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NAS JACKSONVILLE
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INTERIM REMEDIAL ACTION WORK PLAN FOR FORMER PLATING SHOP REVISION 6

NAS JACKSONVILLE FL

11/1/1993

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 6

NOVEMBER 1993

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NAS JAX
OLD PLATING SHOP
WORK PLAN - RECORD OF REVISIONS

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

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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
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
HWST	Hazardous Waste Storage Tanks
IMERC	Incineration of wastes containing organics and mercury

ACRONYMS AND ABBREVIATION-(continued)

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
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
RLEAD	Thermal recovery of lead

ACRONYMS AND ABBREVIATION-(continued)

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

1.0 INTRODUCTION

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 the station was put on the NPL, the Navy, the State of Florida Department of Environmental Regulation (FDER), and the Environmental Protection Agency (EPA) entered into a Federal Facilities Agreement (FFA). The FFA details the manner and means in which FDER and EPA will interact with the Navy as the Navy implements the IRP at NAS JAX.

The Industrial Area at NAS-JAX is designated as IR Operational Unit 3 (OU#3). 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 the Potential Source of Contamination (PSC) #11, (Building 101) which is within OU#3.

The NAS-JAX is conducting this 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 or subsurface soils. These media will be addressed by the OU#3 RI/FS presently underway. This IRA is being conducted in compliance with the NCP (40CFR300); as provided for in the NAS Jacksonville Federal Facilities Agreement. Resource Conservation and Recovery Act (RCRA) issues will be addressed as ARARS.

An Application for Closure Permit titled "OLD PLATING FACILITY - BUILDING 101 AND WASTE OIL TANK 101-3" was submitted to the FDEP in April 1993. This Work Plan includes the requirements for this project as stated in that Closure Permit application and its subsequent revisions.

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.

The interim Remedial Action Project Boundary is shown in Figure 1. The Navy will remove all asbestos within the project boundary. The serpentine tank was used to treat hazardous waste and will be decontaminated and closed. The Northeast Chrome Room has had plating tanks removed. Walls and floors of this room need to be decontaminated. Of the 90 tanks in plating shop, 56 contained hazardous wastes. Figure 2 depicts the three rooms of the plating shop and the East Room, the Chrome Room and the West Room.

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

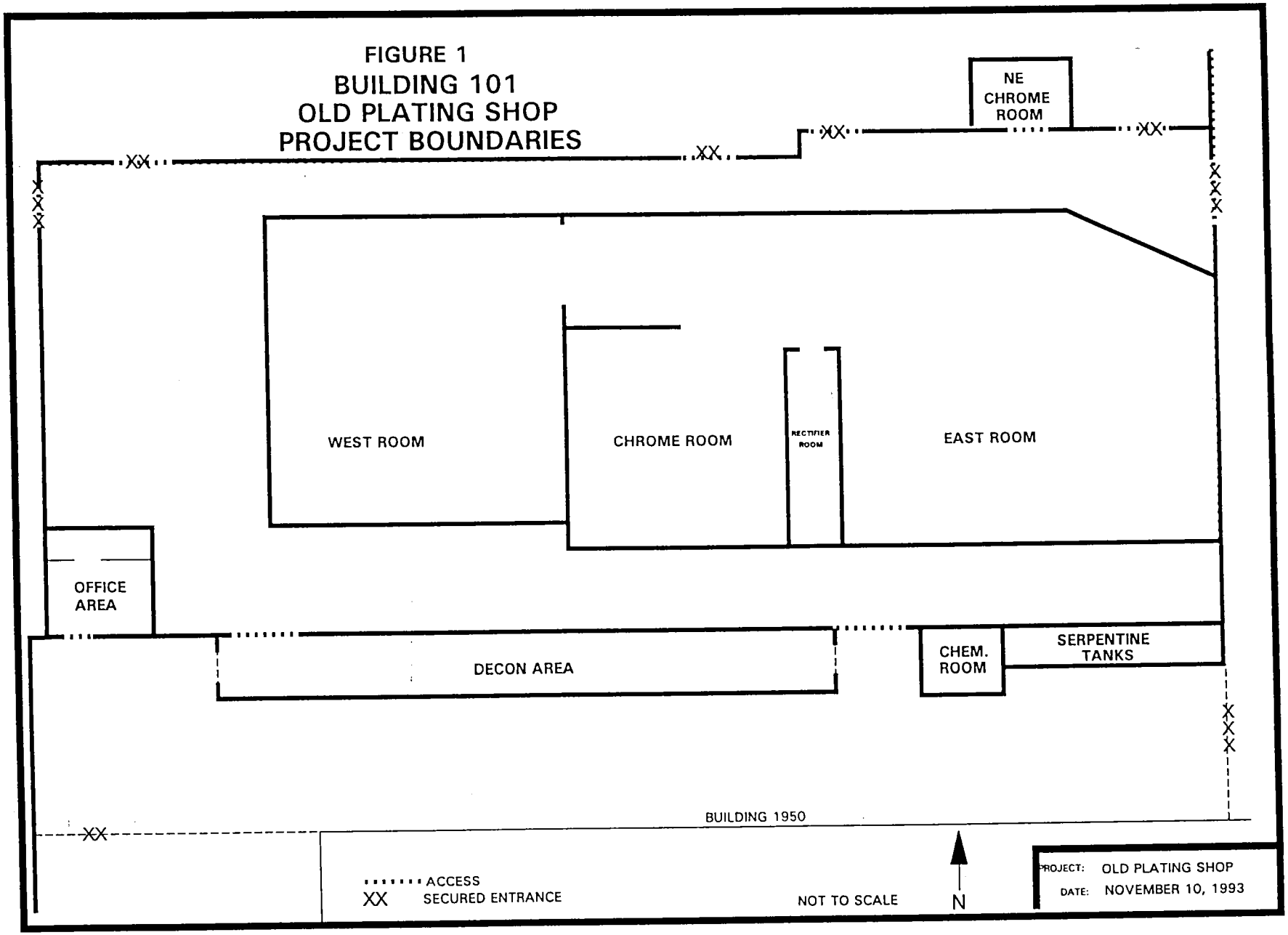
FIGURE 1
BUILDING 101
OLD PLATING SHOP
PROJECT BOUNDARIES
NE CHROME ROOM
WEST ROOM
CHROME ROOM
RECTIFIER ROOM
EAST ROOM
OFFICE AREA
DECON AREA
CHEM. ROOM
SERPENTINE TANKS
BUILDING 1950
ACCESS
XX SECURED ENTRANCE
NOT TO SCALE
N
PROJECT: OLD PLATING SHOP
DATE: NOVEMBER 10, 1993

WP7FIG1.DRW

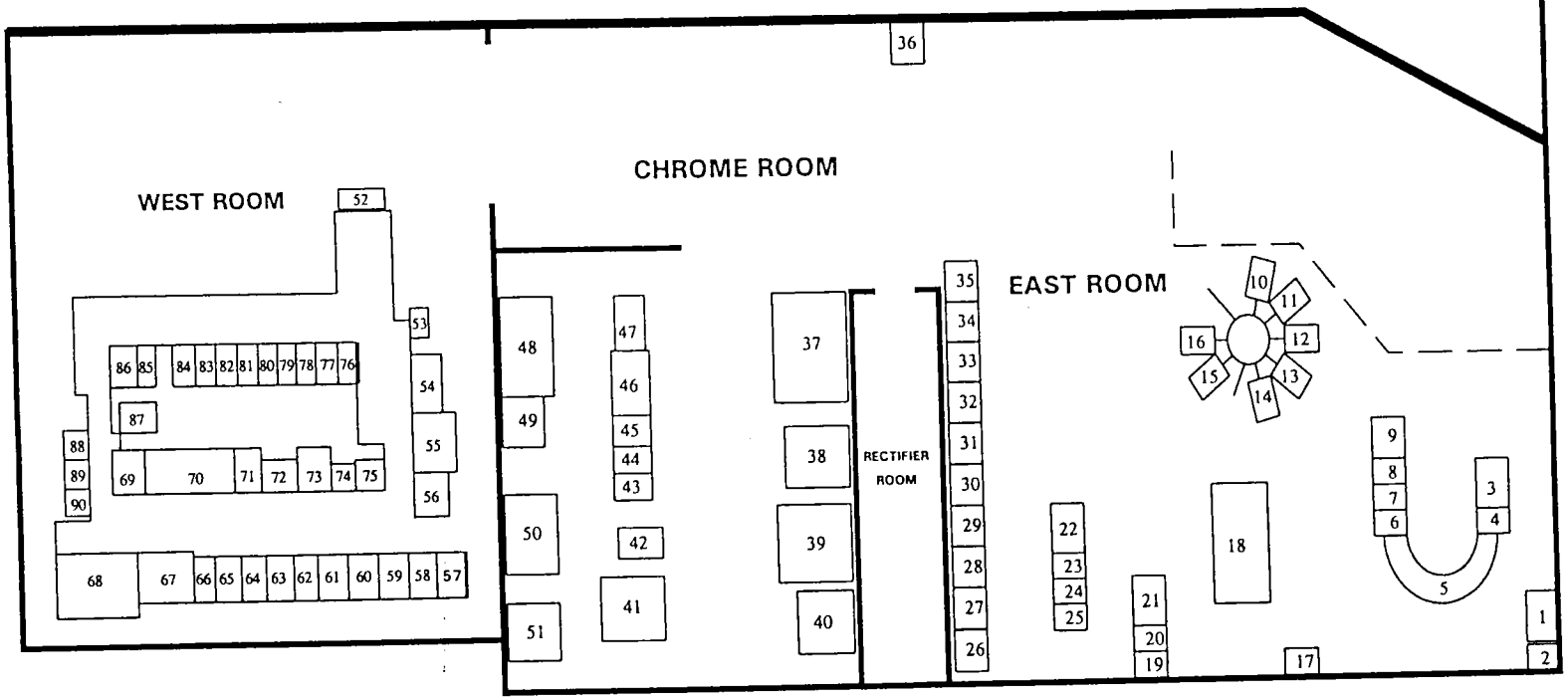

FIGURE 2

BUILDING 101
OLD PLATING SHOP
TANK LAYOUT

NOT TO SCALE

N

PROJECT: OLD PLATING SHOP
DATE: NOVEMBER 10, 1993

WP7FIG2.DRW

Wastes contained in Building 101 process tanks were analyzed for ignitability, toxicity, pH, and the presence of reactive sulfide or cyanide during the course of an emergency response removal action conducted in August 1992. Samples were taken from 57 tanks that were previously designated as having a potential to contain hazardous wastes. TCLP metals analysis was conducted on the solid samples while the liquid samples were subjected to total metals analysis. A Health Threat Evaluation for the Old Engine Processing Facility, Building 101, was prepared by ABB Environmental Services (October, 1992) to address remedial actions necessary to close the Building 101 plating facility and submitted to the Florida Department of Environmental Regulation (FDER) for review. Building 101 tanks found to contain hazardous wastes were identified in the Health Threat Evaluation. Several tanks were found to contain waste that exhibited RCRA hazardous waste characteristics or contained an F listed waste as derived from users prior knowledge. None of the tank samples exceeded the regulatory level for the characteristics of ignitability or reactivity; however, the 40 tanks contained wastes that exceeded TCLP regulatory limits for metals (arsenic, cadmium, chromium, lead, mercury, and silver). Additionally, three of these tanks also contained waste characterized as being corrosive (i.e., pH $\leq$ 2.0). The bulk of Building 101 hazardous wastes were removed and properly disposed of during the interim removal action. Consequently, Building 101 tanks contain only residual wastes. Table 1 summarizes the results of the hazardous waste analyses for the tank wastes from Building 101.

RCRA hazardous waste known to exist in tanks at the old Plating Facility in Building 101 and adjacent Waste Oil Tank 101-3 are identified by EPA Waste Code in Table 2. These hazardous wastes have been characterized and are given a hazard designation in accordance with the requirements of 40 CFR Part 261.

The project will commence with the removal and disposal of all asbestos containing material (ACM) from the three rooms. Each section of the old plating shop will be isolated during the asbestos abatement activities one room at a time. 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 down to remove all dust that has collected and the wastewater will be collected and treated prior to disposal. The asbestos removal operation will move to each isolated section until all ACM removal is complete.

The next step involves the removal from the asbestos-free area, of all tank systems (hereafter referred to as tanks) which contained hazardous constituents as confirmed by recent analytical testing, and generator knowledge. These tanks, designated as Group A, will be removed, decontaminated, sampled, and delivered to the station for recycling, waste disposal or hazardous waste disposal. The process will be repeated in the next asbestos-free room until Group A tank removal is complete.

The next task will involve the removal, decontamination, and disposal (for recycling or as non-hazardous waste) of the remaining tanks (Group B) and ancillary components of the old plating facility up to the roof trusses.

The final task will involve the removal of all duct work above the roof trusses.

Table 1

Summary of Building 101 Waste Analyses

Tank	Group A or B Tank (1)	RCRA Characteristic Hazardous Waste Parameters (3)											
		TCLP Metals (mg/l)								Ignitability	Reactivity (mg/:g)		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	6.8	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	1960	421	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 (5)	250 (5)	<2.0 or >12.5

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

Notes:
(1) – "DDDD Plan Concept, U.S. Navy Remedial Action Contract for Remediation of Sites Contaminated with Acids, Metals, and Bases" – Ebasco Environmental; I
(2) – Not Used
(3) – September 1992 emergency response removal action – analytical data reports
(4) – Not Included in Appendix B of Building 101 Health Threat Evaluation (2)...No Backup Data Available
(5) – Reactivity Advisory Limits for Cyanide and Sulfide (SW846, 3rd Edition; September 1986)
(*) – Denotes results derived from Total Metals analysis and not TCLP metals

Table 1

Summary of Building 101 Waste Analyses (continued)

Tank	Group A or B Tank (1)	RCRA Characteristic Hazardous Waste Parameters (3)											
		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	1730	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 (4)	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	1090	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 (5)	250 (5)	<2.0 or >12.5

NA – Not Analyzed
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(5) – Reactivity Advisory Limits for Cyanide and Sulfide (SW846, 3rd Edition; September 1986)
(*) – Denotes results derived from Total Metals analysis and not TCLP metals

The following tasks outline the details of the actions to be implemented in carrying out the four phases of work identified above. These phases shall be used as milestones to schedule and track the progress of this IRA. Any further revisions of this work plan required during the completion of this project will covered by 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 as well as the basis for changes to this work plan. 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) follow.

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 side of the page.

2.0 WORK PLAN

The following provides the 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. 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. 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. 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 it's point of entry into Building 101. This effort will continue throughout the project. The area will 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 as to its contamination by other hazardous substances. If it has, analyses will be performed. If analyses indicate contamination has occurred, the material will be disposed of in compliance with RCRA 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)

The decontamination station will be established at the receiving area on the south side of Building 101, as shown in Figure 3 The area currently has a concrete floor with an integral sump and a metal roof. To further enclose the area, visquine-covered plywood walls and a nine-inch concrete curb will be constructed around the perimeter, as shown in Figure 4. 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 visquine on the walls will prevent the wash water and solids from contaminating the plywood walls. Both decontamination station doors will be constructed of, or covered with, material that can be decontaminated.

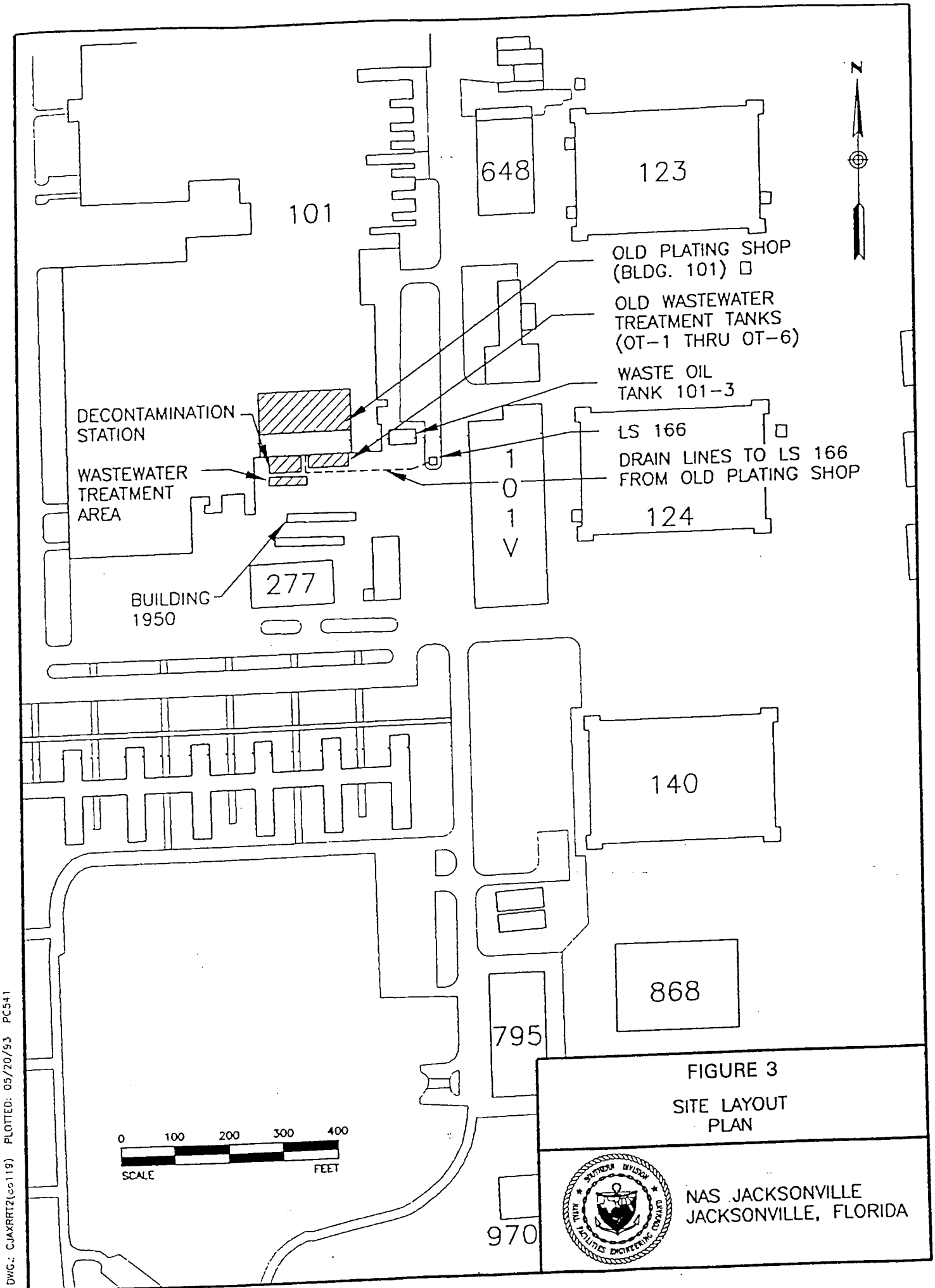
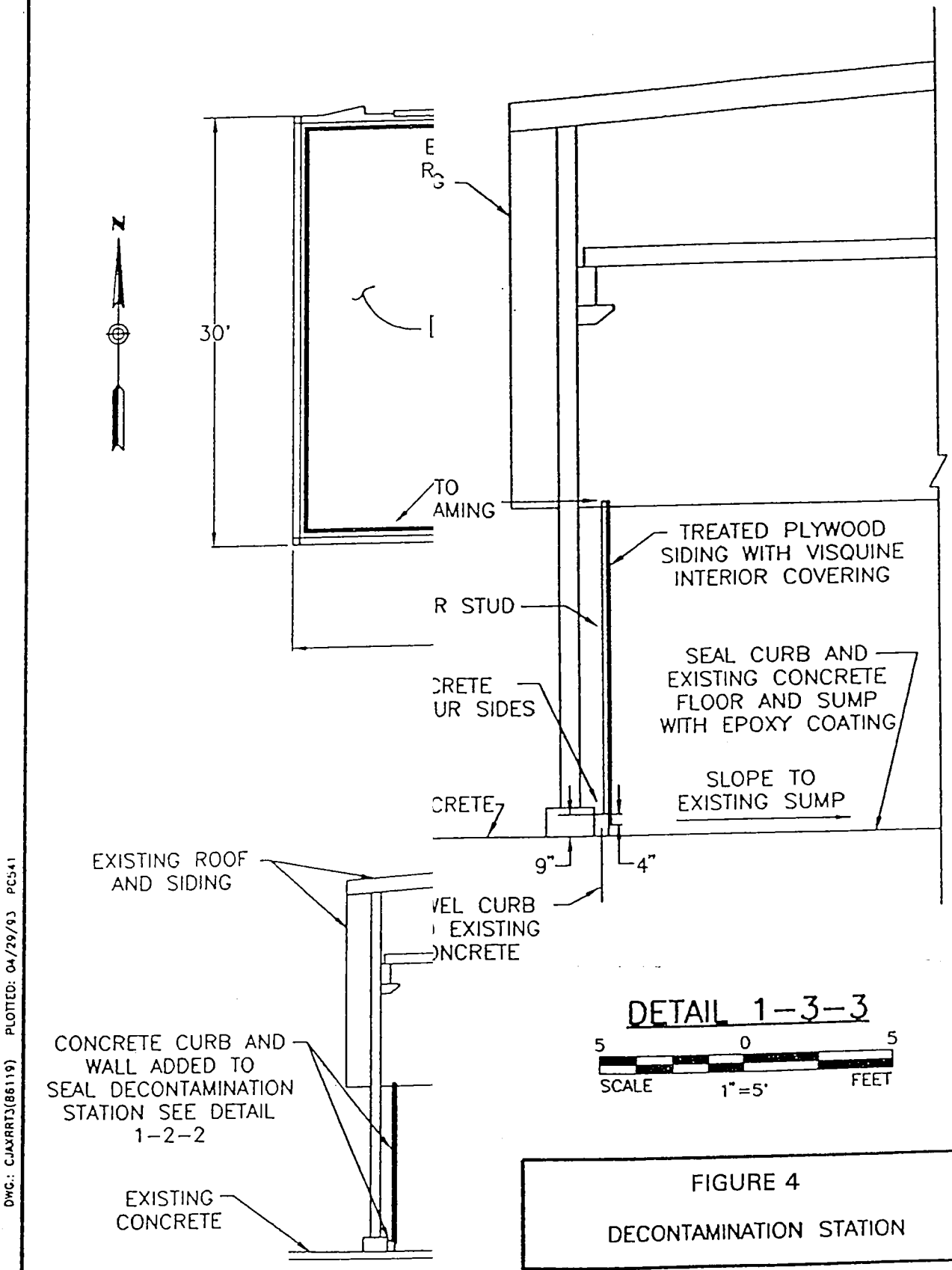


FIGURE 3

SITE LAYOUT
PLAN

NAS JACKSONVILLE
JACKSONVILLE, FLORIDA

DWG.: CJAXRRT2(cs119) PLOTTED: 05/20/93 PC541



DETAIL 1-3-3

5 0 5

SCALE 1"=5' FEET

DWG:: CJAXRRT3(86119) PLOTTED: 04/29/93 PC541

FIGURE 4

DECONTAMINATION STATION

NAS JACKSONVILLE
JACKSONVILLE, FLORIDA

The sump in the decontamination area is piped to the industrial wastewater treatment facility. Before any closure activities begin, the piping will be sealed to ensure that no wastewater is discharged to the treatment facility. 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 polyethylene 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. Like the tank decontamination wastewater, the wastewater generated during the station cleaning will 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 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 tired 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 may be moved to the decontamination station using a forklift. For each tank system, 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. Decontamination will be accomplished using high-pressure water or steam equipment. 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) 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 wastewater treatment system 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. The schedule of cleaning will be ordered such that no items that have been decontaminated will be re-contaminated. 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 3. If laboratory results show that the rinsewater for an item contained no constituents at concentrations above the limits listed in Table 3, 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 2. If this method is unsuccessful, the tank systems will be disposed of as hazardous waste.

