13.01- 09/18/96-00463

DEPARTMENT OF THE NAVY
U. S. NAVAL STATION, ROOSEVELT ROADS
PSC 1008, BOX 3001
FPO AA 34051

5090
Ser N02C-B14/3518
18 SEP 1996

U.S. Environmental Protection Agency
Region II
Attn: Mr. Andrew Bellina, P.E.
Chief, Hazardous Waste Facilities Branch
New Jersey-Caribbean Permitting Section
290 Broadway, 22nd Floor
New York, NY 10007-1866

Gentlemen:

Enclosed are two copies of the report for activities conducted at the Tow Way Fuel Farm site, Solid Waste Management Unit (SWMU #7), for the month of August 1996, as required by Condition B.8 of Module III of the November 1994 Resource Conservation and Recovery Act/Hazardous and Solid Waste Amendment (RCRA/HSWA) Operating Permit.

The system was required to be shut down from August 1 through August 23, 1996 in order to conduct the activities to re-define the free product contour as notified to you in our letter of August 8, 1996.

Also, this letter is to inform you that due to contractual delays the construction schedule for the Interim Corrective Measures (ICM) at this site has changed as indicated in the enclosed revised schedule.

Should you have any questions, please contact Mr. Pedro Ruiz, Pollution Abatement Program Manager, at (787)865-4429.

Sincerely,

S. Castillo

S. CASTILLO
Director, Environmental
Engineering Division
Public Works Department
By direction of the
Commanding Officer

Encl:
1) Free Product Removal Report

5090
Ser. N02C-B14/3518
18 Sep 96

Copy to:
Environmental Quality Board
Attn: Ms. Katherine Batista
Underground Storage Tank Office
P.O. Box 11488
Santurce, PR 00910

Environmental Quality Board
Attn: Mr. Israel Torres
Land Pollution Control
RCRA Section
P.O. Box 11488
Santurce, PR 00910

Commander, Atlantic Division
Naval Facilities Engineering Command
Code 182
1510 Gilbert Street
Norfolk, VA 23511-2699

Commander in Chief (w/o encl)
U.S. Atlantic Fleet
Code N465
Norfolk, VA 23511

00463

TERRA VAC

Free Product Removal Report 96-08
August 1996
Sampling, Testing
and Free Product Removal Project
U.S. Naval Station
Roosevelt Roads. Puerto Rico
Contract No. 62470-92-D-6257

Submitted by

Terra Vac
356 Fortaleza St.
San Juan, Puerto Rico

September 06, 1996

Terra Vac Project #11-0234

INTRODUCTION

Terra Vac has been contracted by the U.S. Navy to conduct sampling, testing and free product removal operations at the U.S. Naval Station, Tow Way Fuel Facility, Roosevelt Roads, Puerto Rico, under Contract No. N62470-92-D-6257. Figure 1 and Figure 1A presents the site maps. The scope of work includes set up of recovery systems, free product measurements, free product analysis, free product recovery system operations, and disposal of recovered free product.

The contract requires monthly reporting of recovery operations and recovered product. This is the eighth monthly report and represents operations of the free product recovery system during the month of August 1996.

FIELD ACTIVITIES

On August 1, 1996 the entire system was shut down by request of Mr. Pedro Ruiz, of the Public Works Department.

On August 1, 1996 product samples were collected from product holding Tank B and Tank C. The samples where sent to the laboratory for RECRA metals analysis according to the contract. The product was transferred after the analytical reports demonstrated the product was non-hazardous.

On August 23, 1996 the system was restarted with three phase vacuum recovery systems installed in wells UGW-1, UGW-4, UGW-12, and UGW-13.

On August 26 the system was found not to be running by our technician. The most likely reason was a power outage by unknown sources.

The system was in operation for 8 days in August. Free product measurements were recorded at 33 wells on August 23. Results are shown in Table 1. Minor maintenance was performed on the air compressor as required.

SUMMARY OF RESULTS

PUMP OPERATING HOURS

MONTH	OPERATING HOURS	TOTAL FOR 1996
JANUARY	1260	1260
FEBRUARY	4536	5796
MARCH	5194	10990
APRIL	2184	13174
MAY	3528	16702
JUNE	2856	19558
JULY	3864	23422
AUGUST	768	24190

FREE PRODUCT THICKNESS MEASUREMENTS

MONTH	NUMBER MEASUREMENTS	TOTAL FOR 1996
JANUARY	7	7
FEBRUARY	71	78
MARCH	70	148
APRIL	70	218
MAY	70	288
JUNE	35	323
JULY	66	389
AUGUST	33	422

FREE PRODUCT RECOVERED

MONTH	GALLONS RECOVERED	TOTAL for 1996
JANUARY	0	0
FEBRUARY	236	236
MARCH	96	332
APRIL	2	334
MAY	70	404
JUNE	70	474
JULY	90	564
AUGUST	256	820

SAMPLE AND TEST FREE PRODUCT (TANKS)

MONTH	NUMBER of SAMPLES	TOTAL for 1996
JANUARY	0	0
FEBRUARY	0	0
MARCH	0	0
APRIL	0	0
MAY	0	0
JUNE	0	0
JULY	0	0
AUGUST	1	1

EVALUATION OF DATA

A total of 768 operational hours where recorded for August from 4 product recovery system setups.

