TANK CLOSURE ASSESSMENT REPORT BUILDING 0201 NAS JACKSONVILLE FL

12/1/1996

J.A. JONES ENVIRONMENTAL SERVICES COMPANY

Tank Closure Assessment

U. S. Naval Air Station Jacksonville
Building 0201
6500 Roosevelt Boulevard
Jacksonville, Florida
FDEP No. 168731736

Prepared for

U. S. Navy
Naval Air Station Jacksonville
6500 Roosevelt Boulevard
Jacksonville, Florida 32212-5000

December 1996

Prepared by

J.A. Jones Environmental Services Company
8936 Western Way, Suite 10
Jacksonville, Florida 32256

J.A. Jones Environmental Project No. 043

CERTIFICATION

Tank Closure Assessment

U. S. Naval Air Station Jacksonville
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6500 Roosevelt Boulevard
Jacksonville, Florida 32212-5000

FDEP No. 168731736

This Tank Closure Assessment (TCA) for U. S. Naval Air Station Jacksonville, Building 0201, 6500 Roosevelt Boulevard, Jacksonville, Florida 32212-5000, has been completed under the responsible charge of Mervin W. Dale, P.G. under the supervision of David Kemp, P.E., both of J.A. Jones Environmental Services Company (J.A. Jones Environmental), Jacksonville, Florida, and appears to comply with the current standards and practices in the field of geology in the State of Florida. Our professional services are performed using the degree of care and skill ordinarily exercised under similar circumstances by other registered professionals practicing in the field. All drawings, reports, plats, or other geologic information contained herein are prepared or approved by the undersigned professional geologist or a subordinate employee under his direction for delivery to the Florida Department of Environmental Protection (FDEP) for the public record within the State of Florida.

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J.A. JONES ENVIRONMENTAL SERVICES COMPANY

David Kemp, P.E.
Vice President

12/20/96
Date

ACRONYM LIST

Bldg	building
CFR	Code of Federal Regulations
CompQAP	Comprehensive Quality Assurance Plan
cy	cubic yards
DRF	Discharge Reporting Form
DWS	Drinking Water Standards
ENCO	Environmental Conservation Laboratories
EPA	Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft bls	feet below land surface
IRA	Initial Remedial Action
J.A. Jones Environmental	J.A. Jones Environmental Services Company
JB	junction box
JP4 and 5	jet fuels
NAS	Naval Air Station
OVA-FID	organic vapor analyzer - flame ionization detector
OVA-PID	organic vapor analyzer - photoionization detector
OWS	oil and water separator system
PAH	polynuclear aromatic hyrdocarbons
POL	petroleum oil lubricant
ppm	parts per million
TCA	Tank Closure Assessment
TRPH	total recoverable petroleum hydrocarbons
VOA	volatile organic aromatics
VOH	volatile organic hydrocarbons

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SECTION 1

INTRODUCTION

On behalf of the U.S. Navy, J.A. Jones Environmental Services Company (J.A. Jones Environmental) conducted a tank closure assessment (TCA) at Building 0201, Naval Air Station (NAS), Jacksonville, Florida, (**Figure 1**). The TCA was conducted as a portion of a contract with the U.S. Navy for the removal and replacement of the existing oil and water separator (OWS) treatment system which services one of two concrete engine test pads at the facility (**Figure 2**). The TCA was conducted in accordance with the guidelines set forth in a Florida Department of Environmental Protection (FDEP) interoffice memorandum titled "*Pollutant Storage Tank Closure Assessment Requirements*", dated June 1994.

The tank closure consisted of the removal of one 2,500-gallon concrete oil and water separator tank (OWS Tank No. 201-B) and associated piping and junction boxes. A second OWS Tank (No. 201-A) was scheduled to be removed; however, due to utility conflicts this OWS tank was left in place and retrofitted to the new OWS treatment system.

J.A. Jones Environmental personnel supervised the excavation of the old OWS treatment system, screened soils with an organic vapor analyzer (OVA), visually inspected soil from various locations and depths throughout the excavation pit for signs of petroleum hydrocarbon staining, collected a soil sample for laboratory analyses, installed a temporary piezometer in the excavation, and collected a groundwater sample for laboratory analyses.

According to 40 Code of Federal Regulations (CFR), Section 280.72, *Assessing the Site at Closure,* a wastewater treatment system tank is defined as a tank which is designed to receive and treat an influent wastewater through physical, chemical, or biological methods. Section 62-761, Florida Administrative Code (FAC), *Underground Storage Tank Systems*, is not applicable to any stormwater or wastewater collection or flow-through process tank systems. Therefore, a TCA as outlined in the FDEP 'interoffice memorandum entitled *"Pollutant Storage Tank Closure Assessments Requirements*", dated June 1994, is not required for the removal of OWS Tank No. 201-B. However, for documentation purposes this report will follow the FDEP guidelines.

SECTION 2

SITE BACKGROUND

The U.S. Navy operates two concrete engine test pads adjacent to Building 0201, Naval Air Station, Jacksonville, Florida. This TCA specifically addresses the removal of the existing OWS treatment system which serviced the concrete test engine pad immediately adjacent to Bldg. 0201. OWS Tanks 201-A and 201-B were scheduled to be removed with the associated junction boxes and piping in preparation for installation of a new OWS treatment system. The work scope was modified by the U.S. Navy to retain OWS Tank 201-A when it was determined that a pair of electrical ductbanks exist within inches of either side of the tank.

The OWS tanks were installed at this facility in 1984. The OWS treatment system was designed to remove petroleum oil lubricants (POLs) and jet fuels (e.g., JP4 and JP5) from wastewater generated during washdown of the concrete test engine pad following engine testing. The layout of the OWS treatment system is shown by **Figure 2.**

SECTION 3

TANK CLOSURE ASSESSMENT

The principal objective of this closure assessment is to identify existing contamination which may have originated from the OWS treatment system. Methods of identifying contamination include: visual inspection of soils removed from the excavation for petroleum hydrocarbon staining, inspection of the OWS tanks, pipes and junction boxes for signs of damage and/or leaks, screening the soil for petroleum hydrocarbon vapors, and collecting soil and groundwater samples for laboratory analyses.

The OWS treatment system was removed in four phases beginning with excavation and removal of the piping system running beneath the asphalt driveway and east of OWS Tank 201-A on July 11, 1996. The second phase involved excavation and removal of the piping between Junction Box-2 and OWS Tank 201-B on July 12, 1996. The third phase involved excavation and removal of the three junction boxes from July 16 through July 18, 1996. The final phase consisted of excavation and removal of the OWS Tank 201-B on July 22, 1996. The locations of the piping system, junction boxes and OWS Tanks 201-A and 201-B are illustrated on **Figure 2** .

Between July 11 and 23, 1996, the OWS treatment system (with the exception of OWS Tank 201-A) was removed. Prior to removing the OWS treatment system from the ground, all liquids from the system were removed and placed into a frac tank. On July 23, 1996, a sample of the wastewater (AQ-1) was collected from the frac tank. The sample was placed in a laboratory prepared sample kit and transported to Environmental Conservation Laboratories, Inc. (ENCO) for analyses. The laboratory analyses was completed for the purpose of characterizing the wastewater for proper disposal. The wastewater was characterized, and on August 6, 1996 was transported to Industrial Water Services, Inc., Jacksonville, Florida for treatment and disposal. The laboratory analytical report from the wastewater sample is contained in **Appendix A** and a copy of the transportation manifest for the wastewater is enclosed in **Appendix B.**

Once the liquid was removed, the solid material, or sludge, from the OWS tanks and junction boxes was removed. Additional sludge was removed from the piping system once it was removed from the ground. The sludge was placed in six 55-gallon Department of Transportation 17-H drums for storage prior to transportation to a state certified disposal facility. In order to characterize the sludge, a composite sample (SL-1) was collected from the drums on July 23, 1996. The sample was placed in a laboratory prepared sample kit and transported to ENCO for analyses. The laboratory analytical report from the sludge sample is contained in **Appendix A** and a copy of the transportation manifest and disposal certificate for the sludge is enclosed in **Appendix B.**

The concrete waste materials from the piping, OWS Tank 201-B and the junction boxes were placed on polyethylene sheeting in a bermed area for the purpose of decontamination prior to disposal. The concrete materials were decontaminated by pressure washing prior to being transported from the site by Rod & Rod Construction, Inc. A copy of the documentation for concrete disposal is contained in **Appendix B**. The decontamination water, along with the liquids pumped from the OWS tanks, were stored in a frac tank and transported from the site to Industrial Water Services, Inc. for treatment and disposal. The piping, junction boxes, and OWS Tank 201-B appeared to be intact with no apparent signs of leaks or holes.

The soils were also visually inspected for evidence of petroleum hydrocarbon staining as specified in Chapter 62-770, FAC, and in the *Quality Assurance Standard Operating Procedures for Petroleum Storage System Closure Assessments*. Used oil and kerosene type fuels were the potential contaminants treated by the OWS treatment system. Used oil and kerosene type fuels do not generally emit vapors which are readily detectable by an OVA; therefore visual inspection for signs of petroleum hydrocarbon staining was necessary. However, no visual evidence of hydrocarbon staining was observed during these activities.

During excavation activities, soil samples were collected from various locations and depths and screened for petroleum hydrocarbon vapors using a Foxboro Model 128 flame ionization detector OVA (FID-OVA). The groundwater table was encountered at a depth of approximately 2 feet below land surface (ft bls) during the excavation which restricted soil sampling to that depth.

As previously mentioned an FID-OVA was used to screen the soils for petroleum hydrocarbon vapors during the removal of the OWS treatment system piping and junction boxes. A Photovac MicroTIP Model No. IS-3000 photoionization detector OVA (PID-OVA) was used to screen the soils excavated during the removal of OWS Tank 201-B. **Table 1** summarizes the OVA data gathered during the soil sampling activities.

During excavation of OWS Tank 201-B, the PID-OVA analyses indicated petroleum hydrocarbon vapor concentrations which exceeded the Chapter 62-770 FAC limit for excessively contaminated soil. Chapter 62-770 FAC defines excessively contaminated soil for kerosene type fuels as soil with a petroleum hydrocarbon vapor concentration of 50 parts per million (ppm) or greater. Chapter 62-770 FAC defines excessively contaminated soil based on FID-OVA readings. A PID-OVA was used for the soil assessment during the removal of OWS Tank 201-A; therefore, an equivalency correlation was used for the PID-OVA. Documentation for the FID-OVA to PID-OVA correlation is enclosed in **Appendix C**. According to the attached documentation, a value of 55 ppm on the PID-OVA is equivalent to a reading of 50 ppm on an FID-OVA. Therefore, any readings above 55 ppm on the PID-OVA were considered excessively contaminated soil for the purposes of this TCA. Due to the exceedances of the Chapter 62-770 limits for excessively contaminated soil, a Discharge Reporting Form (DRF) was prepared for submittal by the U.S. Navy to the FDEP.

The excessively contaminated soil was removed from the excavation and stockpiled on and covered with polyethylene sheeting. The polyethylene sheeting was necessary to prevent the excessively-contaminated soil from impacting the soil beneath the stockpile and to prevent stormwater runoff contamination. The surface area of the excavation around OWS Tank 201-B in which the excessively contaminated soil was removed from was approximately 400 square feet; and the depth of the excavation was approximately 6 ft bls. The depth of the excavation was determined by the depth necessary for removal of the tank. Approximately 96 tons or 60 cubic yards (cy) of excessively contaminated soil was removed from the excavation during the tank removal.

The excessively contaminated soil was stockpiled on site until it could be properly characterized and disposed of as an Initial Remedial Action (IRA). IRA's are authorized in Section 62-770.300, FAC, and allow for the removal and treatment of excessively-contaminated soil from petroleum contaminated sites. The principal objective of this IRA was to excavate and dispose of the excessively-contaminated soil which was encountered during the removal of OWS Tank 201-B.

On July 23, 1996, a soil sample (PB-1) was collected from the stockpile of excessively contaminated soil. The soil sample was collected and placed in laboratory prepared sample containers, stored in an ice cooler, and transported to ENCO. The soil sample was analyzed for the following constituents: volatile organic hydrocarbons (VOH) by Environmental Protection Agency (EPA) Method 8010; volatile organic aromatics (VOA) by EPA Method 8020; Total Recoverable Petroleum Hydrocarbons (TRPH) by EPA Method 9073; arsenic, barium, cadmium, chromium, lead, selenium, and silver by EPA Method 6010; and mercury by EPA Method 7471. ENCO has an approved Comprehensive Quality Assurance Plan (CompQAP), No. 910190-G, on file with the FDEP. A copy of the analytical report is included in **Appendix A**.

