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From: Wilson, Paul (Omaha) <paul.m.wilson@aecom.com>
Sent: Thursday, January 14, 2016 1:56 PM
To: Acevedo, Gabriel, NMENV
Cc: Sonderman, Michael
Subject: Changes to the Scope of Work at Cannon AFB Site SWMU 73 (SD022)
Attachments: SD022 scope letter.pdf

Gabriel,

This email was completed in response to the issues discussed in the January 12, 2016 conference call between NMED representative Gabriel Acevedo and URS representatives Michael Sonderman and Paul Wilson. The purpose of the call was to discuss the issues identified in the Approval with Modifications letter for the 12 Sites RFI Work Plan dated December 30, 2015. Specifically the sampling issues identified at SWMU 73 (SD022) in Comment number 9 and the identification of thallium as a contaminant of concern at SWMU 6 (SW006) and SWMU 102 (WL102) in Comment number 11. Changes to the approved work plan were discussed and the proposed changes are outlined in the attached memo. As previously discussed, we plan to begin field work based on the approved work plan at the beginning of February 2016. We were hoping to receive approval of the changes proposed in the attached memo to allow for the field work to be completed during the upcoming sampling event. If you have any questions or comments please feel free to call or email at your convenience.

Thanks and have a nice afternoon.

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RE: Revisions to the sampling proposed at SD022 (SWMU 73)
Cannon Air Force Base (AFB), New Mexico

URS Group Inc., as a subcontractor to FPM Remediations, Inc., completed a RCRA Facility Investigation (RFI) work plan for twelve sites at Cannon AFB. This work plan was reviewed and approved by NMED as indicated in the *Approval with Modifications for the RCRA Facility Investigation at Twelve Sites-Revision 1* letter dated December 30, 2015. With the exception of comment numbers 9 and 11, the modifications identified in the approval letter will be addressed by the RFI report completed following the completion of field work. Comment numbers 9 and 11 are addressed in greater detail by this memo.

Comment Number 9 – SD022 (SWMU 73)

Comment number 9 indicated that sediment, surface water, and subsurface sampling would be required at SD022 to determine the nature and extent of the contamination at the site. This determination was based on a review of the approval letter for the previous RCRA Facility Assessment (RFA) work plan and a review of the analytical results presented in the RFA report. In order to determine the potential contaminants of concern (COC) present at the site the results of the RFA were reviewed. A summary of the review is provided in the subsequent paragraphs.

An RFA was completed for SD022 (SWMU 73) in 2013. During the RFA investigation a total of 5 surface soil and 17 subsurface soil samples were collected from five boring locations with total depths ranging from 6 to 25 feet below ground surface (bgs). The analytical results are included in Table 8-1a, Table 8-1b, and Figure 8-1 of the 12 Sites RFI Work Plan and attached to this memo. Soil samples were analyzed for VOCs, SVOCs, total analyte list (TAL) metals, mercury, PCBs, pesticides, explosives, TPH-GRO, TPH-DRO, major anions, and glycols.

The maximum concentrations identified from the soil samples collected were compared to the 2015 NMED Residential SSLs for the respective analytes. A summary of the analytical results from the RFA area as follows:

- **TPH** – TPH-DRO was detected at concentrations ranging from 1.7E+00 to 1.1E+02 mg/kg. TPH-GRO was detected at concentrations ranging from 9.7E-01 to 6.2E+00 mg/kg. All TPH-DRO concentrations were at least one order of magnitude below the residential SSL. TPH-GRO is no longer used to evaluate risk. Rather the individual petroleum constituents identified in Table A-1 of the NMED June 2015 guidance are utilized. VOC and SVOC are discussed in the subsequent bullets.
- **VOCs** – No VOCs were detected in the surface soil samples collected. 2-butanone was detected in one subsurface soil sample from 11-12 feet bgs at SB-03. The 2-butanone concentration was 3.00E-03 mg/kg which is several orders of magnitude below the current 2-butanone residential SSL of 3.74E+03 mg/kg. No VOCs were detected in any of the remaining VOC subsurface soil samples collected.
- **SVOCs** – With the exception of benzo[a]pyrene, SVOCs were detected at concentrations of at least one order of magnitude below their current residential SSL. Benzo[a]pyrene exceeded the residential SSL (1.53E-01 mg/kg) in one surface soil sample with a concentration of 2.10E-01

mg/kg collected from 0-1 feet bgs at SB-05. All remaining benzo[a]pyrene concentrations were below the residential SSL.

- **Metals** – With the exception of arsenic, all metal concentrations were below their respective residential SSLs. Arsenic exceeded the residential SSL (4.25E+00 mg/kg) in surface soil samples from 0-1 feet bgs in SB-01 and SB-02 with concentrations of 4.5E+00 in each of the respective samples. The remaining arsenic surface and subsurface soil sample concentrations ranged from 7.7E-01 to 3.6E+00 mg/kg which are all below the residential SSL.
- **Pesticides** –Pesticide concentrations were detected at concentrations at least one order of magnitude below their current residential SSLs.
- **PCB** – PCBs detected in surface soils were two orders of magnitude below the residential SSL. No PCBs were detected in the subsurface soil samples collected.
- **Explosives** – No explosives were detected in the surface or subsurface soil samples collected.
- **Anions** – Nitrogen/nitrate was detected in surface and subsurface soil concentrations ranging from 9.80E-01 to 1.10E+01 mg/kg. All nitrogen concentrations were at least 5 orders of magnitude below the residential SSL.

Soil samples were collected from the culvert located under the adjoining right-of-way to the storm water retention pond (represented by borings SB-01 to SB-04). One additional boring (SB-05) was completed on the northwest side of the pond. The location and depths of the borings is considered sufficient to represent a preliminary screening to determine the COCs at SD022. The absence of analytical detections and/or the low concentrations of VOCs, pesticides, PCBs, explosives, and anions identified support the conclusion that these analytes do not represent COCs at SD022.

Based on a review of the analytical results from the RFA, URS/FPM feel that COC at SD022 are limited to SVOCs (PAHs) and metals (arsenic). The current residential SSL for arsenic is 4.25E+00 mg/kg. A background study for arsenic is included in the scope of work approved as part of the 12 Sites RFI. URS/FPM proposes evaluating arsenic at SD022 in a similar fashion to those "arsenic sites" included in Section 10 of the work plan. The arsenic concentrations identified in the RFA will be compared to the newly established arsenic background level. If the background exceeds the maximum arsenic concentrations identified at SD022 (4.5E+00 mg/kg), no further sampling will be completed. However, if the arsenic background does not exceed the maximum arsenic concentration identified at SD022, then arsenic will be carried through as a COC in the RFI report. This will include the collection of additional samples to allow for a statistical analysis of arsenic concentrations at the site.

SVOC samples will be collected from the locations designated in the work plan as well as four soil borings, four sediment, and four surface water samples as indicated on the included figure. The soil borings will include surface soil samples as well as subsurface soil samples from 4-5 and 9-10 feet bgs. Based on the historical sampling results, all contamination was identified in the surface soils at SD022. Therefore, soil borings to 10 feet bgs should be sufficient to address any potential concerns regarding contaminant migration.

Comment Number 11 – Thallium at SW006 (SWMU 6) and WL102 (SWMU 102)

Comment number 11 indicated that thallium must be carried through to the risk assessment process based on the exceedances of the residential SSL indicated in historical reports. URS/FPM propose that thallium be added to the background arsenic investigation included in Section 10 of the approved work plan. The revised background concentration for thallium will then be utilized to assess the thallium concentrations identified by historical soil sampling at SW006 and WL102.