A combined product sample was collected from product holding Tank B and Tank C. The laboratory results for RECRA metals shows the sample not to exceed the limits. As such, the contents of Tank B and C where transferred to Tank D. The laboratory results are presented in Appendix A.

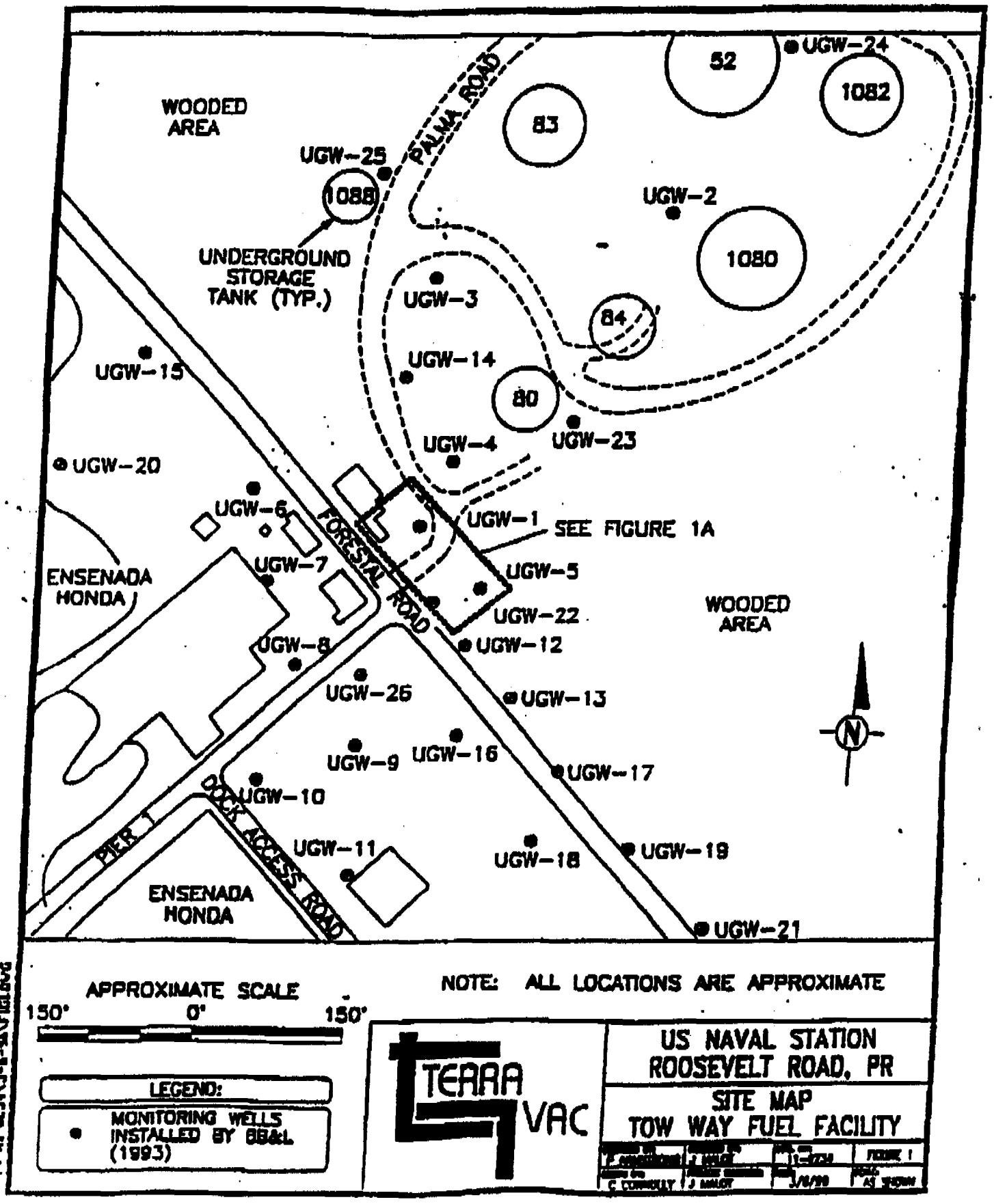
Measurements of the free product layer in the wells near the Tow Way Fuel Facility indicate significant product (greater than 0.1 ft.) was present in 15 wells in August. This compares to July measurements which indicated 18 wells with significant product. Figure 2 presents the product contour map.

