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CROWS LANDING
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CROWS LANDING
NAVAL AUXILIARY LANDING FIELD
STANISLAUS COUNTY, CALIFORNIA

SITE INVESTIGATION WASTE DISPOSAL PROPOSAL

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1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) was requested by the U.S. Navy to conduct a site investigation (SI) at Crows Landing Naval Auxiliary Landing Field (Crows Landing NALF) in Stanislaus County, California. The SI was a followup investigation of areas evaluated in an Initial Assessment Study (IAS) by the Naval Energy and Environmental Support Activity (NEESA) (U.S. Navy, 1984). The SI also investigated additional areas recommended by the U.S. Environmental Protection Agency (EPA) based upon a review of the NEESA IAS. The sites evaluated during the SI are listed below:

- Site 11 - Disposal Pits Area
- Site 12 - Auto Maintenance Shop Area
- Site 13 - TACAN Transformer Oil Spill Area
- Site 16 - Pesticide Mixing Area

The purpose of the SI was to investigate sites identified as having potentially released contaminants into the environment. The project consisted of drilling 12 borings (25 to 55 feet deep) with truck-mounted, hollow-stem augers (with 8-inch outer diameters) for soil sampling and monitoring well installation; and sampling ground water from the four monitoring wells installed during the SI.

The disposal of the drummed material (soil and water) generated during drilling, developing, purging, and sampling the 12 borings and four monitoring wells is the concern of this proposal. PRC proposes to dispose of the nonhazardous investigation derived waste on-site by spreading the soil cuttings in the vicinity of the borings and monitoring wells from which the wastes were derived. All liquid wastes will be disposed of in the Crows Landing NALF sewer system.

2.0 BACKGROUND

Crows Landing NALF is located in the southwest portion of Stanislaus County, California, approximately 80 miles southeast of San Francisco. Crows Landing NALF lies south of the city of Patterson, approximately 2 miles northwest of the town of Crows Landing, and west of Highway 33. The base covers approximately 1,500 acres on the western side of the San Joaquin Valley.

Crows Landing NALF is currently used as a practice field for Navy planes from Naval Air Station (NAS) Moffett Field, NAS Lemoore, and NAS Alameda. The station is also used by National Aeronautics and Space Administration (NASA), Army, Air Force, Coast Guard, and Air Guard Reserve planes. The facilities at the station are limited to a two-runway system and a small maintenance and support area east of the runway intersection. The maintenance and support area also includes recreation and administration facilities.

Based on the 1990 EPA review of the 1984 IAS conducted by NEESA at Crows Landing NALF, it was concluded that five sites (Sites 11, 12, 13, 15, and 16) warranted further investigation. Two of the sites (Sites 12 and Site 15) were close to each other and were combined into one site (Site 12), identified as the Auto Maintenance Shop Area. Brief histories of the four sites investigated in the SI are presented below:

- Site 11 - The Disposal Pits Area was in service from the late 1960s to 1982. General refuse disposed consisted of paper, scrap metal, putrescible kitchen waste, and empty paint and pesticide containers. Pits were dug in an open field west of the north-south runway. Wastes were placed in a pit and then burned. When a pit filled with burned refuse, it was covered with soil, and a new pit was dug. Reportedly, four pits were dug, one of which was completely filled with an estimated 300 pounds of scrap metal from two nearby practice bombing ranges.

- Site 12 - The Auto Maintenance Shop Area consists of three potentially contaminated areas; the waste "bowser" area, the vehicle parts washrack area, and the pesticide mixing area, the histories of which are presented below.

  Waste "bowser" area - waste generated from maintenance and repair activities at the auto maintenance shop were collected in an aboveground storage tank of unknown capacity, referred to as a "bowser." The waste bowser area was located on bare soil on the west side of the auto maintenance shop. The waste stored in the bowser consisted on Stoddard solvent and waste oils. Spillage occurred during waste transferring operations, resulting in a previously reported 20-square-foot waste oil and solvent surface stain, which is no longer visible. It is unknown when waste transferral began. The bowser was removed in 1982.