On August 20, 1996 the excessively contaminated soil was transported from the site by Bulldog Transport Company, and delivered to Soil Remediation, Inc., Ray City, Georgia for thermal incineration and recycling. Copies of the transportation manifests and certificate of thermal treatment are included in **Appendix B**. A Initial Remedial Action (IRA) Form was prepared for the removal and treatment of the excessively contaminated soil; and a copy of the IRA Form is included in **Appendix D**.

The FDEP interoffice memorandum titled "*Pollutant Storage Tank Closure Assessment Requirements*", states as follows: "Groundwater samples must be obtained when the groundwater table depth is less than 20 feet."; and, "if there are no monitoring wells present, subsequent to backfilling, install a temporary monitoring well in the area of the former tank pit that represents the 'worst case' contamination." Therefore, on July 22, 1996, a temporary piezometer, (PZ-1) was installed in the downgradient (south) end of the excavation for OWS Tank 201-B, and a groundwater sample collected. Prior to collecting the groundwater sample, (GW-1), at least 5 well volumes of groundwater were purged from

the temporary piezometer. After collecting the groundwater sample, the temporary piezometer was removed from the ground, and the bore hole was backfilled with native soil.

The groundwater sample was placed in laboratory prepared sample containers, stored in an ice cooler and transported to ENCO. The groundwater sample was analyzed for the following constituents: VOH by EPA Method 601, VOA by EPA Method 602, and polynuclear aromatic hydrocarbons (PAH) by EPA Method 610.

The results of the laboratory analyses indicate that the groundwater sample was impacted by VOA and VOH at concentrations which exceed the Drinking Water Standards (DWS) outlined in the FDEP's document titled "*Ground Water Guidance Concentrations*", dated June 1994. The following constituents were detected which exceeded a DWS as indicated: benzene at 2 micrograms per liter (µg/L) [Primary DWS (PDWS) = 1 µg/L]; toluene at 460 µg/L (Secondary DWS = 40 µg/L); vinyl chloride at 140 µg/L (PDWS = 1 µg/L); 1,1-Dichloroethene at 56 µg/L (PDWS = 7 µg/L); trans-1,2-Dichloroethene at 167 µg/L (PDWS = 100 µg/L); and trichloroethene at 155,000 µg/L (PDWS = 3 µg/L). A copy of the laboratory report is enclosed in **Appendix A**.

Concurrent with removal of the OWS and assessment activities, the new OWS was installed in the excavation and clean backfill was brought in to bring the excavation up to grade around the new structure(s). The area was compacted and sodded in accordance with the U. S. Navy's request.

A well inventory within a 0.25-mile radius of the site was conducted at the Regulatory Environmental Services Department in Jacksonville, Florida. The well inventory indicated that no known potable supply wells exist within a 0.25-mile radius of the site.

Copies of the completed IRA, TCA, Storage Tank Registration and Discharge Reporting Forms are enclosed in **Appendix D**.

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

J.A. Jones Environmental conducted a TCA for the U. S. Navy at NAS Jacksonville, Building 0201, between July 11 and 23, 1996. The TCA included: the removal of one 2,500-gallon used oil tank and associated piping and junction boxes; visual inspection and FID-OVA/PID-OVA screening of the soil removed from the excavation for signs of petroleum hydrocarbon contamination; and collection of soil and groundwater samples for laboratory analyses.

During the removal of the OWS Tank 201-B, excessively contaminated soil was encountered and approximately 60 cy of petroleum hydrocarbon impacted soil was excavated from the tank pit area, transported from the site, and thermally incinerated as an IRA. The laboratory analyses of the groundwater sample collected from within the tank pit indicated that VOA and VOH constituents were present at concentrations which had exceeded the FDEP's DWS. Therefore, J.A. Jones Environmental recommends conducting a contamination assessment of the groundwater at the former site of OWS Tank 201-B.

SECTION 5

LIMITATIONS

J.A. Jones Environmental can offer no assurances and assumes no responsibility for site conditions or activities which were outside the scope of inquiry. In performing this investigation, J.A. Jones Environmental has used reasonable care and has performed its work in keeping with industry standards and standard industry procedures as appropriate. It should be noted that soil and groundwater samples collected at the site only represent a small amount of data. There can be no assurance, and J.A. Jones Environmental offers no assurance, that additional site conditions do not exist or could not exist in the future which were undetected and could lead to liability in connection with the property.

TABLE 1
SOIL GAS SURVEY DATA
U. S. Naval Air Station, Jacksonville, Florida
Oil/Water Separator Removal, Building 0201

Sample Number	Date Sampled	Sample Depth (ft bls)	Total Organic Vapors (ppm)	Total Naturally Occurring Vapors (ppm)	Total Petroleum Hydocarbon Vapors (ppm)
SS-1	11-Jul-96	1.5	2.0	2.0	< 0.2
SS-2	11-Jul-96	1.5	6.0	4.0	2.0
SS-3	11-Jul-96	1.5	2.0	2.0	< 0.2
SS-4	11-Jul-96	1.5	2.0	2.0	< 0.2
SS-5	12-Jul-96	1.5	4.0	4.0	< 0.2
SS-6	12-Jul-96	1.5	5.8	5.4	0.4
SS-7	12-Jul-96	1.5	5.0	5.0	< 0.2
SS-8	12-Jul-96	1.5	5.4	5.4	< 0.2
SS-9	12-Jul-96	1.5	5.2	5.2	< 0.2
SS-10	12-Jul-96	1.5	5.2	5.2	< 0.2
SS-11	12-Jul-96	1.5	5.8	5.8	< 0.2
SS-12	12-Jul-96	1.5	8.0	8.0	< 0.2
SS-13	12-Jul-96	1.5	8.0	8.0	< 0.2
SS-14	12-Jul-96	1.5	6.8	6.8	< 0.2
SS-15	12-Jul-96	1.5	6.8	6.8	< 0.2
SS-16	16-Jul-96	1.5	2.8	1.6	1.2
SS-17	16-Jul-96	1.5	3.0	1.6	1.4
SS-18	16-Jul-96	1.5	0.2	0.2	< 0.2
SS-19	16-Jul-96	1.5	0.2	0.2	< 0.2
SS-20	16-Jul-96	1.5	32.0	30.0	2.0
SS-21	22-Jul-96	1.5	154.0	NA	154.0
SS-22	22-Jul-96	1.5	130.0	NA	130.0
SS-23	22-Jul-96	1.5	44.0	NA	44.0
SS-24	22-Jul-96	1.5	264.0	NA	264.0
SS-25	22-Jul-96	1.5	144.0	NA	144.0
SS-26	22-Jul-96	1.5	1256.0	NA	1256.0
SS-27	16-Jul-96	1.5 -2.0	0.2	0.2	< 0.2

Notes:

All vapor concentrations reported in parts per million (ppm)

Vapor concentrations for SS-1 through SS-20 and SS-27 determined by Foxboro Model 128 FID

Vapor concentrations for SS-21 through SS-26 determined by Photovac MicroTIP No. IS-3000 PID

ft bls = feet below land surface

ppm = parts per million

< = less than

APPENDIX A

LABORATORY REPORT

Environmental Conservation Laboratories
4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
904 / 296-3007
Fax 904 / 296-6210

ENCO Laboratories

DHRS Certification No E82277, 82417

CLIENT : J.A. Jones Envir. Services
ADDRESS: 8936 Western Way
Suite 10
Jacksonville, FL 32256

REPORT # : JR3098
DATE SUBMITTED: July 23, 1996
DATE REPORTED : July 29, 1996

ATTENTION: Trip Snelson

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: 042

NAS OWS Bldg 0201

07/23/96

#1 - GW-1 @ 09:00
#2 - AQ-1 @ 09:15
#3 - SL-1 @ 13:15
#4 - PB-1 @ 13:55

PROJECT MANAGER Scott D. Martin

RESULTS OF ANALYSIS

EPA METHOD 601 - VOLATILE HALOCARBONS	GW-1	Units
Dichlorodifluoromethane	1 U	µg/L
Chloromethane	2 U	µg/L
Vinyl Chloride	140 D20	µg/L
Bromomethane	1 U	µg/L
Chloroethane	2 U	µg/L
Trichlorofluoromethane	2 U	µg/L
1,1-Dichloroethene	56	µg/L
Methylene Chloride	2 U	µg/L
t-1,2-Dichloroethene	167 E	µg/L
1,1-Dichloroethane	1 U	µg/L
Chloroform	1 U	µg/L
1,1,1-Trichloroethane	1 U	µg/L
Carbon Tetrachloride	1 U	µg/L
1,2-Dichloroethane	3	µg/L
Trichloroethene	155000 D5000	µg/L
1,2-Dichloropropane	1 U	µg/L
Bromodichloromethane	1 U	µg/L
c-1,3-Dichloropropene	1 U	µg/L
t-1,3-Dichloropropene	1 U	µg/L
1,1,2-Trichloroethane	1	µg/L
Tetrachloroethene	1	µg/L
Dibromochloromethane	1 U	µg/L
Chlorobenzene	1 U	µg/L
Bromoform	1 U	µg/L
1,1,2,2-Tetrachloroethane	1 U	µg/L
1,3-Dichlorobenzene	1 U	µg/L
1,4-Dichlorobenzene	1 U	µg/L
1,2-Dichlorobenzene	1 U	µg/L

Surrogate:	% RECOV	LIMITS
Bromofluorobenzene	55	37-160
Date Analyzed	07/24/96	

E = Estimated value
D20 = Analyte value determined from a 1:20 dilution.
U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR3098
DATE REPORTED: July 29, 1996
REFERENCE : 043
PROJECT NAME : NAS OWS Bldg 0201

RESULTS OF ANALYSIS

EPA METHOD 602 - VOLATILE AROMATICS	GW-1	Units
Methyl tert-butyl ether	2 U	µg/L
Benzene	2	µg/L
Toluene	460 D20	µg/L
Chlorobenzene	1 U	µg/L
Ethylbenzene	3	µg/L
m-Xylene & p-Xylene	8	µg/L
o-Xylene	4	µg/L
1,3-Dichlorobenzene	1 U	µg/L
1,4-Dichlorobenzene	1 U	µg/L
1,2-Dichlorobenzene	1 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	85	58-130
Date Analyzed	07/24/96	

D20 = Analyte value determined from a 1:20 dilution.
U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 610 - POLY AROMATIC HYDROCARBONS	GW-1	Units
Naphthalene	10 U	µg/L
2-Methylnaphthalene	10 U	µg/L
1-Methylnaphthalene	10 U	µg/L
Acenaphthylene	10 U	µg/L
Acenaphthene	10 U	µg/L
Fluorene	10 U	µg/L
Phenanthrene	10 U	µg/L
Anthracene	10 U	µg/L
Fluoranthene	10 U	µg/L
Pyrene	10 U	µg/L
Chrysene	10 U	µg/L
Benzo(a)anthracene	10 U	µg/L
Benzo(b)fluoranthene	10 U	µg/L
Benzo(k)fluoranthene	10 U	µg/L
Benzo(a)pyrene	10 U	µg/L
Indeno(1,2,3-cd)pyrene	10 U	µg/L
Dibenzo(a,h)anthracene	10 U	µg/L
Benzo(g,h,i)perylene	10 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
2-Fluorobiphenyl	52	30-146
Date Extracted	07/25/96	
Date Analyzed	07/25/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8240 - TCLP VOLATILES BY GC/MS	AQ-1	Units
Benzene	25 U	µg/L
Carbon tetrachloride	25 U	µg/L
Chlorobenzene	25 U	µg/L
Chloroform	25 U	µg/L
1,2-Dichloroethane	25 U	µg/L
1,1-Dichloroethene	25 U	µg/L
2-Butanone	50 U	µg/L
Tetrachloroethene	50 U	µg/L
Trichloroethene	25 U	µg/L
Vinyl Chloride	25 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
D4-1,2-Dichloroethane	96	77-130
D8-Toluene	93	73-119
Bromofluorobenzene	96	77-121
Date Analyzed	07/26/96	

