from work sites requiring or potentially requiring respiratory protection.

5.9 Special Conditions

The following procedure shall be followed for special conditions:

1. In atmospheres immediately dangerous to life and health (IDLH), at least one stand-by person equipped with proper rescue equipment and a SCBA shall be present. Communication between the downrange team and the standby person shall be maintained at all times. Downrange team members are to be equipped with safety harnesses connected to lines extending back to the support zone to permit their removal if they are overcome. Confined space entry shall be conducted in accordance with Procedure HS-12.

2. Low temperatures may fog the lenses of the respirator. Use of anti-fog spray and a nose cup may be beneficial. Minimum temperatures approved by NIOSH for operation of a SCBA shall be consulted prior to use in low temperatures.

3. Wearing any respirator in conjunction with other types of protective equipment will impose some physiological stress on the wearer. Use of respirators in conjunction with protective clothing can greatly affect human response and endurance especially in hot environments.

4. If there is a possibility of an oxygen deficient atmosphere (less than 19.5% oxygen at sea level) or an explosive atmosphere, continuous monitoring for oxygen shall be performed in accordance with Health and Safety Field Procedures HSF-1 and HSF-7 and the site-specific HASP.

5. A harness, safety line and tripod shall be used to retrieve personnel who may be overcome when working in manholes or similar confined spaces.

6. Escape packs shall be used with all supplied air systems.

6.0 REFERENCES

1. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1910.120--Hazardous Waste Operations and Emergency Response.

2. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1910.134--Respirator Use Training.

7.0 ATTACHMENTS

1. ATTACHMENT A - Respirator Fit Test Form

APPENDIX B

Confined Space Entry Procedures

TITLE: Confined Space/Limited Entry NO. HS-12
DATE: 11/91

APPROVED BY: REVISION: 0

CONTENTS

1.0 PURPOSE

The purpose of this procedure is to establish an EED policy regarding confined space/limited egress (CS/LE).

2.0 SCOPE

This procedure is in compliance with OSHA 29CFR 1926.21(b)(6). This procedure applies to all field personnel who may, during the course of their work, be required to enter a confined space or an area with limited egress.

3.0 DEFINITIONS

Confined space/limited egress - Any space, depression, or enclosure that has limited openings for entry and egress, may have limited ventilation, may contain or produce life-threatening atmospheres due to oxygen deficiency or the presence of toxic, flammable or corrosive contaminants, and which is not intended for continuous occupancy. Examples of confined spaces include, but are not limited to: enclosed rooms, storage tanks, ventilation and exhaust ducts, manholes, stacks, pits, basements, silos, vats, vaults, lockers, pipes and any open space four or more feet in depth that is not adequately ventilated.

Purging - The means by which gases, vapors or other airborne contaminants are displaced from a confined space or limited egress enclosure. Ventilation is one, but not the only means of purging.

4.0 RESPONSIBILITIES

4.1 Health and Safety Director (HSD)

The HSD shall have overall responsibility for review and approval of this procedure and any subsequent revisions.

4.2 Regional Health and Safety Manager (RHSM)

The RHSM shall implement this CS/LE procedure within his or her respective region. The RHSM shall work with the Health and Safety Supervisor (HSS) assigned to each office within his or her jurisdiction to implement this procedure on projects.

4.3 Health and Safety Supervisor (HSS)

The HSS shall ensure that this procedure is followed within his or her office as applicable. The HSS shall review all potential field programs for the possibility of CS/LE and shall include a section on CS/LE in project health and safety plans (HASPs) as appropriate.

4.4 Health and Safety Officer (HSO)

The HSO assigned to a given field project shall be responsible for implementing this procedure whenever the possibility of personnel entering a CS/LE exists. This will include training of personnel in project-specific CS/LE procedures. The HSO shall notify the HSS immediately for a modification of the HASP if an unplanned CS/LE is required.

4.5 Site Manager (SM)/Field Operations Leader (FOL)

The SM/FOL shall inform the HSO of all project work requirements regarding the possibility of CS/LE. The SM/FOL shall schedule sufficient lead time to allow the HSO

to train personnel in project-specific requirements for CS/LE prior to performing the task.

4.6 Field Personnel

Field personnel must receive training according to this procedure by the HSO prior to entering any confined space or limited egress area.

5.0 PROCEDURE

Entry into a confined space/limited egress (CS/LE) enclosure shall only be undertaken where there is no alternate means of obtaining the necessary results. CS/LE entries are to be recognized as a means of last resort. The configuration of the space and the proposed operation to be conducted within that space will ultimately determine if a CS/LE condition exists.

