KAFB06

DEPARTMENT OF THE AIR FORCE
377th Civil Engineer Squadron (AFMC)
OVERNIGHT DELIVERY

26 Sep 06

MEMORANDUM FOR MR. JOHN KIELING, MANAGER
RCRA PERMITS MANAGEMENT PROGRAM
HAZARDOUS WASTE BUREAU (HWB)
NEW MEXICO ENVIRONMENT DEPARTMENT (NMED)
2905 RODEO DRIVE EAST, BLDG 1
SANTA FE NM 87505-6303

RECEIVED
SEP 2006
NMED Hazardous Waste Bureau

FROM: 377 MSG/CEVR
2050 Wyoming Blvd SE, Suite 118
Kirtland AFB NM 87117-5270

SUBJECT: April 12, 2006 Notice of Deficiency (NOD): Environmental Restoration Program *Resource Conservation and Recovery Act* (RCRA) Facility Investigation (RFI) Report Solid Waste Management Unit (SWMU) ST-70 (Formerly ST-219), November 23, 2005, Kirtland Air Force Base (KAFB), New Mexico

1. The Environmental Management Branch (EM) at KAFB has received the subject NOD requesting additional soil vapor and groundwater delineation activities at SWMU ST-70 (Former ST-219). The NOD also indicates New Mexico Environment Department's (NMED's) concurrence that remediation will be required at the subject SWMU as recommended in the subject RFI report. KAFB is submitting this memo in response to the subject NOD.

2. On 11 August 2006, a meeting was held between KAFB and Mr. Bill McDonald of your staff to discuss KAFB's proposed response to the NOD. KAFB proposed installation of a Soil Vapor Extraction (SVE) system as an Interim Measure (IM). The IM would be implemented in lieu of the Corrective Measure Study (CMS) required by NMED in the NOD. Information from an SVE pilot study presented in the RFI report demonstrated that SVE was an effective technology for this site and further evaluation of a remedial technology in a CMS is not necessary. KAFB is proposing implementation of the IM prior to conducting the additional investigation requested in the NOD, to determine if further investigation is necessary to delineate the soil vapor and groundwater contamination. Mr. McDonald requested that KAFB submit a response to the NOD that presents a brief conceptual discussion of the proposed IM and SVE system explaining both why SVE is an appropriate remedial technology for this site and how implementation of the IM will provide information supporting KAFB's request to defer the additional investigation required in the NOD.

3. This response summarizes certain information presented in the original November 2005 RFI report, further describes the proposed SVE, and presents information regarding implementation of the IM to address NMED's requested additional characterization activities at the site.

4. Based on the investigations that had been conducted at the site, the November 2005 RFI report (USAF, 2005) presented a series of conclusions regarding the delineation of impacts to soil, soil vapor, and groundwater at the site. These conclusions are presented in the bulleted list below and are discussed in their entirety in the original November 2005 RFI report. Figure 1 (Atch 1) is a basic site map of the SWMU ST-70 (Former ST-219) area.

- Petroleum hydrocarbons have been identified in subsurface soil in excess of the NMED soil screening guidelines to depths greater than 100 feet (ft) below ground surface (bgs) in some locations. The lateral extent of petroleum hydrocarbon concentrations in soil in excess of the NMED soil screening guidelines is generally limited to the area between Buildings 481 and 482, around the former oil/water separator (OWS), and extending approximately 200 ft south-southeast from the former OWS location towards the area drain.

- Petroleum hydrocarbons have been identified in subsurface soil vapor throughout the site from essentially the ground surface to the depth of the regional water table. The horizontal extent of petroleum hydrocarbons in soil vapor related to the Former ST-219 site appears to be generally limited to within the area between Buildings 481 and 482 and the area beneath the buildings. The passive soil survey results suggest a decreasing petroleum hydrocarbon concentration gradient moving away from this area in most directions.

- Chlorinated solvents (primarily tetrachloroethene [PCE] and trichloroethene [TCE]) have been identified in subsurface soil in excess of the NMED residential soil screening levels (SSLs) to depths of 44 ft bgs (ST-219-09) and at maximum concentrations of 7,200 milligrams per kilogram (mg/kg) and 120 mg/kg for PCE and TCE, respectively. Chlorinated solvents in soil were limited to an area within approximately 20 ft of the former OWS.