MISCELLANEOUS	METHOD	AQ-1	Units
Flashpoint	1010	> 200	°F
Date Analyzed		07/29/96	
Corrosivity as pH	9040	6.32	S.U.
Date Analyzed		07/24/96	
Reactive Cyanide	SW-846,	250 U	mg/L
Date Analyzed	Ch. 7	07/29/96	
Reactive Sulfide	SW-846,	500 U	mg/L
Date Analyzed	Ch. 7	07/29/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8270 - TCLP SVOAS BY GC/MS	AQ-1	Units
Total Cresol	300 U	µg/L
1,4-Dichlorobenzene	100 U	µg/L
2,4-Dinitrotoluene	100 U	µg/L
Hexachlorobenzene	100 U	µg/L
Hexachlorobutadiene	100 U	µg/L
Hexachloroethane	100 U	µg/L
Nitrobenzene	100 U	µg/L
Pentachlorophenol	100 U	µg/L
Pyridine	100 U	µg/L
2,4,5-Trichlorophenol	100 U	µg/L
2,4,6-Trichlorophenol	100 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
Nitrobenzene -D5	104	30-106
2-Fluorobiphenyl	94	38-107
Terphenyl -D14	78	29-131
Phenol -D5	58	12-87
2-Fluorophenol	62	19-115
2,4,6-Tribromophenol	86	35-126
Date Extracted	07/27/96	
Date Analyzed	07/27/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

TCLP METALS	METHOD	AQ-1	Units
TCLP Arsenic	6010	2 U	mg/L
Date Analyzed		07/25/96	
TCLP Barium	6010	10 U	mg/L
Date Analyzed		07/25/96	
TCLP Cadmium	6010	0.5 U	mg/L
Date Analyzed		07/25/96	
TCLP Chromium	6010	1 U	mg/L
Date Analyzed		07/25/96	
TCLP Lead	6010	1 U	mg/L
Date Analyzed		07/25/96	
TCLP Mercury	7470	0.05 U	mg/L
Date Analyzed		07/26/96	
TCLP Selenium	6010	0.5 U	mg/L
Date Analyzed		07/25/96	
TCLP Silver	6010	1 U	mg/L
Date Analyzed		07/25/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8240 - TCLP VOLATILES BY GC/MS	SL-1	Units
Benzene	25 U	µg/L
Carbon tetrachloride	25 U	µg/L
Chlorobenzene	25 U	µg/L
Chloroform	25 U	µg/L
1,2-Dichloroethane	25 U	µg/L
1,1-Dichloroethene	25 U	µg/L
2-Butanone	50 U	µg/L
Tetrachloroethene	50 U	µg/L
Trichloroethene	25 U	µg/L
Vinyl Chloride	25 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
D4-1,2-Dichloroethane	85	73-133
D8-Toluene	94	77-123
Bromofluorobenzene	104	74-134
Date Analyzed	07/26/96	

MISCELLANEOUS	METHOD	SL-1	Units
Corrosivity as pH	9045	7.75	S.U.
Date Analyzed		07/24/96	
Ignitability	1010	non-ignitable	N.A.
Date Analyzed		07/29/96	
Cyanide, Reactive	SW-846,	250 U	mg/Kg
Date Analyzed	Ch. 7	07/29/96	
Sulfide, Reactive	SW-846,	500 U	mg/Kg
Date Analyzed	Ch. 7	07/29/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8270 - TCLP SVOAS BY GC/MS	SL-1	Units
Total Cresol	300 U	µg/L
1,4-Dichlorobenzene	100 U	µg/L
2,4-Dinitrotoluene	100 U	µg/L
Hexachlorobenzene	100 U	µg/L
Hexachlorobutadiene	100 U	µg/L
Hexachloroethane	100 U	µg/L
Nitrobenzene	100 U	µg/L
Pentachlorophenol	100 U	µg/L
Pyridine	100 U	µg/L
2,4,5-Trichlorophenol	100 U	µg/L
2,4,6-Trichlorophenol	100 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
Nitrobenzene -D5	88	30-106
2-Fluorobiphenyl	104	38-107
Terphenyl -D14	96	29-131
Phenol -D5	40	12-87
2-Fluorophenol	37	19-115
2,4,6-Tribromophenol	46	35-126
Date Extracted	07/27/96	
Date Analyzed	07/28/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

TCLP METALS	METHOD	SL-1	Units
TCLP Arsenic	6010	2 U	mg/L
Date Analyzed		07/26/96	
TCLP Barium	6010	10 U	mg/L
Date Analyzed		07/26/96	
TCLP Cadmium	6010	0.5 U	mg/L
Date Analyzed		07/26/96	
TCLP Chromium	6010	1 U	mg/L
Date Analyzed		07/26/96	
TCLP Lead	6010	1 U	mg/L
Date Analyzed		07/26/96	
TCLP Mercury	7470	0.05 U	mg/L
Date Analyzed		07/26/96	
TCLP Selenium	6010	0.5 U	mg/L
Date Analyzed		07/26/96	
TCLP Silver	6010	1 U	mg/L
Date Analyzed		07/26/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	PB-1	Units
Dichlorodifluoromethane	5 U	µg/Kg
Chloromethane	10 U	µg/Kg
Vinyl Chloride	5 U	µg/Kg
Bromomethane	5 U	µg/Kg
Chloroethane	10 U	µg/Kg
Trichlorofluoromethane	10 U	µg/Kg
1,1-Dichloroethene	5 U	µg/Kg
Methylene Chloride	10 U	µg/Kg
t-1,2-Dichloroethene	5 U	µg/Kg
1,1-Dichloroethane	5 U	µg/Kg
Chloroform	5 U	µg/Kg
1,1,1-Trichloroethane	5 U	µg/Kg
Carbon Tetrachloride	5 U	µg/Kg
1,2-Dichloroethane	5 U	µg/Kg
Trichloroethene	5 U	µg/Kg
1,2-Dichloropropane	5 U	µg/Kg
Bromodichloromethane	5 U	µg/Kg
c-1,3-Dichloropropene	5 U	µg/Kg
t-1,3-Dichloropropene	5 U	µg/Kg
1,1,2-Trichloroethane	5 U	µg/Kg
Tetrachloroethene	5 U	µg/Kg
Dibromochloromethane	5 U	µg/Kg
Chlorobenzene	5 U	µg/Kg
Bromoform	5 U	µg/Kg
1,1,2,2-Tetrachloroethane	5 U	µg/Kg
1,3-Dichlorobenzene	5 U	µg/Kg
1,4-Dichlorobenzene	5 U	µg/Kg
1,2-Dichlorobenzene	5 U	µg/Kg
Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	72	30-153
Date Analyzed	07/27/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8020 - VOLATILE AROMATICS	PB-1	Units
Methyl tert-butyl ether	21	µg/Kg
Benzene	5 U	µg/Kg
Toluene	21	µg/Kg
Chlorobenzene	5 U	µg/Kg
Ethylbenzene	21	µg/Kg
m-Xylene & p-Xylene	43	µg/Kg
o-Xylene	28	µg/Kg
1,3-Dichlorobenzene	5 U	µg/Kg
1,4-Dichlorobenzene	5 U	µg/Kg
1,2-Dichlorobenzene	5 U	µg/Kg
Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	124	39-125
Date Analyzed	07/27/96	

EPA METHOD 9073 - TOTAL PETR. HYDROCARBONS	PB-1	Units
Total Petr. Hydrocarbons	2113	mg/Kg
Date Analyzed	07/26/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

TOTAL METALS	METHOD	PB-1	Units
Arsenic	6010	1.8	mg/Kg
Date Analyzed		07/25/96	
Barium	6010	20 U	mg/Kg
Date Analyzed		07/25/96	
Cadmium	6010	1 U	mg/Kg
Date Analyzed		07/25/96	
Chromium	6010	2.7	mg/Kg
Date Analyzed		07/25/96	
Lead	6010	4.4	mg/Kg
Date Analyzed		07/25/96	
Mercury	7471	0.029	mg/Kg
Date Analyzed		07/24/96	
Selenium	6010	2 U	mg/Kg
Date Analyzed		07/25/96	
Silver	6010	2 U	mg/Kg
Date Analyzed		07/25/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 601 - VOLATILE HALOCARBONS	LAB BLANK	Units
Dichlorodifluoromethane	1 U	µg/L
Chloromethane	2 U	µg/L
Vinyl Chloride	1 U	µg/L
Bromomethane	1 U	µg/L
Chloroethane	2 U	µg/L
Trichlorofluoromethane	2 U	µg/L
1.1-Dichloroethene	1 U	µg/L
Methylene Chloride	2 U	µg/L
t-1,2-Dichloroethene	1 U	µg/L
1,1-Dichloroethane	1 U	µg/L
Chloroform	1 U	µg/L
1,1,1-Trichloroethane	1 U	µg/L
Carbon Tetrachloride	1 U	µg/L
1,2-Dichloroethane	1 U	µg/L
Trichloroethene	1 U	µg/L
1,2-Dichloropropane	1 U	µg/L
Bromodichloromethane	1 U	µg/L
c-1,3-Dichloropropene	1 U	µg/L
t-1,3-Dichloropropene	1 U	µg/L
1,1,2-Trichloroethane	1 U	µg/L
Tetrachloroethene	1 U	µg/L
Dibromochloromethane	1 U	µg/L
Chlorobenzene	1 U	µg/L
Bromoform	1 U	µg/L
1,1,2,2-Tetrachloroethane	1 U	µg/L
1,3-Dichlorobenzene	1 U	µg/L
1,4-Dichlorobenzene	1 U	µg/L
1,2-Dichlorobenzene	1 U	µg/L

Surrogate:	% RECOV	LIMITS
Bromofluorobenzene	50	37-160
Date Analyzed	07/24/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 602 - VOLATILE AROMATICS	LAB BLANK	Units
Methyl tert-butyl ether	2 U	µg/L
Benzene	1 U	µg/L
Toluene	1 U	µg/L
Chlorobenzene	1 U	µg/L
Ethylbenzene	1 U	µg/L
m-Xylene & p-Xylene	1 U	µg/L
o-Xylene	1 U	µg/L
1,3-Dichlorobenzene	1 U	µg/L
1,4-Dichlorobenzene	1 U	µg/L
1,2-Dichlorobenzene	1 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	90	58-130
Date Analyzed	07/24/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 610 - POLY AROMATIC HYDROCARBONS	LAB BLANK	Units
Naphthalene	10 U	µg/L
2-Methylnaphthalene	10 U	µg/L
1-Methylnaphthalene	10 U	µg/L
Acenaphthylene	10 U	µg/L
Acenaphthene	10 U	µg/L
Fluorene	10 U	µg/L
Phenanthrene	10 U	µg/L
Anthracene	10 U	µg/L
Fluoranthene	10 U	µg/L
Pyrene	10 U	µg/L
Chrysene	10 U	µg/L
Benzo(a)anthracene	10 U	µg/L
Benzo(b)fluoranthene	10 U	µg/L
Benzo(k)fluoranthene	10 U	µg/L
Benzo(a)pyrene	10 U	µg/L
Indeno(1,2,3-cd)pyrene	10 U	µg/L
Dibenzo(a,h)anthracene	10 U	µg/L
Benzo(g,h,i)perylene	10 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
2-Fluorobiphenyl	68	30-146
Date Extracted	07/25/96	
Date Analyzed	07/25/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	LAB BLANK	Units
Dichlorodifluoromethane	5 U	µg/Kg
Chloromethane	10 U	µg/Kg
Vinyl Chloride	5 U	µg/Kg
Bromomethane	5 U	µg/Kg
Chloroethane	10 U	µg/Kg
Trichlorofluoromethane	10 U	µg/Kg
1,1-Dichloroethene	5 U	µg/Kg
Methylene Chloride	10 U	µg/Kg
t-1,2-Dichloroethene	5 U	µg/Kg
1,1-Dichloroethane	5 U	µg/Kg
Chloroform	5 U	µg/Kg
1,1,1-Trichloroethane	5 U	µg/Kg
Carbon Tetrachloride	5 U	µg/Kg
1,2-Dichloroethane	5 U	µg/Kg
Trichloroethene	5 U	µg/Kg
1,2-Dichloropropane	5 U	µg/Kg
Bromodichloromethane	5 U	µg/Kg
c-1,3-Dichloropropene	5 U	µg/Kg
t-1,3-Dichloropropene	5 U	µg/Kg
1,1,2-Trichloroethane	5 U	µg/Kg
Tetrachloroethene	5 U	µg/Kg
Dibromochloromethane	5 U	µg/Kg
Chlorobenzene	5 U	µg/Kg
Bromoform	5 U	µg/Kg
1,1,2,2-Tetrachloroethane	5 U	µg/Kg
1,3-Dichlorobenzene	5 U	µg/Kg
1,4-Dichlorobenzene	5 U	µg/Kg
1,2-Dichlorobenzene	5 U	µg/Kg
Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	82	30-153
Date Analyzed	07/26/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8020 - VOLATILE AROMATICS	LAB BLANK	Units
Methyl tert-butyl ether	10 U	µg/Kg
Benzene	5 U	µg/Kg
Toluene	5 U	µg/Kg
Chlorobenzene	5 U	µg/Kg
Ethylbenzene	5 U	µg/Kg
m-Xylene & p-Xylene	5 U	µg/Kg
o-Xylene	5 U	µg/Kg
1,3-Dichlorobenzene	5 U	µg/Kg
1,4-Dichlorobenzene	5 U	µg/Kg
1,2-Dichlorobenzene	5 U	µg/Kg
Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	92	39-125
Date Analyzed	07/26/96	