A total of 33 free product thickness measurements were recorded at the UGW, MW and PW wells during August 1996. Measurable product (0.01) was observed in 16 wells. The product thickness ranged from 0.01 to 9.68 feet. Well UGW-4 had the greatest product thickness with 9.68 feet, which is a decrease of 0.22 feet from July.

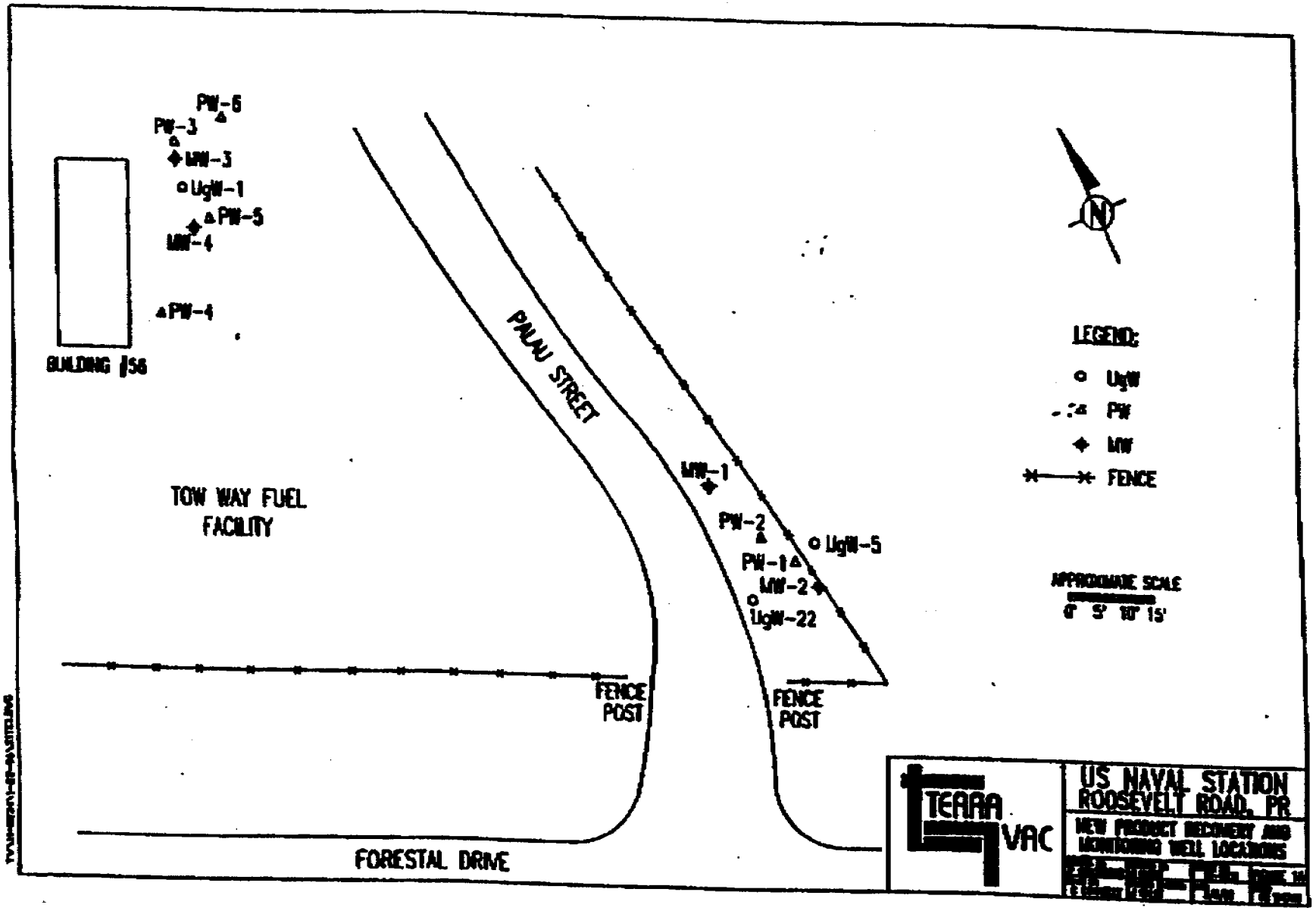
The free product recovery rate for the August run period is calculated as approximately 32 gpd, with an average of 3.8 gpd since starting the system on January 25, 1996. There were approximately 256 gallons of product recovered in August and a total of 820 gallons recovered since start-up.