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/L
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

TABLE 2
TANK SYSTEMS, HAZARDOUS WASTE CODES, AND ANALYSES
(Continued)

TANK SYSTEMS	APPLICABLE WASTE CODES	PARAMETERS	EPA/SW-846 METHOD	PRACTICAL QUANTITATION LIMIT
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

TABLE 3
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
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

TABLE 3 (continued)

LIST OF GROUP A TANKS

OLD PLATING SHOP
BUILDING 101 - NAS JACKSONVILLE

TANK	PREVIOUS CONTENTS	POC
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

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. Off site disposal will also meet requirements the CERCLA off site disposal requirements.

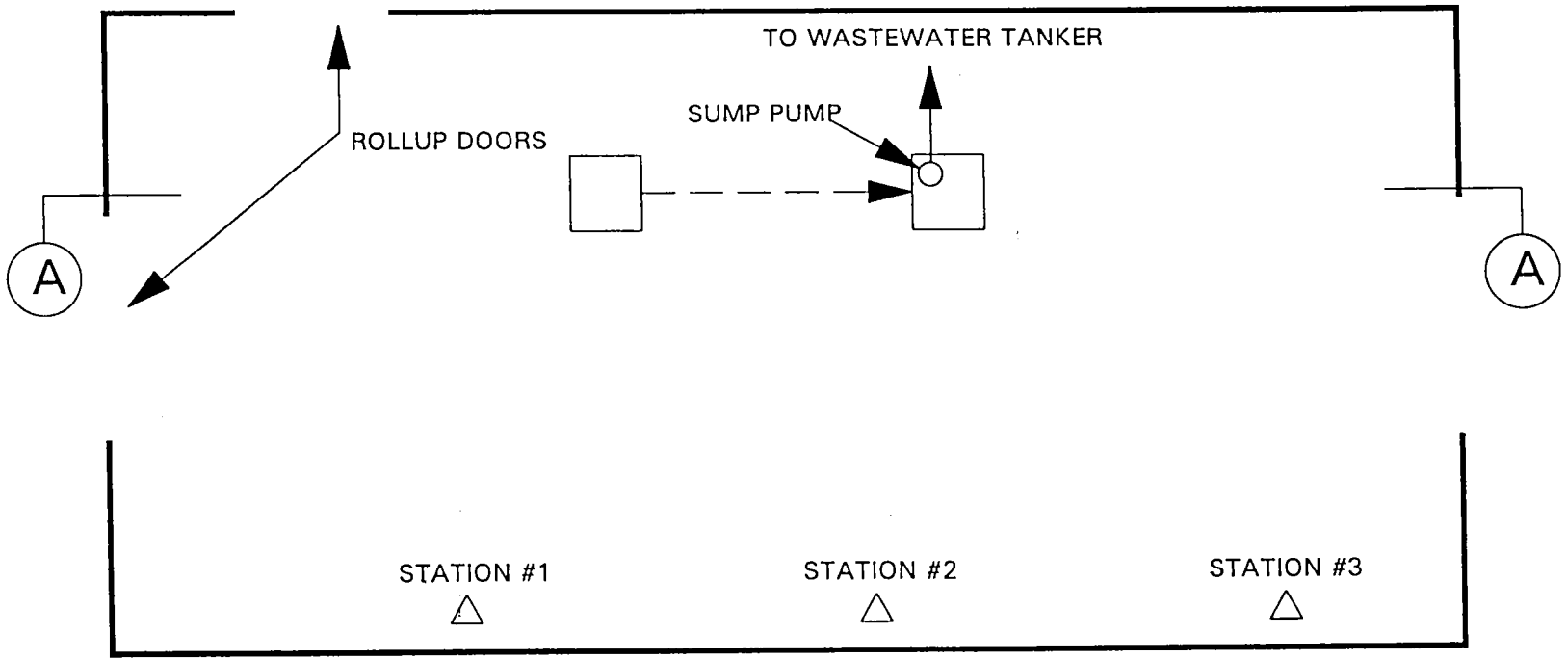
Storage, labeling, manifesting, and shipping of the hazardous waste items will be accomplished in accordance with 40 CFR Parts 262 and 263, as adopted by reference in FAC Rules 17-730.160(1) and 17-730.170(1), respectively.

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 (Figure 5 and Figure 6). The waste tanker will be appropriately marked "Waste Water" or "Distilled Water" prior to use. 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 7). 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 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 as a hazardous waste without routine sampling and analysis. Samples will be collected for verification of the waste characteristics as shown in the Sampling Types table in section 5.1. The distilled water generated by the treatment process either will be reused at the

FIGURE 5
BUILDING 101
OLD PLATING SHOP
DECONTAMINATION AREA-PLAN VIEW



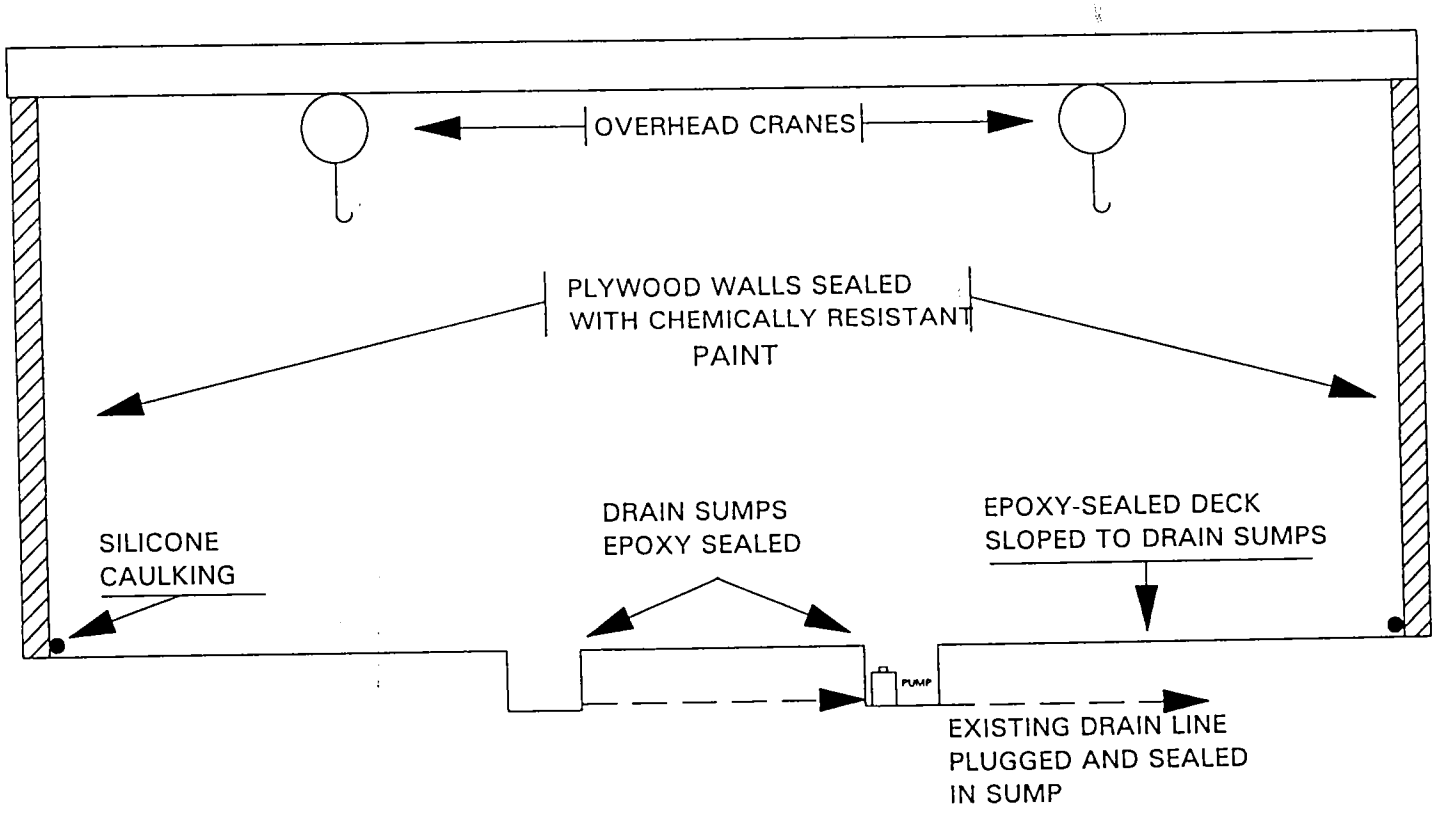
△ - PRESSURE WASHING STATION

N
NOT TO SCALE

PROJECT: OLD PLATING SHOP
DATE: NOVEMBER 10, 1993

WP7FIG3.DRW

FIGURE 6
BUILDING 101
OLD PLATING SHOP
DECONTAMINATION AREA-SECTION A-A



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DATE: NOVEMBER 10, 1993

WP7FIG9.DRW

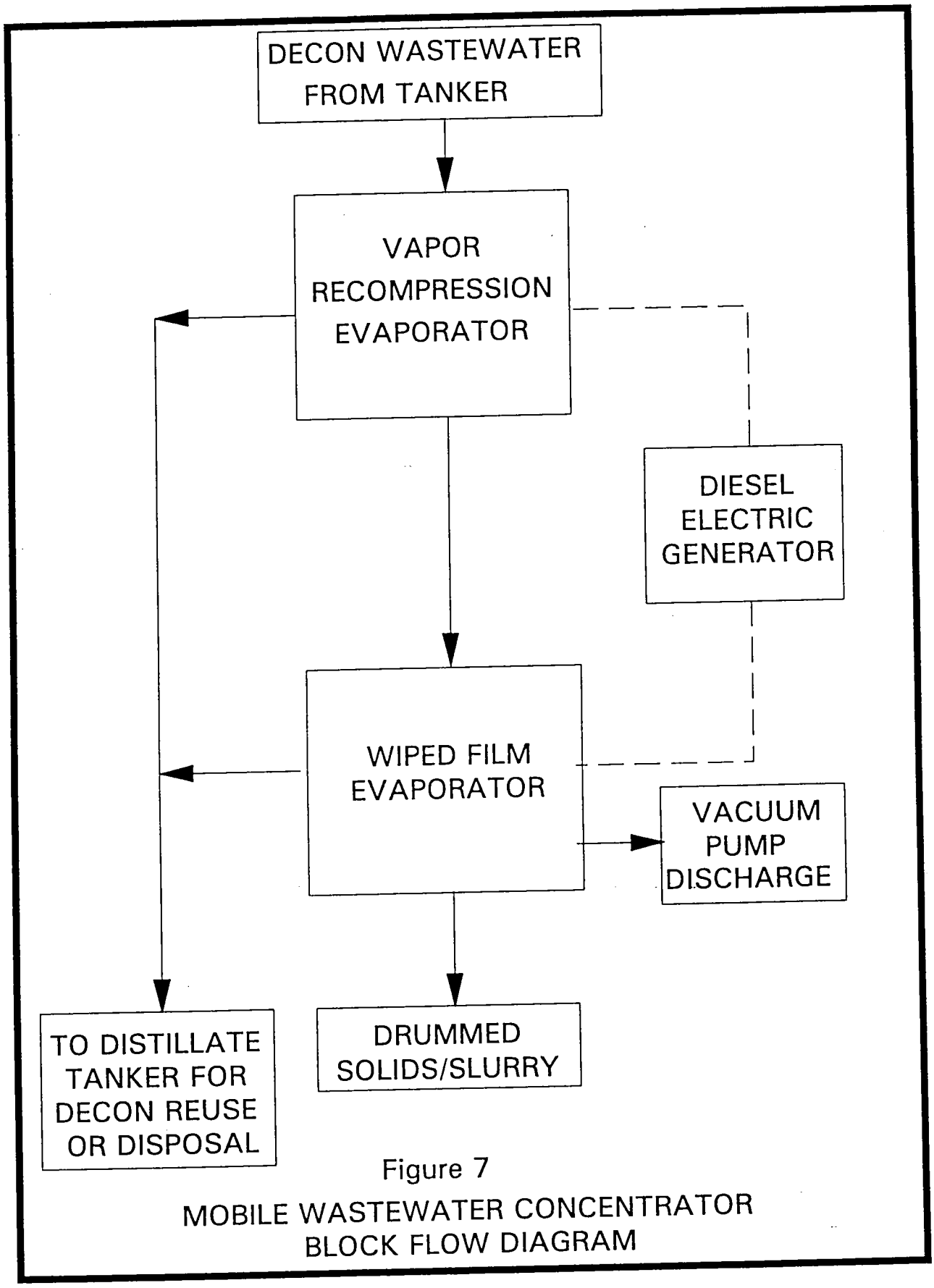


Figure 7

MOBILE WASTEWATER CONCENTRATOR
BLOCK FLOW DIAGRAM

WP7FIG6.DRW

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 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. 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.

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.

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

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 8 and Figure 9, 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 wastetreatment 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 accumulated liquid from migrating out of the containment system. The treatment system is located on a 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 concrete pad 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.

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 wastetreatment containment area. All interconnecting piping between the wastetreatment 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 (Figure 10) 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 and the station will be hoisted clear of the cavity and be turned over 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 commencement of backfilling operations.

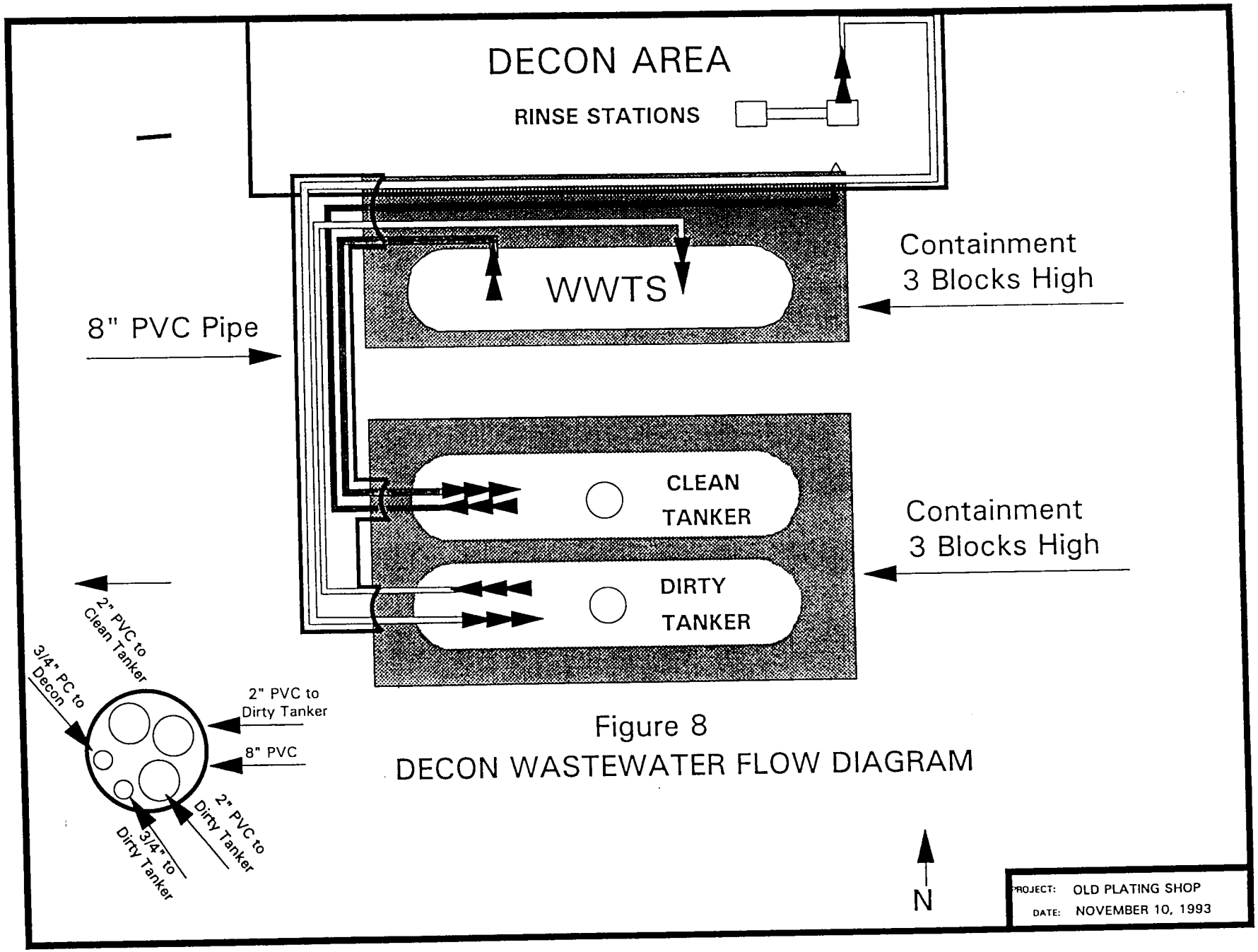


Figure 8
DECON WASTEWATER FLOW DIAGRAM

WP7FIG5.DRW

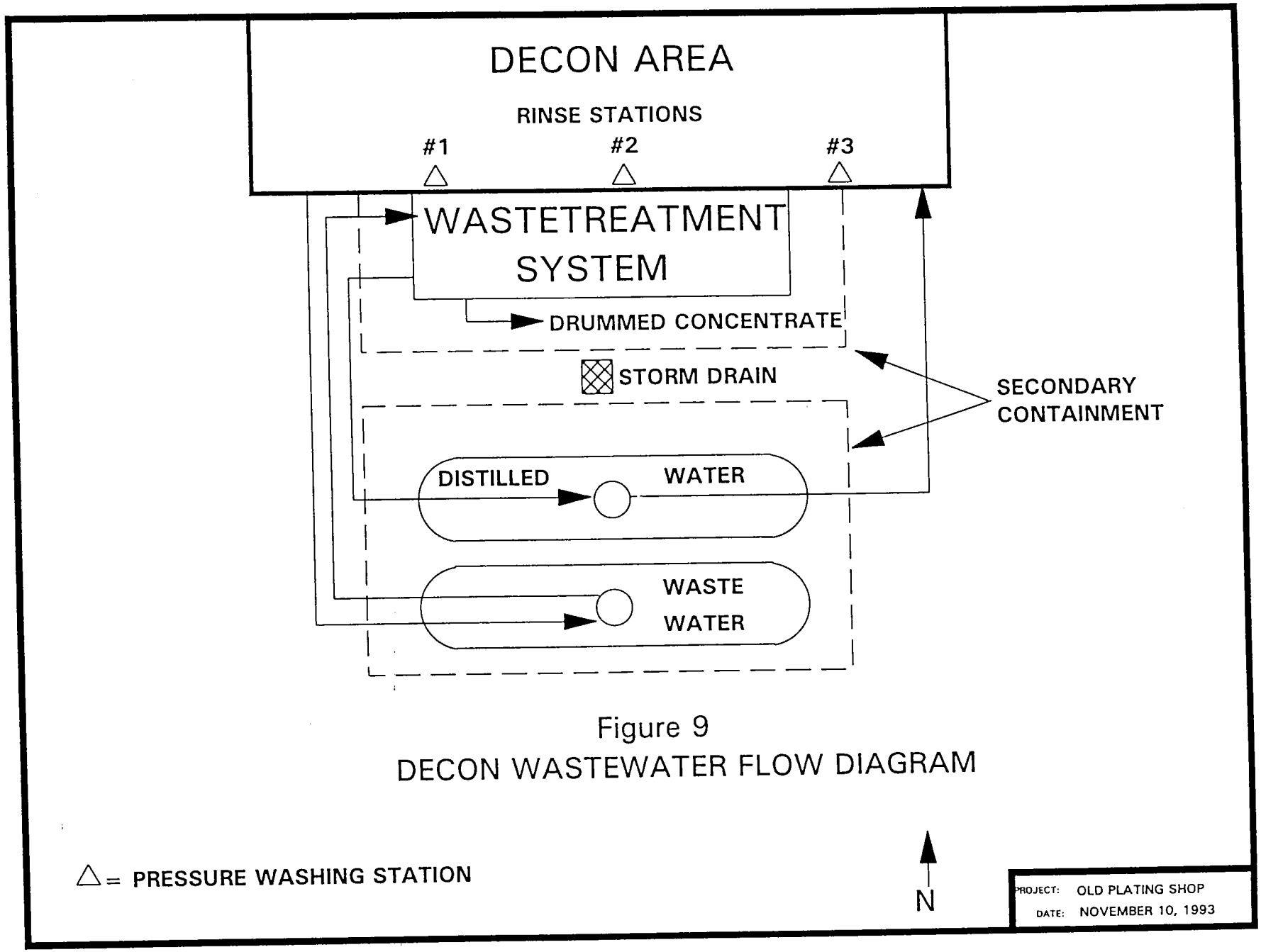
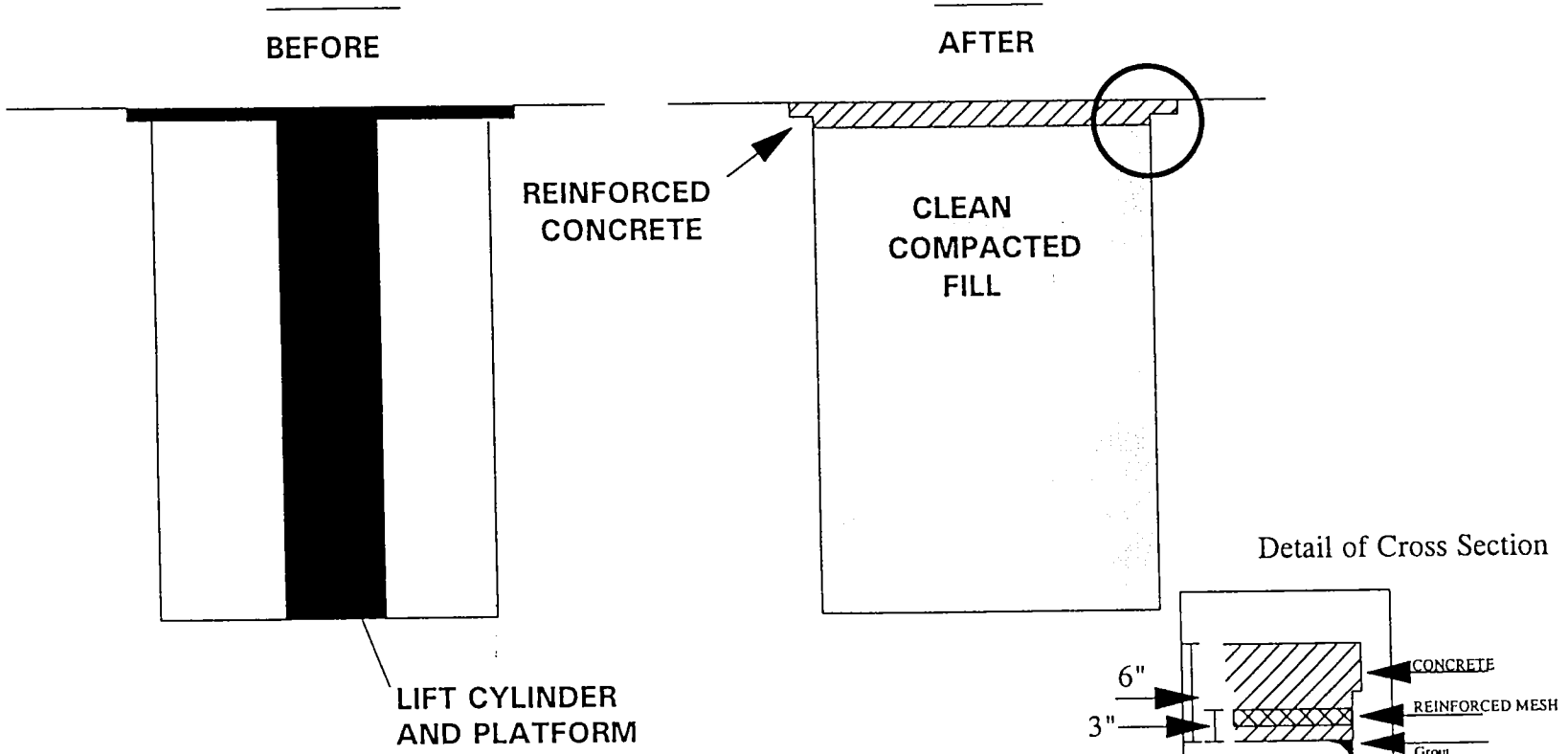


Figure 9
DECON WASTEWATER FLOW DIAGRAM

WP7FIG5.DRW

FIGURE 10
LIFT STATION DETAILS



PROJECT: OLD PLATING SHOP
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WP7FIG7.DRW

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, vibrated, broom finished, water cured, and traffic restricted for 72-hours.