  Vehicle parts washrack area - the vehicle parts washrack, located outside of the auto maintenance shop, consists of a concrete pad, approximately 25 by 40 feet, with two drains near the center. The majority of the runoff from the washrack drains north of the pad onto a surface cover consisting of gravel and soil. The washrack has been used since 1959 for steam cleaning Stoddard solvent off vehicle parts. The washrack is still in use.

Pesticide mixing area - the pesticide mixing area consists of a gravel and soil area with a faucet southwest of the washrack concrete pad. Beginning in 1978, the faucet was used for pesticide mixing and rinsing sprayer tanks. During mixing, foam overflow from the sprayer tanks leaked onto the ground. When the sprayer tanks were rinsed, pesticide rinsate was disposed adjacent to the faucet or dispersed onto nearly roads. The pesticide mixing area is no longer used.

- Site 13 - Three transformers for the TACAN transmitter building are located on a concrete pad approximately 900 feet west of the runway intersection. In 1962, a transformer caught fire and leaked transformer oil onto the adjacent surface soils. Later, the transformers were replaced and the pad was enlarged. An unknown quantity of the adjacent surface soils was excavated when the pad was enlarged.

- Site 16 - From the 1950s to 1978, pesticides were mixed in sprayer tanks near a faucet at a pump house east of the runways. The former pesticide mixing area consists of a faucet located on a cement pad adjacent to a water tank. The surface surrounding the cement pad consists of soil and gravel. The area is east of the runways, near Ike Crow Road. The sprayer tanks were also rinsed at this location. During mixing, foam overflow from the sprayer tanks leaked onto the ground. When the sprayer tanks were rinsed, the pesticide rinsate was disposed of adjacent to the faucet or dispersed onto nearby roads.

3.0 INVESTIGATION DERIVED WASTE DISPOSAL

Analytical results from the SI (PRC, 1991) have been summarized in the tables of this proposal. Although one to three soil samples were analyzed per boring, only the highest reading reported per analyte, per boring, is listed in the following tables. Table 1 shows the number of drums at Crows Landing NALF. The drummed drill cuttings (soil) and purge and development water from each well are located at the individual boring or well sites and labelled according to the boring or well number from which the contents of each drum were generated. Sites 11 and 12 each have additional drums (seven and three, respectively) containing decontamination (decon) water from drilling and sampling equipment decon. This water was collected from all four sites and was not analyzed. Tables 2 and 3 present the highest analytical results reported from each boring or well at Site 11. Tables 4 and 5 present the highest analytical results reported from each boring or well at Site 12. Site 13 retains no drummed material. Table 6 presents the highest analytical results reported from each boring or well at Site 16. Due to the nature of expected contaminants, only Sites 11 and 12 were analyzed for inorganic metals.

PRC proposes to dispose of the investigation derived wastes on-site. The analytical results summarized in Tables 2 through 5 indicate that the wastes are not Resource Conservation and Recovery Act (RCRA) hazardous wastes (Title 40 Code of Federal Regulations Part 261) or California designated wastes (Title 23 California Code of Regulations Section 2522). PRC intends to spread the soil cuttings around the borings or monitoring wells from which the wastes were derived. This procedure is in accordance with EPA guidance (EPA, 1991). All liquid wastes will be disposed of in the Crows Landing NALF sewer system. Crows Landing NALF maintains its own sewage treatment system and does not discharge to a publicly owned treatment works (POTW). The sewage treatment system consists of an Imhoff tank for sludge digestion and an adjacent drying pond for managing liquid effluent from the Imhoff tank. The system was orginally designed to accommodate the sewage treatment requirements for approximately 3,000 people. Currently, approximately 40 people are stationed at Crows Landing NALF. The drums, once emptied, will be salvaged for use in conducting future remedial investigation (RI) activities at Crows Landing NALF.

4.0 SCHEDULE

PRC intends to dispose of the investigation derived wastes as described within 30 days of the approval of this proposal by state and county regulatory agencies.

5.0 REFERENCES

PRC Environmental Management, Inc., 1991, Draft Final Site Investigation Report for Crows Landing Naval Auxiliary Landing Field. Prepared for the Department of the Navy, Western Division, Naval Facilities Engineering Command, Contract Task Order Number 0111.