The average recovery rate for July using the skimmer pump system yielded 0.56 gpd per well with the Vacuum Assisted Recover System (VARS) the yield of product per well in August was 8 gpd. Once again, the VARS product recovery was demonstrated to be significantly, by 1400% more effective than the skimmer system.

TERRA V



WOODED AREA
PALMA ROAD
52
UGW-24
1082
83
UGW-25
1088
UGW-2
1080
UNDERGROUND STORAGE TANK (TYP.)
UGW-3
84
UGW-14
UGW-15
80
UGW-23
UGW-4
UGW-20
UGW-6
UGW-1
SEE FIGURE 1A
FORESTAL ROAD
UGW-7
UGW-5
ENSENADA HONDA
UGW-22
WOODED AREA
UGW-8
UGW-12
UGW-26
UGW-13
N
UGW-9
UGW-16
UGW-17
UGW-10
DOCK ACCESS ROAD
PIER 1
UGW-11
UGW-18
UGW-19
ENSENADA HONDA
UGW-21
APPROXIMATE SCALE
150' 0' 150'
NOTE: ALL LOCATIONS ARE APPROXIMATE
LEGEND:
MONITORING WELLS INSTALLED BY BB&L (1993)
TERRA VAC
US NAVAL STATION
ROOSEVELT ROAD, PR
SITE MAP
TOW WAY FUEL FACILITY
FIGURE 1
AS SHOWN


PW-6
PW-3
MW-3
UgW-1
PW-5
MW-4
PW-4
BUILDING #56
TOW WAY FUEL FACILITY
PAJAU STREET
MW-1
PW-2
UgW-5
PW-1
MW-2
UgW-22
FENCE POST
FENCE POST
FORESTAL DRIVE
N
LEGEND:
UgW
PW
MW
FENCE
APPROXIMATE SCALE
0' 5' 10' 15'
TERRA VAC
US NAVAL STATION ROOSEVELT ROAD, PR
NEW PRODUCT RECOVERY AND MONITORING WELL LOCATIONS