2.11 TASK 11 - Materials Handling

Materials handling 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 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 - Grouting of Underground Lines

Underground piping will be filled with grout utilizing high pressure grouting equipment to fill the lines completely. No voids will remain in the piping after the grouting. Grouting procedures are addressed in Attachment F.

2.13 TASK 13 - Decontamination and Filling of the Serpentine Tanks

The serpentine tanks are concrete vaults below ground level and located outside Building 101 toward the east end of the south wall as shown previously in (Figure 1). The tanks consists of compartments which provide flow channels with baffles on alternate sides (Figure 11). 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. The concrete will be decontaminated by washing with pressure washers. The wastewater will be pumped into the wastewater tanker for processing in the wastewater treatment system. The success of the decontamination procedure will be determined by analysis of a rinsate sample which meets the parameter limitations in Table 1 of Attachment A before filling and sealing. The tanks will then be filled with common fill and compacted. The top will be finished with a reinforced concrete cap (similar to that installed in the hydraulic pit as shown on Figure 8). The chemical room associated with serpentine tanks will be decontaminated by pressure washing.

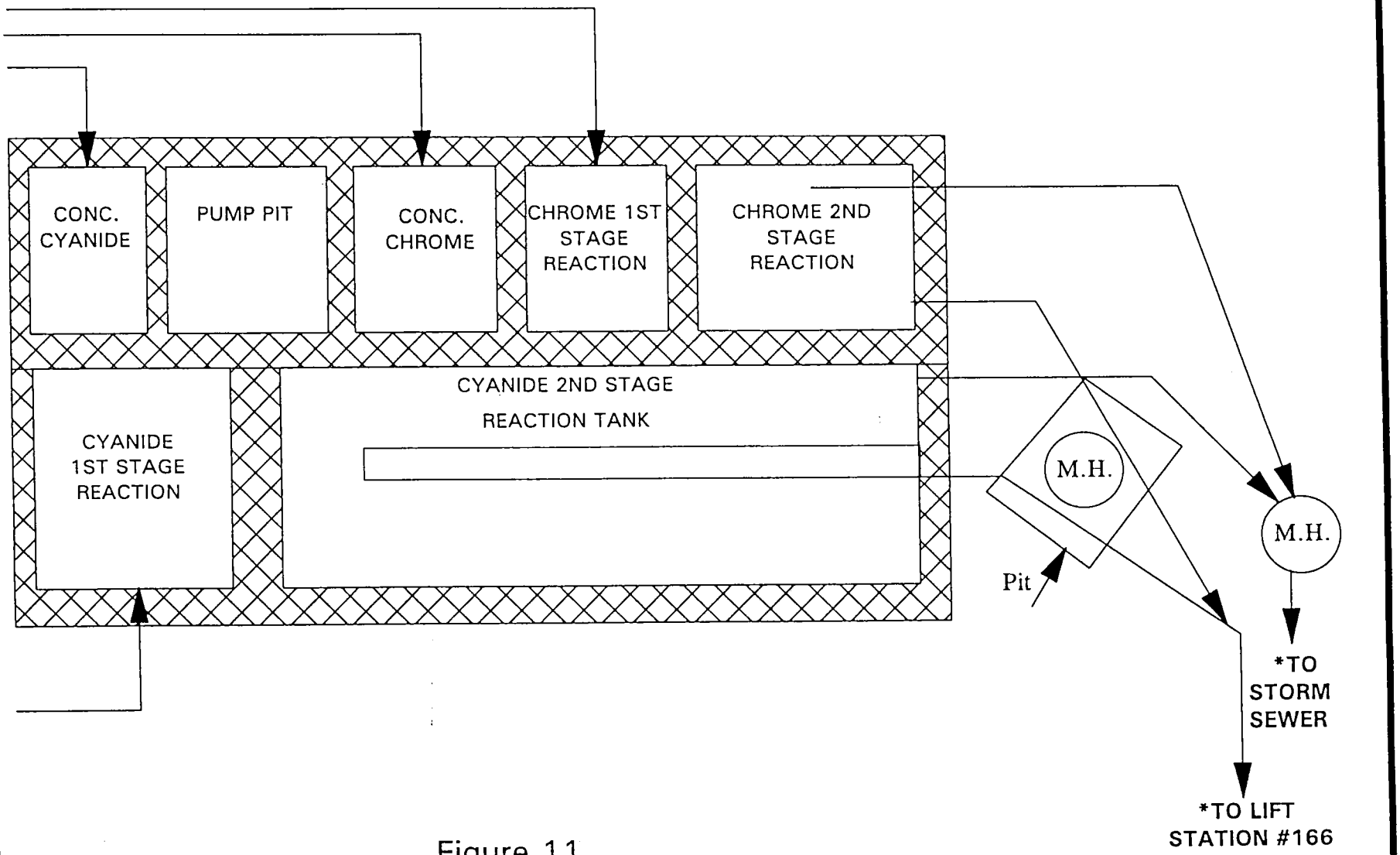

Figure 11
SERPENTINE TANK LAYOUT

NOT TO SCALE

N

PROJECT: OLD PLATING SHOP
DATE: NOVEMBER 10, 1993

* TO BE FIELD VERIFIED

WP7FIG8.DRW

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 12). The ventilators and their associated ductwork will be removed, triple rinsed and disposed of as debris or scrap metal. Openings in 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 - Decontamination of Walls and Floors

The walls and floors within the confines of the old plating shop will be decontaminated with pressure washers and disposed of as hazardous waste debris or nonhazardous waste as appropriate. A random sheet flow sample will determine the success of the decontamination process. The wastewater produced from the washing operation will be pumped to the waste water tanker for processing in the wastetreatment system.

2.17 TASK 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. Also all remaining transite will be removed.

2.18 TASK 18 - 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 for treatment in the wastetreatment system.

2.19 TASK 19 - 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.

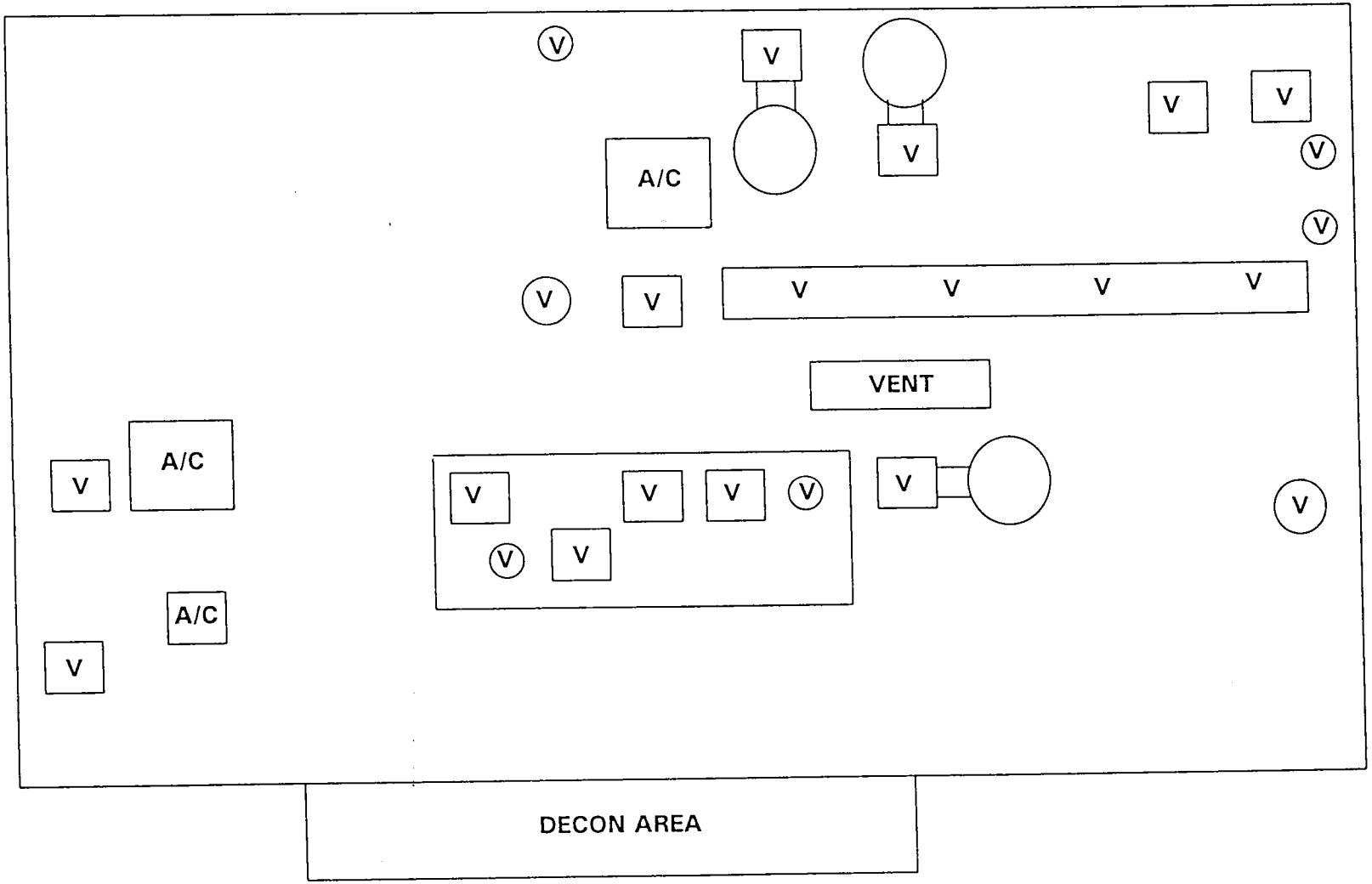

Figure 12

LOCATION OF ROOF EQUIPMENT

V = VENTILATION OPENING

NOT TO SCALE

N

PROJECT: OLD PLATING SHOP

DATE: NOVEMBER 10, 1993

WP7FIG10.DRW

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 Domestic WWTP effluent.
- 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 acquisitions methodology for sampling. The quality control/quality assurance section of the SAP provides the analytical protocols for the stated analytee's laboratory quality control requirements. The Quality Assurance Plan (QAP) provides analytical protocols for the stated analytes and labatory 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.

7.0 POTENTIAL PROBLEM AREAS

Several potential problems have been identified in the completion of this project. Each will be addressed as additional information becomes available. These problem areas are:

- Decontaminating Capability of Underground Piping
  Flushing of underground piping is expected to be accomplished by flushing with water. If this method is unsuccessful in producing a rinseate meeting required limits, other options must be considered.

- Failure of Floor and Wall Decontamination
  The walls and floor within the plating shop walls will be cleaned by pressure washing. If samples of rinseate fail to meet required limits, other options will have to be developed.

- Failure of Serpentine Decontamination
  The serpentine tanks will be pressure washed. If samples of rinseate indicate that the tanks are not clean, other options must be considered.

- Presence of Contamination Overhead
  The overhead area of the plating shop consists of wooden beams and planks. If these areas are determined to be contaminated, methods to decontaminate them will have to be developed.

Attachment A

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN

OLD PLATING SHOP

NAVAL AIR STATION

JACKSONVILLE, FL

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LIST OF FIGURES

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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 the collection and handling of samples. The analytical results will be used 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.

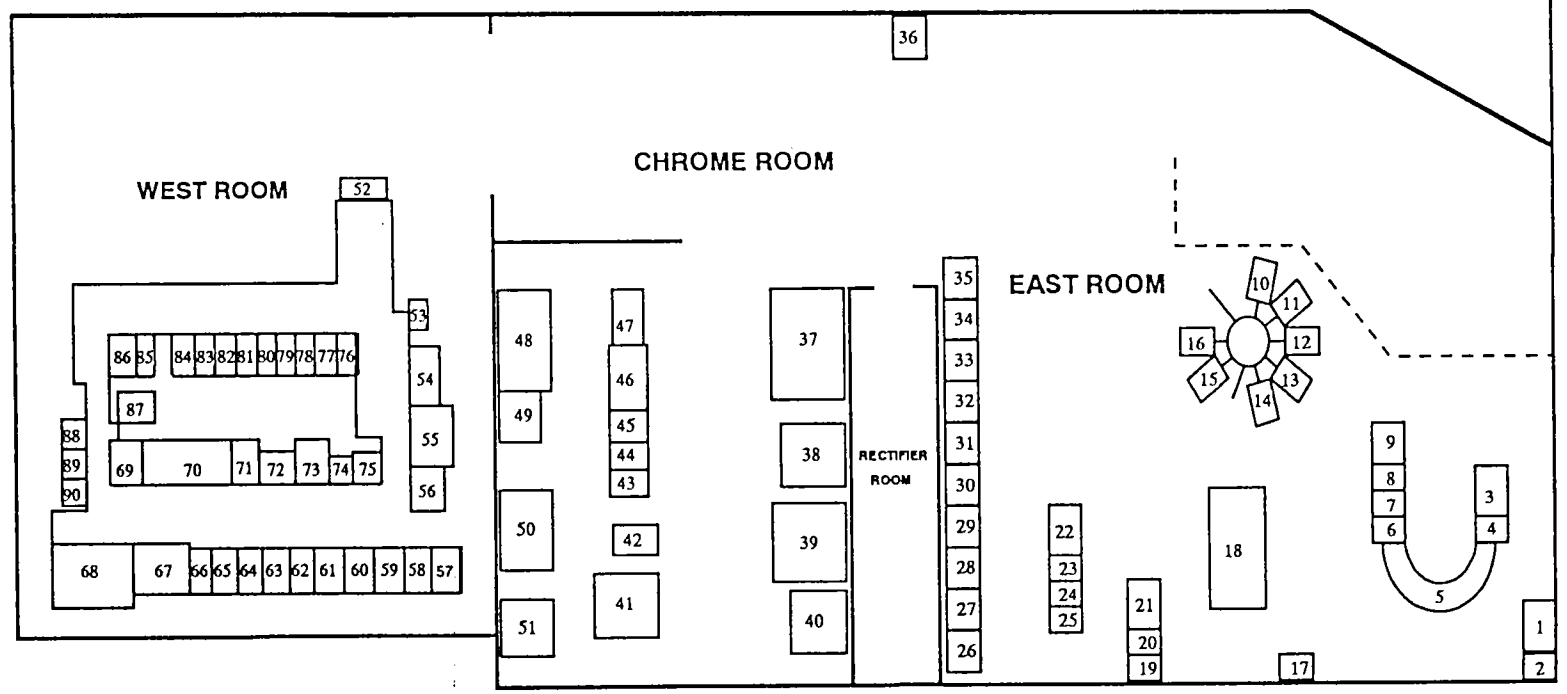


FIGURE A-1

BUILDING 101
OLD PLATING SHOP
TANK LAYOUT

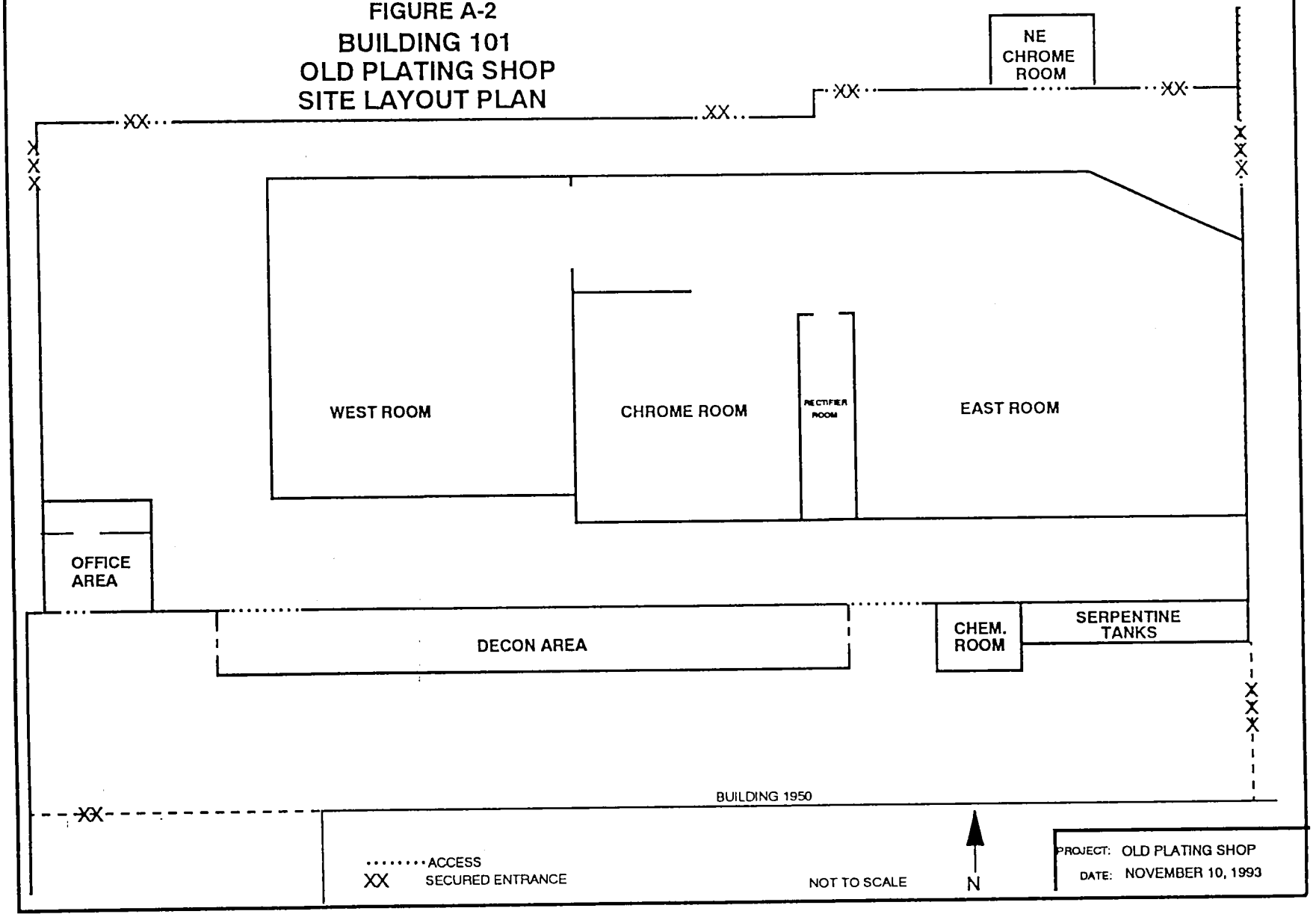
NOT TO SCALE

N

PROJECT: OLD PLATING SHOP
DATE: NOVEMBER 10, 1993

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 in Table 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.