EPA METHOD 9073 - TOTAL PETR. HYDROCARBONS	LAB BLANK	Units
Total Petr. Hydrocarbons	5 U	mg/Kg
Date Analyzed	07/26/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

TOTAL METALS	METHOD	LAB BLANK	Units
Arsenic	6010	0.5 U	mg/Kg
Date Analyzed		07/25/96	
Barium	6010	20 U	mg/Kg
Date Analyzed		07/25/96	
Cadmium	6010	1 U	mg/Kg
Date Analyzed		07/25/96	
Chromium	6010	1 U	mg/Kg
Date Analyzed		07/25/96	
Lead	6010	1 U	mg/Kg
Date Analyzed		07/25/96	
Mercury	7471	0.02 U	mg/Kg
Date Analyzed		07/24/96	
Selenium	6010	2 U	mg/Kg
Date Analyzed		07/25/96	
Silver	6010	2 U	mg/Kg
Date Analyzed		07/25/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

TCLP METALS	METHOD	LAB BLANK	Units
TCLP Arsenic	6010	2 U	mg/L
Date Analyzed		07/25/96	
TCLP Barium	6010	10 U	mg/L
Date Analyzed		07/25/96	
TCLP Cadmium	6010	0.5 U	mg/L
Date Analyzed		07/25/96	
TCLP Chromium	6010	1 U	mg/L
Date Analyzed		07/25/96	
TCLP Lead	6010	1 U	mg/L
Date Analyzed		07/25/96	
TCLP Mercury	7470	0.05 U	mg/L
Date Analyzed		07/26/96	
TCLP Selenium	6010	0.5 U	mg/L
Date Analyzed		07/25/96	
TCLP Silver	6010	1 U	mg/L
Date Analyzed		07/25/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8240 - TCLP VOLATILES BY GC/MS	LAB BLANK	Units
Benzene	5 U	µg/L
Carbon tetrachloride	5 U	µg/L
Chlorobenzene	5 U	µg/L
Chloroform	5 U	µg/L
1,2-Dichloroethane	5 U	µg/L
1,1-Dichloroethene	5 U	µg/L
2-Butanone	10 U	µg/L
Tetrachloroethene	10 U	µg/L
Trichloroethene	5 U	µg/L
Vinyl Chloride	5 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
D4-1,2-Dichloroethane	88	73-133
D8-Toluene	96	77-123
Bromofluorobenzene	89	74-134
Date Analyzed	07/17/96	

MISCELLANEOUS	METHOD	LAB BLANK	Units
Cyanide, Reactive	SW-846, Ch. 7	250 U	mg/Kg
Date Analyzed		07/29/96	
Sulfide, Reactive	SW-846, Ch.7	500 U	mg/Kg
Date Analyzed		07/29/96	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8270 - TCLP SVOAS BY GC/MS	LAB BLANK	Units
Total Cresol	300 U	µg/L
1,4-Dichlorobenzene	100 U	µg/L
2,4-Dinitrotoluene	100 U	µg/L
Hexachlorobenzene	100 U	µg/L
Hexachlorobutadiene	100 U	µg/L
Hexachloroethane	100 U	µg/L
Nitrobenzene	100 U	µg/L
Pentachlorophenol	100 U	µg/L
Pyridine	100 U	µg/L
2,4,5-Trichlorophenol	100 U	µg/L
2,4,6-Trichlorophenol	100 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
Nitrobenzene -D5	70	30-106
2-Fluorobiphenyl	98	38-107
Terphenyl -D14	102	29-131
Phenol -D5	70	12-87
2-Fluorophenol	66	19-115
2,4,6-Tribromophenol	49	35-126
Date Extracted	07/27/96	
Date Analyzed	07/27/96	

U = Compound was analyzed for but not detected to the level shown.

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 601				
Methylene Chloride	80/ 90/ 95	43-157	12	25
Chloroform	* / * /110	60-146	*	16
Carbon Tetrachloride	140/130/ 95	64-141	7	20
Trichloroethene	* / * / 90	49-139	*	23
Tetrachloroethene	95/ 95/100	56-145	<1	20
Chlorobenzene	90/ 82/100	57-141	9	17
EPA Method 602				
Benzene	95/ 95/100	59-137	<1	17
Toluene	* / * / 95	57-138	*	15
Ethylbenzene	105/100/100	47-144	5	16
m-Xylene & p-Xylene	112/112/ 98	51-151	<1	16
EPA Method 610				
2-Methylnaphthalene	78/ 78/ 71	21-137	<1	29
1-Methylnaphthalene	88/ 89/ 79	20-149	1	29
Acenaphthylene	89/ 90/ 85	27-147	1	21
Fluorene	103/105/ 97	37-151	2	18
Pyrene	126/130/119	44-168	3	20

* = MS/MSD recoveries unavailable due to high original sample concentration.

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8010				
Methylene Chloride	86/ 82/ 86	13-191	5	27
Chloroform	99/ 91/108	46-152	8	18
Carbon Tetrachloride	101/ 91/112	53-151	10	20
Trichloroethene	100/ 88/106	28-164	13	25
Tetrachloroethene	99/ 94/106	55-145	5	20
Chlorobenzene	95/ 89/ 95	60-137	6	20
EPA Method 8020				
Benzene	86/ 80/ 82	49-149	7	20
Toluene	86/ 80/ 82	43-144	7	14
Ethylbenzene	89/ 85/ 68	40-135	4	14
m-Xylene & p-Xylene	119/115/102	23-167	3	10
EPA Method 9073				
Total Petr. Hydrocarbons	100/101/ 84	59-134	<1	23
Total Metals				
Arsenic, 6010	79/ 79/ 84	70-118	<1	12
Barium, 6010	94/ 95/ 99	69-120	1	17
Cadmium, 6010	91/ 91/ 97	69-117	<1	14
Chromium, 6010	89/ 88/ 93	75-120	1	20
Lead, 6010	95/ 94/ 99	60-130	1	31
Mercury, 7471	100/ 98/103	70-138	2	12
Selenium, 6010	93/ 92/ 96	58-122	1	14
Silver, 6010	88/ 90/ 94	69-116	2	10

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
TCLP Metals				
TCLP Arsenic, 6010	86/ 85/ 87	69-125	1	11
TCLP Barium, 6010	101/101/100	75-118	<1	13
TCLP Cadmium, 6010	101/101/102	69-118	<1	13
TCLP Chromium, 6010	97/ 98/ 98	76-119	1	11
TCLP Lead, 6010	100/101/101	69-122	<1	18
TCLP Mercury, 7470	102/104/105	74-132	2	12
TCLP Selenium, 6010	97/ 95/102	68-129	2	9
TCLP Silver, 6010	94/ 93/ 96	69-118	1	13
EPA Method 8240				
1,1-Dichloroethene	107/105/109	59-134	2	24
Benzene	98/100/101	85-114	2	8
Trichloroethene	96/100/104	86-115	4	12
Chlorobenzene	98/ 98/101	83-117	<1	9
EPA Method 8270				
1,4-Dichlorobenzene	93/ 95/ 90	56-128	2	35
2-Methylphenol	91/ 93/ 89	53-127	2	25
3 & 4-Methylphenol	123/126/121	54-138	2	42
Hexachloroethane	95/ 98/ 92	56-131	3	42
Nitrobenzene	91/ 92/ 86	74-131	1	20
Hexachlorobutadiene	92/ 92/ 88	61-135	<1	38
2,4,6-Trichlorophenol	107/109/103	65-160	2	27
2,4,5-Trichlorophenol	86/ 86/ 85	48-130	<1	28
Hexachlorobenzene	104/108/100	63-162	4	20
Pentachlorophenol	66/ 63/ 63	12-168	5	44

Environmental Conservation Laboratories Comprehensive QA Plan #960038

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MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

ENCO Laboratories

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 · Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824
Ph. (407) 826-5314 · Fax (407) 850-6945

reactivity, ignit., corrosi.

CHAIN OF CUSTODY RECORD

CLIENT NAME: J.A. JONES ENV'L SVCS
PROJECT MANAGER: TRIP SNELSON
PROJECT NUMBER: 043
PROJECT NAME: NAS OWS
SAMPLER'S SIGNATURE: M. Dale

STATION NO.	DATE	TIME	COMPOSITE	GRAB	STATION LOCATION	NO. OF CONTAINERS	602 (2-40ml VOAs)	610 (1-1L AG)	4-1L AG TCLP	2-40ml VOAs VOA SVOA metals	8010/8020	9073/RCRA metals	3-240ml AG		REMARKS
GW-1	7/23/96	9 AM		X	Bldg 0201	3	✓	✓							
AQ-1	7/23/96	9 15		X	Bldg 0201	6			✓	✓					
SL-1	7/23/96	1315	X		Bldg 0201	3							✓		
PB-1	7/23/96	1355	X		Bldg 0201	2					✓	✓			

RELINQUISHED BY: EMPTY BOTTLES ~~[signature]~~ MWD
DATE/TIME: ~~[illegible]~~ 1410
RECEIVED BY:

SAMPLE KIT PREPARED BY: ☐ ORLANDO ☐ JACKSONVILLE
DATE/TIME:
RECEIVED BY:

RELINQUISHED BY:
DATE/TIME:
RECEIVED BY:

RELINQUISHED BY: Mervin W. Dale
DATE/TIME: 7/23/96 1700

RECEIVED FOR LABORATORY BY: ☐ ORL ☐ JAX
Scott D Mont[illegible]
DATE/TIME: 7/23/96 1700

REMARKS: JR 3098
MWD ~~QSO1438~~
Merv's Beeper 815-2549

APPENDIX B

TRANSPORTATION MANIFESTS
CERTIFICATE OF THERMAL TREATMENT
CONCRETE DISPOSAL DOCUMENTATION

NON-HAZARDOUS WASTE MANIFEST	1 Generator's US EPA ID No: N/A	Manifest Document No: 81964	2. Page 1 of 1	Site Address:

3 Generator's Name and Mailing Address: U.S. Navy, 6500 Roosevelt, Jacksonville, FL 32212

4. Generator's Phone (904) 772-2717

Site Address: Building 0201, NAS, Jacksonville, FL

5. Transporter 1 Company Name: Building Trucking — 6. US EPA ID Number: [illegible] — TRK 538

7. Transporter 2 Company Name — 8. US EPA ID Number — TRAILER 4454

9 Designated Facility Name and Site Address: Soil Remediation, Inc., County Road 329, Ray City, Georgia 31645 — 10. US EPA ID Number: Air Permit #'s 2951-010-10886, 2951-010-11353

A. Transporter's Phone
B. Transporter's Phone 800-486-7504
C. Facility's Phone 912-455-2300

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14 Unit Wt/Vol
a. Petroleum Impacted Soil		DP	~~74~~ tons	
b.			20.14	▽
c.				
d.				