TERRA VA

Order # 96-08-005
08/23/96 10:55

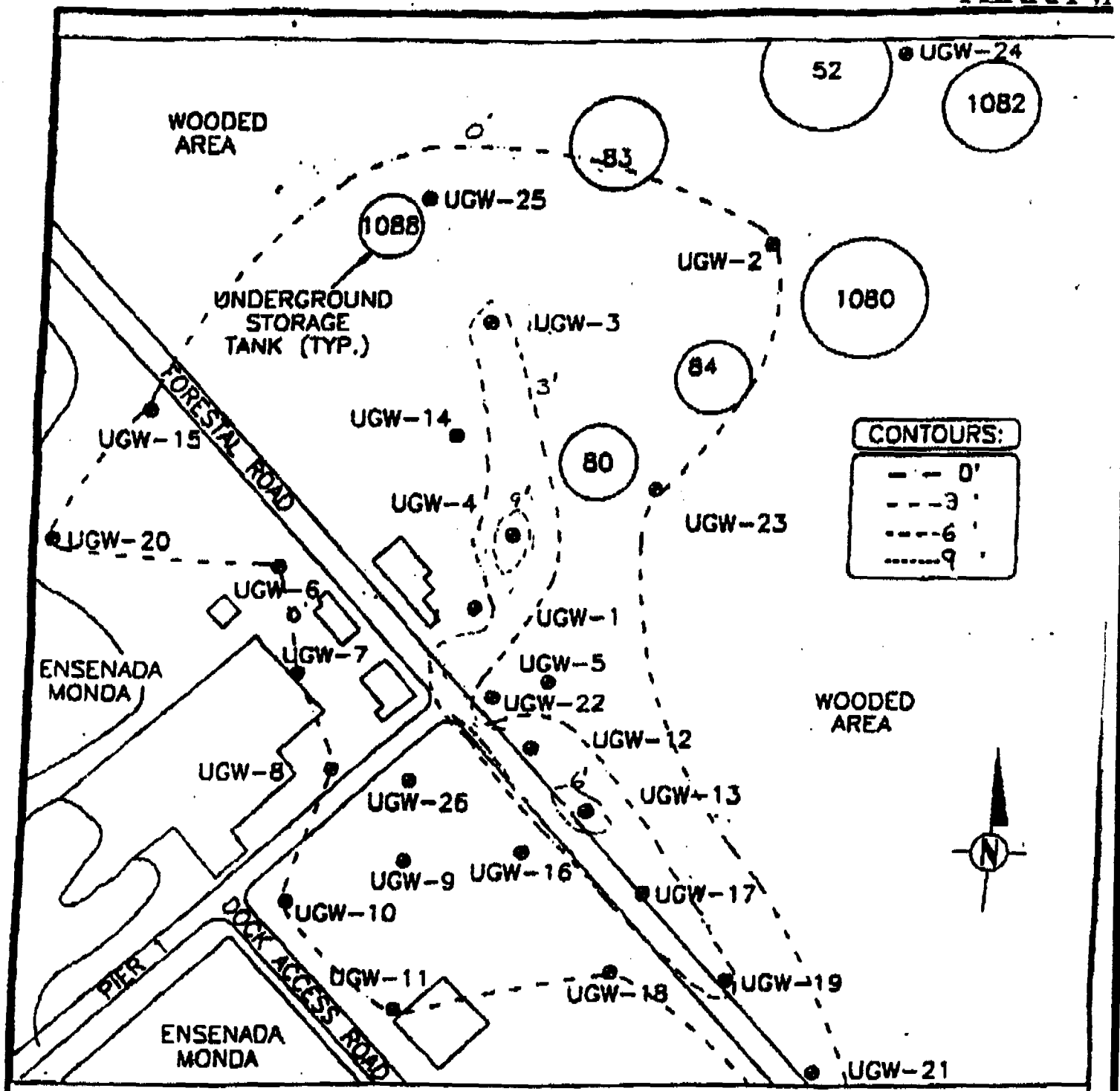
TEST RESULTS BY SAMPLE

Sample: 01A Tanks B & C
Job: 01-11 Fuel - Grab

Collected: 08/01/96

Test Description	Result	Limit	Units	Analyzed	By
TCLP METALS:					
Total Arsenic	<0.001	5.0	mg/L	08/14/96	NAS
Total Barium	<0.1	100	mg/L	08/22/96	JS
Total Cadmium	0.004	1.0	mg/L	08/22/96	JS
Total Chromium	0.18	5.0	mg/L	08/22/96	JS
Total Lead	0.023	5.0	mg/L	08/22/96	JS
Total Mercury	<0.002	0.20	mg/L	08/08/96	LLS
Total Selenium	<0.001	1.0	mg/L	08/16/96	NAS
Total Silver	0.001	5.0	mg/L	08/22/96	JS

TERRA V



APPROXIMATE SCALE

150' 0' 150'

NOTE: ALL LOCATIONS ARE APPROXIMATE

LEGEND:

● MONITORING WELLS INSTALLED BY BB&L (1993)