U.S. Environmental Protection Agency (EPA), 1991, Management of Investigation-Derived Wastes During Site Inspections. EPA Office of Research and Development, EPA/540/G-91/009.

U.S. Navy, 1984, Initial Assessment Study of Naval Air Station, Moffett Field. Prepared by the Naval Energy and Environmental Support Activity, Number 13-049.

TABLES

TABLE 1

CROWS LANDING
DRUMS ON SITE

SITE NAME & LOCATIONS	DRUM SUMMARY	
	SOIL[1]	WATER[2]
SITE 11		
SB-01	2	
SB-02	1	
SB-03	1	
SB-04	2	
MW-01	7	1
MW-02	7	2
Subtotal	20	3
SITE 12		
SB-01	5	
SB-02	1	
SB-03	2	
MW-01	7	1
Subtotal	15	1
SITE 13	No drums at Site 13	
SITE 16		
SB-01	2	
MW-01	8	1
Subtotal	10	1
TOTAL DRUMS	45	5
Note: 3 decon water drums at Site 12 7 decon water drums at Site 11 Total = 10 decon water drums		
TOTAL OVERALL DRUMS	60	

[1] Soil = Drill Cuttings
[2] Water = Purge & Development Water

TABLE 2

SITE 11 ANALYTICAL RESULTS

SOIL SAMPLES						
ANALYTE*	MW-01**	MW-02**	SB-01**	SB-02**	SB-03**	SB-04**
TPH extractable (mg/kg)	13U	14UJ	12U	12U	11UJ	12U
TPH purgeable (mg/kg)	13U	14U	12U	12U	11U	12U
Benzene (mg/kg)	.0008U	.0008U	.0007U	.0007U	.0007U	.0007U
Toluene (mg/kg)	.0053	.019	.0008	.0027	.041	.002
Ethylbenzene (mg/kg)	.0008U	.0008U	.0007U	.0007U	.0007U	.0007U
Xylene (mg/kg)	.0015U	.0017U	.0014U	.0017	.0033	.0014U
TRPH-petroleum oil (mg/kg)	8.7	11	25	20	120	13
Volatiles						
Methylene Chloride (μg/kg)	15UJ	12UJ	22UJ	10UJ	10UJ	22UJ
Acetone (μg/kg)	13U	14U	12U	13UJ	11U	19UJ
Toluene (μg/kg)	20	27	6U	15	12	29
Semivolatiles (μg/kg)	ND	ND	ND	ND	ND	ND
Pesticides/PCBs						
4,4'-DDE (μg/kg)	20U	22U	18U	18U	117J	19U

μg/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
SB Soil boring
MW Monitoring well
U The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J The associated numerical value is estimated.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is estimated.
ND Not detected
* Other analytes were analyzed for but were not detected.
** Although 1 to 3 samples were analyzed for the listed analytes per SB or MW, the values presented are the highest levels detected.

TABLE 3

SITE 11 ANALYTICAL RESULTS

WATER SAMPLES		
ANALYTE	MW-01**	MW-02**
TPH-extractable (μg/L)	7900	3400
TPH-purgeable (μg/L)	500U	500U
Benzene (μg/L)	.3U	.3U
Toluene (μg/L)	.3U	.3U
Ethylbenzene (μg/L)	.3U	.3U
Xylene (μg/L)	.6U	.6U
TRPH-petroleum oil (mg/L)	1U	1U
Volatiles Methylene Chloride (μg/L)	5UJ	5.5UJ
Semivolatiles (μg/L)	ND	ND
Pesticides/PCBs (μg/L)	ND	ND

μg/L Micrograms per liter
mg/L Milligrams per liter
MW Monitoring well
U The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J The associated numerical value is estimated.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is estimated.
ND Not detected
* Other analytes were analyzed for but were not detected.
** Although 1 to 3 samples were analyzed for the listed analytes per SB or MW, the values presented are the highest levels detected.