GENERATOR

D. Additional Descriptions for Materials Listed Above: Non-RCRA, Non-Hazardous

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: FRANK SIGONA — Signature: Frank Sigona — Month 08 Day 20 Year 96

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: AL REYNOLDS — Signature: Al Reynolds — Month 8 Day 20 Year 96

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month — Day — Year

FACILITY

19. Discrepancy Indication Space

20 Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Mike Fletcher — Signature — Month 8 Day 21 Year 96

TRANSPORTER #2

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No	Manifest Document No.	2. Page 1
N/A	81963	

3. Generator's Name and Mailing Address: U.S. Navy NAS, 6500 Roosevelt Blvd, Jacksonville, FL 32212

4. Generator's Phone: 904 772-2717

Site Address: Building 820 NAS Jacksonville, FL

5. Transporter 1 Company Name	6. US EPA ID Number
Bulldog Trucking	N/A

7. Transporter 2 Company Name	8. US EPA ID Number

9. Designated Facility Name and Site Address	10. US EPA ID Number
Soil Remediation, Inc. County Road 329 Ray City, Georgia 31645	Air Perc Air Permit #'s 2951-010-10886 2951-010-11353

A. Transporter's Phone: 800-486-7504

B. Transporter's Phone:

C. Facility's Phone: 912-455-2300

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. Petroleum Impacted Soil		DP	~~30~~ Tons	
b.			29 Tons	
c.				
d.				

D. Additional Descriptions for Materials Listed Above: Non-RCRA, Non-Hazardous

E. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information:

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste

Printed/Typed Name	Signature	Month	Day	Year
FRANK SIGONA	Frank Sigona	08	20	96

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
CLAYTON Leighton		8	20	96

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space:

20. Facility Owner or Operator Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Mike Fletcher		8	20	96

GENERATOR

TRANSPORTER

FACILITY

TRANSPORTER #2

NON-HAZARDOUS WASTE MANIFEST	1 Generator's US EPA ID No N/A	Manifest Document No 81962	2. Page 1 of 1	Site Address:
3. Generator's Name and Mailing Address U.S. Navy 6500 Roosevelt Jacksonville, FL 32212 4. Generator's Phone (904) 772-2717				Building 0201, NAS Jacksonville, FL
5. Transporter 1 Company Name Bulldog Trucking	US EPA ID Number N/A			Truck No 7714
7. Transporter 2 Company Name	8. US EPA ID Number			Trailer No 7714
9. Designated Facility Name and Site Address Soil Remediation, Inc. County Road 329 Ray City, Georgia 31645	10. US EPA ID Number Air Permit #'s 2951-010-10886 2951-010-11353		A. Transporter's Phone 800-486-7504 B. Transporter's Phone C. Facility's Phone 912-455-2300	

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14 Unit Wt/Vol
a. Petroleum Impacted Soil	1	DP	~~30~~ Tons	
b.			28.16	
c.				
d.				

D. Additional Descriptions for Materials Listed Above	E. Handling Codes for Wastes Listed Above
Non-RCRA, Non-Hazardous	

15. Special Handling Instructions and Additional Information

GENERATOR

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
FRANK SIGONA	Frank Sigona	08	20	96

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Rick Lynch	Rick Lynch	08	20	96

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Mike Fletcher		8	20	96

TRANSPORTER #2

NON-HAZARDOUS WASTE MANIFEST	1 Generator's US EPA ID No: N/A	Manifest Document No.: 81961	2. Page 1 of 1	Site Address:

3 Generator's Name and Mailing Address: U.S. Navy, 6500 Roosevelt, Jacksonville, FL 32212

4 Generator's Phone (904 772-2717)

Site Address: Building 0201, NAS Jacksonville, FL

5 Transporter 1 Company Name: ~~Bulldog Trucking~~ PYTCH

6 US EPA ID Number: N/A

TRUCK #

7. Transporter 2 Company Name

8. US EPA ID Number

TRUCK # 4508

9 Designated Facility Name and Site Address: Soil Remediation, Inc., County Road 329, Ray City, Georgia 31645

10. US EPA ID Number: Air Permit #'s 2951-010-10886, 2951-010-11353

A. Transporter's Phone: 800-486-7504

B. Transporter's Phone

C. Facility's Phone: 912-455-2300

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Petroleum Impacted Solids		DM	23	TN
b.			18.41	T
c.				
d.				

D. Additional Descriptions for Materials Listed Above: Non-RCRA, Non-Hazardous

E. Handling Codes for Wastes Listed Above

15 Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste

Printed/Typed Name: FRANK SIGONA | Signature: Frank Sigona | Month 08 Day 20 Year 96

17 Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18 Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20 Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Mike Hatcher | Signature | Month Day Year

GENERATOR

TRANSPORTER

FACILITY

TRANSPORTER #2

21195

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of

3. Generator's Name and Mailing Address
363-0911 (BEEPER) NAS JACKSONVILLE
US 17 FIRST ENTRANCE
JACKSONVILLE, FL

4. Generator's Phone

5. Transporter 1 Company Name | 6. US EPA ID Number | 904-352-0372
INDUSTRIAL WATER SERVICES, INC. | FLD981928484

7. Transporter 2 Company Name | 8. US EPA ID Number

9. Designated Facility Name and Site Address | 10. US EPA ID Number | A. Transporter's Phone | B. Transporter's Phone | C. Facility's Phone
INDUSTRIAL WATER SERVICES, INC.
1640 TALLEYRAND AVE.
JACKSONVILLE, FLORIDA 32206 | F.L.D.981928484 | 904-354-0372

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. OILY WASTE WATER	001	TT	5050	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
FLA4019438 J86211

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
FRANK SIGONA	Frank Sigona	12	16	96

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Robert Thompson	Robert Thompson	12	16	96

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

GENERATOR
TRANSPORTER
FACILITY

COPY

NON-HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No.	Manifest Document No	2 Page 1 of 1	
EXEMPT	961210	1 of 1	J.A.Jones

GENERATOR

3 Generator's Name and Mailing Address: U.S. Navy
6500 Roosevelt Blvd.
Jacksonville, FL 32212

4 Generator's Phone: 904 772-2717 x-133

5 Transporter 1 Company Name	6. US EPA ID Number	A. Transporter's Phone
GBWA, Inc.	FLD000009555	904-284-2770
7 Transporter 2 Company Name	8 US EPA ID Number	B. Transporter's Phone
9 Designated Facility Name and Site Address	10. US EPA ID Number	C. Facility's Phone
BMH Wittmer 938 Hall Park Road Green Cove Springs, FL 32043	FL0000081943	904-284-2770

11 Waste Shipping Name and Description	12. Containers No	Type	13. Total Quantity	14 Unit Wt/Vol
a Non-Regulated Material-Sludge	006	DM	00330	G
b				
c.				
d.				

D. Additional Descriptions for Materials Listed Above	E. Handling Codes for Wastes Listed Above
USN-001	

15. Special Handling Instructions and Additional Information
Pickup approx 6 drums, instructions are attached
labels are also attached.

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
FRANK SIGONA	Frank Sigona	12	10	96

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
KARL H CAUDNAGH		12	08	96

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
KEVIN D LINDSEY	Kevin D. Lindsey	12	10	96

ORIGINAL – RETURN TO GENERATOR

Check # 4482

$ 416.41

NON-HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No	Manifest Document No.	2. Page 1 of 1	
EXEMPT	00 00 1		NAS-JAX

GENERATOR

3 Generator's Name and Mailing Address
ROD & ROD CONSTRUCTION, INC.
9001 NOROAD
JACKSONVILLE, FLORIDA 32210

4 Generator's Phone (904) 778-4516

5 Transporter 1 Company Name	6 US EPA ID Number
CROSSROADS ENTERPRISES, INC.	N/A

7 Transporter 2 Company Name	8 US EPA ID Number

9. Designated Facility Name and Site Address	10. US EPA ID Number
PECAN ROW LANDFILL 2995 WETHERRINGTON LANE VALDOSTA, GA. 31601	N/A

A. Transporter's Phone 904-778-3409
B. Transporter's Phone 904-777-1010
C. Facility's Phone 912-241-8440

11 Waste Shipping Name and Description	12 Containers No	Type	13. Total Quantity	14. Unit Wt/Vol
a. NON-HAZARDOUS SOLID, NON REGULATED	0 0 1	DT	0 0 0 09	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
11a. CONCRETE CONSTRUCTION DEBRIS, CLEANED
WAF # 96-01-726
NAS OWS BLDG. 0201

E Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste

Printed/Typed Name	Signature	Month	Day	Year
Hugh Zipperer/Rod & Rod Construction, Inc.	Hugh M. Zipperer	11	14	96

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Steven L CARSTENS				

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
	Steven L Carstens			

FACILITY

19. Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of waste materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Month	Day	Year
[illegible]	Wendy Sullen	11	19	96

TRANSPORTER #2

BMH BMH WITTMER ENVIRONMENTAL SERVICES

CERTIFICATE OF COMPLIANCE

Under the jurisdiction of the state of Florida, granted by permit number S010-240718, BMH Materials , Inc. does hereby certify that the non-hazardous waste profile from you, to BMH Matenals,Inc. under profile number **USN001** as received on **December 12,1996** from

U.S. Navy
6500 Roosevelt Blvd.
Jacksonville, FL

Amount Recieved:6 Drums, 55 gal
Waste Description: Non-Regulated Material-Solids

Inbound Manifest Number:961210

has been processed and properly disposed of in accordance with all Local, State and Federal Regulations.

Wayne Raulerson
Facility Manager

P.O. Box 988 • Green Cove Springs, FL 32043-0988
Phone (904) 284-2770 • Fax (904) 284-2969

SOIL REMEDIATION INC.

County Road 329 • Ray City, GA 31645
Plant: 912-455-2300 • Fax: 912-455-2301

CONCRETE ASPHALT SRI THERMAL TREATMENT

...ondal granted by ... ...fy that the non-hazard... ...umber USN001 as rec...

Certificate of Recycling

U.S. Navy
... Roosevelt Blvd.
...cksonville, FL

Soil Remediation, Inc. hereby certifies that 95.71 tons of contaminated soil generated by:

U.S. NAVY
6500 ROOSEVELT BLVD.
JACKSONVILLE, FL 32212

and originating at the site address:

BLDG. 0201, NAVAL AIR STATION
JACKSONVILLE, FL 32212

MANIFEST #'S: 81961 - 81964

has been thermally processed in compliance with all applicable rules and regulations set forth by Local, State and Federal authorities and strictly in accordance with Air Quality Permits, numbers 2951-010-10886 and 2951-010-11353.

SOIL REMEDIATION, INC.

Meredith Lancaster — 11-8-96

Meredith Lancaster
Environmental Coordinator

Date

LITHO IN U.S.A.

APPENDIX C

CORRELATION OF PID RESPONSE TO FID RESPONSE

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor Carol M. Browner, Secretary

June 28, 1991

Mark Collins, Ph.D.
Manager
Technical Services/Applications Dept.
Photovac International Inc.
25-B Jefryn Blvd. West
Deer Park, New York 11729

Dear Dr. Collins:

We have reviewed the report that you submitted to us on June 3, 1991, containing comparative vapor readings obtained simultaneously using the Photovac TIP and MicroTIP PID Models and Foxboro 128 OVA FID Model instruments.

Readings were taken from spiked Tedlar air bag samples at various concentrations of unleaded gasoline, diesel, and kerosene fuels ranging from 10 PPM to 500 PPM for diesel and kerosene and from 10 PPM to 1000 PPM for unleaded gasoline.

After studying the data, we feel that in general the Photovac TIP and MicroTIP PID Models, after proper calibration, should generate readings which can be used in conjunction with the correlation curves to determine a FID equivalent response.

FDER will accept these PID readings as FID equivalent provided that Photovac International Inc. publishes an official Applications Report which delineates calibration and zeroing procedures, and clearly states how to use the correlation curves.

Sincerely,

Daniel W. Kraft

DWK/WP

cc: Mike Webb, Bureau of Waste Cleanup

PHOTOVAC

CORRELATION OF PID RESPONSE TO FID RESPONSE

(As specified in Chapter 17-770 of the Florida Administrative Code entitled "Petroleum Contamination Site Cleanup Criteria".)

PHOTOVAC
MicroTIP MP-100
MicroTIP HL-2000
TIP I
TIP II

September 1991

Photovac International Incorporated
25 B Jeffryn Boulevard West
Deer Park, New York 11729

Introduction

Florida Department of Environmental Regulation (FDER) for Total VOC measurement in petroleum contaminated soils indicates the use of a flame ionization detector (FID) calibrated with Methane. (As specified in Chapter 17-770 of the Florida Administrative Code entitled "Petroleum Contamination Site Cleanup Criteria".)