TERRA VAC

US NAVAL STATION
ROOSEVELT ROAD, PR

FREE PRODUCT THICKNESS CONTOURS
8, 23, 1996
TOW WAY FUEL FACILITY

P. ARMSTRONG		11-0234	FIGURE 2
	J. MALOT	8/23/96	AS SHOWN

TV\11-0234\4-1-96\PLUME2.DWG

TABLE ONE
PRODUCT THICKNESS DATA
US NAVAL STATION
ROOSEVELT ROADS, PUERTO RICO
TOW WAY FUEL FACILITY
TV PROJECT 110234

PRODUCT THICKNESS DATA IN FEET

WELL NUMBER	09/30/94	12/05/94	01/05/95	03/16/95	04/03/95	04/26/95	05/08/95	05/30/95	06/18/95	06/30/95	07/06/95	07/17/95	08/15/95	09/26/95	10/11/95	10/22/95	02/09/96	02/28/96	03/12/96	03/30/96	04/18/96	04/25/96	05/17/96	05/31/96	06/10/96	07/17/96	07/30/96	08/23/96
UGW-1	14.77	16.78	13.37	12.67	0.00	0.04	0.01	0.01	3.09	10.19	12.18	10.65	11.92	9.18	8.58	0.33		4.60	5.00	4.35	4.52	4.24	4.39	4.44	4.33	1.94		0.01
UGW-2	0.96	0.91	0.60	0.00	0.75	0.70	0.69	0.82	0.80	0.79	1.50	0.75	0.30	0.80	0.81	0.86	0.25	0.03	0.01	0.01	0.02	0.03	0.15	0.05	0.29	0.38	0.00	0.10
UGW-3	4.62	5.49	6.69	6.06	5.48	5.25	4.50	5.42	5.10	5.25	4.57	5.02	5.35	4.90	5.00	0.41	4.78	4.80	4.75	2.25	5.40	5.40	5.56	5.64	5.01	4.12	4.60	0.00
UGW-4	13.00	13.98	14.85	11.40	11.06	2.80	0.70	0.53	9.68	9.65	10.40	0.20	0.55	12.57	12.38	9.25	15.45	12.80	12.60	11.60	11.49	11.51	10.79	10.69	10.43	9.91	9.90	9.68
UGW-5	2.19	0.40	0.70	0.09	1.46	0.31	0.31	0.34	0.00	0.50	0.50	0.00	0.55	0.05	0.01	0.09	1.30	0.50	0.50	0.66	0.73	0.68	0.71	0.87	0.62	0.73	0.63	0.10
UGW-6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
UGW-7	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-8	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-9																0.00	0.00	0.00	0.00				0.00	0.00				
UGW-10	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-11	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-12	12.27	13.68	12.28	0.02	3.00	0.17	0.24	0.18	0.17	0.63	11.26	8.91	0.00	10.63	10.05	10.15	10.24	9.81	9.52	9.27	8.98	9.02	8.92	8.83	8.46	8.97	8.80	1.80
UGW-13	9.21	11.98	1.40	1.20	7.30	1.00	3.42	2.56	2.84	1.62	10.44	7.78	7.85	9.08	7.44	8.31	8.48	8.23	7.67	7.26	7.85	7.55	8.06	8.40	7.17	8.40	7.51	7.71
UGW-14	0.00	0.06	0.00	0.01	0.01	0.02	0.04	0.00	0.01	0.02	0.45	0.02	0.33	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-15	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-16	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-17	6.53	3.18	0.14	0.01	0.68	1.16	0.00	3.82	5.00	4.64	5.75	1.85	0.13	1.08	4.02	4.71	5.43	6.25	4.75	4.06	4.00	4.01	4.29	4.15	4.11	2.65	2.84	1.94
UGW-18	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
UGW-19	0.59	1.09	0.60	2.01	2.40	2.64	2.32	1.73	0.00	0.00	2.96	0.00	0.00	2.47	2.87	2.68	3.42	3.23	3.00	3.25	3.42	3.40	3.59	3.70	3.63	3.30	3.93	3.15
UGW-20	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
UGW-21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	1.54	1.08	1.45	1.40	1.55	1.55	1.65	1.55	0.00	2.06	1.98	1.75
UGW-22	10.26	0.03	0.02		5.77	0.47	1.23	1.50	0.00	0.00	0.94	10.37	0.00	0.00	0.01	0.02	0.00	0.00	0.01	0.02	0.07	0.10	0.15	0.25	0.21	0.07	0.18	0.00
UGW-23	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-24	0.00	0.01	0.01	0.00	0.00	0.00	1.36	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UGW-25	1.82	1.29	1.03	1.73	1.96	1.96	1.96	2.21	2.13	2.12	2.75	2.06	2.55	1.72	1.72	1.68	1.69	1.68	1.63	1.31	1.78	1.74	1.92	1.93	1.94	1.91	0.00	1.00
UGW-26		0.01		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PW-1																	0.00	0.00	0.00	0.00	0.07	0.02	0.04	0.01	0.07	0.00	0.00	
PW-2																	0.13	0.02	0.00	0.03	0.01	0.05	0.07	0.20	0.04	0.01	0.20	0.00
PW-3																	2.50	0.00	0.00	0.30	0.66	0.75	0.87	0.60	1.46	2.06	2.27	0.53
PW-4																	3.29	0.73	0.07	0.41	0.10	0.10	0.46	0.44	0.92	1.24	1.49	0.35
PW-5																	4.01	1.45	0.48	1.86	2.45	2.02	1.39	1.50	0.01	0.49	0.96	0.50
PW-6																	4.12	7.48	3.32	3.36	5.44	2.55	3.91	3.81	0.97	4.55	2.99	3.23
MW-1																	0.58	1.00	0.00	1.66	0.00	0.00	0.02	0.05	0.00	0.00		0.00
MW-2																	0.00	0.00	0.01	0.35	0.55	0.48	0.42	0.42	0.58	0.23	0.45	0.00
MW-3																	0.00	0.90	2.07	2.40	2.52	2.63	2.73	3.17	3.17	2.90	3.04	1.05
MW-4																	0.00	8.85	8.60	8.52	9.04	9.10	8.36	7.80	6.50	6.79	6.52	2.56
																	PW1-6 MW-1 PUMPS OK	PW1-6 MW-1 PUMPS OFF	PW1-6 MW-1 PUMPS ON	PW1-6 MW-1 PUMPS ON	PW1-4 MW1 PUMPS ON	PW1-6 MW1 PUMPS ON	PW2,5 MW1,4 PUMPS ON	PW2,5 UGW1,5 MW1,4 PUMPS ON	UGW1,3,4,5 UGW2,13,17 PW2,5,6 PUMPS ON	UGW1,3,4 UGW12,13 PW5,6 PUMPS OF	UGW1,3,4 UGW5,12 UGW13,17 PUMPS OFF	SYSTEM OFF