TABLE 8-1a
SUMMARY OF 2013 RFA ANALYTICAL DATA
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Number of Samples	Number of Detections	Range of Reporting Limits (mg/kg)	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	NMED[1] Residential SSL (mg/kg)	Background Value[2] (mg/kg)
Surface Soil							
VOCs (EPA 8260B)							
None Detected	--	--	--	--	--	n/a	n/a
SVOCs (low detection limits) (EPA 8270D SIM)							
1-Methyln/aphthalene	5	4	0.0054 - 0.052	3.30E-04	2.20E-02	n/a	n/a
2-Methyln/aphthalene	5	4	0.0054 - 0.052	3.80E-04	2.60E-02	n/a	n/a
Acen/aphthene	5	4	0.0054 - 0.052	4.40E-04	4.00E-02	3.44E+03	n/a
Acen/aphthylene	5	2	0.0054 - 0.052	4.60E-03	6.00E-03	n/a	n/a
Anthracene	5	2	0.0054 - 0.052	9.20E-03	5.30E-02	1.72E+04	n/a
Benzo[a]anthracene	5	3	0.0054 - 0.052	8.20E-03	2.20E-01	1.48E+00	n/a
Benzo[a]pyrene	5	3	0.0054 - 0.052	9.70E-03	**2.10E-01**	1.48E-01	n/a
Benzo[b]fluoranthene	5	3	0.0054 - 0.052	1.60E-02	2.90E-01	1.48E+00	n/a
Benzo[g,h,i]perylene	5	3	0.0054 - 0.052	1.30E-02	2.00E-01	n/a	n/a
Benzo[k]fluoranthene	5	3	0.0054 - 0.052	5.50E-03	1.10E-01	1.48E+01	n/a
Chrysene	5	3	0.0054 - 0.052	1.40E-02	2.70E-01	1.48E+02	n/a
Dibenz(a,h)anthracene	5	1	0.0054 - 0.052	4.60E-02	4.60E-02	1.48E-01	n/a
Fluoranthene	5	3	0.0054 - 0.052	2.00E-02	5.60E-01	2.29E+03	n/a
Fluorene	5	1	0.0054 - 0.052	2.70E-02	2.70E-02	2.29E+03	n/a
Indeno[1,2,3-cd]pyrene	5	3	0.0054 - 0.052	1.00E-02	2.10E-01	1.48E+00	n/a
n/aphthalene	5	1	0.0054 - 0.052	6.40E-03	6.40E-03	4.30E+01	n/a
Phen/anthrene	5	3	0.0054 - 0.052	1.20E-02	2.70E-01	1.83E+03	n/a
Pyrene	5	3	0.0054 - 0.052	1.80E-02	5.20E-01	1.72E+03	n/a
Pesticides (EPA 8081A)							
alpha-Chlordane	5	3	0.0018 - 0.19	7.20E-04	5.70E-02	1.62E+01 [3]	n/a
gamma-Chlordane	5	3	0.0018 - 0.19	4.00E-04	6.00E-02	1.62E+01 [3]	n/a
4,4'-DDD	5	3	0.0018 - 0.37	1.20E-02	4.90E-01	2.03E+01	n/a
4,4'-DDE	5	5	0.0018 - 0.19	4.80E-04	1.70E+00	1.43E+01	n/a
4,4'-DDT	5	4	0.0021 - 0.44	1.10E-03	3.60E+00	1.72E+01	n/a
PCBs (EPA 8082A)							
PCB-1260 (Arochlor 1260)	5	1	0.034 - 0.041	2.400E-02	2.400E-02	2.22E+00	n/a
Explosives (EPA 8330B)							
None Detected	--	--	--	--	--	n/a	n/a
Petroleum Hydrocarbons (EPA 8015C)							
2,2'-Oxybisethanol	5	1	11 - 310	4.20E+00	4.20E+00	n/a	n/a
Gasoline Range Organics [C6-C10]	5	5	4.2 - 5	5.60E+00	1.10E+02	n/a	n/a
Diesel Range Organics [C10-C28]	5	3	1.2 - 1.8	5.30E-01	1.20E+00	n/a	n/a
Metals (EPA 6010C/6020A/7471B)							
Aluminum	5	5	48 - 60	1.30E+04	2.30E+04	7.80E+04	8950
Antimony	5	2	0.2 - 0.22	3.30E-02	1.90E-01	3.13E+01	3.15
Arsenic	5	5	0.49 - 0.56	2.70E+00	**4.50E+00**	3.90E+00	3.6

TABLE 8-1a
SUMMARY OF 2013 RFA ANALYTICAL DATA
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Number of Samples	Number of Detections	Range of Reporting Limits (mg/kg)	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	NMED [1] Residential SSL (mg/kg)	Background Value [2] (mg/kg)
Barium	5	5	0.25 - 0.28	9.50E+01	2.00E+02	1.56E+04	670
Beryllium	5	5	0.099 - 0.11	5.60E-01	1.40E+00	1.56E+02	0.78
Cadmium	5	5	0.099 - 0.11	3.90E-01	9.70E-01	7.03E+01	0.435
Calcium	5	5	95 - 1000	3.40E+03	2.10E+05	n/a	44,800
Chromium	5	5	0.2 - 0.22	1.10E+01	2.20E+01	1.17E+05	10.5
Cobalt	5	5	0.099 - 0.11	3.40E+00	7.20E+00	n/a	6.6
Copper	5	5	2.5 - 2.8	8.90E+00	3.70E+01	3.13E+03	18.3
Iron	5	5	19 - 24	1.00E+04	1.80E+04	5.48E+04	10,100
Lead	5	5	0.099 - 0.11	8.30E+00	4.40E+01	4.00E+02	12
Magnesium	5	5	19 - 24	2.30E+03	3.90E+03	n/a	1930
Manganese	5	5	0.099 - 0.11	2.00E+02	3.70E+02	1.86E+03	307
Mercury	5	5	0.021 - 0.025	1.20E-02	2.60E-02	1.56E+01	0.056
Nickel	5	5	0.35 - 0.39	1.00E+01	1.70E+01	1.56E+03	11
Potassium	5	5	290 - 360	2.60E+03	4.60E+03	n/a	2691
Selenium	5	5	0.49 - 0.56	9.70E-01	2.10E+00	3.91E+02	0.26
Silver	5	5	0.099 - 0.11	3.10E-02	8.10E-02	3.91E+02	0.4
Sodium	5	2	480 - 600	1.70E+02	2.40E+02	n/a	102
Thallium	5	5	0.099 - 0.11	1.70E-01	3.60E-01	7.80E-01	0.6
Van/adium	5	5	0.49 - 0.56	1.80E+01	3.10E+01	3.91E+02	23.3
Zinc	5	5	2.5 - 2.8	2.90E+01	2.00E+02	2.35E+04	32.2
Anions (EPA 9056A)							
Chloride	5	4	32 - 38	7.20E+00	4.70E+01	n/a	n/a
Nitrogen, Nitrate as N	5	5	5.4 - 6.3	9.80E-01	1.10E+01	1.25E+05	n/a
Sulfate	5	5	54 - 63	5.90E+00	1.00E+02	n/a	n/a
Subsurface Soil							
VOCs (EPA 8260B)							
2-butanone (MEK)	15	1	0.02 - 1.6	3.000E-03	3.000E-03	3.71E+04	n/a
SVOCs (low detection limits) (EPA 8270D SIM)							
Benzo[a]anthracene	15	1	0.0049 - 0.0058	1.2000E-03	1.2000E-03	1.48E+00	n/a
Benzo[a]pyrene	15	1	0.0049 - 0.0058	9.0000E-04	9.0000E-04	1.48E-01	n/a
Benzo[b]fluoranthene	15	1	0.0049 - 0.0058	1.6000E-03	1.6000E-03	1.48E+00	n/a
Chrysene	15	1	0.0049 - 0.0058	1.7000E-03	1.7000E-03	1.48E+02	n/a
Fluoranthene	15	2	0.0049 - 0.0058	1.5000E-03	2.7000E-03	2.29E+03	n/a
Phen/anthrene	15	2	0.0049 - 0.0058	1.2000E-03	1.4000E-03	1.83E+03	n/a
Pyrene	15	2	0.0049 - 0.0058	1.3000E-03	2.9000E-03	1.72E+03	n/a
Pesticides (EPA 8081A)							
4,4'-DDE	15	1	0.0016 - 0.002	2.2000E-03	2.2000E-03	1.43E+01	n/a
4,4'-DDT	15	1	0.0019 - 0.0023	3.1000E-03	3.1000E-03	1.72E+01	n/a
PCBs (EPA 8082A)							
None Detected	--	--	--	--	--	n/a	n/a