The Photovac photoionization detector (PID) calibrated with Isobutylene has been approved for use in this application. Instruments which can be used are MicroTIP Models MP-100/HL-200 and TIP I/II. In order to relate one detector type to the other, correlation curves of response of both PID and FID to Unleaded Gasoline, Kerosene, and Diesel have been generated.

Calibration (Zero and Span)

Calibration should be performed daily, or more frequently if sampling in areas of high concentrations or in conditions of varying temperature. Allow at least 5 minutes for the instrument to warm up. When calibrating either MicroTIP (MP-100/HL-200) or TIP (I/II) in the field, fill a gas sampling bag of at least 1.6 Liters in volume with 100 PPM Isobutylene. The Zero point of both instruments is set using Ultra Zero air or clean background air.

1) MicroTIP (MP-100/HL-200)

A) Zero

- Attach a gas sampling bag containing Ultra Zero air (clean background air is usually sufficient) to the instrument and press the CAL key, then ENTER. The display will read "Calibrating now, please wait".

B) Span

- When the display requests Span Gas concentration, press 1-0-0 and then ENTER. The ENTER key must be pressed within approximately 10 seconds, prompting the displayed message "Calibrating now, please wait", or MicroTIP will quit the CAL function prematurely, even though the calibration procedure is not complete. Attach the 100 PPM Isobutylene bag to the instrument, wait 5 seconds, then press ENTER. When the "Ready" message is displayed, MicroTIP is calibrated.

2) TIP (I/II)

A) Zero

- Set Span and Zero controls to a setting of 5.

- Introduce Ultra Zero Air contained in a gas sampling bag (or clean background air) to the instrument. Using the tuning wand (Photovac Part No. 600406-01) adjust the coarse zero screw to read 0.0 on the display (coarse zero screw is located on the probe end of the instrument, just below detector cap, opposite display).

B) Span

- Attach the gas sampling bag containing 100 PPM Isobutylene to the TIP and use the Span control to adjust the displayed value to 100.0.

- Disconnect the bag and allow the display to stabilize while measuring clean air once again. Use the fine Zero control (front of instrument) to readjust the displayed value to 0.0.

- The Span and Zero settings are iterative, so more than one adjustment of each may be necessary.

Use of the Correlation Curves

Table 1 shows equivalency values recommended by the FDER for each PID instrument and each fuel type at the threshold concentrations.

Although FDER requires correlative readings at 50 and 500 PPM, Figures 1-5 show correlation graphs which will enable the user to obtain, by extrapolation, correlative readings at intermediate concentrations for the two types of detector.

From Figure 1, readings equivalent to 50 PPM and 500 PPM FID for Unleaded Gasoline vapor may be taken to be 29 and 199, respectively (for MicroTIP). From Table 1, FDER has rounded off these values to 30 and 200.

From Figure 2, readings equivalent to 50 PPM and 500 PPM FID for Kerosene vapor may be taken to be 103 and 471 respectively (for TIP). From Table 1, FDER has rounded off the lower value to 100.

From Figure 3, readings equivalent to 50 PPM and 500 PPM FID for Kerosene vapor may be taken to be 111 and 544, respectively (for MicroTIP). From Table 1, FDER has rounded off the lower value to 110.

From Figure 4, readings equivalent to 50 PPM and 500 PPM FID for Diesel vapor may be taken to be 53 and 324, respectively (for TIP). From Table 1, FDER has rounded off the lower value to 55.

From Figure 5, readings equivalent to 50 PPM and 500 PPM FID for Diesel vapor may be taken to be 57 and 356, respectively (for MicroTIP). From Table 1, FDER has rounded off the lower value to 55.

TIP vs. FID response to Gasoline vapor was addressed in a previous study. Figure 6 shows the difference in response between Leaded and Unleaded Gasoline vapor for TIP. Readings equivalent to 50 and 500 PPM FID for Unleaded Gasoline vapor may be taken to be 29 and 227, respectively. Readings equivalent to 50 and 500 PPM FID for Leaded Gasoline vapor may be taken to be 33 and 257, respectively. From Table 1, FDER has rounded off the values for both types of gasoline to 35 and 250.

Each correlation curve is precise to within ± 20% over a concentration range 10-500 PPM.

NOTE:

The responses of the PID in both MicroTIP and TIP will depend upon cleanliness of the lamp window, as well as the age of the lamp. It is important, therefore, to ensure that the window of the lamp is cleaned regularly to remove any accumulated deposit from extensive moitoring applications. The cleaning should be performed using a cotton swab moistened with spectroscopic grade Methanol, and the Methanol allowed to dry from the window, before the lamp is replaced into the detector housing.