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

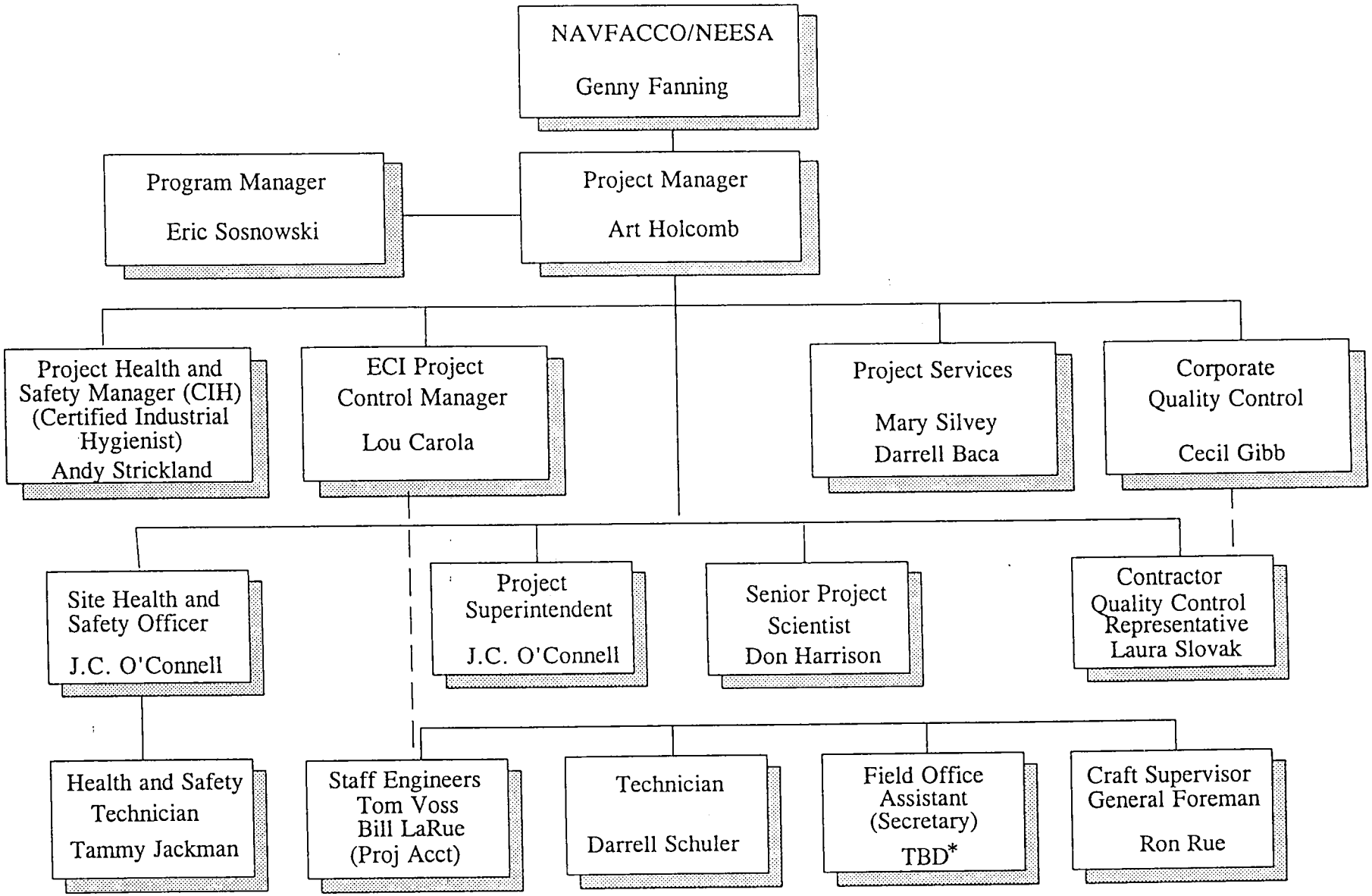


FIGURE A-4

COMPREHENSIVE QUALITY ASSURANCE PLAN

for

870546/8
7009, 7019
TLH-552
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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Ward Dickens, Laboratory Manager — 4/29/92 (Date)

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

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

RECE
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

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-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-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

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-6.

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

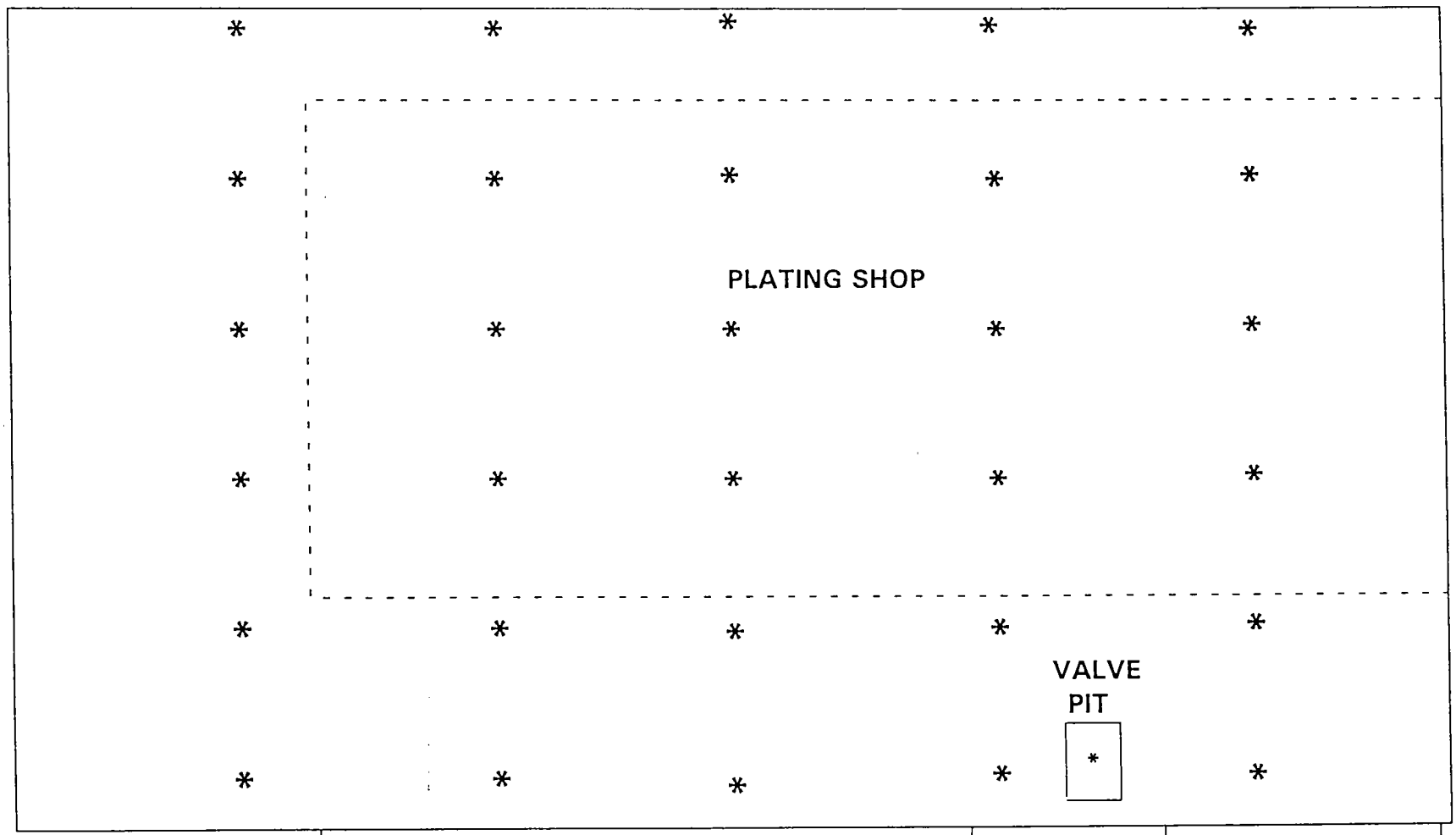

Figure A-5

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.

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.

Samples to be shipped to the laboratory will have information transcribed to a sample chain-of-custody form as shown in Figure A-7. 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.

3.10 SAMPLING EQUIPMENT DECONTAMINATION

The contractor will provide a manned and operating sampling equipment 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.

FIGURE A-7

CH2M HILL

QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

FSAPNASJAX

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	ANALYSES REQUESTED

LAB TEST CODES

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

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

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:	NOVEMBER 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:

_____ Date:_____

A. B. Holcomb, Project Manager

_____ Date:_____

J. C. O'Connell, Site Health and Safety Officer

_____ Date:_____

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 - all walls associated with plating shop

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) Waste management - if hazardous condition cannot be determined via analytical methods, it should be considered hazardous; material (non-hazardous) which may have been contaminated must be subject to TCLP analysis

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

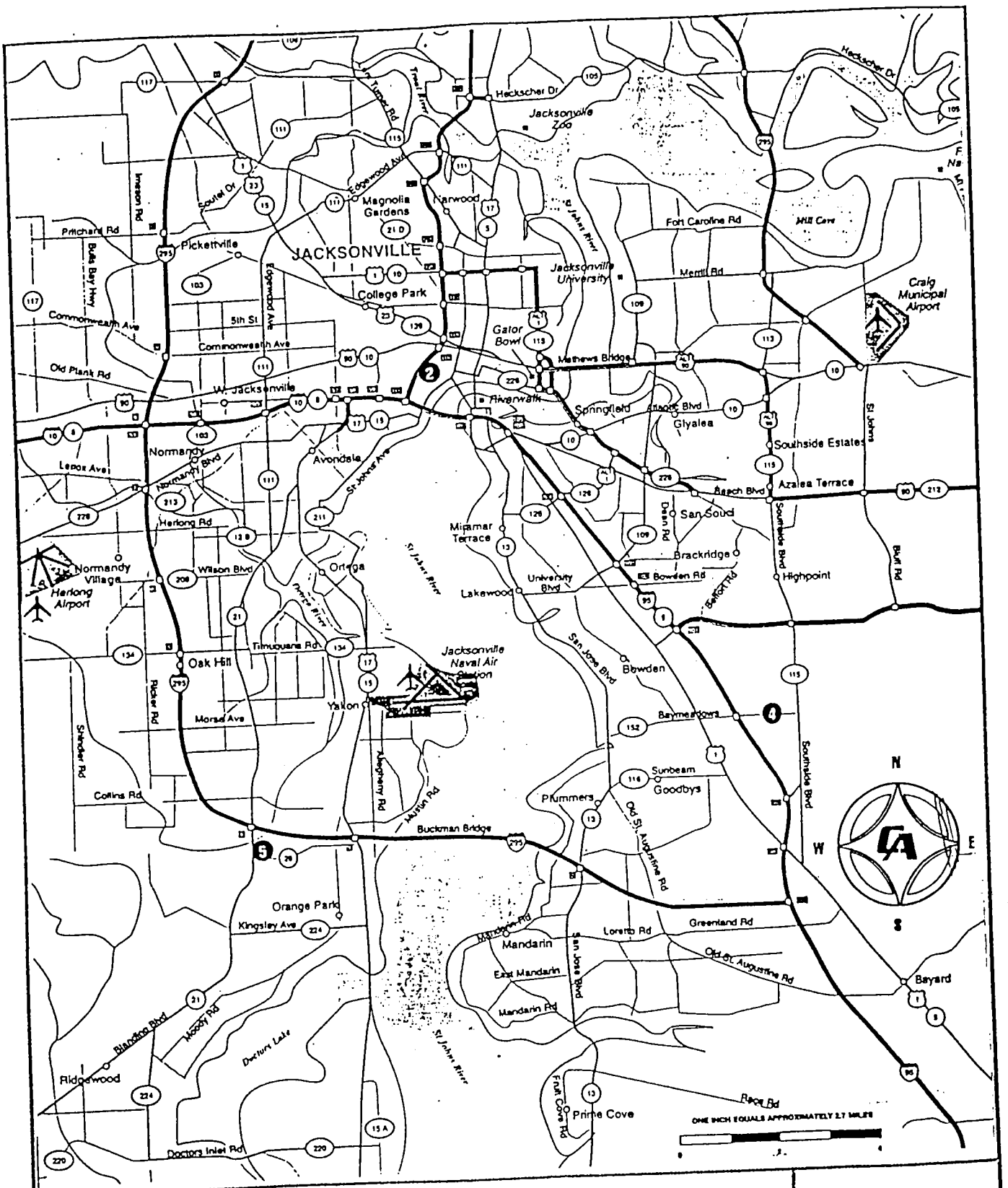
TANK	PREVIOUS CONTENTS	POC
3	Copper plating solution.	CN, Cr, Pb, Ni
5	Cadmium plating solution.	Cd, CN, Cr, Pb, Ni
11	Electrocleaner, federal specification P-C-535.	Pb
12	Water rinse after electroclean.	Cd
17	Sodium cyanide solution (dilute holding tank).	Cd, Cr, Pb, Cn, Ni
18	Cadmium plating solution.	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 I 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