Aug-96 REPORT
11234D4.WB1

TABLE TWO
PRODUCT HOLDING TANK RECORDS
US NAVAL STATION
ROOSEVELT ROADS, PUERTO RICO
TOW WAY FUEL FACILITY
TV PROJECT 110234

MEASUREMENTS ARE FROM TOP OF THE TANK

			TANK A			TANK B			TANK C			TANK D	TOTAL GALLONS PUMPED	CUMMULATIVE		FROM START AVG
DATE	TIME	DAYS	PRODUCT ft	WATER ft	GALLONS	PRODUCT ft	WATER ft	GALLONS	PRODUCT ft	WATER ft	GALLONS		THIS PERIOD	GALLONS	GPD	GPD
25-Jan-96	13:30	0.0	1.7	10.75	851	5.83	5.83	0	5.83	5.83	0	0	0	0	0	0
09-Feb-96	14:35	15.0	1.69	10.74	851	5.82	5.83	1	5.74	5.83	8	0	9	9	0.6	0.6
28-Feb-96	12:05	33.9	1.74	10.15	791	4.76	5.95	111	4.70	6.05	126	0	227	236	12.0	7.0
01-Mar-96	11:17	35.9	1.65	9.83	769	4.51	6.03	141	4.58	5.95	127	0	33	269	16.6	7.5
12-Mar-96	14:00	47.0	1.66	9.36	724	4.23	5.95	160	4.20	6.02	169	0	60	329	5.4	7.0
30-Mar-96	09:26	64.8	1.73	9.25	707	4.22	5.93	159	4.15	6.01	173	0	3	332	0.2	5.1
18-Apr-96	14:15	84.0			0	4.22	5.93	159	4.15	6.03	175	0	2	334	0.1	4.0
25-Apr-96	11:30	90.9			0	4.22	5.93	159	4.16	6.04	175		0	334	0.0	3.7
17-May-96	16:12	113.1	1.7	9.25	709.7	4.15	5.93	166	4.10	6.03	179		11	345	0.5	3.1
31-May-96	13:20	127.0	1.68	8.45	636.38	3.57	6.04	230	3.63	5.50	174		59	404	4.2	3.2
16-Jul-96	13:00	173.0			0	3.27	5.94	248	3.22	6.03	261		106	510	2.3	2.9
30-Jul-96	10:35	186.9	2.18	5.85	344.98	2.44	5.5	285	2.40	5.40	279		54	564	3.9	3.0
23-Aug-96	16:09	211.1	2.17	5.93	353.44	5.1	5.95	79	5.00	6.03	96		175	739	7.2	3.5
26-Aug-96	08:30	213.8	2.32	5.2	270.72	4.65	5.95	121	4.58	6.03	135		81	820	30.2	3.8

TERRAVAC, INC.
P.O. BOX 1591
SAN JUAN, P.R. 00903

Attn: MR. PAUL ARMSTRONG
Invoice Number:

Order #: 96-08-005
Date: 08/23/96 10:55
Work ID: Fuel - Grab
Date Received: 08/01/96
Date Completed: 08/23/96
Client Code: 666_01

DS # 96-6470 Facility: Roosevelt Roads, Naval Base
Samples collected by Client.
Limit = Maximum Contaminant Level