5.1 Entry Permit System

Entry into a CS/LE enclosure shall be by permit only. The permit serves as written approval and authorization for an entry of a specific space for a specific task. The permit certifies that existing and potential hazards have been evaluated by the HSO and identifies protective measures specified by the HSO to ensure worker safety. The entry permit, when completed, will serve as a final safety briefing outline before entry and will be reviewed with the entry team and standby personnel. The entry permit shall identify:

1. The location of the CS/LE and a description of the entry task.

2. Known and potential hazards that may be encountered in the CS/LE.

3. An isolation checklist to include blanking and/or disconnecting of all lines, electrical lockout/tagout, mechanical lockout/tagout, and mechanical ventilation (volumes).

4. Protective clothing and equipment required, to include level of protection, safety harness and/or lifelines, extraction devices, and tools or electrical equipment approvals (including lighting and communication devices).

5. Pre-entry atmospheric monitoring to include oxygen level, combustible gas/vapor level, and toxic substances level.

6. Provisions for continuous atmospheric monitoring to include equipment and personnel on standby.

7. Identification by name of the entry team and personnel on standby.

8. Emergency procedures and location of first aid equipment.

9. Documentation that personnel have been trained in CS/LE entry, CS/LE rescue, and in respirator use (Section 5.3).

5.2 Personnel Requirements

Personnel assigned to CS/LE operations shall participate in training (Section 5.3) prior to initial CS/LE entry. Personnel shall be medically qualified to perform work in CS/LE in accordance with Procedure HS-2 and shall have access to first aid supplies.

5.3 Training

Personnel required to work inside, or in support of those working inside CS/LE shall have training in the following areas:

1. Hazards associated with CS/LE,

2. Emergency entry and egress procedures,

3. Respirator fit testing and use (Procedure HS-9),

4. First aid (Procedure HS-1),

5. Lockout and tagout (Procedure HS-11),

6. Excavations (Procedure HS-13),

7. Safety equipment,

8. Rescue procedures,

9. CS/LE Permit system, and

10. CS/LE work practices (Section 5.6).

5.4 Testing and Monitoring

Absolutely no CS/LE entry is to be initiated until appropriate initial testing and monitoring has been conducted by the HSO to assure safety. Pre-entry atmospheric monitoring shall be conducted by the HSO for oxygen content, combustible gases/vapors, toxic contaminants and any other monitoring specified in the HASP. The HSO shall conduct continuous monitoring while personnel are inside the CS/LE enclosure.

Entry into a CS/LE enclosure shall not be permitted, or evacuation of the CS/LE enclosure initiated from the outside under the following conditions:

1. Oxygen concentrations less than 19.5% (148mm Hg) or greater than 23.5% (178mm Hg), based on atmospheric pressure of 760 mm Hg at sea level,

2. Flammability measurements greater than 20% of the lower explosive limits (LEL) for non-hot work operations,

3. Flammability measurements greater than 10% of the LEL for hot work operations, and

4. Toxicity measurements indicating the existence of an Immediately Dangerous to Life and Health (IDLH) atmosphere in the CS/LE.

Whenever any of the above conditions apply, the volumes of mechanical ventilation supplied to the CS/LE enclosure shall be increased and maintained at increased levels. Entry or re-entry shall be permitted when:

1. The HSO measures oxygen levels greater than 19.5% and less than 23.5%,

2. LEL measurements fall below 10%, and

3. IDLH conditions no longer exist.

Initial atmospheric samples shall be drawn while outside the CS/LE enclosure at least in the following locations:

1. Outside the entry point(s),

2. Immediately inside the entry point(s), and

3. At least every four feet bottom to top and laterally and adjacent to any residues.

5.5 Protective Equipment and Clothing

The entry permit and the HASP will specify the required respiratory protective equipment and clothing to be used for the specific CS/LE entry. Additional safety equipment in the form of safety belts, body harnesses, or wrist harnesses with life lines shall be provided and utilized for all CS/LE entries. Lifelines shall be attached to extraction devices outside the CS/LE enclosure so that non-entry rescues may be accomplished. Other safety equipment that may be utilized where appropriate includes safety nets, life jackets, and electrical insulating devices or barriers.

Standby personnel shall be equipped with at least the same level of respiratory protection and protective clothing as members of the entry team.

5.6 Work Practices

5.6.1 Review

The HSO shall review the HASP and CS/LE Permit with all members of the entry and standby teams prior to entry as described in Section 5.1.

5.6.2 Purging and Ventilation

All CS/LE enclosures shall be subject to purging and continuous ventilation after initial atmospheric testing but prior to any actual entry. The only exception to this requirement is where entry is made solely to obtain samples of materials remaining in the CS/LE enclosure and initial atmospheric testing indicates that there is no oxygen deficiency or enrichment, that LEL measurements are less than 20%, and that toxicity measurements are less than established standards (OSHA PELs or ACGIH TLVs, whichever is most stringent).