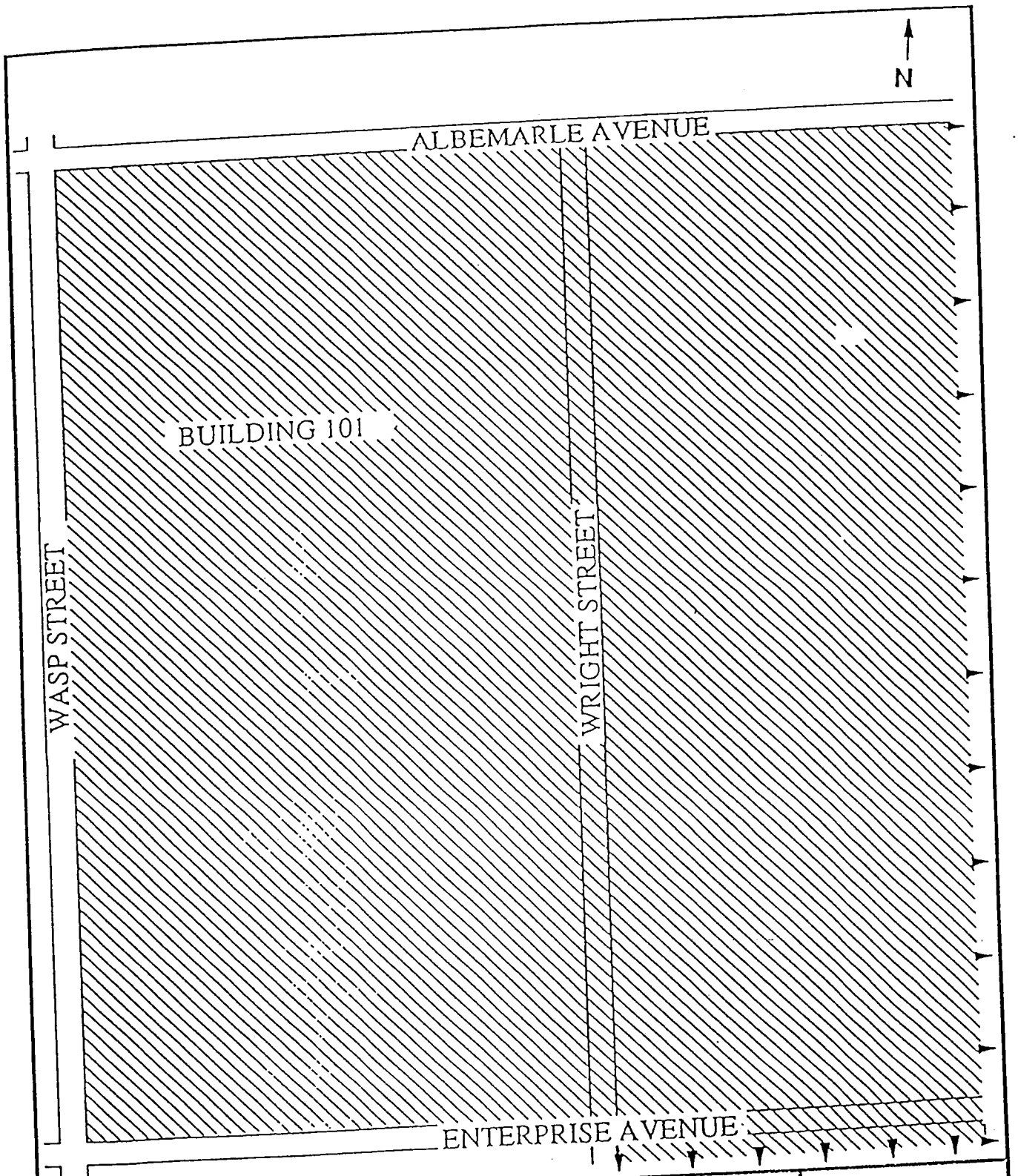


EBASCO

GENERAL SITE LOCATION MAP

NAVAL AIR STATION JACKSONVILLE, FL

FIGURE 1

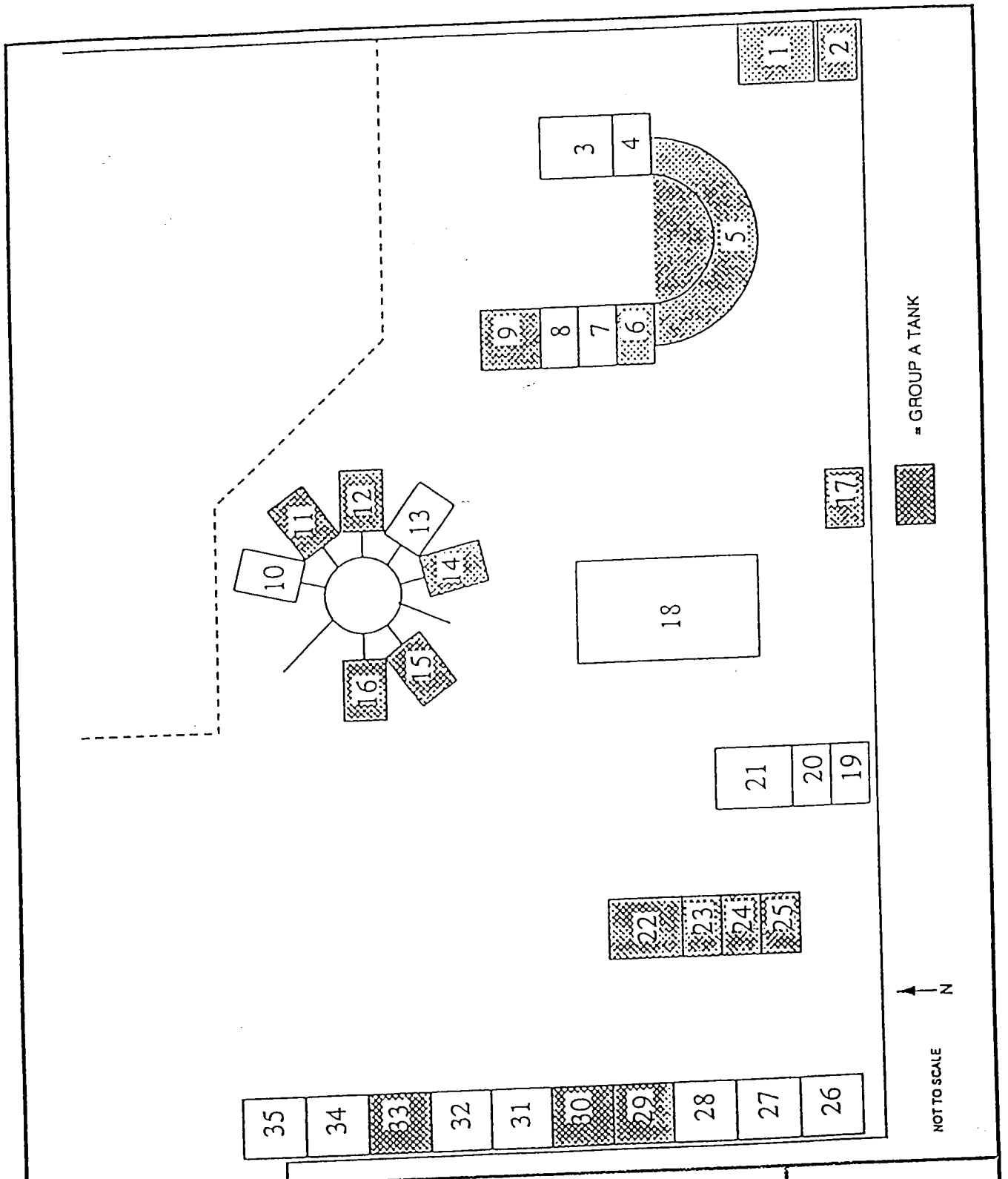


EBASCO

OPERATIONAL UNIT 3

NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 2

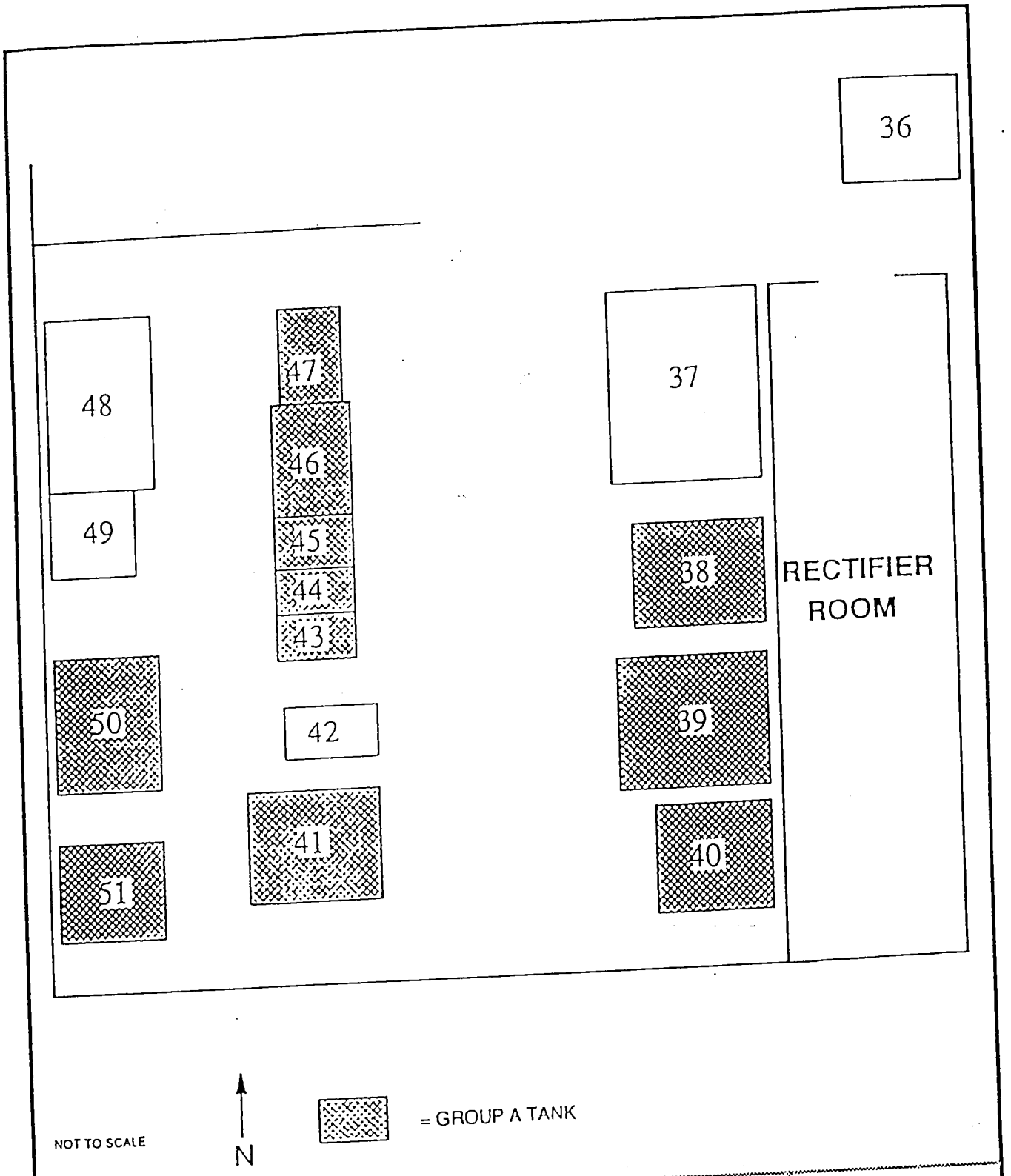


EBASCO

EAST ROOM TANK LAYOUT

NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 3



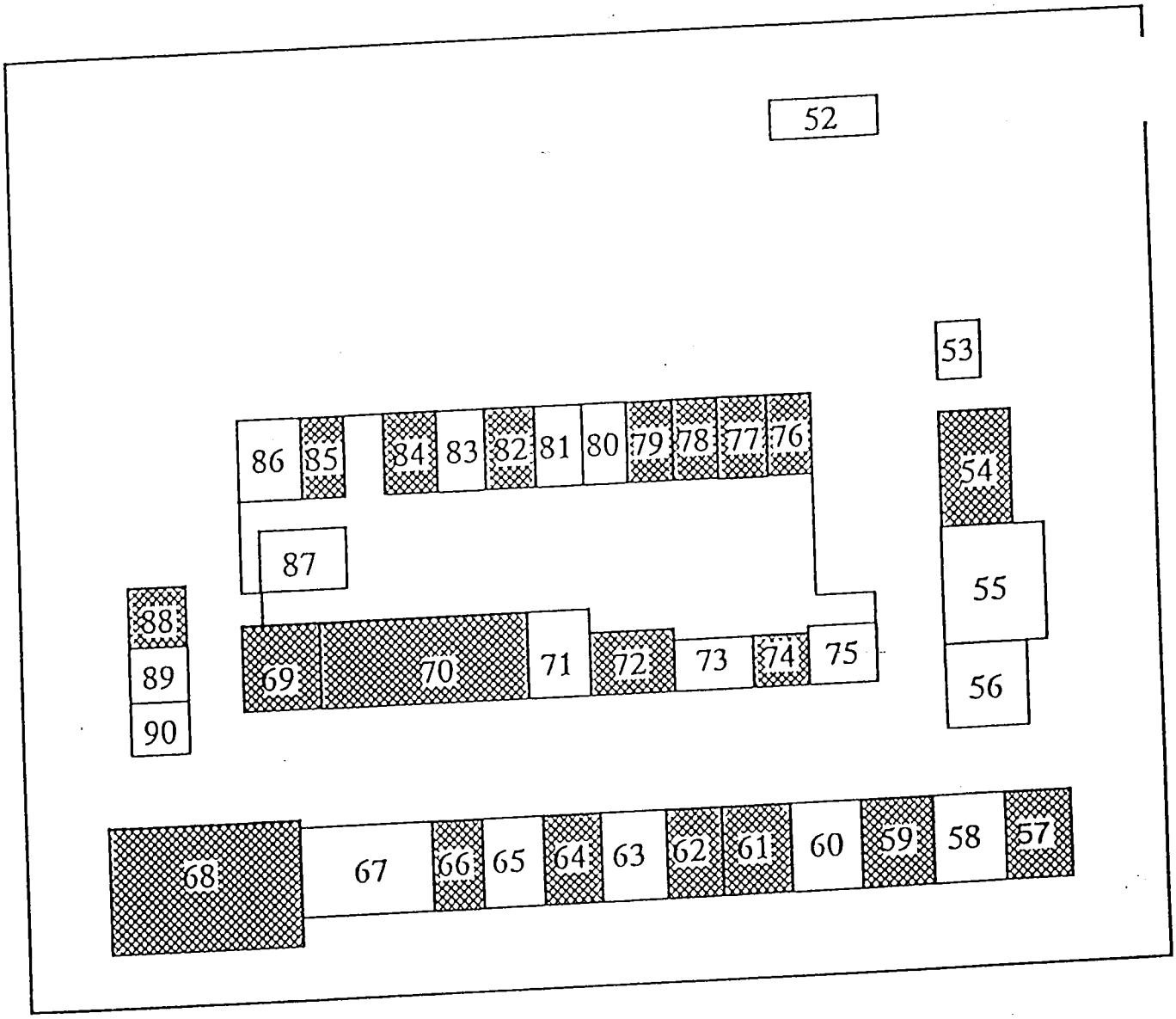
EBASCO

CHROME ROOM
TANK LAYOUT
NAVAL AIR STATION
JACKSONVILLE, FL

FIGURE 4

FIGURE 5

WEST ROOM
TANK LAYOUT



NOT TO SCALE

N

= GROUP A TANK

PROJECT: NAS JAX HEALTH & SAFETY PLAN

DATE: JUNE 7,1993

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
PEL Permissible Exposure Limit
ppm parts per million
TLV Threshold Limit Value
IDLH Immediately Dangerous to Life or Health

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

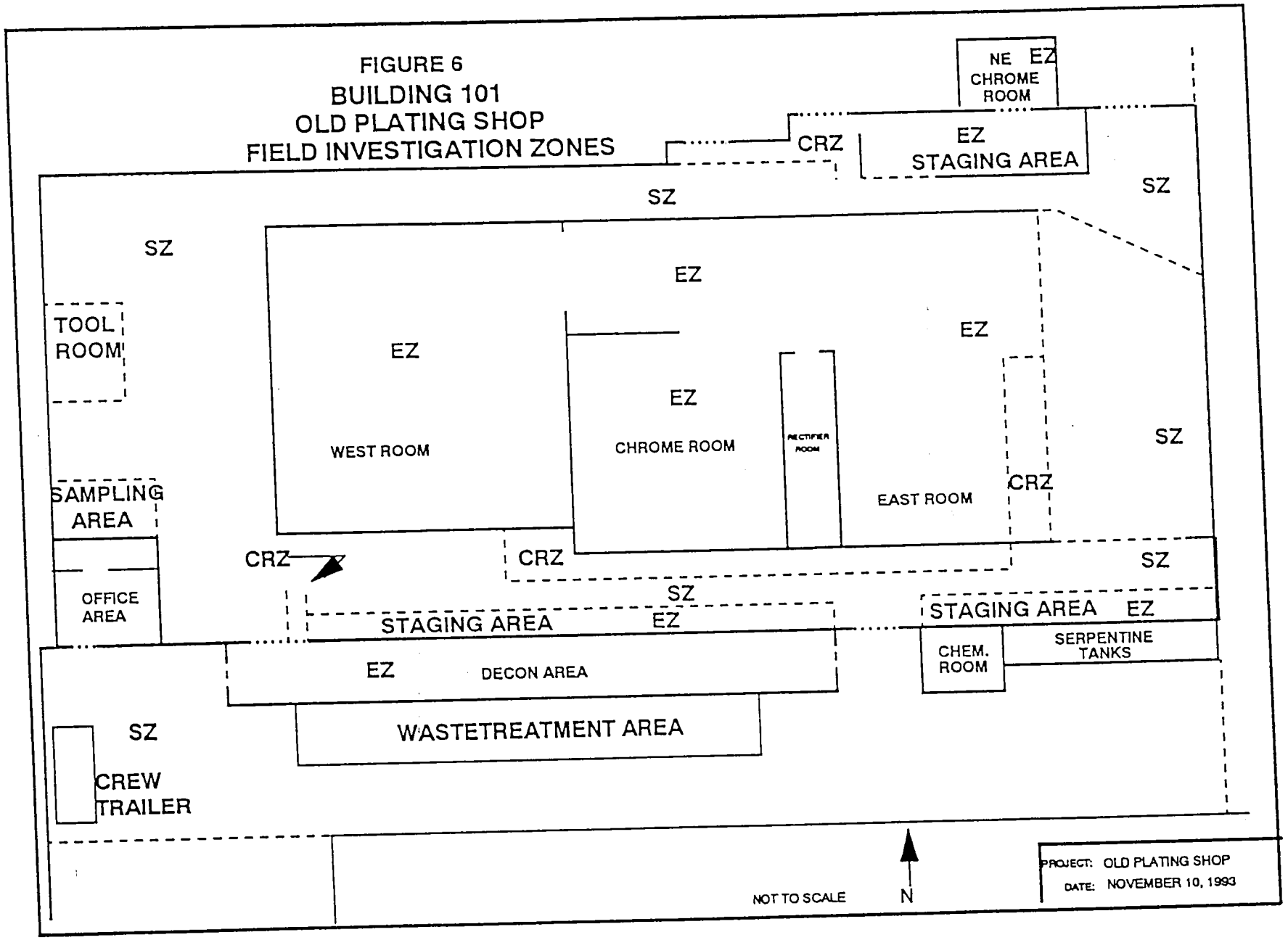
In areas where personnel will be conducting work involving contaminated material, a restricted area (the Exclusion Zone) will be clearly marked or identified by cones, tape, or other means. Other restricted areas may include storage areas, sources of combustible gases or air contaminants and other dangerous 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.

Portable Ladders

- General - All Portable Ladders
  - 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.

- 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.

Compressed Gas Cylinders

- Always keep cylinders upright. Tie off vertically with strong wire, rope or chain. or 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.

Welding and Burning

- 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.

- Electricity
  - No "hot work" is allowed without authorization from your supervisor.
  - 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.

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.

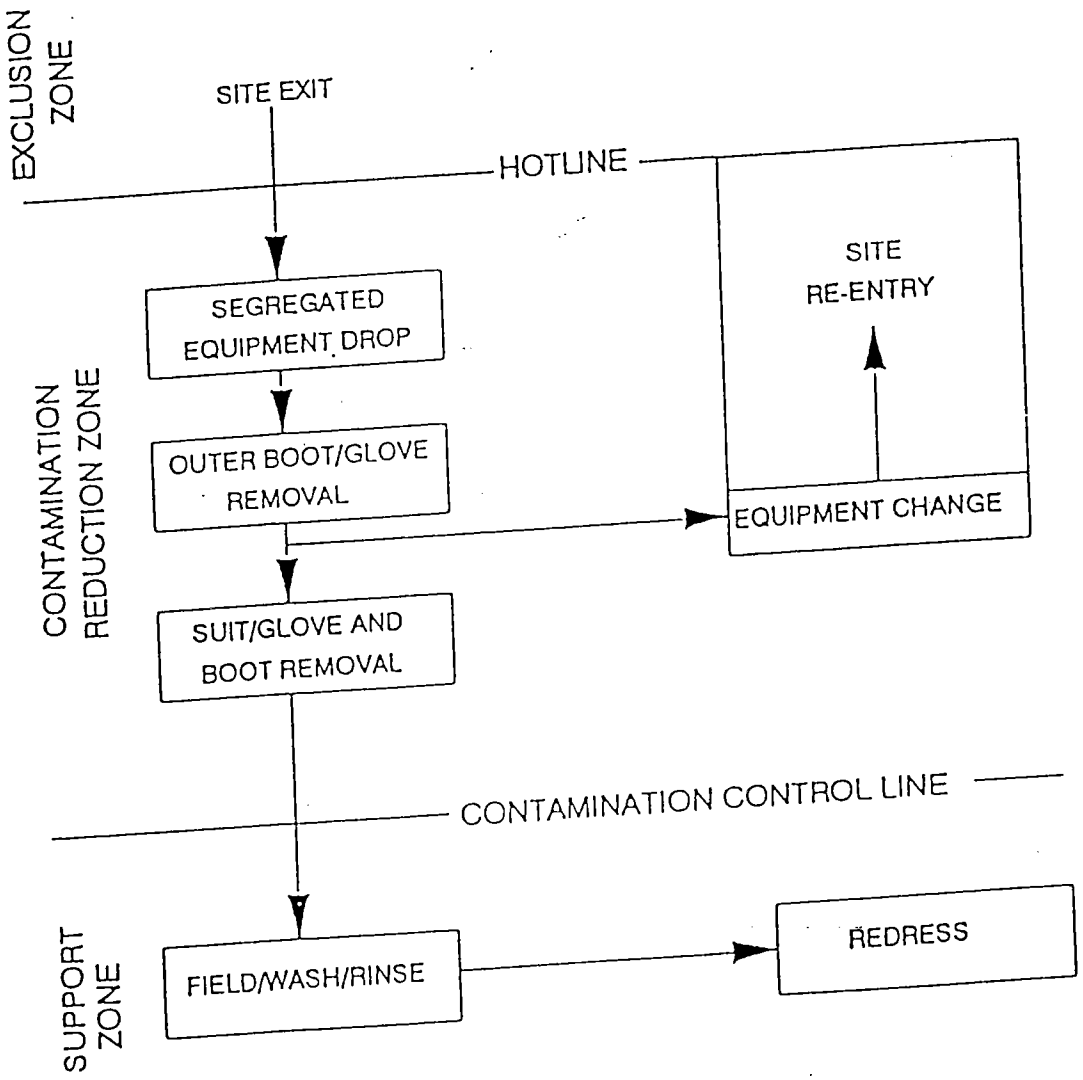
9.2 DECONTAMINATION

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 decorned by Decon Tech may be picked up.	

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

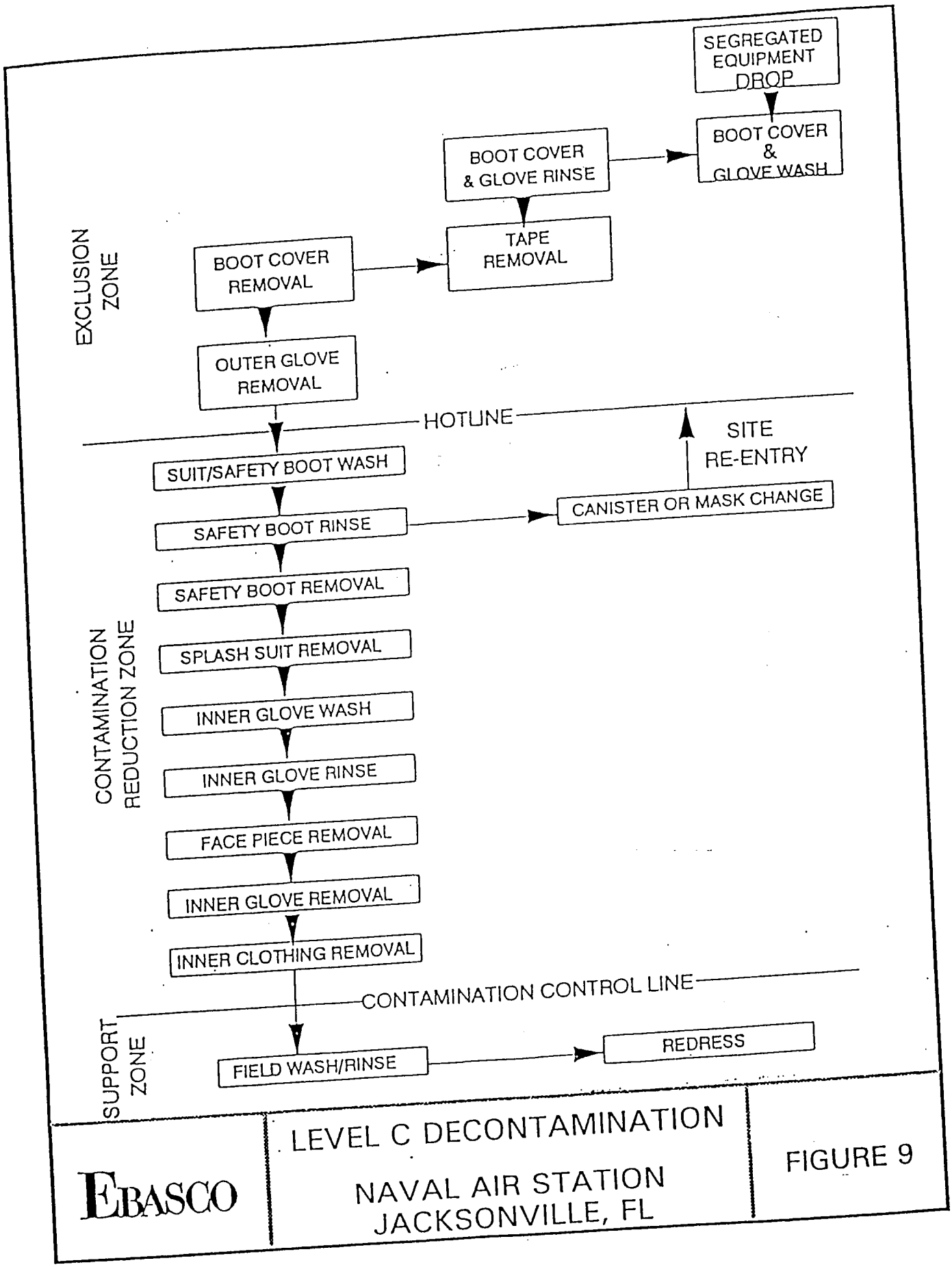

SEGREGATED EQUIPMENT DROP
BOOT COVER & GLOVE WASH
BOOT COVER & GLOVE RINSE
TAPE REMOVAL
EXCLUSION ZONE
BOOT COVER REMOVAL
OUTER GLOVE REMOVAL
HOTLINE
SITE RE-ENTRY
SUIT/SAFETY BOOT WASH
CANISTER OR MASK CHANGE
SAFETY BOOT RINSE
SAFETY BOOT REMOVAL
CONTAMINATION REDUCTION ZONE
SPLASH SUIT REMOVAL
INNER 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.

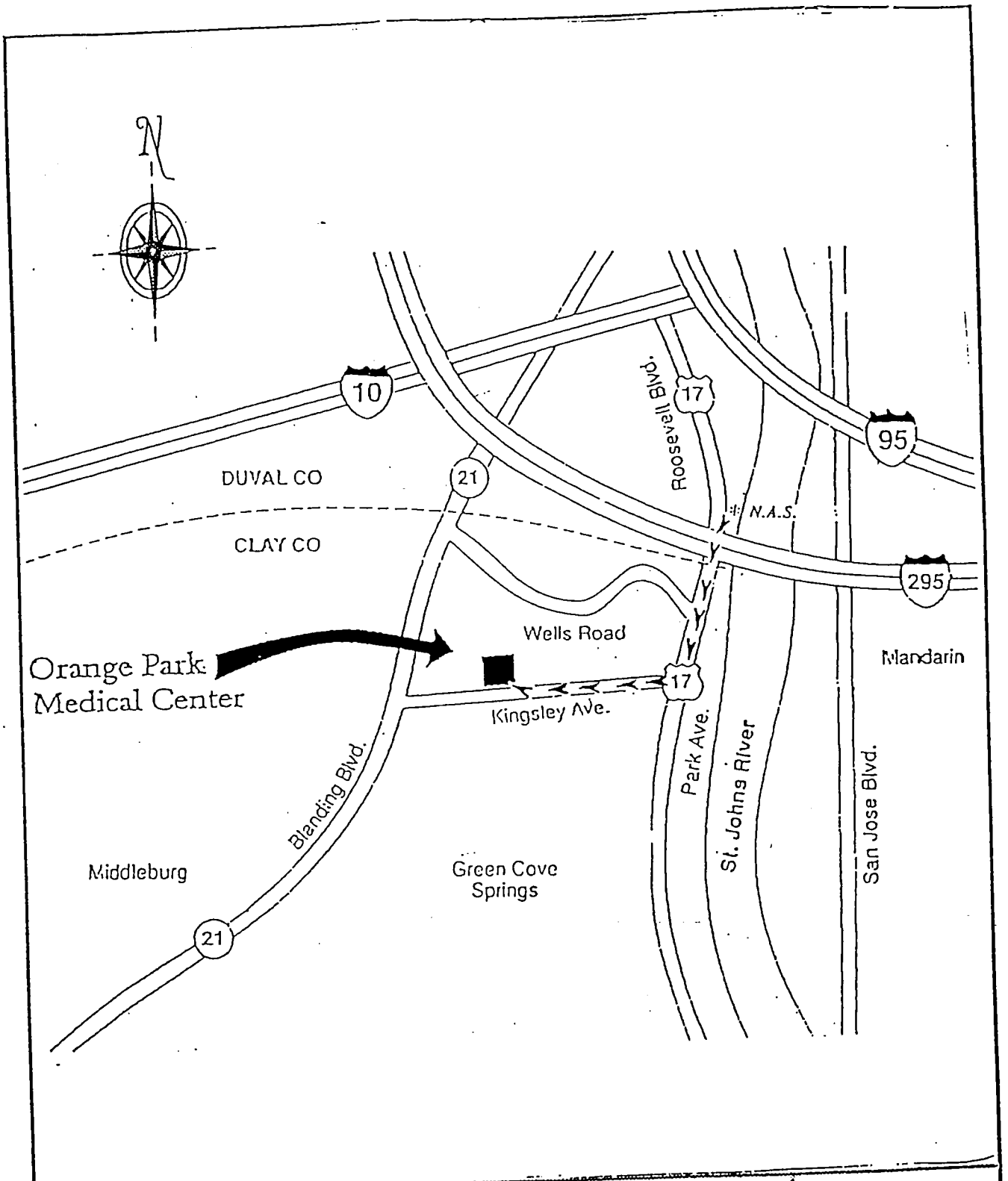
The base hospital will only be used for emergencies. The Orange Park Medical Center will be used for medical services and will be notified of the nature of operations prior to beginning work. If the SHSO determines that emergency transport is not necessary, he may transport the patient by car to the 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

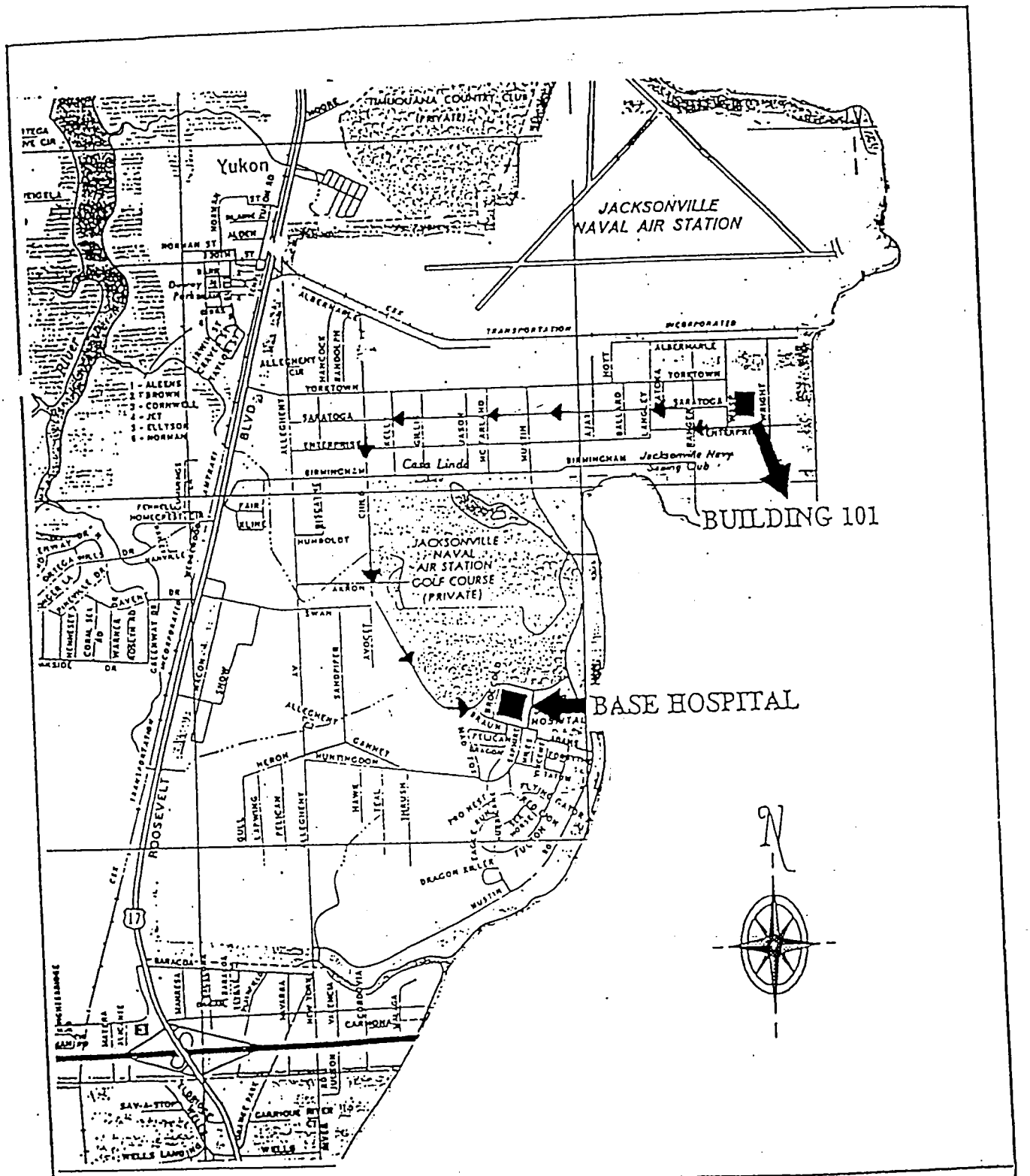
Personnel shall immediately evacuate the site, then sound an air horn for three 5-second intervals. The fire and police departments and other appropriate response groups shall be notified. Portable fire extinguishers will be used to suppress the fire. In the observance of smoke, the area will be thoroughly 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
SHSO	J.C. O'Connell	(904)573-9948
PHSM	Andrew Strickland	(303)980-3610
HSTs	Tammy Jackman Laura Slovak	(904)573-9948
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

EED HEALTH AND SAFETY PROGRAM MANUAL

TITLE: Respiratory Protection Program
NO. HS-9
DATE: 11/91
REVISION: 0

APPROVED BY:

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: _____	

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

ATTACHMENT C

ASBESTOS ABATEMENT PLAN

(NOTE: This Asbestos Abatement Plan is site specific and is an addendum to the Asbestos Abatement Specification submitted earlier.(See cover sheet and Table of Contents following this attachment.)