TABLE 4

SITE 11 - METALS ANALYTICAL RESULTS

	SOIL SAMPLES (mg/kg)						WATER SAMPLES (µg/L)	
ANALYTE	MW-01*	MW-02*	SB-01*	SB-02*	SB-03*	SB-04*	MW-01*	MW-02*
Aluminum	19,300	24,000	19,700	16,800	22,000	17,000	646J	7,100J
Antimony	1U	1U	1U	1U	1U	1U	.5U	.5U
Arsenic	9.1	22.2	8.4	18.5	7.6	7.5	1U	1U
Barium	260	266	198	205	207	127	26	95
Beryllium	.76	.94	.88	.70	1.1	.71	2U	2U
Cadmium	1.3UJ	1.4UJ	1.2UJ	1.2UJ	1.1UJ	1.2UJ	5UJ	5UJ
Calcium	19,400	22,100	5,710	6,720	35,100	19,500	86,000	116,000
Chromium	22J	25.2J	21.8J	23J	29.9J	18.3J	15	19
Cobalt	12.4	13.6	11.6	14.7	11.6	10.5	10	26
Copper	45.3UJ	50.1UJ	36.6UJ	40UJ	40.4UJ	34.5UJ	24UJ	33UJ
Iron	28,400	32,900	25,700	29,100	27,000	22,000	845UJ	4,590J
Lead	6.5UJ	4.8UJ	14.2	17.9	39	6.5UJ	16.1UJ	17UJ
Magnesium	7,520	8,870	6,040	7,790	7,110	6,450	39,000	45,700
Manganese	517	628	507	719	553	443	61	1,190
Mercury	.019	.019	.023	.55	.03	.019	.2U	.2U
Nickel	33.2	36.4	29.2	34.9	42.2	26.2	5U	33
Potassium	2,810	3,010	2,310	2,310	2,620	2,430	6,190	5,000
Selenium	1U	1U	1U	1U	1U	1U	1U	1U
Silver	1.9U	1.4R	1.2R	1.2R	1.1R	1.1R	5UJ	27J
Sodium	296	619	418	309	278	279	110,000	99,800
Thallium	1U	1U	1U	2UJ	1.5UJ	1U	20.8UJ	16.6UJ
Vanadium	64.3	72.7	62	64.9	63.3	51.7	15UJ	43UJ
Zinc	109	137	95.2UJ	129	131	102UJ	85UJ	140UJ

µg/L Micrograms per liter
mg/kg Milligrams per kilogram
SB Soil boring
MW Monitoring well
U The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J The associated numerical value is estimated.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is estimated.
ND Not detected
* Other analytes were analyzed for but were not detected.
** Although 1 to 3 samples were analyzed for the listed analytes per SB or MW, the values presented are the highest levels detected.

TABLE 5

SITE 12 ANALYTICAL RESULTS

SOIL SAMPLES				
ANALYTE*	MW-01**	SB-01**	SB-02**	SB-03**
TPH extractable (mg/kg)	12U	11UJ	12U	12U
TPH purgeable (mg/kg)	12U	12U	11U	12U
Benzene (mg/kg)	.0007U	.0007U	.0007U	.0007U
Toluene (mg/kg)	.0038	.0007U	.0007U	.0099
Ethylbenzene (mg/kg)	.0007U	.0007U	.0007U	.0007U
Xylene (mg/kg)	.0014U	.0014U	.0014U	.0014U
TRPH-petroleum oil (mg/kg)	22	15	7.5	8.5
Volatiles				
Methylene Chloride (μg/kg)	20UJ	29UJ	18UJ	17UJ
Toluene (μg/kg)	7	6U	6U	6U
Semivolatiles (μg/kg)	ND	ND	ND	ND
Pesticides/PCBs				
4,4-DDE (μg/kg)	19U	20U	18U	19U
4,4-DDD	19U	20U	18U	19U
4,4-DDT	19U	20U	18U	19U

μg/kg Micrograms per kilogram
mg/kg Milligrams per kilogram
SB Soil boring
MW Monitoring well
U The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J The associated numerical value is estimated.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is estimated.
ND Not detected
* Other analytes were analyzed for but were not detected.
** Although 1 to 3 samples were analyzed for the listed analytes per SB or MW, the values presented are the highest levels detected.