5.6.3 Isolation/Lockout and Tagging

The CS/LE enclosure to be entered shall be in a complete "zero mechanical state" (maximum protection against unexpected mechanical movement of machine, equipment, or other apparatus).

Except for CS/LE enclosures such as manholes, sewers, and tunnels where complete isolation is not possible, all CS/LE enclosures shall be completely isolated from all other systems by such means as double block and bleed, blanking or physical disconnection of all lines and systems. All lines and systems that have been isolated shall be tagged with lockout/tagout tags according to Procedure HS-11.

The CS/LE enclosure shall be electrically isolated to prevent accidental activation of moving parts. Electrical isolation shall be accomplished by lockout of circuit breakers and/or power disconnects in the open (OFF) position by keyed padlock. Each person entering the CS/LE enclosure shall have placed a lock on the circuit breaker disconnect and shall maintain possession of the only key to the lock. Any circuit breaker/disconnect that is locked out shall also be tagged to identify the reason for the lockout.

Mechanical isolation of moving parts shall be achieved by disconnecting linkages, or removal of chain or belt drives. Other moving mechanical parts shall be blocked in such a way as to preclude accidental rotation. Any mechanical isolation shall be tagged to identify the reason for the isolation.

5.6.4 Cleaning

Initial cleaning of a CS/LE enclosure shall be done from the outside if at all possible. If initial atmospheric testing shows a flammable atmosphere at or above the upper explosion limit (UEL), the enclosure shall be purged with inert gas prior to ventilating the enclosure.

The cleaning process itself may generate additional hazards inside the CS/LE enclosure. Examples of such conditions include:

1. Excessive heat buildup from steam cleaning,

2. Toxic materials buildup from chemical neutralization processes, and

3. Fire and explosion if the auto ignition temperature of the stored product is 120% or less of the steam pressure and/or the steam hose nozzle is not bonded to the CS/LE during stream cleaning operations.

5.6.5 Equipment and Tools

All tools and other equipment for use in the CS/LE enclosure shall meet the following requirements:

1. All tools and equipment shall be kept clean and in good repair.

2. All electrical equipment, including portable power tools, lighting, and power cords shall meet applicable OSHA regulations (29CFR 1910, Subpart S), including provisions for ground fault circuit interruption protection and visual inspection of equipment for defects and/or damage.

3. Lighting shall be of explosion proof design equipped with necessary guards and bearing Underwriters Laboratories (UL) or other appropriate approval listings.

4. Air activated tools shall be used where flammable liquids or atmospheres may be present and shall be bonded to the CS/LE enclosure.

5. Compressed gas cylinders, except those used for respiratory protection (SCBAs or resuscitation equipment), shall not be permitted inside the CS/LE enclosure. Cylinders used to supply compressed gases to the CS/LE enclosure shall be turned off at the cylinder valve and the supply lines removed from the CS/LE enclosure.

6. Ladders, scaffolding, and staging shall be adequately designed and secured in conformance with OSHA 29CFR 1910, Subpart D and 29CFR 1926, Subpart L.

7. All equipment to be used in a CS/LE enclosure where the possibility of flammable atmospheres or contents exists shall be listed as explosion proof or intrinsically safe by a recognized testing laboratory.

5.7 RECORDKEEPING

The HSO shall maintain the completed CS/LE entry permit as a project health and safety record as required by OSHA 29CFR 1910.20.

6.0 REFERENCES

1. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1910, Occupational Safety and Health Standards.

2. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 29 CFR 1926, Safety and Health Standards for the Construction Industry.

7.0 ATTACHMENTS

1. ATTACHMENT A - Confined Space/Limited Egress Entry Permit Form

ATTACHMENT A

CONFINED SPACE/LIMITED EGRESS ENTRY PERMIT

EBASCO ENVIRONMENTAL

WORK PERMIT FOR CONFINED SPACE OPERATIONS

EXPIRATION DATE: _____

Location of CS/LE: _____

Description of Task: _____

Identified Hazards (see checklist): _____

Personnel Assigned

Name: _____	duties: _____	Name: _____	duties: _____
Name: _____	duties: _____	Name: _____	duties: _____
Name: _____	duties: _____	Name: _____	duties: _____

Special Equipment Required _____

Special Safety Requirements/Procedures _____

Initial Atmospheric Tests:

	AT ENTRY	INSIDE	DEPTHS 4'	8'	12'	16'	20'
oxygen levels	___	___	___	___	___	___	___
combustible gas	___	___	___	___	___	___	___
toxics _____	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___
_____	___	___	___	___	___	___	___
Level of protection	___	Ventilation Functions					___
Adequate PPE Supply	___	Tools & Equipment Approved					___
Isolation Complete	___	Lighting & Elec. Approved					___
Rescue Equipment	___	Communications					___