ASBESTOS ABATEMENT PLAN

JENSCO, INC.
POST OFFICE BOX 330358
248 LEVY ROAD
JACKSONVILLE, FLORIDA 3222

ASBESTOS PLAN

PHASE 1

SUBJECT LEVEL:

PREPARED BY: STEVEN T JENKINS

REVIEWED BY:

APPROVED BY:

OCCUPATIONAL HEALTH CONSERVATION, INC.
5118 N. 56TH STREET, SUITE 215
TAMPA, FLORIDA 33610

X APPROVED ___ DISAPPROVED

___ APPROVED AS NOTED ___ RESUBMISSION REQUIRED

CHECKED BY: DATE: 5-4-93

APPROVAL IS FOR GENERAL CONFORMANCE TO PLANS AND SPECIFICATIONS; CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, QUANTITIES AND COORDINATION WITH THEIR TRADES. APPROVAL IS SUBJECT TO CONTRACT REQUIREMENTS AND DOES NOT AUTHORIZE ANY CHANGES INVOLVING ADDITIONAL COST UNLESS STATED IN SEPARATE LETTER OR CHANGE ORDER.

1. POLICY

1.1 This plan has been developed to ensure that thermal insulation materials known or suspected of containing asbestos are removed and controlled in accordance with Government Specifications and Occupational Safety and Health Administration Requirements.

2. PURPOSE

2.1 The intent of this plan is to provide the Contractor and the Officer in Charge Construction with a detailed plan of the work procedures to be used in the removal and demolition of materials containing asbestos located in Building 101W at the Jacksonville Naval Air Station.

3. SCOPE

3.1 This procedure shall be employed where asbestos work is performed by Jensco, Inc. and shall pertain to the removal of materials identified in the following areas of the "Old Plating Shop."

1. EAST ROOM, MEZZANINE, & TRANSFORMER ROOM
2. CHROME ROOM
3. MEZZANINE ABOVE CHROME ROOM
4. WEST ROOM
5. BACK RAMP AREA
6. ROOF AREA

3.2 This procedure will also address special precautions to be taken in work areas 1,2, & 4 due to the presence of hazardous materials other than asbestos and or asbestos containing materials which have been cross contaminated by hazardous wastes.

3.2.1 For purposes of this work plan, work areas 1, 2, & 4 will be subdivided as follows;

A - From 4' above floor grade to bottom of trench
B - From 4' above floor grade to roof deck

3.2.2 Work in 1A,2A, & 4A will include the pick up of asbestos containing debris, glove bag removal of pipe insulation in the vicinity of liquid waste, and the removal and packaging of contaminated wood grating.

3.2.3 Work in 1B,2B, & 3B will include the glove bag removal of pipe insulation.

4. ASBESTOS CONTROL AREAS

4.1 Asbestos control areas will consist of; the actual work area where ACM is being removed, zone 1 of the decontamination unit identified as the dirty room, zone 2 of the decontamination unit identified as the shower room, and zone 3 of the decontamination unit identified as the clean room.

4.2 The following, Figure X-2, illustrates the location of the controlled areas in reference to the work area and the decontamination procedures that will be used to enter and exit the work area.

5. EXECUTION

5.1 PRIOR TO ASBESTOS WORK:

5.1.1 Twenty-four hours before masking and sealing operations begin, area monitoring will be performed in accordance with 29 CFR 1910.1001 and as specified in Navy specification 02075 to establish a reference TWA of asbestos airborne fibers.

5.1.2 The area shall also be designated a restricted area by posting caution signs at all approaches to the controlled area which conform to 29 CFR 1910.145(d)(4).

5.1.3 Workers will enter the work area to install temporary electric and lighting.

5.1.4 All windows, exhaust and intake ducts, work area penetrations will be vacuumed, wet-wiped, and sealed using 6 mil. polyethylene plastic and duct tape in order to create an airtight enclosure.

5.1.5 All necessary equipment will be placed in the work area.

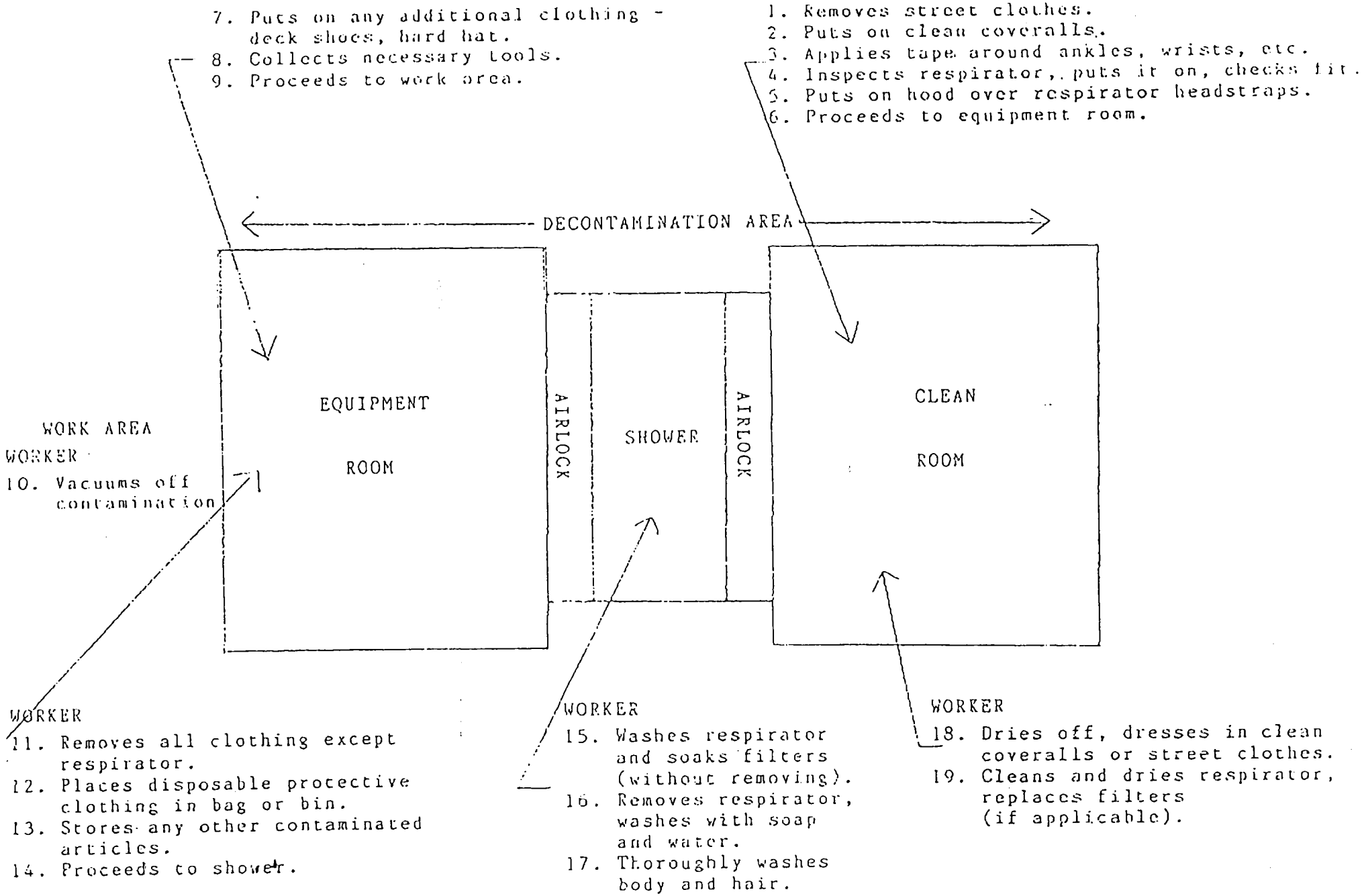


Figure X-2. Procedures for Entering and Leaving the Work Area.

5.1.6 A sufficient number of negative air machines will be placed inside the work area to establish negative air pressure of at least .02" wt.col. The air intakes will be placed as far from the exit as possible with the exhaust air pumped directly outside via poly ducting.

5.1.7 The decontamination zones will be constructed according to figure X-2 and will be the CRSI Tri-Mod shown in the equipment submittals.

5.1.8 The work area and decontamination zones will be inspected to ensure the following; equipment, floor, windows, and exhaust ducts are properly covered and sealed, decontamination zones have been properly constructed to maintain negative air, and all equipment and supplies necessary to remove the ACM and aid decontamination are available in their proper place.

5.1.9 All work area preparation work will be performed by workers equipped with dual HEPA/organic vapor HMAP respirators, poly coated tyvek suites, and chemical resistent gloves and boots.

5.2 ASBESTOS REMOVAL

5.2.1 Workers equipped with appropriate PPE (see schedule of personnel protective equipment) will enter the work area following the procedures illustrated by figure X-2.

5.2.2 Wet work practices will be utilized with an airless sprayer filled with amended water.

5.2.3 In work area 4, the friable asbestos containing materials will be removed as follows: one man will cut or scrape the material from the substrate, one man will constantly spray amended water on the disturbed area, one man will gather ACM debris and place in appropriate disposal bags.

5.2.3.1 Wood grating will be cut into manageable section and wrapped in two layers of 6 mil poly.

5.2.3.2 Sludge in trenches and debris on floors will be vacuumed or pumped directly into steel drums.

5.2.3.3 Glove bag removals will be accomplished as follows:

GLOVE BAG REMOVAL PROCEDURES

1) Following the manufacturer's directions, the surfactant will be mixed with water in a garden sprayer.

2) Each employee will put on a cartridge respirator and check the face fit.

3) Each employee will put on a disposable full body suit.

4) The pipe where work is to be performed will be examined. If it is damaged (broken lagging, hanging, etc.), the entire length of pipe will be wrapped in polyethylene plastic and "candystriped" with duct tape.

5) The top and sides of the glove bag will be adjusted to accommodate the size of pipe (about two inches longer than the pipe diameter).

6) The necessary tools will be placed into the pouch located inside the glove bag. This will usually include a bone saw, rags, scrub brush, wire cutters, tin snips and pre-cut wettable cloth.

7) One strip of duct tape will be placed along the top edge of the glove bag for reinforcement.

8) Using a smoke tube and aspirator bulb, the bag will be tested for leaks. If leaks are found, they will be taped shut and the bag will be re-tested.

9) The water sprayer wand will be inserted through the sleeve and the sleeve will then be sealed tightly to prevent air leaks.
10) One person will place his hands into the long-sleeved gloves while the other directs the water sprayer at the work.

11) If the section of pipe is covered with an aluminum jacket, this is removed first using the wire cutters to cut any bands and the tin snips to remove the aluminum. Caution will be used to prevent sharp edges from cutting the bag.

12) With the insulation exposed, the bone saw will be used to cut the insulation at each end of the section to be removed inside the glove bag. Throughout this process, water is sprayed on the cutting area to keep dust to a minimum.

13) Once the ends are cut, the section of insulation will be slit from end to end using the utility knife.

14) All tools will be sprayed with water inside the bag and placed back in the pouch.

15) The insulation will then be lifted off the pipe and gently placed in the bottom of the bag.

16) Using the scrub brush, rags and water, the exposed pipe will be cleaned.

17) The wettable cloth will then be used to seal the exposed ends of insulation remaining on the pipe.

18) The water wand will be removed and the vacuum nozzle attached to collapse the bag.

19) The vacuum nozzle will be removed and the sleeve sealed using duct tape.

20) From outside the bag, the tool pouch will be pulled away from the bag, twisted to separate it, and then duct tape will be placed over the twisted portion. Cutting through the twisted/taped portion the tools will be placed into the next bag without cleaning.

21) With removed insulation in the bottom of the bag, the bag will be twisted and taped to keep the material in the bottom during removal of the glove bag from the pipe.

22) A 6 mil disposable bag will be placed over the glove bag (still attached to the pipe). The top of the glove bag will be opened and folded down into the disposable bag.

23) Disposable suites will be removed and placed into the disposable bag along with other waste.

24) The bag will then be sealed and the respirators will be cleaned allowing workers to leave the work area.

25) The asbestos-containing waste will then be disposed of in an approved landfill in accordance with EPA regulations.

26) Air sampling will be conducted during the work to determine if undetected leaks occurred.

6. MONITORING

6.1 Monitoring of airborne concentrations of asbestos fibers shall be in accordance with 29 CFR 1910.1001 and as specified by the Certified Industrial Hygienist.

7. ALTERNATE EMERGENCY PROCEDURE

7.1 In the unlikely event an asbestos abatement operation should result in a detectable release of airborne asbestos dust, corrective action will be taken immediately and, as a minimum, will consist of the following;

7.1.2 Amended water will be applied to the immediate area by applying it directly on surfaces and misted in the air.

7.1.3 The Contracting Officer will be notified immediately and personnel will be evacuated from the immediate area.

7.1.4 Air monitoring will be conducted to evaluate the extent of area contamination and to evaluate the extent of decontamination procedures to be exercised.

7.1.5 All visible ACM will be placed in asbestos bags and all surfaces in the immediate area cleaned using wet work practices.

7.1.6 An authorized representative for Jensco S & S Insulation will meet with the Contracting Officer to discuss additional measures to be taken if necessary.

8. ENCAPSULATION

8.1 Encapsulation of edges for asbestos materials to remain will be done with the use of insulating materials conforming to MIL-STD-769G. These materials will usually consist of the following; 1) MIL-C-2861 Cement
2) MIL-A-3316 Adhesives
3) MIL-C-20079 Cloth

8.2 In the event that new insulation is required as an encapsulating or repairing alternative, the repair procedure as well as the cost of such repair exceed the scope of this contract and will require additional contract coverage.

8.3 Sealing of asbestos contaminated surfaces from which ACM has been removed will be accomplished by using one of the three materials designated by section 02075-12 para. 2.2.6.2. The material data sheet will be submitted to the Contracting Officer along with proof of purchase prior to the sealant application.

9. FINAL CLEAN UP

9.1 Final clean-up will be accomplished by wet-wiping all plastic coverings, equipment, and barriers. Cleaning will continue until a satisfactory visual inspection has been completed by the CIH jobsite representative certifying the space is free of asbestos containing visual debris.

9.2 Area monitoring will then be taken to determine whether an additional clean-up is required. Clearance criteria will be a airborne asbestos fiber concentration of <.01 f/cc via the NIOSH 7400 method using aggressive air sampling techniques.

9.3 When area monitoring provides clearance, all plastic covering,tape, and other disposable materials will be gathered, placed in a double 6mil poly bag, and loaded unto roll offs supplied by others.

9.4 All equipment and supplies will be removed.

9.5 Asbestos containers will be provided by the owner. All waste will be covered and sealed with a minimum of two layers of 6 mil. poly with the exception of liquid sludge from the trenches which will be pumped directly into steel drums. Labeling and disposal of all waste will be the responsibility of others

10. MONITORING

10.1 Monitoring of airborne concentrations of asbestos fibers shall be in accordance with 29 CFR 1910.1001 and as specified herein.

10.2 Prior to Asbestos Work: Area monitoring to establish the reference Time-Weighted-Average (TWA) will be accomplished one day prior to the masking and sealing operations as referenced in 6.1.1.

10.3 During Asbestos Work: Personal and area monitoring will be performed to establish the TWA during the first exposure to airborne concentrations of asbestos.

10.3.1 Once every four hours thereafter, area monitoring will be provided inside the asbestos control area, outside the entrance to the asbestos control area, and at the exhaust opening of the local exhaust system.

10.4 After Final Clean-Up: Area monitoring will be performed after the final clean-up but before removal of the enclosure of the asbestos control area.

10.5 Monitoring results will be reviewed by the Industrial Hygienist within a period of no later than 16 hrs. after the sample is taken by the field technician and the results will be submitted to the Contracting Officer within 3 days as specified in section 02075 para. 1.3.5.

11. POLLUTION CONTROL

11.1 Pollution control will be accomplished by the use of a negative air machine equipped with a high efficiency particulate air filter in the work area and decontamination zones. Negative air will be maintained at all times until final air clearance is achieved. The negative air will also permit a minimum of 4 air changes per hour within all asbestos control areas.

11.2 Pressure differential measurements on the negative pressure system will be recorded for each work day and results reviewed by the industrial hygienist for submittal to the contracting officer within 24 hours from the end of each work day. The industrial hygienist shall notify the Contractor and the Contracting Officer immediately of any variance in the pressure differential which could cause exposure to adjacent unsealed areas to asbestos fiber concentrations in excess of 0.01 fibers/cc or the reference TWA, whichever is less.

JENSCO, INC.
POST OFFICE BOX 330358
248 LEVY ROAD
ATLANTIC BEACH, FLORIDA 32233

ASBESTOS PLAN

PHASE 2

SUBJECT LEVEL:

PREPARED BY: STEVEN T JENKINS

REVIEWED BY:

APPROVED BY:

1. POLICY

1.1 This plan has been developed to ensure that thermal insulation materials known or suspected of containing asbestos are removed and controlled in accordance with Government Specifications and Occupational Safety and Health Administration Requirements.

2. PURPOSE

2.1 The intent of this plan is to provide the Contractor and the Officer in Charge Construction with a detailed plan of the work procedures to be used in the removal and demolition of materials containing asbestos located in Building 101W at the Jacksonville Naval Air Station. This procedure is specifically intended to cover Phase Two work.

3. SCOPE

3.1 This procedure shall be employed where asbestos work is performed by Jensco, Inc. and shall pertain to the removal of materials identified in the following areas of the "Old Plating Shop."

1. Northeast corner in vicinity of Col. 37
2. South wall north to plating shop perimeter
3. Current EBASCO office area
4. Current EBASCO wash down area

4. The presence of hazardous materials other than asbestos containing insulation is not expected in the Phase 2 work areas. Workers will adhere to the EBASCO site safety plan as applicable.

4.1 For work area 1, TYPE A operation procedures will be used. All other work areas will be addressed using TYPE B operation procedures.

TYPE A OPERATIONS

5. ASBESTOS CONTROL AREAS

5.1 Asbestos control areas will consist of; the actual work area where ACM is being removed, zone 1 of the decontamination unit identified as the dirty room, zone 2 of the decontamination unit identified as the shower room, and zone 3 of the decontamination unit identified as the clean room.

5.2 The following, Figure X-2, illustrates the location of the controlled areas in reference to the work area and the decontamination procedures that will be used to enter and exit the work area.

6. EXECUTION

6.1 PRIOR TO ASBESTOS WORK:

6.1.1 Twenty-four hours before masking and sealing operations begin, area monitoring will be performed in accordance with 29 CFR 1910.1001 and as specified in Navy specification 02075 to establish a reference TWA of asbestos airborne fibers. This work will be performed by others.

6.1.2 The area shall also be designated a restricted area by posting caution signs at all approaches to the controlled area which conform to 29 CFR 1910.145(d)(4).

6.1.3 All removable equipment and supplies in the work area will be vacuumed, wet wiped, and removed from the work area by workers wearing half-mask high efficiency filter cartridge respirators and disposable clothing.

6.1.4 All windows, exhaust ducts, and non-removable equipment will be vacuumed, wet-wiped, and sealed using 6 mil. polyethylene plastic and duct tape.

6.1.5 The floor space will be vacuumed, wet-wiped, and sealed using two layers of 6 mil. polyethylene.

6.1.6 A sealed negative air machine will be placed outside the work area with the intake duct placed as far from the exit as possible and exhaust air pumped directly outside.

6.1.7 The decontamination zones will be constructed according to figure X-2 and will be the CRSI Tri-Mod shown in the equipment submittals.