TABLE 8-1a
SUMMARY OF 2013 RFA ANALYTICAL DATA
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Number of Samples	Number of Detections	Range of Reporting Limits (mg/kg)	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	NMED [1] Residential SSL (mg/kg)	Background Value [2] (mg/kg)
Explosives (EPA 8330B)							
None Detected	--	--	--	--	--	n/a	n/a
Petroleum Hydrocarbons (EPA 8015C)							
2,2'-Oxybisethanol	15	4	10 - 280	7.10E-01	3.70E+00	n/a	n/a
Diesel Range Organics [C10-C28]	15	15	4 - 4.5	1.70E+00	9.60E+00	1,000 [1]	n/a
Gasoline Range Organics [C6-C10]	15	2	1.2 - 2.6	2.50E+00	6.20E+00	See note 4	n/a
Metals (EPA 6010C/6020A/7471B)							
Aluminum	15	15	45 - 55	3.90E+03	2.00E+04	7.80E+04	12,214
Antimony	15	5	0.19 - 0.23	1.40E-02	2.20E-02	3.13E+01	16
Arsenic	15	15	0.46 - 0.57	5.80E-01	3.60E+00	3.90E+00	4.3
Barium	15	15	0.23 - 0.28	2.30E+01	4.60E+02	1.56E+04	890
Beryllium	15	15	0.093 - 0.11	1.20E-01	1.10E+00	1.56E+02	0.73
Cadmium	15	15	0.093 - 0.11	2.90E-02	4.60E-01	7.03E+01	1.3
Calcium	15	15	90 - 110	1.50E+03	1.80E+05	n/a	237498
Chromium	15	15	0.19 - 0.23	2.90E+00	1.80E+01	1.17E+05	13.3
Cobalt	15	15	0.093 - 0.11	1.50E+00	6.80E+00	n/a	4.7
Copper	15	15	2.3 - 2.8	1.60E+00	1.30E+01	3.13E+03	8.3
Iron	15	15	18 - 22	3.20E+03	1.70E+04	5.48E+04	13148
Lead	15	15	0.093 - 0.11	1.60E+00	1.30E+01	4.00E+02	8.7
Magnesium	15	15	18 - 22	9.50E+02	5.80E+03	n/a	19,300
Metals (EPA 6010C/6020A/7471B) [continued]							
Manganese	15	15	0.093 - 0.11	3.90E+01	3.20E+02	1.86E+03	333
Mercury	15	6	0.019 - 0.022	7.10E-03	2.00E-02	1.56E+01	0.019
Nickel	15	15	0.32 - 0.4	4.10E+00	1.50E+01	1.56E+03	14.9
Potassium	15	15	270 - 330	8.30E+02	4.80E+03	n/a	2512
Selenium	15	15	0.46 - 0.57	2.20E-01	1.90E+00	3.91E+02	1.1
Silver	15	9	0.093 - 0.11	2.10E-02	5.30E-02	3.91E+02	2.65
Sodium	15	9	450 - 550	8.30E+01	1.80E+02	n/a	1227
Thallium	15	15	0.093 - 0.11	3.30E-02	2.50E-01	7.80E-01	2.65
Van/adium	15	15	0.46 - 0.57	8.20E+00	2.70E+01	3.91E+02	32.8
Zinc	15	15	2.3 - 2.8	5.80E+00	5.30E+01	2.35E+04	30.6
Anions (EPA 9056A)							
Chloride	15	10	30 - 35	7.40E+00	1.20E+02	n/a	n/a
Nitrogen, Nitrate as N	15	2	5 - 5.8	1.10E+00	1.30E+00	1.25E+05	n/a
Sulfate	15	15	50 - 58	6.50E+00	2.30E+02	n/a	n/a

Notes:

1 Source: NMED 2012a, 2012b

2 Source: Cannon AFB 1997

3 SSLs are not available for alpha- and gamma-chlordane, therefore the SSL for chlordane is presented.

TABLE 8-1a
SUMMARY OF 2013 RFA ANALYTICAL DATA
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Number of Samples	Number of Detections	Range of Reporting Limits (mg/kg)	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	NMED [1] Residential SSL (mg/kg)	Background Value [2] (mg/kg)

[4] Risk-based level not available for GRO. Instead, indivual compounds (benzene, toluene, ethylbenzene, and xylenes) are evaluated for gasoline, which were not detected during the RFA .

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB01 0-1 ft SWMU73SB0100		SB01 5-6 ft SWMU73SB0105		SB02 0-1 ft SWMU73SB0200		SB02 5-6 ft SWMU73SB0205		SB02 11-12 ft SWMU73SB0211		SB02 17-18 ft SWMU73SB0217	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
VOCs (EPA 8260B)													
2-Butanone (MEK)	0.0051 - 0.52	4.90E-01	U	4.60E-01	U	3.40E-01	U	4.90E-01	U	5.20E-01	U	4.80E-01	U
SVOCs (low detection limits) (EPA 8270D SIM)													
1-Methylnaphthalene	0.00026 - 0.0028	2.20E-02		2.70E-04	U	3.30E-04		2.60E-04	U	2.90E-04	U	2.80E-04	U
2-Methylnaphthalene	0.00065 - 0.007	2.60E-02		6.90E-04	U	3.80E-04		6.60E-04	U	7.30E-04	U	7.10E-04	U
Acenaphthene	0.00026 - 0.0028	7.00E-03		2.70E-04	U	4.40E-04		2.60E-04	U	2.90E-04	U	2.80E-04	U
Acenaphthylene	0.00065 - 0.007	6.00E-03		6.90E-04	U	7.40E-04	U	6.60E-04	U	7.30E-04	U	7.10E-04	U
Anthracene	0.0024 - 0.026	9.20E-03		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Benzo[a]anthracene	0.0024 - 0.026	3.00E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Benzo[a]pyrene	0.0024 - 0.026	3.70E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Benzo[b]fluoranthene	0.0024 - 0.026	5.70E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Benzo[g,h,i]perylene	0.0024 - 0.026	6.40E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Benzo[k]fluoranthene	0.0024 - 0.026	1.90E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Chrysene	0.0024 - 0.026	4.70E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Dibenz(a,h)anthracene	0.0024 - 0.026	2.60E-02	U	2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Fluoranthene	0.0024 - 0.026	7.00E-02		2.60E-03	U	5.60E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Fluorene	0.00065 - 0.007	7.00E-03	U	6.90E-04	U	7.40E-04	U	6.60E-04	U	7.30E-04	U	7.10E-04	U
Indeno[1,2,3-cd]pyrene	0.0024 - 0.026	3.50E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Naphthalene	0.00065 - 0.007	1.60E-02	U	6.90E-04	U	7.40E-04	U	6.60E-04	U	7.30E-04	U	7.10E-04	U
Phenanthrene	0.0024 - 0.026	4.60E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Pyrene	0.0024 - 0.026	6.40E-02		2.60E-03	U	2.80E-03	U	2.50E-03	U	2.70E-03	U	2.70E-03	U
Pesticides (EPA 8081A)													
alpha-Chlordane	0.00045 - 0.05	5.00E-02	U	4.80E-04	U	5.40E-04	U	4.90E-04	U	5.00E-04	U	5.00E-04	U
gamma-Chlordane	0.00067 - 0.075	7.50E-02	U	7.10E-04	U	8.10E-04	U	7.40E-04	U	7.40E-04	U	7.50E-04	U
4,4'-DDD	0.00067 - 0.15	2.20E-01		7.10E-04	U	8.10E-04	U	7.40E-04	U	7.40E-04	U	7.50E-04	U
4,4'-DDE	0.00045 - 0.05	1.70E+00		2.20E-03		4.70E-03		4.90E-04	U	5.00E-04	U	5.00E-04	U
4,4'-DDT	0.00067 - 0.15	3.60E+00		3.10E-03		1.10E-03		7.40E-04	U	7.40E-04	U	7.50E-04	U
PCBs (EPA 8082A)													
PCB-1260	0.0097 - 0.012	1.10E-02	U	1.00E-02	U	1.20E-02	U	1.10E-02	U	1.10E-02	U	1.10E-02	U
Explosives (EPA 8330B) — None Detected													
Petroleum Hydrocarbons (EPA 8015C)													
2,2'-Oxybisethanol	2 - 62	2.10E+00	U	2.10E+00	U	4.20E+00		1.50E+00		7.10E-01		2.20E+00	U
Diesel Range Organics [C10-C28]	2 - 2.5	1.10E+02		3.90E+00		8.30E+00		3.40E+00		4.20E+00		3.30E+00	
Gasoline Range Organics [C6-C10]	0.52 - 1.2	5.40E-01		8.00E-01	U	1.20E+00		9.50E-01	U	7.80E-01	U	9.70E-01	U
Pesticides (EPA 8081A)													
alpha-Chlordane	0.00045 - 0.05	5.00E-02	U	4.80E-04	U	5.40E-04	U	4.90E-04	U	5.00E-04	U	5.00E-04	U
gamma-Chlordane	0.00067 - 0.075	7.50E-02	U	7.10E-04	U	8.10E-04	U	7.40E-04	U	7.40E-04	U	7.50E-04	U
4,4'-DDD	0.00067 - 0.15	2.20E-01		7.10E-04	U	8.10E-04	U	7.40E-04	U	7.40E-04	U	7.50E-04	U
4,4'-DDE	0.00045 - 0.05	1.70E+00		2.20E-03		4.70E-03		4.90E-04	U	5.00E-04	U	5.00E-04	U
4,4'-DDT	0.00067 - 0.15	3.60E+00		3.10E-03		1.10E-03		7.40E-04	U	7.40E-04	U	7.50E-04	U
PCBs (EPA 8082A)													
PCB-1260	0.0097 - 0.012	1.10E-02	U	1.00E-02	U	1.20E-02	U	1.10E-02	U	1.10E-02	U	1.10E-02	U