Permit Prepared by: _____ Date _____
Health and Safety Officer

Permit Approved by: _____ Date _____
Company Health & Safety Officer

3829K

APPENDIX C

Standard
Incident Report and Follow-up Form

INCIDENT REPORT
(SHEET 1 OF 6)

SITE:_____

SITE LOCATION:_____

REPORT PREPARED BY:_____
Name Printed

Title

INCIDENT CATEGORY:
(check all that apply)

___Injury
___Near Miss
___Motor Vehicle
___Mechanical
___Fire
___Illness
___On Site Equipment
___Electrical
___Other
___Property Damage
___Chemical Exposure

DATE AND TIME OF INCIDENT: _____

Narrative Report of Incident:

(Provide sufficient detail so that the reader may fully understand the actions leading to or contributing to the incident, the incident occurrence, and actions following the incident. Append additional sheets of paper if necessary).

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

INCIDENT REPORT
(SHEET 2 OF 6)

WITNESSES TO INCIDENT

1. NAME _____ COMPANY _____
   ADDRESS _____
   TELEPHONE NO. _____

2. NAME _____ COMPANY _____
   ADDRESS _____
   TELEPHONE NO. _____

INJURIES

FIRST INJURED PERSON

Name of Address of Injured: _____
_____

SSN: _____ Age: _____ Sex: _____

Years of Service: _____ Time on Present Job: _____

Title/Classification: _____

Severity of Injury or Illness:

____Disabling ____Non-disabling
____Fatality ____Medical Treatment

Estimated Number of Days Away from Job: _____

Nature of Injury or Illness: _____
_____

Classification of Injury:

____Fractures ____Heat Burns ____Cold Exposure
____Dislocations ____Chemical Burns ____Frostbite

INCIDENT REPORT
(SHEET 3 OF 6)

____ Sprains
____ Abrasions
____ Lacerations
____ Punctures

____ Faint/Dizziness
____ Dermal Allergy

____ Radiation Burns
____ Bruises
____ Blisters
____ Toxic Respiratory Exposure
____ Bites

____ Heat Stroke
____ Heat Exhaustion
____ Concussion
____ Toxic Ingestion

____ Respiratory Allergy

Part of Body Affected: _____

Degree of Disability: _____

Date Medical Care was Received: _____

Where Medical Care was Received: _____

Address (if off-site): _____

If Hospitalized, Name, Address and Telephone No. of Hospital: _____

_____

Name, Address and Telephone No. of Physician: _____

_____

SECOND INJURED PERSON

Name and Address of Injured: _____

_____

SSN: _____ Age: _____ Sex: _____

Years of Service: _____ Time on Present Job: _____

Title/Classification: _____

Severity of Injury or Illness:

____Disabling ____Non-disabling
____Fatality ____Medical Treatment

Estimated Number of Days Away from Job: _____

Nature of Injury or Illness: _____

INCIDENT REPORT
(SHEET 4 OF 6)

Classification of Injury:

____ Fractures
____ Dislocations
____ Sprains
____ Abrasions

____ Lacerations
____ Punctures

____ Faint/Dizziness
____ Dermal Allergy

____ Heat Burns
____ Chemical Burns
____ Radiation Burns
____ Bruises

____ Blisters
____ Toxic Respiratory Exposure
____ Bites

____ Cold Exposure
____ Frostbite
____ Heat Stroke
____ Heat Exhaustion
Concussion
____ Toxic Ingestion
____ Respiratory Allergy

Part of Body Affected: _____

Degree of Disability: _____

Date Medical Care was Received: _____

Where Medical Care was Received: _____

Address (if off-site): _____

If Hospitalized, Name, Address and Telephone No. of Hospital: _____

_____

Name, Address and Telephone No. of Physician: _____

_____

(If more than two injuries, provide information on separate sheet).

PROPERTY DAMAGE

Brief Description of Property Damage: _____

_____

_____

_____

_____

Estimate of Damage: $_____

INCIDENT REPORT
(SHEET 5 OF 6)

INCIDENT LOCATION

INCIDENT ANALYSIS

Causative agent most directly related to accident (object, substance, material, machinery, equipment, conditions):

Was weather a factor?

Unsafe mechanical/physical/environmental condition at time of incident (be specific):

Unsafe act by injured and/or others contributing to the incident (be specific, must be answered):

Personal factors (improper attitude, lack of knowledge or skill, slow reaction, fatigue):

On Site Incidents:

Level of personal protection equipment required in Site Safety Plan:

Modifications:

Was injured using required equipment?:

INCIDENT FOLLOW-UP
(SHEET 6 0F 6)

Date of Incident: _____

Site: _____

Brief Description of Incident: _____

_____

_____

Outcome of Incident: _____

_____

Physician's Recommendations: _____

_____

_____

Date Injured Returned to Work: _____

ATTACH ANY ADDITIONAL INFORMATION TO THIS FORM

Attachment C

Asbestos Abatement Plan