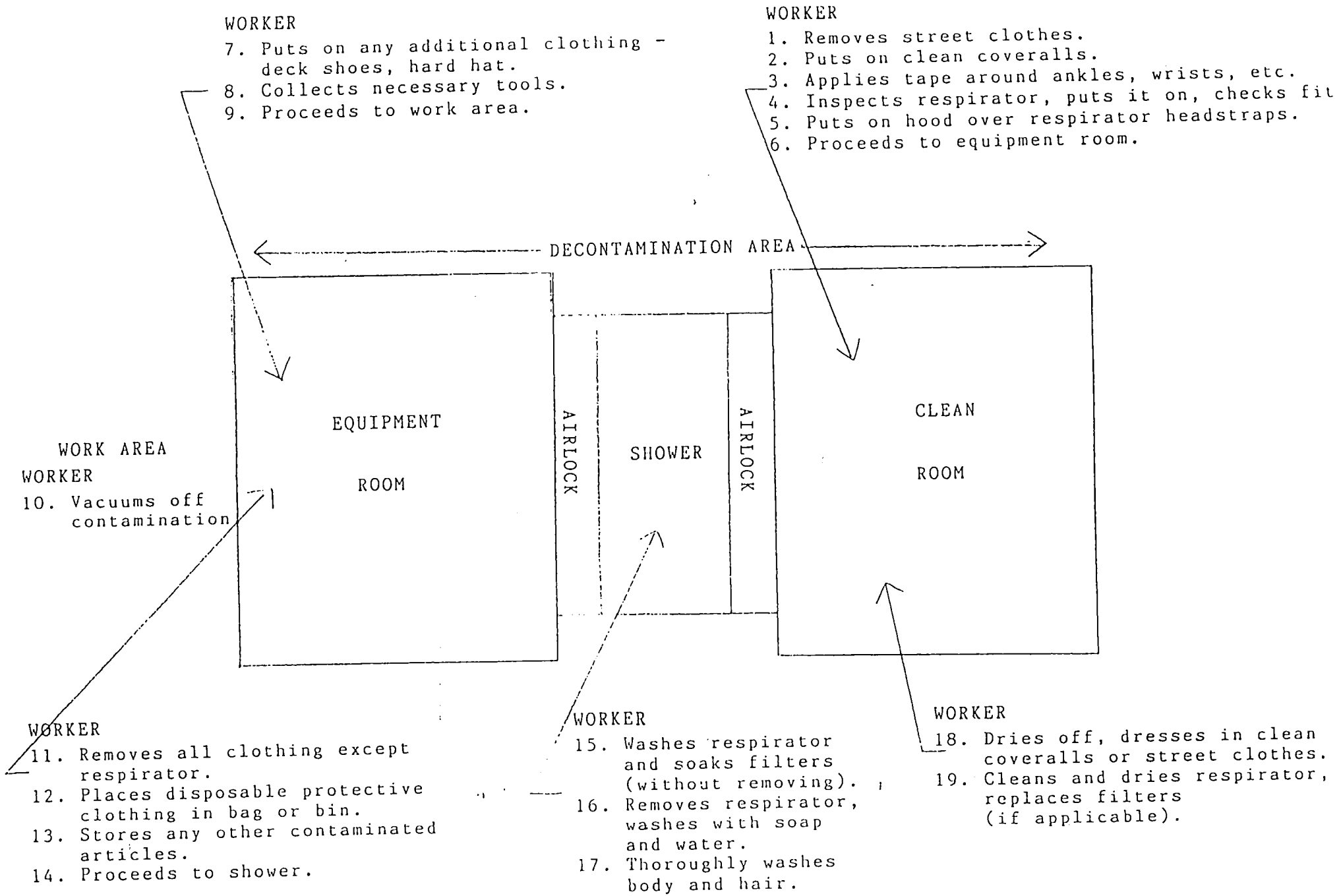


Figure X-2. Procedures for Entering and Leaving the Work Area.

6.1.8 The work area and decontamination zones will be inspected to ensure the following; equipment, floor, windows, and exhaust ducts are properly covered and sealed, decontamination zones have been properly constructed to maintain negative air, and all equipment and supplies necessary to remove the ACM and aid decontamination are available in their proper place.

6.2 ASBESTOS REMOVAL

6.2.1 Workers equipped with a Type C air supply with Pressure Demand Respirators will enter the work area following the procedures illustrated by figure X-2.

6.2.2 Wet work practices will be utilized with an airless sprayer filled with amended water.

6.2.3 With the exception of glove bag removals, Friable asbestos containing materials will be removed as follows: one man will cut or scrape the material from the substrate, one man will constantly spray amended water on the disturbed area, one man will gather ACM debris and place in appropriate disposal bags.

6.2.4 After all gross debris has been bagged, the floor plastic and base from which the asbestos was removed will be scrubbed and wiped down to prepare for the spray-back sealant.

6.2.5 When dry, the substrate will be sealed with "Dust-Set" manufactured by Mateson Chemical Corp.

6.2.6 Disposal bags will be wiped down and then double bagged in the decontamination facility.

6.3 FINAL CLEAN-UP

6.3.1 Final clean-up will be accomplished by wet-wiping all plastic coverings, equipment, and barriers.

6.3.2 Area monitoring will then be taken to determine whether an additional clean-up is required.

6.3.3 When area monitoring provides clearance, all plastic covering, tape, and other disposable materials will be gathered and disposed of as hazardous waste by workers supplied with half-face high efficiency respirators.

6.3.4 All equipment and supplies will be removed

6.3.5 Asbestos waste will be placed in containers supplied by EBASCO and disposal will be accomplished by others.

7. MONITORING *To be accomplished by others

7.1 Monitoring of airborne concentrations of asbestos fibers shall be in accordance with 29 CFR 1910.1001 and as specified herein.

7.2 Prior to Asbestos Work: Area monitoring to establish the reference Time-Weighted-Average (TWA) will be accomplished one day prior to the masking and sealing operations as referenced in 6.1.1.

7.3 During Asbestos Work: Personal and area monitoring will be performed to establish the TWA during the first exposure to airborne concentrations of asbestos.

7.3.1 Once every four hours thereafter, area monitoring will be provided inside the asbestos control area, outside the entrance to the asbestos control area, and at the exhaust opening of the local exhaust system.

7.4 After Final Clean-Up: Area monitoring will be performed after the final clean-up but before removal of the enclosure of the asbestos control area.

7.5 Monitoring results will be reviewed by the Industrial Hygienist within a period of no latter than 16 hrs. after the sample is taken by the field technician and the results will be submitted to the Contracting Officer within 3 days as specified in section 02075 para. 1.3.5.

8. POLLUTION CONTROL

8.1 Pollution control will be accomplished by the use of a negative air machine equipped with a high efficiency particulate air filter in the work area and decontamination zones. Negative air will be maintained at all times during the removal of ACM. The negative air will also permit a minimum of 4 air changes per hour within all asbestos control areas.

8.2 Pressure differential measurements on the negative pressure system will be recorded for each work day and results reviewed by the industrial hygienist for submittal to the contracting officer within 24 hours from the end of each work day. The industrial hygienist shall notify the Contractor and the Contracting Officer immediately of any variance in the pressure differential which could cause exposure to adjacent unsealed areas to asbestos fiber concentrations in excess of 0.01 fibers/cc or the reference TWA, whichever is less.

TYPE B OPERATIONS

9. Type B operations will be those projects that by nature or scope will not allow or require the work procedures described for type A abatement projects. Examples of this would be the minor encapsulation of disturbed asbestos insulation or the glove bag removal of pipe insulation.

10. ASBESTOS CONTROL AREA

10.1 The asbestos control area will consist of the actual area where the material to be worked on is located. This area will be designated as such by the placement of signs and or barrier tape at all entrances to the work area and also within a 20 ft. parameter from the actual work place.

10.2 If possible, all but one of the external entry passages will be locked and the HVAC systems will be turned off or isolated.

10.3 Prior to the start of work, the designation of the work area (para. 5.1) and the preparation of such (para. 5.2) will be discussed for approval with the Contracting Officer.

11. EXECUTION

11.1 PRIOR TO ASBESTOS WORK:

11.1.1 Forty-eight hours before work is to commence notification will be given to the Contracting Officer and steps will be taken to arrange conformance to para. 5.3 of this procedure.

11.1.2 The area shall also be designated a restricted area by posting caution signs and or barrier tape within a 20ft. parameter of the work area which conform to 29 CFR 1910.145(d)(4).

11.2 DURING ASBESTOS WORK:

11.2.1 Work materials and equipment will be taken to the work area and prepared for use. As a minimum this will consist of the following; HEPA vacuum, Glove bags, Disposable clothing, Dual cartridge asbestos-rated respirator with NIOSH rated filters for asbestos, Asbestos disposal bags, Duct tape, 6mil poly sheeting, amended water, airless sprayer, and designated encapsulant material.

11.2.2 Workers will equip themselves with a minimum of HMAP respirators with HEPA filters and disposable clothing to enter the regulated area.

11.2.3 The area will then be prepared for a glove bag operation with careful attention given to the sealing of all damaged insulation that could be disturbed causing a release of asbestos fibers. This will be accomplished with duct tape, glove bags and or 6mil poly sheeting.

11.2.4 Wet work practices will be used to remove damaged sections of asbestos insulation and or encapsulate disturbed surfaces within a glove bag. If a glove bag is not required or applicable, measures taken to ensure the containment of asbestos fibers will be discussed for approval with the Contracting Officer.

11.2.5 Glove bag operations will be the primary means of accomplishing Type B asbestos abatement projects. As such, the following procedures recommended by the Georgia Tech Research Institute Environmental Safety & Health Division will be used.

11.2.5.1 GLOVE BAG REMOVAL PROCEDURES

1) Following the manufacturer's directions, the surfactant will be mixed with water in a garden sprayer.

2) Each employee will put on a cartridge respirator and check the face fit.

3) Each employee will put on a disposable full body suit.

4) The pipe where work is to be performed will be examined. If it is damaged (broken lagging, hanging, etc.), the entire length of pipe will be wrapped in polyethylene plastic and "candystriped" with duct tape.

5) The top and sides of the glove bag will be adjusted to accommodate the size of pipe (about two inches longer than the pipe diameter).

6) The necessary tools will be placed into the pouch located inside the glove bag. This will usually include a bone saw, rags, scrub brush, wire cutters, tin snips and pre-cut wettable cloth.

7) One strip of duct tape will be placed along the top edge of the glove bag for reinforcement.

8) Using a smoke tube and aspirator bulb, the bag will be tested for leaks. If leaks are found, they will be taped shut and the bag will be re-tested.

9) The water sprayer wand will be inserted through the sleeve and the sleeve will then be sealed tightly to prevent air leaks.

10) One person will place his hands into the long-sleeved gloves while the other directs the water sprayer at the work.

11) If the section of pipe is covered with an aluminum jacket, this is removed first using the wire cutters to cut any bands and the tin snips to remove the aluminum. Caution will be used to prevent sharp edges from cutting the bag.

12) With the insulation exposed, the bone saw will be used to cut the insulation at each end of the section to be removed inside the glove bag. Throughout this process, water is sprayed on the cutting area to keep dust to a minimum.

13) Once the ends are cut, the section of insulation will be slit from end to end using the utility knife.

14) All tools will be sprayed with water inside the bag and placed back in the pouch.

15) The insulation will then be lifted off the pipe and gently placed in the bottom of the bag.

16) Using the scrub brush, rags and water, the exposed pipe will be cleaned.

17) The wettable cloth will then be used to seal the exposed ends of insulation remaining on the pipe.

18) The water wand will be removed and the vacuum nozzle attached to collapse the bag.

19) The vacuum nozzle will be removed and the sleeve sealed using duct tape.

20) From outside the bag, the tool pouch will be pulled away from the bag, twisted to separated it, and then duct tape will be placed over the twisted portion. Cutting through the twisted/taped portion the tools will be placed into the next bag without cleaning.

21) With removed insulation in the bottom of the bag, the bag will be twisted and taped to keep the material in the bottom during removal of the glove bag from the pipe.

22) A 6 mil disposable bag will be placed over the glove bag (still attached to the pipe). The top of the glove bag will be opened and folded down into the disposable bag.

23) Disposable suites will be removed and placed into the disposable bag along with other waste.

24) The bag will then be sealed and the respirators will be cleaned allowing workers to leave the work area.

25) Air sampling will be conducted during the work to determine if undetected leaks occurred.

12. MONITORING

12.1 Monitoring of airborne concentrations of asbestos fibers shall be performed by others.

13. ALTERNATE EMERGENCY PROCEDURE

13.1 In the unlikely event a type B operation should result in a detectable release of airborne

asbestos dust, corrective action will be taken immediately and, as a minimum, will consist of the following;

13.2 Amended water will be applied to the immediate area by applying it directly on surfaces and misted in the air.

13.3 The Contracting Officer will be notified immediately and personnel will be evacuated from the immediate area.

13.4 Air monitoring will be conducted to evaluate the extent of area contamination and to evaluate the extent of decontamination procedures to be exercised.

13.5 All visible ACM will be placed in asbestos bags and all surfaces in the immediate area cleaned using wet work practices.

13.6 An authorized representative for Jensco Inc., will meet with the Contracting Officer to discuss additional measures to be taken if necessary.

14. ENCAPSULATION

14.1 Encapsulation of edges for asbestos materials to remain will be done with the use of insulating materials conforming to MIL-STD-769G. These materials will usually consist of the following;

1) MIL-C-2861 Cement
2) MIL-A-3316 Adhesives
3) MIL-C-20079 Cloth

14.2 In the event that new insulation is required as an encapsulating or repairing alternative, the repair procedure as well as the cost of such repair exceed the scope of this contract and will require additional contract coverage.

14.3 Sealing of asbestos contaminated surfaces from which ACM has been removed will be accomplished by using one of the three materials designated by section 02075-12 para. 2.2.6.2. The material data sheet will be submitted to the Contracting Officer along with proof of purchase prior to the sealant application.

OHC

Occupational Health Conservation, Inc.

SPECIFICATION
FOR
ASBESTOS ABATEMENT

BUILDING 101W
NAVAL AIR STATION
JACKSONVILLE, FL

PREPARED FOR:

EBASCO ENVIRONMENTAL
759 SOUTH FEDERAL HIGHWAY
STEWART, FL 34994

March 8, 1993

5118 North 56th Street • Suite #215 • Tampa, Florida 33610 • (813) 626-8156

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Attachment D

CQC Plan Addendum

ATTACHMENT D

CQC PLAN ADDENDUM

This document is an addendum to the basic CQC Plan prepared in November 1992 by Ebasco Environmental Division, Santa Ana, California and submitted to the U.S. Navy under Delivery Order #0001, Contract No. N47408-92-D-3059. The cover and table of contents of this document is included in the following pages for reference purposes. This addendum is for the U.S. Navy Delivery Order #0003 under the original contract.

The scope of work and work to be performed under the specific delivery order is described in the work plan of which this addendum is a part.

The project specific organizational chart inclusive of the quality control is presented in Figure B-1. This chart also identifies the personnel assigned to perform the specific tasks and the line of authority/responsibility.

The project schedule is presented in Attachment E of the work plan. The sampling plan is described in Section 5.0 of the work plan and the qualifications of the Testing Laboratory is presented in Attachment F of the work plan.

Inspections for site operations will include a ten percent inspection of all decontamination and sampling activities with the exception of the decontamination of Group A tanks. Group A tanks will require one hundred percent inspection of decontamination and sampling activities. All inspection efforts will be documented for record purposes.

The quality assurance plan for the specific project is described in Section 6.0 of the work plan. The quality control and documentation will basically follow the guidelines presented in the basic CQC Plan and all work performed under this contract shall meet the requirements of the basic CQC Plan. Any non-conformance with the requirements of the basic CQC Plan will be identified and recorded in the noncompliance Check-off List Report (Figure D-2) for action and resolution.

CONTRACT QUALITY CONTROL PLAN
FOR THE
UNITED STATES NAVY REMEDIAL ACTION
CONTRACT FOR REMEDIATION OF SITES
CONTAMINATED WITH ACIDS, METALS, AND BASES

November 13, 1992

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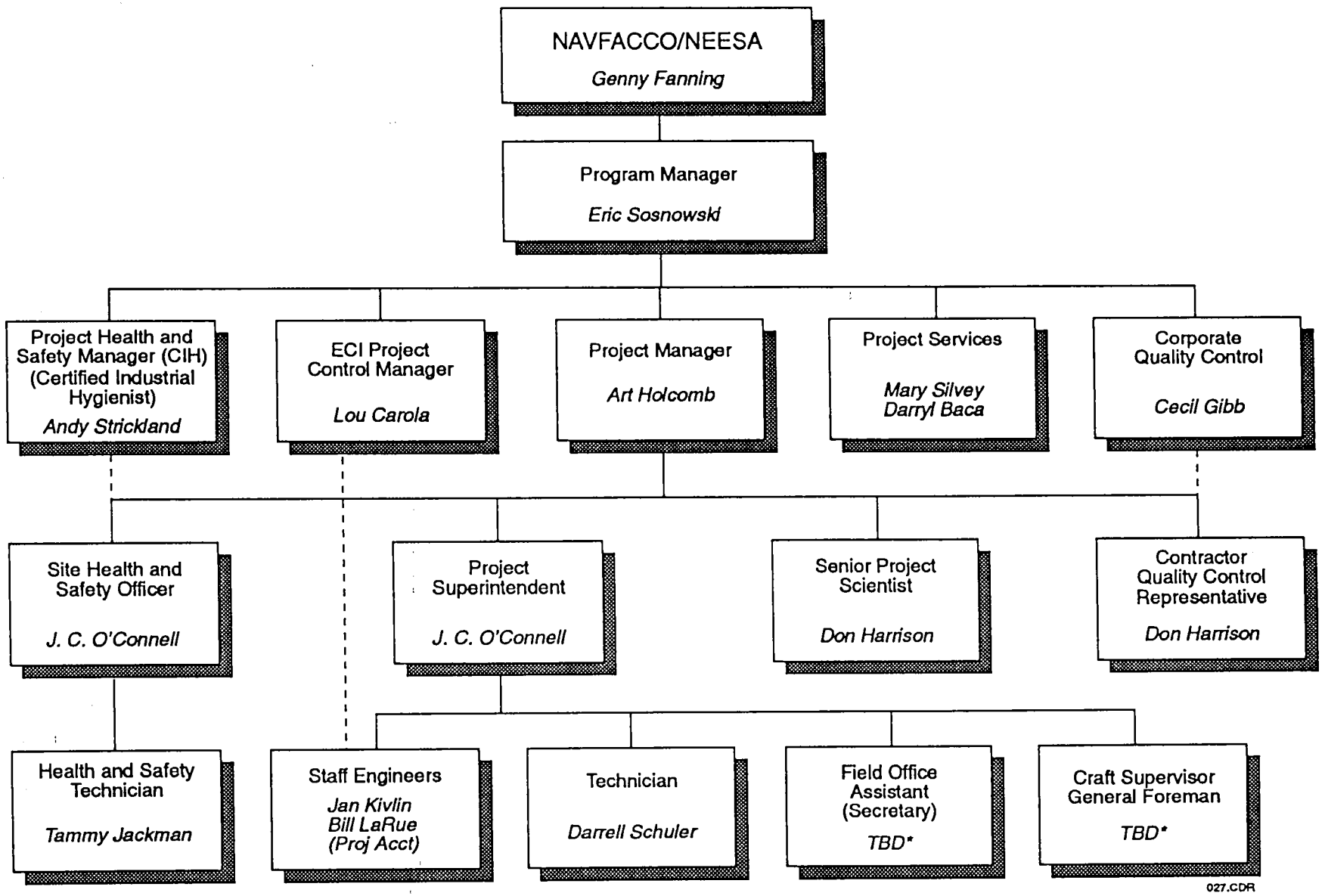
VOLUME II

FIGURE B-1

EBASCO ENVIRONMENTAL
QUALITY CONTROL PLAN ADDENDUM
NAS - JACKSONVILLE

ORGANIZATION CHART



*To be determined

FIGURE B-2

Noncompliance Check-off List Report

Contract No. and Title: N47408-92-D-3059 REMEDIAL ACTION

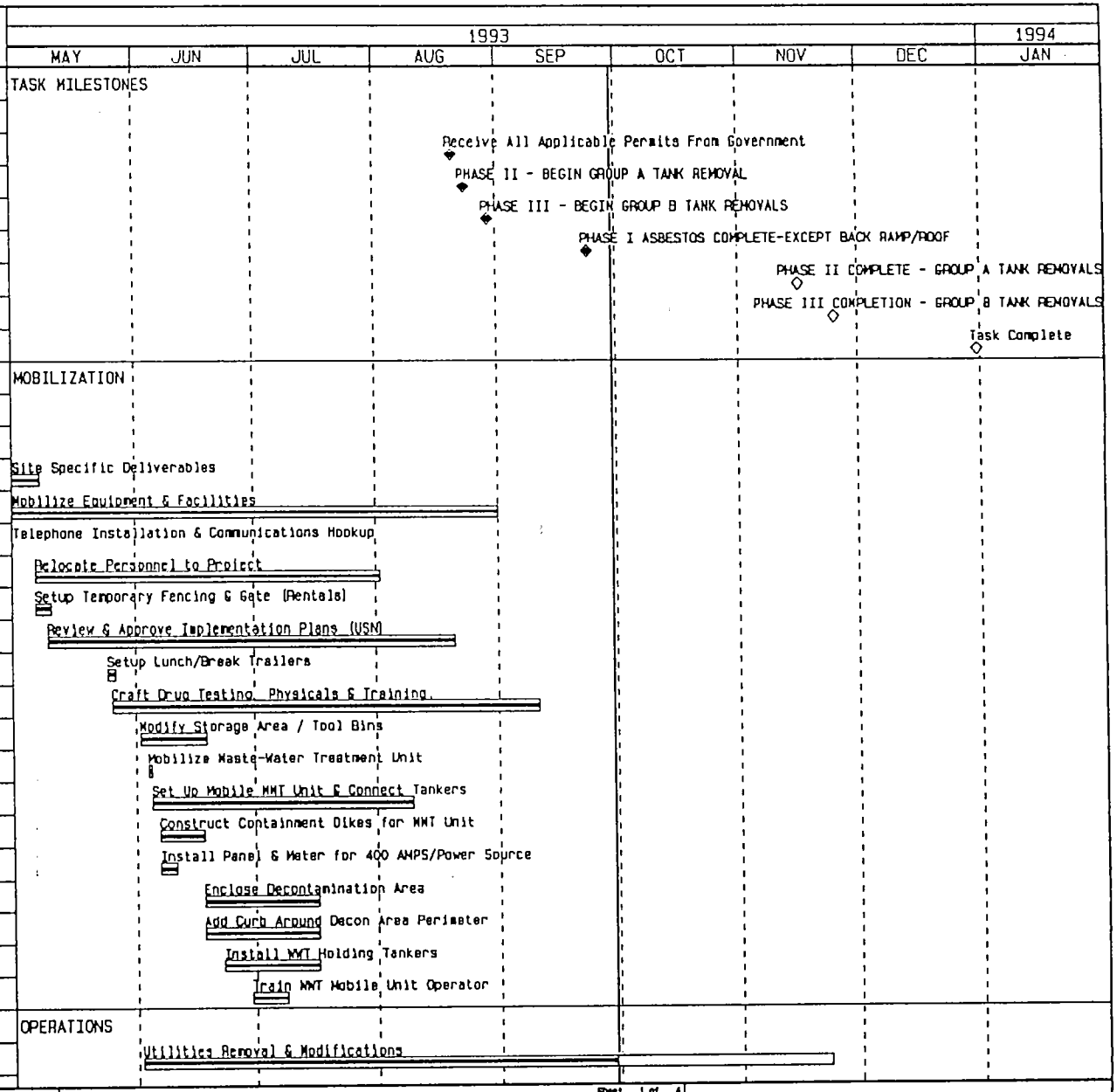
Contractor: _____

DATE NON-COMPLIANCE Identified	ITEM	CONTRACT REQUIREMENT (Spec. Section and Para. No., Draw. No. and Detail No., etc.)	ACTION TAKEN BY CQC REP.	RESOLUTION	DATE RESOLVED