Table 1

PHOTOVAC MICROTIP AND TIP
PID-FID EQUIVALENCY CORRELATION VALUES *

Photovac MicroTIP

FUEL TYPE	50 PPM (FID)	500 PPM (FID)
UNLEADED GASOLINE	30	200
KEROSENE	110	**
DIESEL	55	**

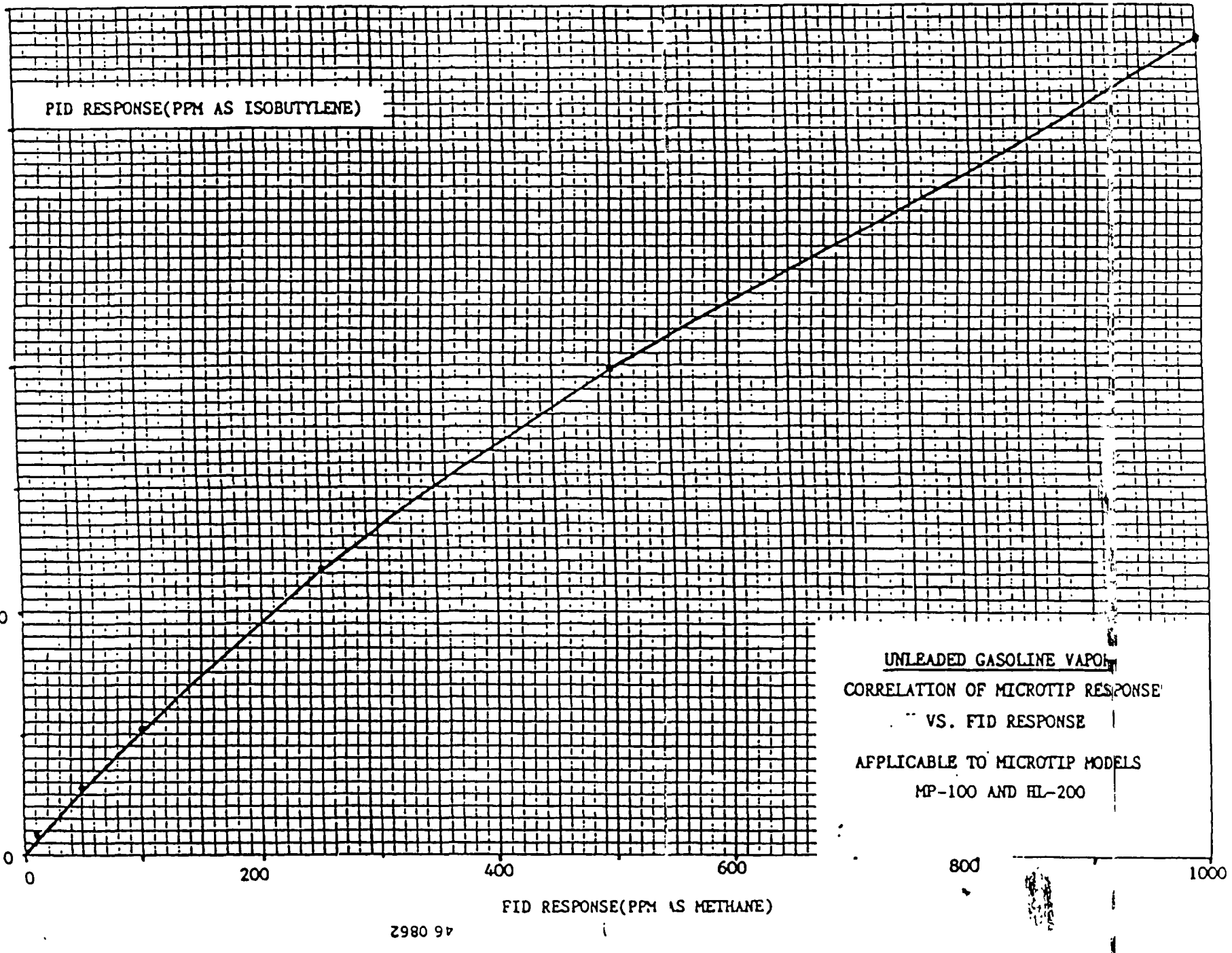
Photovac TIP

FUEL TYPE	50 PPM (FID)	500 PPM (FID)
UNLEADED GASOLINE	35	250
LEADED GASOLINE	35	250
KEROSENE	100	**
DIESEL	55	**

* ALL READINGS ARE IN PPM AS ISOBUTYLENE

** IRRELEVANT - ANY READING OVER 50 PPM (FID) IS CONSIDERED EXCESSIVELY CONTAMINATED.

FIGURE 1



46 0862

FIGURE 3

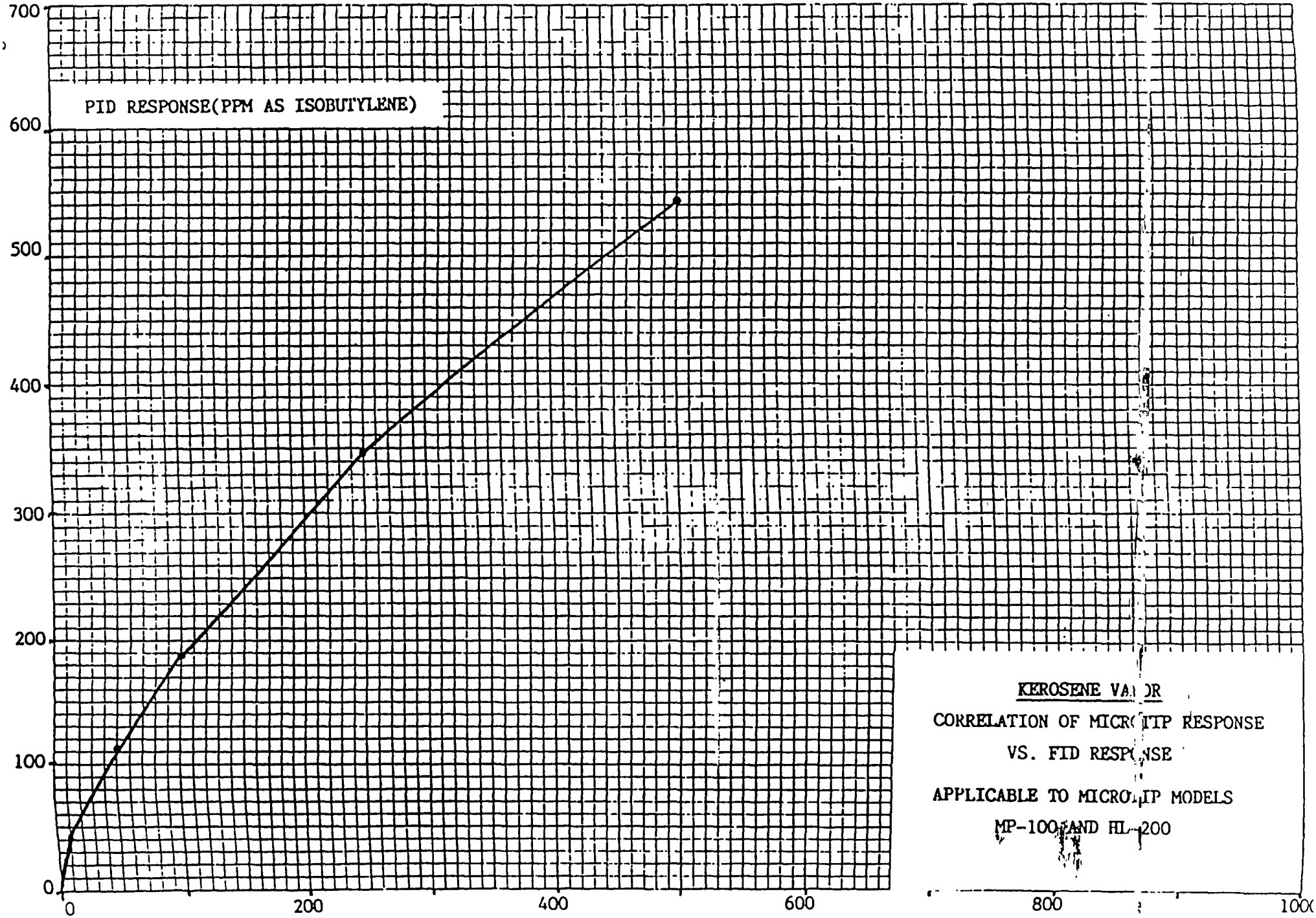
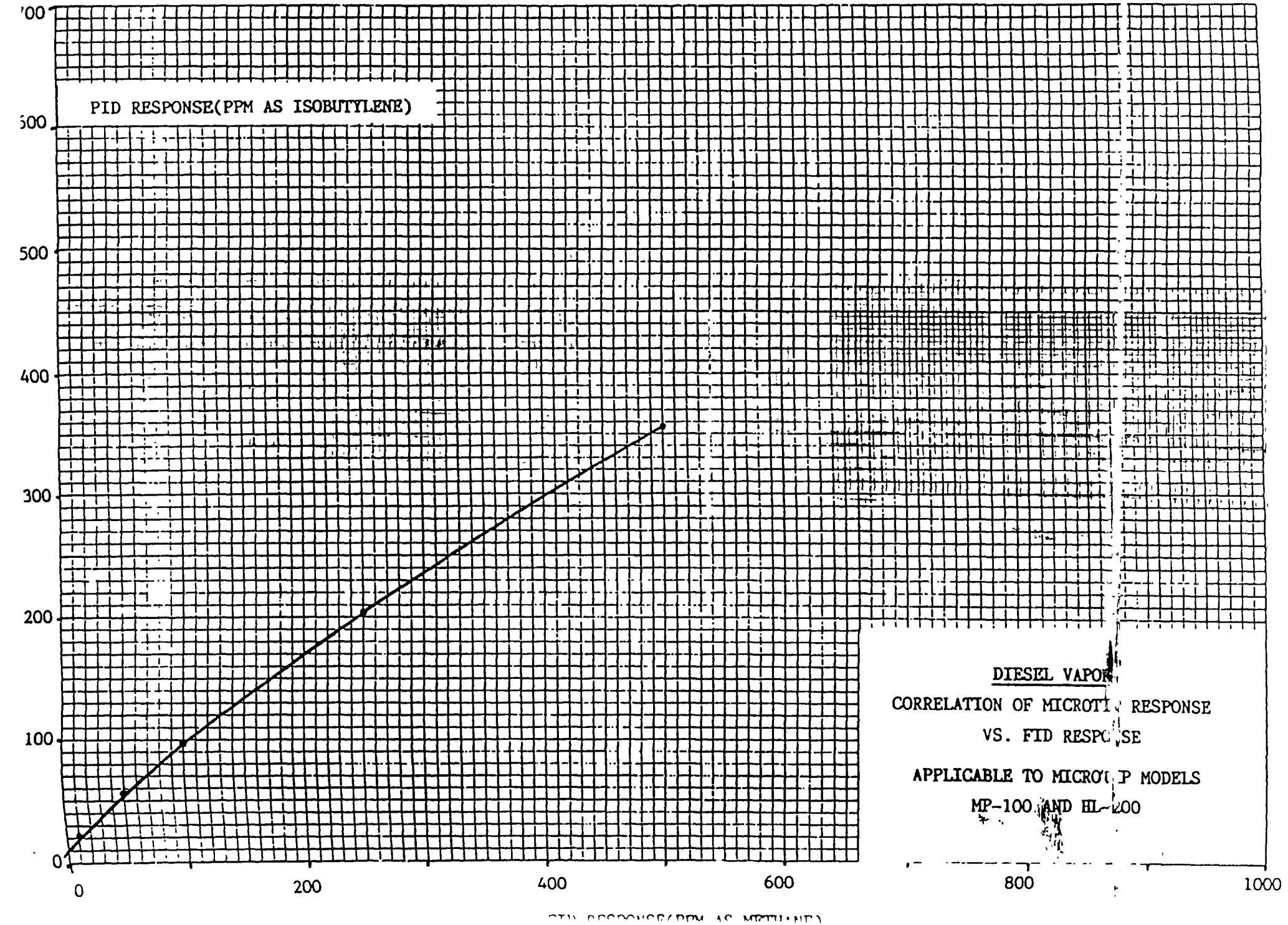

PID RESPONSE(PPM AS ISOBUTYLENE)
700
600
500
400
300
200
100
0
0
200
400
600
800
100
KEROSENE VAPOR
CORRELATION OF MICROTIP RESPONSE
VS. FID RESPONSE
APPLICABLE TO MICROTIP MODELS
MP-100 AND HL-200

FIGURE 5


PID RESPONSE(PPM AS ISOBUTYLENE)
600
500
400
300
200
100
0
0
200
400
600
800
1000
DIESEL VAPOR
CORRELATION OF MICROTIP RESPONSE
VS. FID RESPONSE
APPLICABLE TO MICROTIP MODELS
MP-100 AND HL-200

Chapter 7 Specifications

Size.	43 cm (16.9") long, 9.5 cm (3.75") wide, 14.6 cm (5.75") high
Weight	2.5 kg (5.5 lbs)
Detector:	Photoionization, bypass-type, with standard 10.6 eV HF-excited electrodeless discharge tube
Keypad:-	16-key silicone with tactile feedback
Display	2-line, 16-character dot-matrix, liquid crystal for alphanumeric and bar graph readouts
Datalogging memory:	25k
Chart recorder output	0 to 1 volt full scale
Serial output:	RS-232, 300-19200 baud with odd, even or no parity, for tabular and graphic printouts
Audio output.	Continuous concentration-modulated tone or tone on alarm only
Inlet connection:	1/8" (3.2 mm) stainless steel compression fitting
Outlet connection:	1/8" (3.2 mm) stainless steel barb fitting
Battery type	Sealed lead-acid, replaceable pack
Charge/discharge time	8 hr/7 hr
Battery charger:	Automatically charges and maintains full charge in battery pack
Materials in sample stream:	Stainless steel, Teflon®, Viton®
Inlet filter	Replaceable stainless steel, 2 um
Inlet flowrate:	Exceeds 500 mL/min

Operating temperature range:	0 to 40°C (32 to 104°F)
Operating humidity range:	0 to 100% relative humidity (non-condensing)
Operating concentration range:	0.1 to 2000 ppm isobutylene equivalent
Accuracy:	Isobutylene: (after calibration with Zero Air and 100 ppm isobutylene Span Gas): within +/- 2 ppm or +/- 10% for 0 to 100 ppm; within +/- 10% for 100 to 1000 ppm; within +/- 15% for 1000 to 2000 ppm Acetone: (after calibration with Zero Air and 100 ppm acetone Span Gas): within +/- 4 ppm or +/- 20% for 0 to 100 ppm; within +/- 30% for 100 to 1000 ppm; within +/- 20% for 1000 to 2000 ppm Benzene: (after calibration with Zero Air and 100 ppm benzene Span Gas): within +/- 4 ppm or +/- 10% for 0 to 100 ppm; within +/- 20% for 100 to 1000 ppm; within +/- 15% for 1000 to 2000 ppm Toluene: (after calibration with Zero Air and 100 ppm toluene Span Gas): within +/- 2 ppm or +/- 20% for 0 to 100 ppm; within +/- 15% for 100 to 1000 ppm; within +/- 10% for 1000 to 2000 ppm Trichloroethylene: (after calibration with Zero Air and 100 ppm trichloroethylene Span Gas): within +/- 4 ppm or +/- 10% for 0 to 100 ppm ; within +/- 25% for 100 to 1000 ppm within +/- 45% for 1000 to 2000 ppm
Precision:	+/-1% (100 ppm isobutylene)
Response time:	Less than 3 seconds
Detection limit:	0.1 ppm isobutylene

Chapter 7 Specifications

Size.	43 cm (16.9") long, 9.5 cm (3.75") wide, 14.6 cm (5.75") high
Weight:	2.5 kg (5.5 lbs)
Detector:	Photoionization, bypass-type, with standard 10.6 eV HF-excited electrodeless discharge tube
Keypad:	16-key silicone with tactile feedback
Display:	2 line, 16-character dot-matrix, liquid crystal with adjustable backlighting, for alphanumeric and bar graph readouts
Datalogging memory	25k
Chart recorder output.	0 to 1 volt full scale
Serial output:	RS-232, 300-19200 baud with odd, even or no parity, for tabular and graphic printouts
Audio output:	Continuous concentration-modulated tone or tone on alarm only
Inlet connection:	1/8" (3.2 mm) stainless steel compression fitting
Outlet connection:	1/8" (3.2 mm) stainless steel barb fitting
Battery type:	Sealed lead-acid, field-replaceable pack
Charge/discharge time.	8 hr/7 hr
Battery charger:	Automatically charges and maintains full charge in battery pack
Materials in sample stream:	Stainless steel, Tefion®, Viton®
Inlet filter	Replaceable stainless steel, 2 um
Inlet flowrate	Exceeds 500 mL/min

Operating temperature range:	0 to 40°C (3? to 105 °F)
Operating humidity range:	0 to 100% Relative Humidity (non condensing)
Operating concentration range:	0 1 to 2000 ppm isobutylene equiv
Accuracy:	Isobutylene: (after calibration with air and 100 ppm isobutylene span g within +/-2 ppm or +/-10% for 0 t 100 ppm; within +/-10% for 100 t 1000 ppm; within +/-15% for 100 2000 ppm Acetone: (after calibration with zer and 100 ppm acetone span gas): v +/-4 ppm or +/-20% for 0 to 100 within +/-30% for 100 to 1000 pp within +/-40% for 1000 to 2000 p Benzene: (after calibration with zer and 100 ppm benzene span gas): w +/-4 ppm or +/-10% for 0 to 100 within +/-20% for 100 to 1000 p within +/-25% for 1000 to 2000 p Toluene: (after calibration with zero and 100 ppm toluene span gas): wi +/- 2 ppm or +/-20% for 0 to 100 within +/-30% for 100 to 1000 p within +/-30% for 1000 to 2000 p Trichloroethylene: (after calibration zero air and 100 ppm trichloroethyl span gas): within +/- 5ppm or +/ for 0 to 100 ppm; within +/- 25% 100 to 1000 ppm; within +/- 45% 1000 to 2000 ppm
Precision:	+/-1% (100 ppm isobutylene)
Response time:	Less than seconds
Detection limit:	0 1 ppm isobutylene

APPENDIX D

INITIAL REMEDIAL ACTION FORM
CLOSURE ASSESSMENT FORM
STORAGE TANK REGISTRATION FORM
DISCHARGE REPORTING FORM

PETROLEUM CONTAMINATION
INITIAL REMEDIAL ACTION
REPORT FORM

An Initial Remedial Action report, detailing the initial remedial action (IRA), should be prepared to satisfy the requirements of Chapters 17-770.630(1)14; 17-773.500(1)(a)4; and 17-773.500(2)(a)4, Florida Administrative Code, (FAC). This form may be used for the IRA report. Additional pages may be necessary in order to properly document the IRA in detail. Failure to provide complete information may result in delays in technical reviews and in reimbursement of task. This report format (or a similar completed report detailing the IRA activities) should be sent to the appropriate contracted local program office and to:

Florida Department of Environmental Protection
Bureau of Waste Cleanup
Engineering Support Section
2600 Blair Stone Road
Tallahassee, FL 32399-2400
(904) 488-3935

I. **FACILITY NAME:** Naval Air Station, Jacksonville

Facility Address: 6500 Roosevelt Boulevard, Jacksonville, FL 32212

DER Facility Number (if applicable): 168731736

Date IRA Initiated: 7/22/96 Date IRA Completed: 11/8/96

II. **FREE PRODUCT RECOVERY**
(This Section Not Applicable-No Free Product Observed At Site)

A. Type(s) of Product Discharged: _____

B. Quantity

1. Estimated Gallons Lost: _____
2. Gallons Recovered: _____ through _____ (date)
3. **Attach** Exhibit Indicating Amount of Product Recovered, Dates and Cumulative Totals.