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB01 0-1 ft SWMU73SB0100		SB01 5-6 ft SWMU73SB0105		SB02 0-1 ft SWMU73SB0200		SB02 5-6 ft SWMU73SB0205		SB02 11-12 ft SWMU73SB0211		SB02 17-18 ft SWMU73SB0217	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Metals (EPA 6010C/6020A/7471B)													
Aluminum	2.7 - 3.6	1.30E+04		1.30E+04		2.00E+04		1.70E+04		8.50E+03		6.00E+03	
Calcium	18 - 200	4.00E+04		1.10E+05		3.70E+03		8.30E+03		1.80E+05		1.10E+05	
Iron	4.5 - 6	1.00E+04		9.50E+03		1.50E+04		1.50E+04		5.40E+03		3.80E+03	
Magnesium	4.5 - 6	2.60E+03		2.90E+03		3.10E+03		3.10E+03		5.80E+03		4.60E+03	
Potassium	45 - 60	2.60E+03		2.20E+03		3.70E+03		3.40E+03		1.80E+03		1.20E+03	
Sodium	90 - 120	9.50E+01	U	1.00E+02	U	1.10E+02	U	1.50E+02		1.80E+02		1.50E+02	
Antimony	0.037 - 0.045	1.90E-01	J	3.90E-02	UJ	4.50E-02	UJ	1.40E-02	J	1.40E-02	J	3.70E-02	UJ
Arsenic	0.14 - 0.17	4.50E+00		2.40E+00		4.50E+00		2.80E+00		1.80E+00		1.40E+00	
Barium	0.19 - 0.23	2.00E+02		1.50E+02		1.40E+02		1.60E+02		2.20E+02		5.90E+01	
Beryllium	0.06 - 0.073	5.60E-01	J	5.90E-01	J	9.30E-01	J	1.00E+00	J	3.70E-01	J	2.30E-01	J
Cadmium	0.023 - 0.028	9.70E-01		3.20E-01		3.90E-01		4.60E-01		2.10E-01		9.10E-02	
Chromium	0.16 - 0.2	1.10E+01		1.10E+01		1.70E+01		1.70E+01		6.70E+00		4.60E+00	
Cobalt	0.017 - 0.02	3.40E+00		4.10E+00		6.30E+00		6.80E+00		3.20E+00		1.80E+00	
Copper	0.19 - 0.23	1.20E+01		7.00E+00		1.20E+01		1.30E+01		6.30E+00		2.20E+00	
Lead	0.046 - 0.057	4.40E+01		7.10E+00		1.10E+01		1.30E+01		3.10E+00		2.40E+00	
Manganese	0.083 - 0.1	2.00E+02		2.20E+02		3.70E+02		3.20E+02		1.50E+02		7.90E+01	
Nickel	0.07 - 0.085	1.00E+01		1.00E+01		1.50E+01		1.30E+01		1.00E+01		5.40E+00	
Selenium	0.23 - 0.28	9.70E-01		9.90E-01		1.70E+00		1.90E+00		4.20E-01		2.50E-01	
Silver	0.056 - 0.068	6.70E-02		3.80E-02		6.50E-02		5.30E-02		3.30E-02		5.60E-02	UJ
Thallium	0.0093 - 0.011	3.30E-01		1.90E-01		3.60E-01		2.50E-01		1.40E-01		6.80E-02	
Vanadium	0.093 - 0.11	1.80E+01		1.80E+01		2.40E+01		2.30E+01		1.60E+01		1.10E+01	
Zinc	0.83 - 1	5.20E+01		2.70E+01		4.40E+01		5.30E+01		1.50E+01		8.60E+00	
Mercury	0.015 - 0.02	2.60E-02		7.10E-03		1.20E-02		8.80E-03		2.00E-02		8.20E-03	
Anions (EPA 9056A)													
Chloride	5 - 6.3	1.90E+01		8.40E+01		1.20E+01		7.40E+00		4.70E+01		1.20E+02	
Nitrate as N	1 - 1.3	1.10E+01		1.30E+00		9.80E-01		1.10E+00	U	1.10E+00	U	1.10E+00	U
Nitrite as N	1 - 1.3	1.10E+00	U	1.00E+00	U	1.10E+00	U	1.10E+00	U	1.10E+00	U	1.10E+00	U
Sulfate	5 - 6.3	1.70E+01	J	9.60E+00	J	1.60E+01	J	2.00E+01	J	2.30E+02	J	1.30E+02	J

FD = Field Duplicate
J = Estimate concentration below the method reportning limit
U = Analyte not detected
UJ = Estimated non-detection reported below the method reporting limit