TABLE 6

SITE 12 ANALYTICAL RESULTS

WATER SAMPLES	
ANALYTE	MW-01**
TPH-extractable (μg/L)	2100
TPH-purgeable (μg/L)	500U
Benzene (μg/L)	.3U
Toluene (μg/L)	.3U
Ethylbenzene (μg/L)	.3U
Xylene (μg/L)	.6U
TRPH-petroleum oil (mg/L)	1U
Volatiles	
Methylene Chloride (μg/L)	5UJ
Acetone (μg/L)	10U
Semivolatiles (μg/L)	ND
Pesticides/PCBs (mg/L)	ND

μg/L Micrograms per liter
mg/L Milligrams per liter
MW Monitoring well
U The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J The associated numerical value is estimated.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is estimated.
ND Not detected
* Other analytes were analyzed for but were not detected.
** Although 1 to 3 samples were analyzed for the listed analytes per SB or MW, the values presented are the highest levels detected.

TABLE 7

SITE 12 - METALS
ANALYTICAL RESULTS

	SOIL SAMPLES (mg/kg)				WATER SAMPLES (µg/L)
ANALYTE	MW-01*	SB-01*	SB-02*	SB-03*	MW-01*
Aluminum	20,600	17,000	19,200	21,500	850J
Antimony	1U	1U	1U	1U	.5U
Arsenic	16.9	8.9	15.7	16.3	1U
Barium	208	184	163	222	76
Beryllium	.71	.74	.69	.89	2U
Cadmium	1.2UJ	1.2UJ	1.2UJ	1.2UJ	5UJ
Calcium	13,400	7,750	4,990	9,530	53,100
Chromium	21.9J	20.2J	22.5J	26.4J	37
Cobalt	12.7	12.6	12.9	12.7	10U
Copper	32.3UJ	43UJ	43.2UJ	66.2UJ	21UJ
Iron	25,900	27,100	28,300	28,700	1,060J
Lead	5.8UJ	11.1UJ	9.5UJ	12.9UJ	3U
Magnesium	6,830	6,440	6,320	7,440	27,100
Manganese	532	543	543	545	93
Mercury	.015	.017	.016	.016	.2U
Nickel	33.8	30.6	33.3	36.2	10
Potassium	3,170	2,910	2,530	3,160	5,610
Selenium	1U	1	1U	3.2	1U
Silver	1.2R	1.2R	1.2R	1.2R	24J
Sodium	441	345	246	418	84,200
Thallium	1U	1UJ	1UJ	1U	5J
Vanadium	59.8	57	62.3	67.1	21UJ
Zinc	83.8UJ	112	96.8UJ	135	78UJ

µg/L Micrograms per liter
mg/kg Milligrams per kilogram
SB Soil boring
MW Monitoring well
U The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J The associated numerical value is estimated.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is estimated.
ND Not detected
* Other analytes were analyzed for but were not detected.
** Although 1 to 3 samples were analyzed for the listed analytes per SB or MW, the values presented are the highest levels detected.

TABLE 8

SITE 16
ANALYTICAL RESULTS

SOIL SAMPLES			WATER SAMPLES	
ANALYTE*	SB-01**	MW-01**	ANALYTE*	MW-01**
Volatiles (μg/kg)			**Volatiles (μg/L)**	
Methylene Chloride	78UJ	22UJ	Chloroform	5U
Acetone	22UJ	11U	Pesticides/PCBs	ND
Toluene	6U	14		
Pesticides/PCBs	ND	ND		
TRPH-petroleum oil (mg/kg)	20	6.7	TRPH-petroleum oil (mg/L)	1U

μg/kg Micrograms per kilogram
μg/L Micrograms per liter
mg/kg Milligrams per kilogram
mg/L Milligrams per liter
SB Soil boring
MW Monitoring well
U The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J The associated numerical value is estimated.
UJ The material was analyzed for, but was not detected. The sample quantitation limit is estimated.
ND Not detected
* Other analytes were analyzed for but were not detected.
** Although 1 to 3 samples were analyzed for the listed analytes per SB or MW, the values presented are the highest levels detected.