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	Tanks B & C		

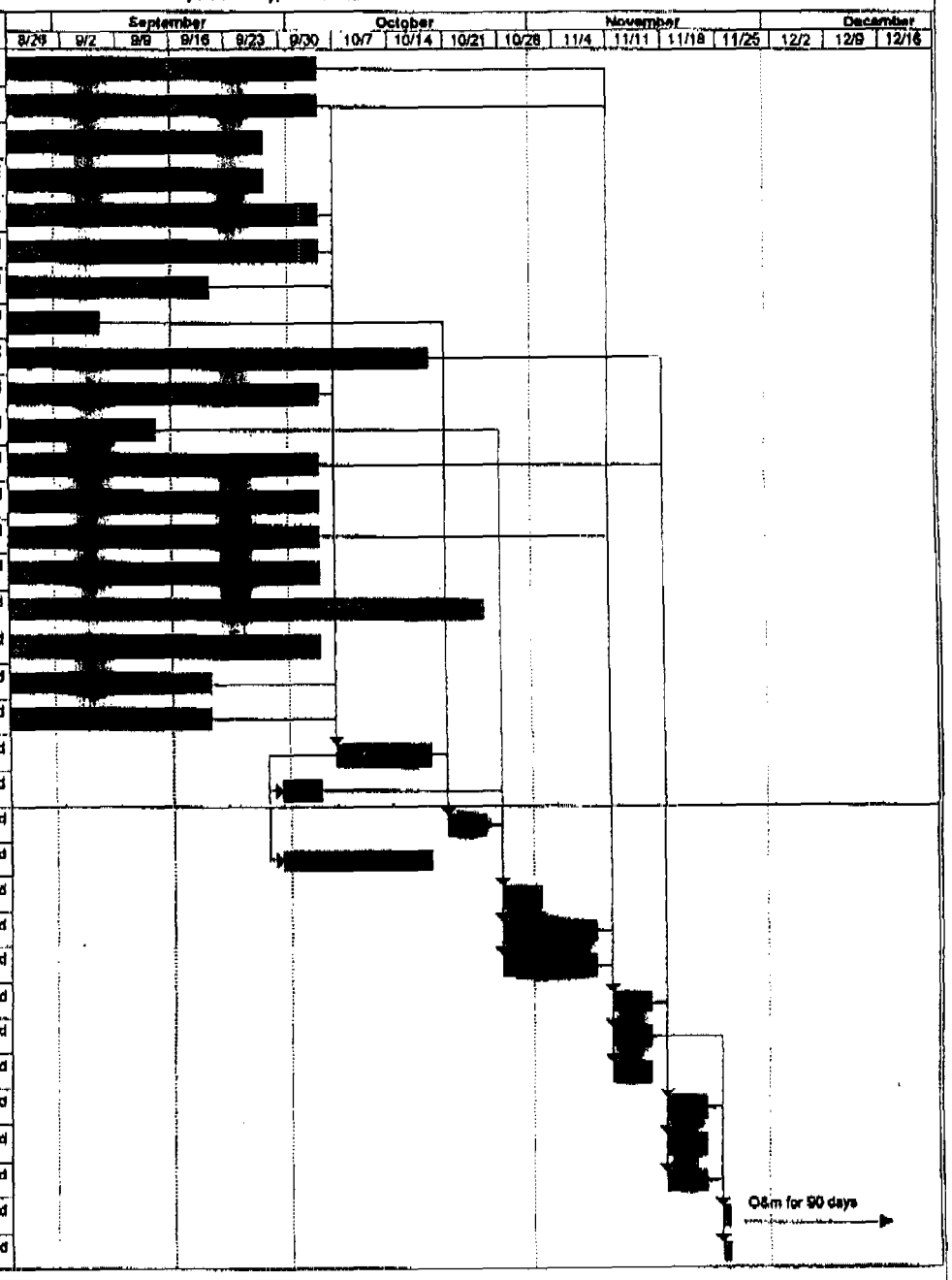
Certified By:
Ismael Martinez

Estado Libre Asociado de Puerto Rico
LICENCIA NUM. 1486

A 424713

Delivery Order 0009
Product Recovery System
Tow Way Fuel Facility, Puerto Rico

ID	Task Name	Duration
1	Procurement of Containment Pipe	30d
2	Procurement of Product Pipe/Air Lines	30d
3	Procurement of Driller	25d
4	Procurement of UG Utility Location	25d
5	Procurement of Pumps	30d
6	Procurement of Vaults	30d
7	Procurement of Surfacewater Control	20d
8	Procurement of Trailer/Phone Line	10d
9	Procurement of Electrical Sub	40d
10	Procurement of Compressor/Dryer	30d
11	Procurement of Concrete, Rebar, & Forms	15d
12	Procurement of Fence	30d
13	Procurement of Aggregate	30d
14	Procurement of Soil Disposal Facility	30d
15	Procurement of Waste Oil Disposal	30d
16	Procurement of Product Tank	45d
17	Procurement of Lab for Geotech Analytical	30d
18	Procurement of Control Panel	20d
19	Procurement of Instrumentation	20d
20	Ship from USA	10d
21	Locate Underground Utilities/trailer phone	5d
22	Mobilization	5d
23	Extraction Well Drilling	15d
24	Surface Water Collection & Control	5d
25	Concrete Pad Installation and Curing	10d
26	System Trenching	10d
27	Pumping/Collection Installation	5d
28	Physical Treatment-Installation	5d
29	Disposal	5d
30	Electrical Installation	5d
31	Fence Installation	5d
32	Site Restoration	5d
33	System Operation	1d
34	Demobilization	1d



Project: Product Recovery System
Date: 9/16/96
F:\HOME\SHARED\SCHEDULE\809C

Task | Progress | Milestone | Summary | Rolled Up Task | Rolled Up Milestone | Rolled Up Progress

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