Attachment E

The Project Schedule

ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
3000000020	26APR93A	26APR93A	0	100
3010301030		20AUG93A	0	100
3100204000	24AUG93A		0	100
3100204038	30AUG93A		0	100
3100402330		23SEP93A	0	100
3100204035			0	100
3100204070		24NOV93	0	0
3210603040		30DEC93	0	0
3100401000	26APR93A	26APR93A	0	100
3110101010	26APR93A	26APR93A	0	100
3010301010	27APR93A	7MAY93A	0	100
3010101010	28APR93A	31AUG93A	0	100
3010503010	30APR93A	30APR93A	0	100
3010201010	7MAY93A	1AUG93A	0	100
3010424010	7MAY93A	10MAY93A	0	100
3010301020	10MAY93A	20AUG93A	0	100
3010407010	25MAY93A	26MAY93A	0	100
3010290010	26MAY93A	10SEP93A	0	100
3010402010	2JUN93A	18JUN93A	0	100
3110101020	4JUN93A	4JUN93A	0	100
3110101030	5JUN93A	9AUG93A	0	100
3010417020	7JUN93A	17JUN93A	0	100
3010502010	7JUN93A	10JUN93A	0	100
3010405010	18JUN93A	16JUL93A	0	100
3010405020	18JUN93A	16JUL93A	0	100
3010417010	23JUN93A	16JUL93A	0	100
3110101040	30JUN93A	8JUL93A	0	100
3010501010	2JUN93A	22NOV93	36	70



Sheet 1 of 4

Plot Date 80CT93
Data Date 30SEP93
Project Start 22APR93
Project Finish 30DEC93

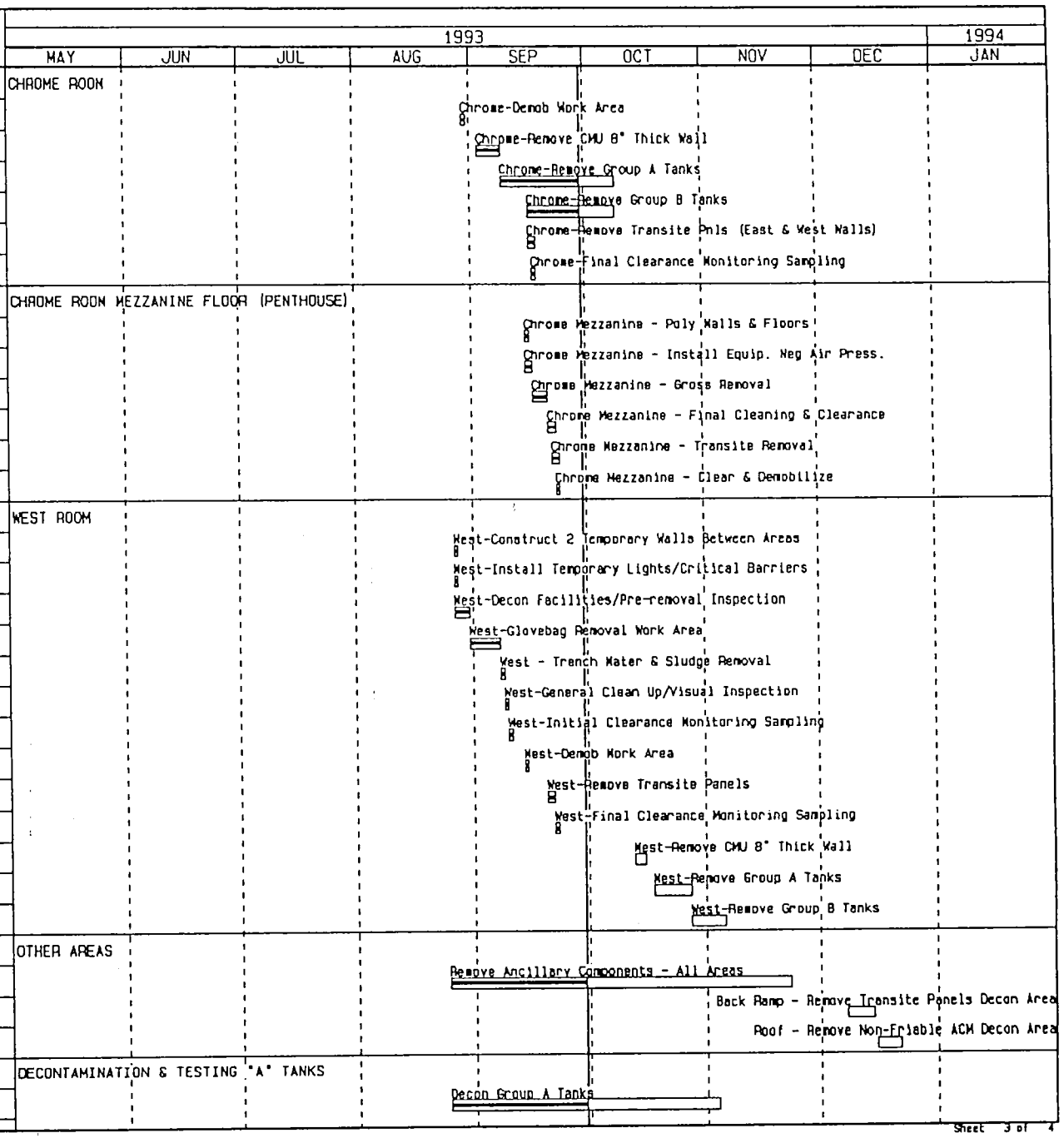
Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

CONTRACT #N47408-92-D-3059 D.O. 0003
NAS/JAX DLD PLATING SHOP DDDD
CURRENT SCHEDULE - MOD #1

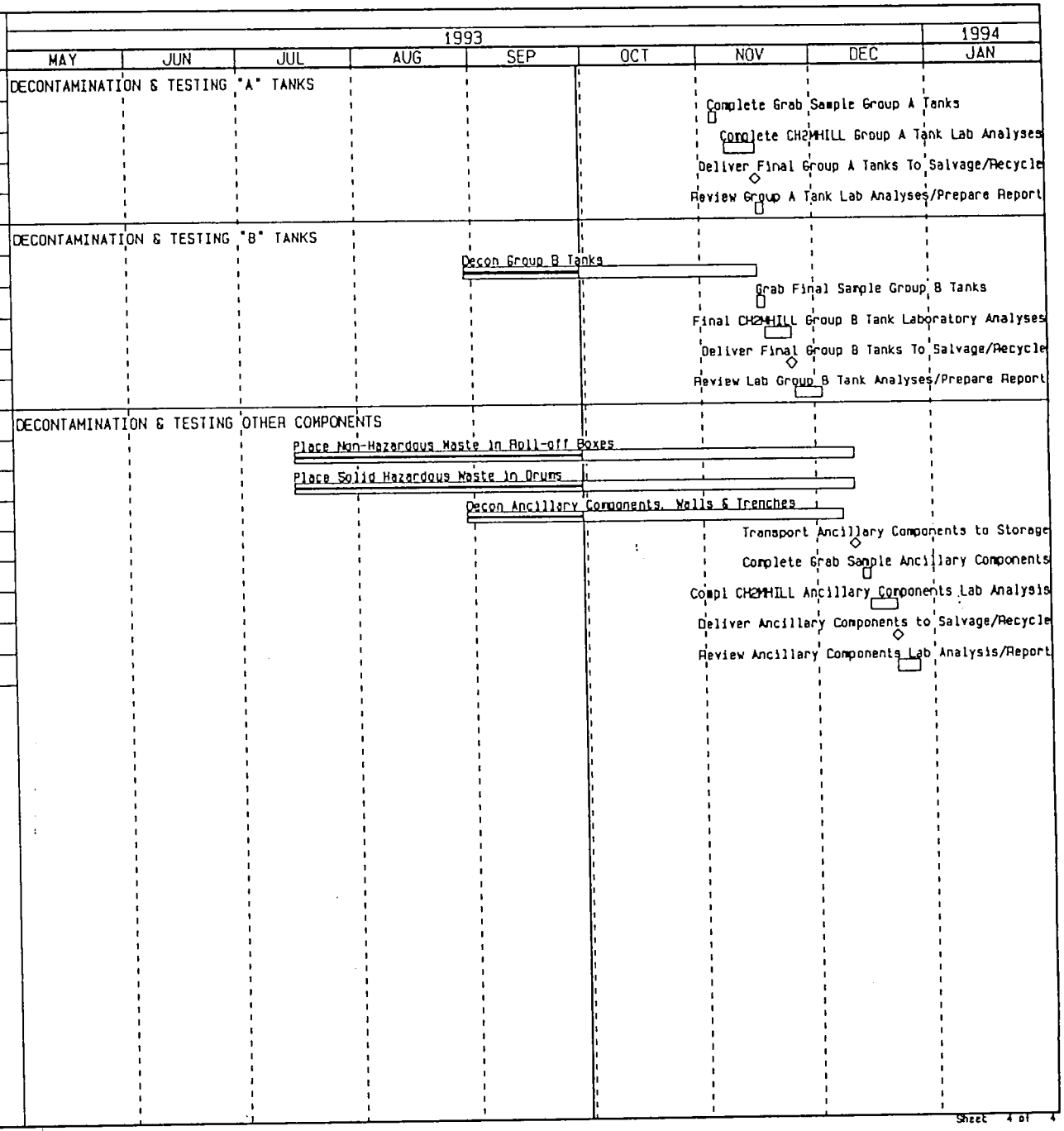
Date	Revision	Checked	Approved

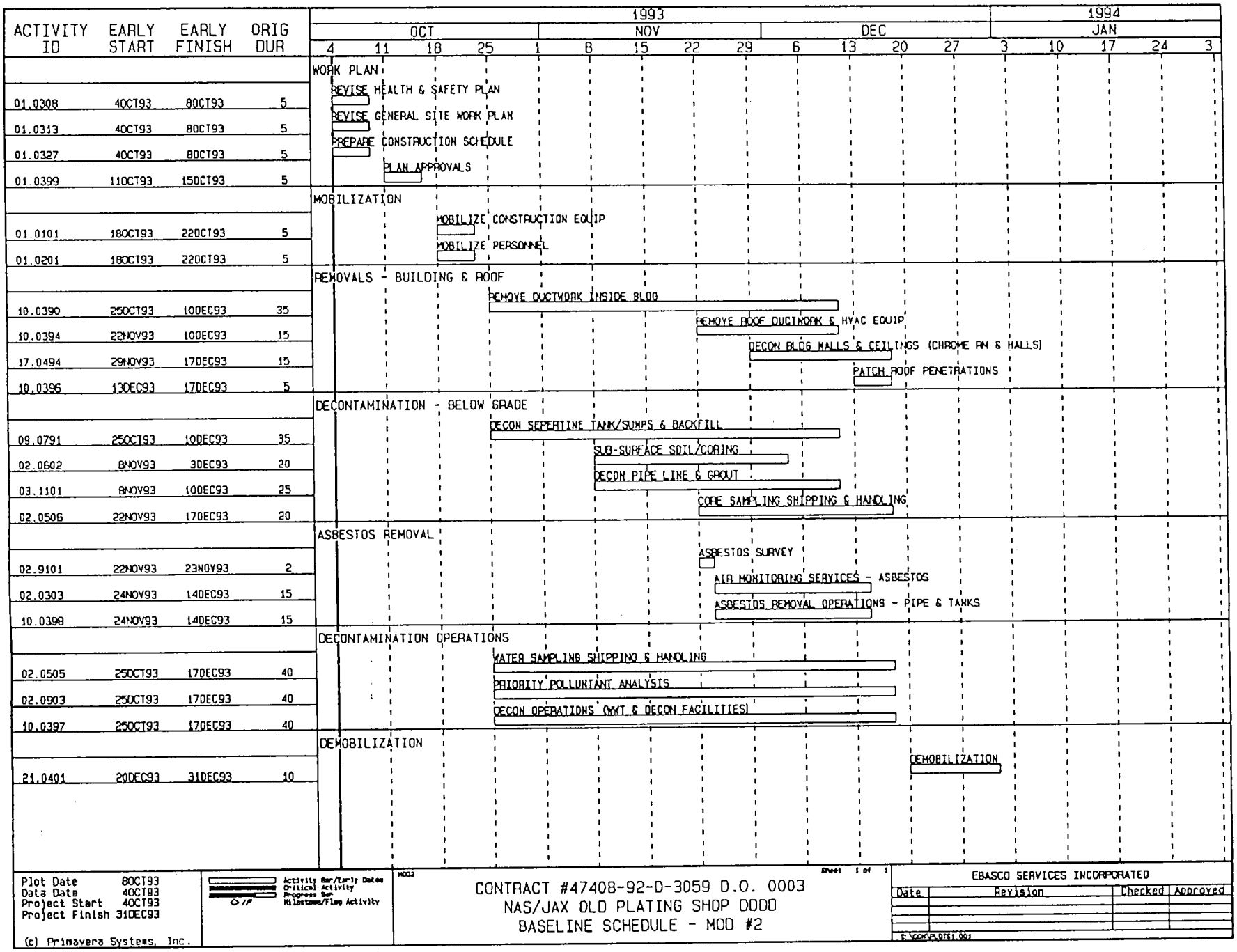
ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT	1993 MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1994 JAN
					OPERATIONS								
3110101050	6JUL93A	14DEC93	51	55			Operate Mobile WWT Unit						
3010490010	9AUG93A	22NOV93	36	51				Operate Ventilation Fans					
					HYDRAULIC LIFT PIT								
3100302010	2JUN93A	2JUL93A	0	100		Remove Hydraulic Lift Structure							
3100401005		7JUN93A	0	100		Owner Deliver Drums							
3030303010	2JUL93A	6JUL93A	0	100			Backfill Hydraulic Lift Structure Pits						
					EAST ROOM								
3010405010	1JUL93A	2JUL93A	0	100			East-Construct 2 Temporary Walls Between Areas						
3020303010	1JUL93A	1JUL93A	0	100			East-Initial Clearance Monitoring Sampling						
3100401010	1JUL93A	1JUL93A	0	100			East-Badge Jensco Employees & Mobilization						
3100401020	1JUL93A	6JUL93A	0	100			East-Install Temporary Lights/Critical Barriers						
3100401030	1JUL93A	2JUL93A	0	100			East-Decon Facilities/Pre-removal Inspection						
3100402010	6JUL93A	8JUL93A	0	100			East-Glovebag Removal Work Area						
3100401025	8JUL93A	20JUL93A	0	100			Seal All Sump Exits, Paths & Piping						
3100402020	12JUL93A	15JUL93A	0	100			East-Removal Wood Grating						
3100402030	12JUL93A	15JUL93A	0	100			East - Trench Water & Sludge Removal						
3100402040	12JUL93A	15JUL93A	0	100			East-General Clean Up/Visual Inspection						
3100402050	19JUL93A	23JUL93A	0	100			East-Remove Transite Panels South Wall						
3020303020	22JUL93A	23JUL93A	0	100			East-Final Clearance Monitoring Sampling						
3100402080	26JUL93A	26JUL93A	0	100			East-Demob Work Area						
3030101010	23AUG93A	25AUG93A	0	100				East-Remove CMU 8" Thick Wall					
3100204010	24AUG93A	30AUG93A	0	100				East-Remove Group A Tanks					
3100204040	30AUG93A	8SEP93A	0	100					East-Remove Group B Tanks				
3100402060	14SEP93A	15SEP93A	0	100						East-Remove Transite Panels Remaining walls			
					CHROME ROOM								
3010405020	25JUL93A	25JUL93A	0	100				Chrome-Construct 2 Temporary Walls Between Areas					
3100401040	26JUL93A	26JUL93A	0	100				Chrome-Install Temporary Lights/Critical Barrier					
3100401050	26JUL93A	26JUL93A	0	100				Chrome-Decon Facilities/Pre-removal Inspection					
3100402090	27JUL93A	28JUL93A	0	100				Chrome-Glovebag Removal Work Area					
3100402100	29JUL93A	30JUL93A	0	100				Chrome-Removal Wood Grating					
3100402120	2AUG93A	25AUG93A	0	100				Chrome-General Clean Up/Visual Inspection					
3100402110	25AUG93A	26AUG93A	0	100					Chrome - Trench Water & Sludge Removal				
3020303030	27AUG93A	27AUG93A	0	100					Chrome-Initial Clearance Monitoring Sampling				

ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
3100402160	30AUG93A	30AUG93A	0	100
3030101020	3SEP93A	8SEP93A	0	100
3100204020	9SEP93A	8OCT93	7	68
3100204050	16SEP93A	8OCT93	7	59
3100402140	16SEP93A	17SEP93A	0	100
3020303040	17SEP93A	17SEP93A	0	100
3100402250	15SEP93A	15SEP93A	0	100
3100402260	15SEP93A	16SEP93A	0	100
3100402270	17SEP93A	20SEP93A	0	100
3100402280	21SEP93A	22SEP93A	0	100
3100402290	22SEP93A	23SEP93A	0	100
3100402300	23SEP93A	23SEP93A	0	100
3010406030	27AUG93A	27AUG93A	0	100
3100401060	27AUG93A	27AUG93A	0	100
3100401070	27AUG93A	30AUG93A	0	100
3100402170	31AUG93A	7SEP93A	0	100
3100402190	8SEP93A	8SEP93A	0	100
3100402200	9SEP93A	9SEP93A	0	100
3020303050	10SEP93A	10SEP93A	0	100
3100402240	14SEP93A	14SEP93A	0	100
3100402220	20SEP93A	21SEP93A	0	100
3020303060	22SEP93A	22SEP93A	0	100
3030101030	13OCT93	15OCT93	3	0
3100204030	18OCT93	27OCT93	8	0
3100204060	28OCT93	5NOV93	7	0
3100302020	25AUG93A	22NOV93	36	41
3100402310	8DEC93	14DEC93	5	0
3100402320	16DEC93	21DEC93	4	0
3139001010	25AUG93A	3NOV93	24	51



ACTIVITY ID	EARLY START	EARLY FINISH	REM DUR	PCT
3020906080	4NOV93	5NOV93	2	0
3020906090	8NOV93	15NOV93	5	0
3180301030		15NOV93	0	0
3020906100	16NOV93	17NOV93	2	0
3139001030	30AUG93A	15NOV93	31	42
3020906010	16NOV93	17NOV93	2	0
3020906020	18NOV93	24NOV93	5	0
3180301040		24NOV93	0	0
3020906030	26NOV93	20DEC93	5	0
3180301010	15JUL93A	10DEC93	49	52
3180301020	15JUL93A	10DEC93	49	52
3139002010	30AUG93A	7DEC93	46	32
3139002020		10DEC93	0	0
3020906050	13DEC93	14DEC93	2	0
3020906060	15DEC93	21DEC93	5	0
3180301050		21DEC93	0	0
3020906070	22DEC93	27DEC93	3	0




ACTIVITY ID
EARLY START
EARLY FINISH
ORIG DUR
1993
1994
OCT
NOV
DEC
JAN
4 11 18 25 1 8 15 22 29 6 13 20 27 3 10 17 24 3
WORK PLAN
01.0308 40CT93 80CT93 5 REVISE HEALTH & SAFETY PLAN
01.0313 40CT93 80CT93 5 REVISE GENERAL SITE WORK PLAN
01.0327 40CT93 80CT93 5 PREPARE CONSTRUCTION SCHEDULE
01.0399 110CT93 150CT93 5 PLAN APPROVALS
MOBILIZATION
01.0101 180CT93 220CT93 5 MOBILIZE CONSTRUCTION EQUIP
01.0201 180CT93 220CT93 5 MOBILIZE PERSONNEL
REMOVALS - BUILDING & ROOF
10.0390 250CT93 10DEC93 35 REMOVE DUCTWORK INSIDE BLDG
10.0394 22NOV93 10DEC93 15 REMOVE ROOF DUCTWORK & HVAC EQUIP
17.0494 29NOV93 17DEC93 15 DECON BLDG WALLS & CEILINGS (CHROME RM & HALLS)
10.0396 13DEC93 17DEC93 5 PATCH ROOF PENETRATIONS
DECONTAMINATION - BELOW GRADE
09.0791 250CT93 10DEC93 35 DECON SEPERTINE TANK/SUMPS & BACKFILL
02.0602 8NOV93 3DEC93 20 SUB-SURFACE SOIL/CORING
03.1101 8NOV93 10DEC93 25 DECON PIPE LINE & GROUT
02.0506 22NOV93 17DEC93 20 CORE SAMPLING SHIPPING & HANDLING
ASBESTOS REMOVAL
02.9101 22NOV93 23NOV93 2 ASBESTOS SURVEY
02.0303 24NOV93 14DEC93 15 AIR MONITORING SERVICES - ASBESTOS
10.0398 24NOV93 14DEC93 15 ASBESTOS REMOVAL OPERATIONS - PIPE & TANKS
DECONTAMINATION OPERATIONS
02.0505 250CT93 17DEC93 40 WATER SAMPLING SHIPPING & HANDLING
02.0903 250CT93 17DEC93 40 PRIORITY POLLUNTANT ANALYSIS
10.0397 250CT93 17DEC93 40 DECON OPERATIONS (WWT & DECON FACILITIES)
DEMOBILIZATION
21.0401 20DEC93 31DEC93 10 DEMOBILIZATION
Plot Date 80CT93
Data Date 40CT93
Project Start 40CT93
Project Finish 31DEC93
(c) Primavera Systems, Inc.
Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity
Sheet 1 of 1
CONTRACT #47408-92-D-3059 D.O. 0003
NAS/JAX OLD PLATING SHOP DDDD
BASELINE SCHEDULE - MOD #2
EBASCO SERVICES INCORPORATED
Date
Revision
Checked
Approved

Attachment F

The Grouting Procedures

The steps for filling underground pipes with grout are as follows:

1. Flush out pipe using potable water.
2. Plug one end of pipe and install a vent hole in the plug.
3. Install the grout hose connection at the opposite end of pipe.
4. Hook up the grout pump to the grout hose connection.
5. Pump the grout until the grout starts coming out of the vent hole.
6. Close the vent hole.
7. Pump the grout until the pressure gauge on the grout pump shows 5-15 psi.
8. Close the grout hose connection.
9. Disconnect the grout pump.
10. For additional locations, start at step 1.