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB02 24-25 ft SWMU73SB0224		SB03 0-1 ft SWMU73SB0300		SB03 5-6 ft SWMU73SB0305		SB03 11-12 ft SWMU73SB0311		SB03 17-18 ft SWMU73SB0317		SB03 24-25 ft SWMU73SB0324	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
VOCs (EPA 8260B)													
2-Butanone (MEK)	0.0051 - 0.52	3.50E-01	U	9.30E-03	U	1.00E-02	U	3.00E-03		8.30E-03	U	6.50E-03	U
SVOCs (low detection limits) (EPA 8270D SIM)													
1-Methylnaphthalene	0.00026 - 0.0028	2.80E-04	U	2.60E-03		2.70E-04	U	2.80E-04	U	2.60E-04	U	2.80E-04	U
2-Methylnaphthalene	0.00065 - 0.007	7.00E-04	U	3.20E-03		6.70E-04	U	6.90E-04	U	6.50E-04	U	7.10E-04	U
Acenaphthene	0.00026 - 0.0028	2.80E-04	U	1.00E-03		2.70E-04	U	2.80E-04	U	2.60E-04	U	2.80E-04	U
Acenaphthylene	0.00065 - 0.007	7.00E-04	U	3.40E-03	U	6.70E-04	U	6.90E-04	U	6.50E-04	U	7.10E-04	U
Anthracene	0.0024 - 0.026	2.60E-03	U	1.30E-02	U	2.50E-03	U	2.60E-03	U	2.40E-03	U	2.60E-03	U
Benzo[a]anthracene	0.0024 - 0.026	2.60E-03	U	8.20E-03		2.50E-03	U	2.60E-03	U	2.40E-03	U	1.20E-03	
Benzo[a]pyrene	0.0024 - 0.026	2.60E-03	U	9.70E-03		2.50E-03	U	2.60E-03	U	2.40E-03	U	9.00E-04	
Benzo[b]fluoranthene	0.0024 - 0.026	2.60E-03	U	1.60E-02		2.50E-03	U	2.60E-03	U	2.40E-03	U	1.60E-03	
Benzo[g,h,i]perylene	0.0024 - 0.026	2.60E-03	U	1.30E-02		2.50E-03	U	2.60E-03	U	2.40E-03	U	2.60E-03	U
Benzo[k]fluoranthene	0.0024 - 0.026	2.60E-03	U	5.50E-03		2.50E-03	U	2.60E-03	U	2.40E-03	U	2.60E-03	U
Chrysene	0.0024 - 0.026	2.60E-03	U	1.40E-02		2.50E-03	U	2.60E-03	U	2.40E-03	U	1.70E-03	
Dibenz(a,h)anthracene	0.0024 - 0.026	2.60E-03	U	1.30E-02	U	2.50E-03	U	2.60E-03	U	2.40E-03	U	2.60E-03	U
Fluoranthene	0.0024 - 0.026	2.60E-03	U	2.00E-02		2.50E-03	U	2.60E-03	U	2.40E-03	U	2.70E-03	
Fluorene	0.00065 - 0.007	7.00E-04	U	3.40E-03	U	6.70E-04	U	6.90E-04	U	6.50E-04	U	7.10E-04	U
Indeno[1,2,3-cd]pyrene	0.0024 - 0.026	2.60E-03	U	1.00E-02		2.50E-03	U	2.60E-03	U	2.40E-03	U	2.60E-03	U
Naphthalene	0.00065 - 0.007	7.00E-04	U	3.40E-03	U	6.70E-04	U	6.90E-04	U	6.50E-04	U	7.10E-04	U
Phenanthrene	0.0024 - 0.026	2.60E-03	U	1.20E-02		2.50E-03	U	2.60E-03	U	2.40E-03	U	2.60E-03	U
Pyrene	0.0024 - 0.026	2.60E-03	U	1.80E-02		2.50E-03	U	2.60E-03	U	2.40E-03	U	2.90E-03	
Pesticides (EPA 8081A)													
alpha-Chlordane	0.00045 - 0.05	4.80E-04	U	1.50E-02	J	4.50E-04	U	4.50E-04	U	4.80E-04	U	4.70E-04	U
gamma-Chlordane	0.00067 - 0.075	7.20E-04	U	1.20E-02	J	6.70E-04	U	6.70E-04	U	7.20E-04	U	7.00E-04	U
4,4'-DDD	0.00067 - 0.15	7.20E-04	U	1.20E-02	J	6.70E-04	U	6.70E-04	U	7.20E-04	U	7.00E-04	U
4,4'-DDE	0.00045 - 0.05	4.80E-04	U	3.00E-02	J	4.50E-04	U	4.50E-04	U	4.80E-04	U	4.70E-04	U
4,4'-DDT	0.00067 - 0.15	7.20E-04	U	0.024 J	J	6.70E-04	U	6.70E-04	U	7.20E-04	U	7.00E-04	U
PCBs (EPA 8082A)													
PCB-1260	0.0097 - 0.012	1.00E-02	U	2.40E-02		9.80E-03	U	9.70E-03	U	1.00E-02	U	1.00E-02	U
Explosives (EPA 8330B) — None Detected													
Petroleum Hydrocarbons (EPA 8015C)													
2,2'-Oxybisethanol	2 - 62	2.10E+00	U	2.20E+00	U	2.00E+00	U	3.70E+00	U	2.10E+00	U	2.10E+00	U
Diesel Range Organics [C10-C28]	2 - 2.5	3.40E+00		4.40E+01		2.80E+00		4.90E+00		9.60E+00		2.70E+00	
Gasoline Range Organics [C6-C10]	0.52 - 1.2	5.70E-01	U	5.30E-01		6.20E+00	J	7.60E-01	U	7.40E-01	U	5.80E-01	U
Pesticides (EPA 8081A)													
alpha-Chlordane	0.00045 - 0.05	4.80E-04	U	1.50E-02	J	4.50E-04	U	4.50E-04	U	4.80E-04	U	4.70E-04	U
gamma-Chlordane	0.00067 - 0.075	7.20E-04	U	1.20E-02	J	6.70E-04	U	6.70E-04	U	7.20E-04	U	7.00E-04	U
4,4'-DDD	0.00067 - 0.15	7.20E-04	U	1.20E-02	J	6.70E-04	U	6.70E-04	U	7.20E-04	U	7.00E-04	U
4,4'-DDE	0.00045 - 0.05	4.80E-04	U	3.00E-02	J	4.50E-04	U	4.50E-04	U	4.80E-04	U	4.70E-04	U
4,4'-DDT	0.00067 - 0.15	7.20E-04	U	2.40E-02	J	6.70E-04	U	6.70E-04	U	7.20E-04	U	7.00E-04	U
PCBs (EPA 8082A)													
PCB-1260	0.0097 - 0.012	1.00E-02	U	2.40E-02		9.80E-03	U	9.70E-03	U	1.00E-02	U	1.00E-02	U

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB02 24-25 ft SWMU73SB0224		SB03 0-1 ft SWMU73SB0300		SB03 5-6 ft SWMU73SB0305		SB03 11-12 ft SWMU73SB0311		SB03 17-18 ft SWMU73SB0317		SB03 24-25 ft SWMU73SB0324	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Metals (EPA 6010C/6020A/7471B)													
Aluminum	2.7 - 3.6	3.90E+03		1.50E+04		1.00E+04		1.20E+04		7.20E+03		1.20E+04	
Calcium	18 - 200	8.20E+04		4.10E+03		5.20E+03		1.50E+05		1.50E+05		4.70E+03	
Iron	4.5 - 6	3.20E+03		1.20E+04		9.70E+03		7.80E+03		4.20E+03		8.00E+03	
Magnesium	4.5 - 6	2.80E+03		2.30E+03		1.80E+03		4.20E+03		4.10E+03		4.10E+03	
Potassium	45 - 60	8.30E+02		2.70E+03		2.20E+03		2.50E+03		1.50E+03		2.80E+03	
Sodium	90 - 120	8.70E+01		1.00E+02	U	1.00E+02	U	1.40E+02		1.20E+02		1.50E+02	
Antimony	0.037 - 0.045	4.00E-02	UJ	4.00E-02	UJ	3.90E-02	UJ	4.10E-02	UJ	3.80E-02	UJ	3.80E-02	UJ
Arsenic	0.14 - 0.17	1.30E+00		3.30E+00		3.60E+00		1.10E+00		1.30E+00		5.80E-01	
Barium	0.19 - 0.23	7.20E+01		9.50E+01		1.20E+02		9.00E+01		4.60E+02		1.20E+02	
Beryllium	0.06 - 0.073	1.20E-01	J	6.80E-01		5.20E-01		4.80E-01		4.10E-01		4.90E-01	
Cadmium	0.023 - 0.028	8.40E-02		6.30E-01		2.30E-01		2.20E-01		1.60E-01		2.90E-02	
Chromium	0.16 - 0.2	2.90E+00		1.30E+01		9.00E+00		9.60E+00		7.80E+00		6.60E+00	
Cobalt	0.017 - 0.02	1.50E+00		4.20E+00		4.10E+00		3.00E+00		2.00E+00		2.10E+00	
Copper	0.19 - 0.23	1.60E+00		1.10E+01		7.90E+00		6.00E+00		4.70E+00		3.80E+00	
Lead	0.046 - 0.057	1.60E+00		2.10E+01		9.00E+00		4.20E+00		3.00E+00		4.80E+00	
Manganese	0.083 - 0.1	1.50E+02		2.10E+02	J	2.40E+02	J	1.30E+02	J	1.70E+02	J	5.60E+01	J
Nickel	0.07 - 0.085	5.30E+00		1.00E+01		6.80E+00		8.80E+00		6.40E+00		7.30E+00	
Selenium	0.23 - 0.28	2.20E-01		1.10E+00		1.10E+00		5.00E-01		4.30E-01		3.00E-01	
Silver	0.056 - 0.068	6.00E-02	U	5.60E-02		4.00E-02		2.90E-02		2.10E-02		5.70E-02	U
Thallium	0.0093 - 0.011	3.30E-02		1.70E-01		1.70E-01		1.60E-01		9.50E-02		8.00E-02	
Vanadium	0.093 - 0.11	9.90E+00		1.90E+01	J	1.70E+01	J	1.40E+01	J	1.50E+01	J	8.80E+00	J
Zinc	0.83 - 1	5.80E+00		2.00E+02		2.40E+01		1.80E+01		1.40E+01		1.20E+01	
Mercury	0.015 - 0.02	1.60E-02	U	2.10E-02		1.70E-02	U	9.30E-03		7.30E-03		1.60E-02	U
Anions (EPA 9056A)													
Chloride	5 - 6.3	3.40E+01		7.20E+00		1.60E+01		1.20E+01		1.50E+01		3.20E+01	
Nitrate as N	1 - 1.3	1.00E+00	U	1.70E+00		1.00E+00	U	1.00E+00	U	1.00E+00	U	1.10E+00	U
Nitrite as N	1 - 1.3	1.00E+00	U	1.10E+00	U	1.00E+00	U	1.00E+00	U	1.00E+00	U	1.10E+00	U
Sulfate	5 - 6.3	9.40E+01	J	5.90E+00	J	1.30E+01	J	2.50E+01	J	5.40E+01	J	9.60E+01	J