C. **Attach** a Scaled Site Plan, Indicating the Locations and Product Thickness in Wells, Boreholes, Excavations, or Utility Conduits and Wells Utilized for Recovery of Free Product.

D. Method of Product Recovery: _____

_____

_____

E. Type of Discharge During Product Recovery: _____

_____

F. Type of Treatment, i.e., Oil/Water Separator: _____

_____

G. Attach Written Proof of Proper Disposal of Recovered Product: _____

III. SOIL EXCAVATION

NOTE: Soil shall be defined as excessively contaminated using the procedure stated in Chapter 17-770.200(2), FAC. Representative soil sampling shall be performed as close to the time of excavation as possible, but at no time shall exceed three (3) months prior to the start of excavation. Stockpiled soils greater than thirty (30) days on site waiting for treatment and disposal, must be re-sampled immediately prior to disposal to assure soils are still excessively contaminated. **NOTE:** See PCR-27 guideline for sites eligible for reimbursement.

If soil sampling data indicates that the amount of soil that is excessively contaminated exceeds 1500 cubic yards, treatment of all excessively contaminated soil at the site shall be addressed in a remedial action plan, and **no soil** IRA activities shall be performed except for the removal of soils in the immediate vicinity of the tanks.

Only soil above the ambient water table at the time of excavation can be considered as excessively contaminated soil.

Unless the established weight per unit volume of 1.4 tons/cubic yard (as referenced in FAC Rule 17-775) is used for the excavated soil, the weight per unit volume must be determined by a field test (in which an accurately measured volume of soil is weighed) at the time of excavation.

A. Actual Volume of Excessively Contaminated Soil Excavated in Cubic Yards: 60

Dimensions of Excavation Including Depth of Excavation(s): 27 ft. long, by 15 ft. wide, by 6 ft. deep

NOTE: **Attach** written proof from the Department in the form of an Alternate Procedure Approval Order authorizing excavating over 1500 cubic yards if applicable. Authorization must be received prior to the excavation of soils.

B. Type(s) of Product in Soil: Used oil

C. Depth (ft) to Groundwater at the Time of Excavation(s): 2 feet

D. Did Dewatering (i.e., groundwater depression) Occur at Time of Excavation?: No

E. **Type of Instrument and Method Used to Determine Excessive Soil Contamination:** Headspace analysis of soil sample vapors by Foxboro Model 128 OVA-FID and/or Photovac Micro TIP Model No. IS-3000 PID-OVA

F. **Attach** a table that compares the OVA-FID readings taken with charcoal filter verses readings without filter. Include vertical depths for each sample.

G. Using the OVA procedure for defining excessively contaminated soil as referenced in Rule 17-770.200(2), FAC, include a scaled site plan with the information listed below:

1. Location of excavation, old and new tank farm, dispensers, and product lines, and all soil samples. The corresponding OVA-FID readings for each soil sample (with charcoal filter and without) and its depth must be given.

2. **Soil Sampling Procedure** is as follows:

Start sampling in a location where it is suspected that excessively contaminated soil exists. Sample from the first soil boring outward in a grid pattern, at five (5) to ten (10) foot intervals, until the perimeter of the excessively contaminated soil plume is defined. Vertical sampling should be performed starting approximately at the initial area of contamination or surface and continued at three (3) foot intervals, or fraction thereof, until a depth approximately one (1) foot above the water table is reached.

H. Copies of Laboratory Analyses for Pre Treatment Soil Samples as Required in Chapter 17-775.410(3), Table II, FAC Must be **Attached.**

I. Were Tanks Replaced at this Site? If Yes, Indicate the Number, Size, and Location of New Tank Farm: OWS Tank 201-B was replaced with a new concrete surge tank in approximately the same location. The capacity of the new surge tank is approximately 1,225 gallons.

IV. **SOIL TREATMENT AND DISPOSAL**

A. Method of Treatment of Excessively Contaminated Soil: Thermal incineration of soils excavated.

B. For Off Site Treatment and Disposal at Permitted STTF, Land Farms, or Landfills Attach Documentation From the Treatment Facility Which Confirms the Weight or Volume of Soil Treated and Date Received. **NOTE:** See PCR-19 guideline for treatment at out-of-state facilities.

For Other Treatment and Disposal Methods (i.e. On-Site Land Farming, Bioremediation), **Attach** Post Treatment Laboratory Analyses for Each 250-300 Cubic Yards of Treated Soil in Accordance With Chapter 17-775.400 and the "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils", Most Current Revision.

For Mobile Thermal Treatment Units, Attach Laboratory Analysis per Chapter 17-775(5), FAC.

C. Method of Disposal of Contaminated Soil and Indicate Recipient and Address: Thermal incineration at Soil Remediation, Inc., County Road 329, Ray City, GA 31645

V. **ADDITIONAL COMMENTS:**

David K. Kemp, P.E.
Print Person Completing Form

11/19/96 Vice President
Signature, Date Title, Affiliation

8936 Western Way, Suite 10, Jacksonville, FL 32256
Company Mailing Address

(904) 363-0911
Phone Number

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	1155
CONNECTION TEL	7723949
SUBADDRESS	
CONNECTION ID	ROICC JAX
ST. TIME	07/22 19:45
USAGE T	01'06
PGS.	2
RESULT	OK

J.A. JONES
ENVIRONMENTAL
SERVICES COMPANY

FAX TRANSMITTAL

No. of pages: 2 **(including cover pg.)**

DATE: 7/22/96

DELIVER TO: Rusty Dahms

COMPANY: Roicc

FAX NUMBER: 772-3949

FROM: Mervin Dave

COMPANY: **J.A. Jones Environmental Services Company**
8936 Western Way, Suite 10
Jacksonville, FL 32256
(904) 363-0911

FAX NUMBER: **(904) 363-1421**

SUBJECT: Discharge Reporting Form

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Storage Tank Registration Form

Please Print or Type - Review Instructions Before Completing Form

1. DER Facility ID Number: 168731736 — 2. Facility Type: F

3. New Registration ☐ New Owner Data ☐ Facility Revision ☐ Tank(s) Revision ☒

4. County and Code of tank(s) location: Duval / 16

5. Facility Name: Naval Air Station Jacksonville

Tank(s) Address: 6500 Roosevelt Boulevard

City/State/Zip: Jacksonville, FL 32212

Contact Person: Frank Sigona — Telephone: (904) 772-2717 x133

6. Financial Responsibility Type:

7a. Tank(s) Owner: Naval Air Station Jacksonville

Owner Mailing Address: P.O. Box 5, Code 184FS

City/State/Zip: Jacksonville, FL 32212-5000

Contact Person: Frank Sigona — Telephone: (904) 772-2717 x133

7b. New Owner Signature/Change Date: / /

8. Location (optional) Latitude: 30 • 13 • 30 " Longitude: 81 • 41 • 00 " Section 22 Township 3S Range 26E

Complete One Line For Each Tank At This Facility (Use Codes - See Instructions)

Complete 9 - 16 for tanks in use; 9 - 19 for tanks out of use

9	10	11	12	13	14	15	16	17	18	19
201A	2500	L	1984	U	X	B	X	A	O	04/96
201B	2500	L	1984	U	X	B	X	B	O	04/96

20. J.A. Jones Environmental Services — Certified Contractor* — DPR# PCCA 56555 — Department of Professional Regulation License Number

*For new tank installation or tank removal

To the best of my knowledge and belief all information submitted on this form is true, accurate and complete.

Kevin H. Gartland — Print name & title of owner or authorized person — Signature — 1/30/19 — Date

Florida Department of Environmental Regulation
Twin Towers Office Bldg • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form # 17-761.900(6)
Form Title Closure Assessment Form
Effective Date December 10 1990
DER Application No. _____ (Filled in by DER)

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: November 6, 1996
2. DER Facility ID Number: 168731736 3. County: Duval
4. Facility Name: Naval Air Station, Jacksonville
5. Facility Owner: Naval Air Station, Jacksonville
6. Facility Address: 6500 Roosevelt Boulevard, Jacksonville, FL 32212
7. Mailing Address: P.O. Box 5, Code 184ES
8. Telephone Number: (904) 772-2717 Ext. 133 9. Facility Operator: Frank Sigona
10. Are the Storage Tank(s): **(Circle one or both)** A. Aboveground or (B. Underground)
11. Type of Product(s) Stored: Used oil
12. Were the Tank(s): **(Circle one)** (A. Replaced) B. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: 1 14. Age of Tanks: 12 Years old

Facility Assessment Information

Yes	No	Not Applicable	
☐	☒		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
☒	☐		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: 7/22/96 Where: RESD, Jacksonville, FL
☒	☐		3. Is the depth to ground water less than 20 feet?
☐	☒	☐	4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
☐	☒	☐	5. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☒	☐	☐	7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☒	☐	☐	8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
☐	☐	☒	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒		10. Are any potable wells located within ¼ of a mile radius of the facility?
☒	☐		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: less than 1/10 mile

Northwest District 160 Governmental Center | Northeast District 7825 Baymeadows Way Suite B 200 | Central District 3319 Maguire Blvd Suite 232 | Southwest District 4520 Oak Fair Blvd | South District 2269 Bay St | Southeast District 1900 S Congress Ave Suite A

DER Form # 17-761.900(1)
Form Title Discharge Reporting Form
Effective Date December 10 1990
DER Accession No. (Assigned by DER)

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Discharge Reporting Form

Use this form to notify the Department of Environmental Regulation of:

1. Results of tank tightness testing that exceed allowable tolerances within ten days of receipt of test result.
2. Petroleum discharges exceeding 25 gallons on pervious surfaces as described in Section 17-761.460 F.A.C. within one working day of discover
3. Hazardous substance (CERCLA regulated), discharges exceeding applicable reportable quantities established in 17-761.460(2) F.A.C., with one working day of the discovery.
4. Within one working day of discovery of suspected releases confirmed by: (a) released regulated substances or pollutants discovered i the surrounding area, (b) unusual and unexplained storage system operating conditions, (c) monitoring results from a leak detection metho or from a tank closure assessment that indicate a release may have occurred, or (d) manual tank gauging results for tanks of 550 gallon or less, exceeding ten gallons per weekly test or five gallons averaged over four consecutive weekly tests.

Mail to the DER District Office in your area listed on the reverse side of this form

PLEASE PRINT OR TYPE

Complete all applicable blanks

1 DER Facility ID Number: 168731736 2. Tank Number: 201 A B 3. Date: 7/24/96

4 Facility Name: Naval Air Station Jacksonville

Facility Owner or Operator: U.S. Navy

Facility Address: 6500 Roosevelt Boulevard, Naval Air Station, Jacksonville, FL 32212

Telephone Number: (904) 772-2717 X-193 County: Duval

Mailing Address: P.O. Box 5, Code 184 , Naval Air Station, Jacksonville, FL 32212-5000

5. Date of receipt of test results or discovery: 7/23/96 month/day/yea

Method of initial discovery. (circle one **only**)

A Liquid detector (automatic or manual)
B. Vapor detector (automatic or manual)
C Tightness test (underground tanks only).
D. Emptying and Inspection.
E. Inventory control.
F Vapor or visible signs of a discharge in the vicinity
(G.) Closure: OVA - PID (explain
H. Other:

Estimated number of gallons discharged: UNKNOWN

What part of storage system has leaked? (circle all that apply) A. Dispenser B. Pipe C. Fitting D. Tank (E) Unknow

Type of regulated substance discharged. (circle one)

A. leaded gasoline
B. unleaded gasoline
C. gasohol
D. vehicular diesel
F. aviation gas
G. jet fuel
L. used/waste oil
M. diesel
O. new/lube oil
V. hazardous substance includes pesticides, ammonia chlorine and derivatives (write in name or Chemical Abstrac Service CAS number)
(Z) other (write in name) JP-5, PETROLEUM OIL

Cause of leak. (circle all that apply)

(A) Unknown
B. Split
C. Loose connection
D. Corrosion
E. Puncture
F Installation failure
G. Spill
H. Overfill
I. Other (specify)

Type of financial responsibility. (circle one)

A. Third party insurance provided by the state insurance contractor
(B) Self-insurance pursuant to Chapter 17-769.500 F.A.C.
C. Not-applicable
D. None

To the best of my knowledge and belief all information submitted on this form is true, accurate, and complete.

KEVIN N. GONZOND NAS OIC
Printed Name of Owner, Operator or Authorized Representative

Signature of Owner, Operator or Authorized Representative