FD = Field Duplicate
J = Estimate concentration below the method reportning limit
U = Analyte not detected
UJ = Estimated non-detection reported below the method reporting limit

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB04 0-1 ft SWMU73SB0400		SB04 5-6 ft SWMU73SB0405		SB04 5-6 ft (FD) SWMU73SB0405D		SB04 11-12 ft SWMU73SB0411		SB05 0-1 ft SWMU73SB0500		SB05 5-6 ft SWMU73SB0505	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
VOCs (EPA 8260B)													
2-Butanone (MEK)	0.0051 - 0.52	9.50E-03	U	6.80E-03	U	6.60E-03	U	7.80E-03	U	7.70E-03	U	7.80E-03	U
SVOCs (low detection limits) (EPA 8270D SIM)													
1-Methylnaphthalene	0.00026 - 0.0028	2.90E-04	U	3.10E-04	U	3.10E-04	U	2.90E-04	U	4.60E-03		2.80E-04	U
2-Methylnaphthalene	0.00065 - 0.007	7.30E-04	U	7.70E-04	U	7.60E-04	U	7.30E-04	U	4.70E-03		7.00E-04	U
Acenaphthene	0.00026 - 0.0028	2.90E-04	U	3.10E-04	U	3.10E-04	U	2.90E-04	U	4.00E-02		2.80E-04	U
Acenaphthylene	0.00065 - 0.007	7.30E-04	U	7.70E-04	U	7.60E-04	U	7.30E-04	U	4.60E-03		7.00E-04	U
Anthracene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	5.30E-02		2.60E-03	U
Benzo[a]anthracene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	2.20E-01		2.60E-03	U
Benzo[a]pyrene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	2.10E-01		2.60E-03	U
Benzo[b]fluoranthene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	2.90E-01		2.60E-03	U
Benzo[g,h,i]perylene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	2.00E-01		2.60E-03	U
Benzo[k]fluoranthene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	1.10E-01		2.60E-03	U
Chrysene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	2.70E-01		2.60E-03	U
Dibenz(a,h)anthracene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	4.60E-02		2.60E-03	U
Fluoranthene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	1.50E-03		5.60E-01		2.60E-03	U
Fluorene	0.00065 - 0.007	7.30E-04	U	7.70E-04	U	7.60E-04	U	7.30E-04	U	2.70E-02		7.00E-04	U
Indeno[1,2,3-cd]pyrene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	2.70E-03	U	2.10E-01		2.60E-03	U
Naphthalene	0.00065 - 0.007	7.30E-04	U	7.70E-04	U	7.60E-04	U	7.30E-04	U	6.40E-03		7.00E-04	U
Phenanthrene	0.0024 - 0.026	2.70E-03	U	1.40E-03		2.90E-03	U	1.20E-03		2.70E-01		2.60E-03	U
Pyrene	0.0024 - 0.026	2.70E-03	U	2.90E-03	U	2.90E-03	U	1.30E-03		5.20E-01		2.60E-03	U
Pesticides (EPA 8081A)													
alpha-Chlordane	0.00045 - 0.05	7.20E-04	J	5.30E-04	UJ	5.10E-04	UJ	4.90E-04	UJ	5.70E-02		4.60E-04	UJ
gamma-Chlordane	0.00067 - 0.075	4.00E-04	J	7.90E-04	UJ	7.60E-04	UJ	7.40E-04	UJ	6.00E-02		6.90E-04	UJ
4,4'-DDD	0.00067 - 0.15	7.30E-04	UJ	7.90E-04	UJ	7.60E-04	UJ	7.40E-04	UJ	4.90E-01		6.90E-04	UJ
4,4'-DDE	0.00045 - 0.05	4.80E-04		5.30E-04	U	5.10E-04	U	4.90E-04	U	1.80E-01		4.60E-04	U
4,4'-DDT	0.00067 - 0.15	7.30E-04	U	7.90E-04	U	7.60E-04	U	7.40E-04	U	1.60E-02		6.90E-04	U
PCBs (EPA 8082A)													
PCB-1260	0.0097 - 0.012	1.10E-02	U	1.10E-02	U	1.10E-02	U	1.10E-02	U	1.20E-02	U	1.00E-02	U
Explosives (EPA 8330B) — None Detected													
Petroleum Hydrocarbons (EPA 8015C)													
2,2'-Oxybisethanol	2 - 62	2.30E+00	U	2.30E+00	U	2.20E+00	U	2.20E+00	U	6.20E+01	UJ	2.10E+00	U
Diesel Range Organics [C10-C28]	2 - 2.5	5.60E+00		2.50E+00		3.50E+00		4.30E+00		3.90E+01		3.40E+00	
Gasoline Range Organics [C6-C10]	0.52 - 1.2	7.30E-01	U	6.70E-01	U	5.40E-01	U	5.20E-01	U	5.60E-01	U	5.20E-01	U
Pesticides (EPA 8081A)													
alpha-Chlordane	0.00045 - 0.05	7.20E-04	J	5.30E-04	UJ	5.10E-04	UJ	4.90E-04	UJ	5.70E-02		4.60E-04	UJ
gamma-Chlordane	0.00067 - 0.075	4.00E-04	J	7.90E-04	UJ	7.60E-04	UJ	7.40E-04	UJ	6.00E-02		6.90E-04	UJ
4,4'-DDD	0.00067 - 0.15	7.30E-04	UJ	7.90E-04	UJ	7.60E-04	UJ	7.40E-04	UJ	4.90E-01		6.90E-04	UJ
4,4'-DDE	0.00045 - 0.05	4.80E-04		5.30E-04	U	5.10E-04	U	4.90E-04	U	1.80E-01		4.60E-04	U
4,4'-DDT	0.00067 - 0.15	7.30E-04	U	7.90E-04	U	7.60E-04	U	7.40E-04	U	1.60E-02		6.90E-04	U
PCBs (EPA 8082A)													
PCB-1260	0.0097 - 0.012	1.10E-02	U	1.10E-02	U	1.10E-02	U	1.10E-02	U	1.20E-02	U	1.00E-02	U

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB04 0-1 ft SWMU73SB0400		SB04 5-6 ft SWMU73SB0405		SB04 5-6 ft (FD) SWMU73SB0405D		SB04 11-12 ft SWMU73SB0411		SB05 0-1 ft SWMU73SB0500		SB05 5-6 ft SWMU73SB0505	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
Metals (EPA 6010C/6020A/7471B)													
Aluminum	2.7 - 3.6	1.50E+04		2.00E+04		2.10E+04		1.20E+04		2.30E+04		8.30E+03	
Calcium	18 - 200	2.10E+05		9.50E+03	J	1.30E+04	J	1.40E+04		3.40E+03		1.80E+03	
Iron	4.5 - 6	1.00E+04		1.70E+04		1.70E+04		8.40E+03		1.80E+04		1.00E+04	
Magnesium	4.5 - 6	3.90E+03		4.30E+03		4.40E+03		3.10E+03		3.90E+03		1.40E+03	
Potassium	45 - 60	3.00E+03		4.80E+03		4.90E+03		2.50E+03		4.60E+03		1.90E+03	
Sodium	90 - 120	1.70E+02		1.00E+02		9.80E+01		8.30E+01		2.40E+02		9.20E+01	U
Antimony	0.037 - 0.045	4.20E-02	UJ	2.20E-02	J	4.60E-02	UJ	4.10E-02	UJ	4.40E-02	UJ	4.20E-02	UJ
Arsenic	0.14 - 0.17	2.70E+00		2.30E+00		2.50E+00		2.10E+00		3.10E+00		1.90E+00	
Barium	0.19 - 0.23	1.80E+02		1.10E+02	J	1.70E+02	J	5.20E+01		1.50E+02		6.80E+01	
Beryllium	0.06 - 0.073	7.90E-01		1.10E+00		1.30E+00		8.90E-01		1.40E+00		5.20E-01	
Cadmium	0.023 - 0.028	4.30E-01		2.10E-01		3.50E-01		2.20E-01		5.00E-01		1.90E-01	
Chromium	0.16 - 0.2	1.20E+01		1.80E+01		2.00E+01		9.60E+00		2.20E+01		9.20E+00	
Cobalt	0.017 - 0.02	5.20E+00		6.00E+00		7.10E+00		3.30E+00		7.20E+00		2.60E+00	
Copper	0.19 - 0.23	8.90E+00		1.10E+01		1.20E+01		6.90E+00		3.70E+01		6.30E+00	
Lead	0.046 - 0.057	8.30E+00		1.20E+01		1.30E+01		7.80E+00		3.20E+01		5.70E+00	
Manganese	0.083 - 0.1	3.40E+02		1.30E+02		1.40E+02		9.70E+01		2.30E+02		1.80E+02	
Nickel	0.07 - 0.085	1.30E+01		1.40E+01		1.60E+01		8.90E+00		1.70E+01		6.90E+00	
Selenium	0.23 - 0.28	9.70E-01		1.30E+00		1.50E+00		9.70E-01		2.10E+00		8.10E-01	
Silver	0.056 - 0.068	3.10E-02		2.90E-02		2.70E-02		2.80E-02		8.10E-02		3.10E-02	
Thallium	0.0093 - 0.011	2.30E-01		2.50E-01		2.70E-01		1.60E-01		3.00E-01		1.20E-01	
Vanadium	0.093 - 0.11	2.60E+01		2.70E+01		3.00E+01		1.60E+01		3.10E+01		1.20E+01	
Zinc	0.83 - 1	2.90E+01		4.80E+01		5.30E+01		2.50E+01		6.90E+01		2.90E+01	
Mercury	0.015 - 0.02	1.20E-02		1.70E-02	U	1.70E-02	U	1.50E-02	U	1.20E-02		0.015 U	U
Anions (EPA 9056A)													
Chloride	5 - 6.3	1.70E+01	U	1.80E+01	U	2.00E+01	U	1.70E+01	U	4.70E+01		3.10E+01	
Nitrate as N	1 - 1.3	1.40E+00		1.10E+00		1.20E+00		1.10E+00	U	8.80E+00		1.10E+00	U
Nitrite as N	1 - 1.3	1.10E+00	U	1.20E+00	U	1.20E+00	U	1.10E+00	U	1.30E+00	U	1.10E+00	U
Sulfate	5 - 6.3	6.00E+01		3.30E+01		4.10E+01		3.20E+01		1.00E+02		2.90E+01	

FD = Field Duplicate
J = Estimate concentration below the method reportning limit
U = Analyte not detected
UJ = Estimated non-detection reported below the method reporting limit

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB05 11-12 ft SWMU73SB0511		SB05 11-12 ft (FD) SWMU73SB0511D		SB05 17-18 ft SWMU73SB0517		SB05 24-25 ft SWMU73SB0524	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual
VOCs (EPA 8260B)									
2-Butanone (MEK)	0.0051 - 0.52	6.60E-03	U	8.20E-03	U	8.00E-03	U	7.20E-03	U
SVOCs (low detection limits) (EPA 8270D SIM)									
1-Methylnaphthalene	0.00026 - 0.0028	2.70E-04	U	2.60E-04	U	2.80E-04	U	2.80E-04	U
2-Methylnaphthalene	0.00065 - 0.007	6.60E-04	U	6.60E-04	U	7.10E-04	U	7.00E-04	U
Acenaphthene	0.00026 - 0.0028	2.70E-04	U	2.60E-04	U	2.80E-04	U	2.80E-04	U
Acenaphthylene	0.00065 - 0.007	6.60E-04	U	6.60E-04	U	7.10E-04	U	7.00E-04	U
Anthracene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Benzo[a]anthracene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Benzo[a]pyrene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Benzo[b]fluoranthene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Benzo[g,h,i]perylene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Benzo[k]fluoranthene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Chrysene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Dibenz(a,h)anthracene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Fluoranthene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Fluorene	0.00065 - 0.007	6.60E-04	U	6.60E-04	U	7.10E-04	U	7.00E-04	U
Indeno[1,2,3-cd]pyrene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Naphthalene	0.00065 - 0.007	6.60E-04	U	6.60E-04	U	7.10E-04	U	7.00E-04	U
Phenanthrene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Pyrene	0.0024 - 0.026	2.50E-03	U	2.50E-03	U	2.70E-03	U	2.60E-03	U
Pesticides (EPA 8081A)									
alpha-Chlordane	0.00045 - 0.05	4.80E-04	UJ	4.80E-04	UJ	4.80E-04	UJ	5.10E-04	UJ
gamma-Chlordane	0.00067 - 0.075	7.20E-04	UJ	7.20E-04	UJ	7.20E-04	UJ	7.70E-04	UJ
4,4'-DDD	0.00067 - 0.15	7.20E-04	UJ	7.20E-04	UJ	7.20E-04	UJ	7.70E-04	UJ
4,4'-DDE	0.00045 - 0.05	4.80E-04	U	4.80E-04	U	4.80E-04	U	5.10E-04	U
4,4'-DDT	0.00067 - 0.15	7.20E-04	U	7.20E-04	U	7.20E-04	U	7.70E-04	U
PCBs (EPA 8082A)									
PCB-1260	0.0097 - 0.012	1.00E-02	U	1.00E-02	U	1.00E-02	U	1.10E-02	U
Explosives (EPA 8330B) — None Detected									
Petroleum Hydrocarbons (EPA 8015C)									
2,2'-Oxybisethanol	2 - 62	5.10E+01	UJ	5.10E+01	UJ	5.50E+01	UJ	5.50E+01	UJ
Diesel Range Organics [C10-C28]	2 - 2.5	1.70E+00		1.90E+00		2.80E+00		2.40E+00	
Gasoline Range Organics [C6-C10]	0.52 - 1.2	6.20E-01	U	6.10E-01	U	2.50E+00		6.10E-01	U
Pesticides (EPA 8081A)									
alpha-Chlordane	0.00045 - 0.05	4.80E-04	UJ	4.80E-04	UJ	4.80E-04	UJ	5.10E-04	UJ
gamma-Chlordane	0.00067 - 0.075	7.20E-04	UJ	7.20E-04	UJ	7.20E-04	UJ	7.70E-04	UJ
4,4'-DDD	0.00067 - 0.15	7.20E-04	UJ	7.20E-04	UJ	7.20E-04	UJ	7.70E-04	UJ
4,4'-DDE	0.00045 - 0.05	4.80E-04	U	4.80E-04	U	4.80E-04	U	5.10E-04	U
4,4'-DDT	0.00067 - 0.15	7.20E-04	U	7.20E-04	U	7.20E-04	U	7.70E-04	U
PCBs (EPA 8082A)									
PCB-1260	0.0097 - 0.012	1.00E-02	U	1.00E-02	U	1.00E-02	U	1.10E-02	U

TABLE 8-1b
ANALYTICAL RESULTS FOR 2013 RFA SOIL SAMPLES
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Analyte	Range of Reporting Limits (mg/kg)	SB05 11-12 ft SWMU73SB0511		SB05 11-12 ft (FD) SWMU73SB0511D		SB05 17-18 ft SWMU73SB0517		SB05 24-25 ft SWMU73SB0524	
		Results	Qual	Results	Qual	Results	Qual	Results	Qual
Metals (EPA 6010C/6020A/7471B)									
Aluminum	2.7 - 3.6	5.30E+03		5.40E+03		8.50E+03		1.20E+04	
Calcium	18 - 200	1.50E+03		1.20E+03		1.70E+03		4.00E+03	
Iron	4.5 - 6	4.50E+03		4.70E+03		8.60E+03		8.80E+03	
Magnesium	4.5 - 6	9.50E+02		1.00E+03		1.50E+03		2.70E+03	
Potassium	45 - 60	1.20E+03		1.20E+03		1.90E+03		2.30E+03	
Sodium	90 - 120	9.80E+01	U	9.00E+01	U	9.40E+01	U	9.80E+01	U
Antimony	0.037 - 0.045	3.90E-02	UJ	3.90E-02	UJ	3.90E-02	UJ	4.30E-02	UJ
Arsenic	0.14 - 0.17	7.70E-01		6.30E-01		2.00E+00		2.60E+00	
Barium	0.19 - 0.23	2.30E+01		2.10E+01		4.70E+01		3.80E+01	
Beryllium	0.06 - 0.073	3.40E-01		2.60E-01		5.90E-01		6.50E-01	
Cadmium	0.023 - 0.028	8.30E-02		9.60E-02		1.40E-01		1.70E-01	
Chromium	0.16 - 0.2	5.50E+00		4.30E+00		8.10E+00		9.70E+00	
Cobalt	0.017 - 0.02	1.50E+00		1.40E+00		3.60E+00		3.70E+00	
Copper	0.19 - 0.23	3.10E+00		2.60E+00		7.10E+00		9.60E+00	
Lead	0.046 - 0.057	3.70E+00		3.20E+00		6.30E+00		5.30E+00	
Manganese	0.083 - 0.1	3.90E+01		3.00E+01		7.90E+01		2.00E+02	
Nickel	0.07 - 0.085	4.10E+00		3.20E+00		8.60E+00		1.50E+01	
Selenium	0.23 - 0.28	6.10E-01		5.00E-01		9.70E-01		5.90E-01	
Silver	0.056 - 0.068	5.80E-02	U	5.90E-02	U	5.80E-02	U	6.50E-02	U
Thallium	0.0093 - 0.011	7.60E-02		5.80E-02		1.20E-01		1.50E-01	
Vanadium	0.093 - 0.11	8.20E+00		6.30E+00		1.60E+01		1.70E+01	
Zinc	0.83 - 1	1.20E+01		1.00E+01		2.10E+01		2.20E+01	
Mercury	0.015 - 0.02	1.50E-02	U	1.50E-02	U	1.60E-02	U	1.60E-02	U
Anions (EPA 9056A)									
Chloride	5 - 6.3	8.90E+00	U	1.00E+01	U	1.30E+01	U	1.10E+01	U
Nitrate as N	1 - 1.3	1.00E+00	U	1.00E+00	U	1.10E+00	U	1.10E+00	U
Nitrite as N	1 - 1.3	1.00E+00	U	1.00E+00	U	1.10E+00	U	1.10E+00	U
Sulfate	5 - 6.3	7.70E+00		9.30E+00		1.80E+01		6.50E+00	

FD = Field Duplicate
J = Estimate concentration below the method reportning limit
U = Analyte not detected
UJ = Estimated non-detection reported below the method reporting limit

TABLE 8-2
SUMMARY OF PLANNED SAMPLING LOCATIONS AND ANALYTICAL PARAMETERS
STORM WATER DRAINAGE AND RETENTION POND (SD022)
CANNON AFB, NEW MEXICO

Sample Location Identification	Approximate Sample Depth Interval (feet bgs)	Analytical Parameters			Technical Rationale
		Site-Related SVOCs[2]	Field Duplicate Samples[3]	MS/MSD Samples[4]	
CA022-SS13	0-0.5	X	X		Samples will be collected to delineate PAH-containing soils identified in the surface soils during the SI.
CA022-SS14	0-0.5	X		X	
CA022-SS15	0-0.5	X			
	Totals	**3**	**1**	**1**	

Notes:

[1]Metals analysis via USEPA Method 6020A

[2]SVOCs analysis via USEPA Method 8270D

[3]Field duplicate samples will be collected at a rate of 10% (1 per 10 samples collected) for laboratory analysis.

[4]MS/MSD samples will be collected at a rate of 10% (1 per 10 samples collected) for laboratory analysis.

bgs = below ground surface

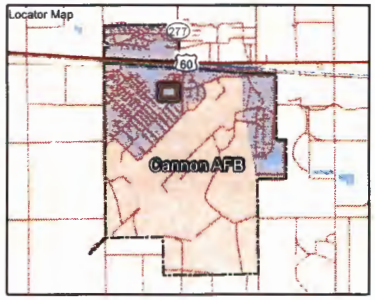
MS/MSD = matrix spike/matrix spike duplicate

RCRA = Resource Conservation and Recovery Act

SVOC = semivolatile organic compound

USEPA = United States Environmental Protection Agency

X = Sample will be collected



Legend

- Previous Soil Sample Location (Tetra Tech)
- Site Boundary
- Base Boundary

Map projection: NAD83 State Plane Feet New Mexico East (FIPS 3001)

N

100 50 0 100 Feet

Site Map with Previous Investigation Locations at SD022
Cannon Air Force Base,
New Mexico

Drawn By: DPG	Date: 3/11/2014	Project No: 23446539	Figure 8-1
Checked By: MS	Revision: 0		

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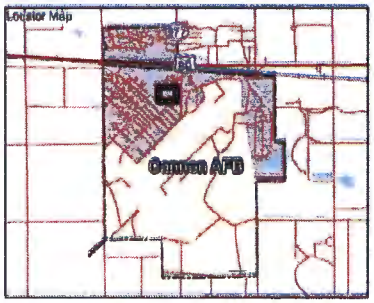

Legend

- Planned Soil Sample Location
- Previous Soil Sample Location
- Site Boundary
- Base Boundary
- PAH's Exceeding SSL

• Approximate sample locations
Soil = surface and subsurface soil sample location
SD = Sediment sample location
SW = Surface water sample location

Map projection: NAD83 State Plane Feet New Mexico East (FIPS 3001)

100 50 0 100 Feet

Planned Soil Sampling Locations at SD022
Cannon Air Force Base, New Mexico

Drawn By: bpg	Date: 9/11/2014	Project No: 23448539	Figure 8-2
Checked By: MS	Revision: 0		

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