- Chlorinated solvents have been identified in subsurface soil vapor from essentially the ground surface to depths down to the regional water table. Sampling of the available onsite soil vapor monitoring wells in the area between Buildings 481 and 482 indicate that chlorinated solvents occur in the soil vapor throughout this area. The site conceptual model proposes that the vapor-phase chlorinated solvents in contact with groundwater beneath the site provides the mechanism for low-level groundwater contamination by the chlorinated solvent TCE.

  The lateral extent of chlorinated solvents in soil vapor at the Former ST-219 OWS site has been found to extend at least as far as Buildings 481 and 482, based on sampling of onsite vapor monitoring wells. However, results from the passive soil vapor survey that was conducted indicated that subsurface vapor-phase chlorinated solvents did not appear to extend significantly beyond either of these buildings, with the possible exception of the

area north of Building 482. Passive soil survey results also suggest a decreasing horizontal gradient in chlorinated soil vapor concentrations moving away from the former OWS location between Buildings 481 and 482, with the possible exception of the north-northwest direction. The temporary soil vapor monitoring point data confirm the presence of chlorinated solvents in shallow soil vapor as far as 300 ft to the north-northwest from the former OWS location, although the results are a least an order of magnitude less than the concentrations at the OWS area.

- TCE has been identified in groundwater beneath the site at concentrations below the EPA maximum contaminant level (MCL), ranging from below detection limits to 1 microgram per liter (µg/L).

5. Pilot-scale SVE testing was performed in December 2003 and is described in more detail in the November 2005 RFI report. The pilot testing provided data on the maximum expected vacuum and vapor flow rates from the two site vapor extraction wells (ST-70-02 and ST-70-03). The maximum vacuum achieved at each extraction well was 12 inches of water. The maximum flow generated by the available onsite Rotron Model DR523K58 blower is 82 cubic feet per minute (cfm), which was equally distributed between the two extraction wells based on field measurements.

The pilot-scale test demonstrated that the compounds of concern (TPH and chlorinated solvent vapors, such as TCE and PCE) were recovered from the subsurface. Contaminant soil vapor concentrations were relatively stable in samples collected before and following the pilot-scale test in most wells. Table 2-23 (Atch 4) from the November 2005 RFI report which presents the pilot-testing soil vapor data is provided as an attachment to this memorandum. Samples from well ST-219-39 (219-39-75) indicated an increase in most detectable VOC and TPH concentrations. This is attributed to the fact that the well was directly in line between the former OWS and the extraction well nest. High-concentration VOCs in soil vapor and from enhanced volatilization from sorbed VOC soil contamination surrounding the former OWS were mobilized toward the extraction well nest during the test. Samples from the deep screen of well ST-219-38 (219-38-99) indicated a substantial decrease in most detectable VOC and TPH concentrations. This well is screened at the same depth interval as extraction well ST-70-02 so extraction from this zone was greater in comparison to other zones. Lower-concentration soil vapors at this depth from south and southeast of well ST-219-38 were drawn past the well as soil vapor was recovered and moved toward the extraction well to the northwest.

An approximate quantification of the radius of influence (ROI) from vapor extraction can be defined as observing a negative pressure effect of at least 10 percent of the vacuum induced at the extraction point. Such an observation suggests that the measurement point is within the zone of effective air flow as opposed to the pressure variability being the result of barometric pressure changes. At the Kirtland AFB Bulk Fuels Facility an active SVE system has been operational for over two years. At that site observed negative pressure effects of 10 percent of the extraction vacuum are observed at locations well within the system's calculated ROI. This illustrates that using an observation of 10 percent of the extraction vacuum as a basis for ROI estimation is a valid approach for the types of vadose zone materials and conditions in this area of KAFB. Based on the vacuum measurements collected during the pilot-scale SVE test at

ST-219, a negative vacuum effect of at least 10 percent of the extraction vacuum was observed as far as 150 ft away from the extraction well locations (at well ST-219-29H, one of the furthest available monitoring points). The short-term pilot-scale results generally suggest an ROI of over 100 ft will be achieved with the existing extraction well infrastructure and blower setup. Additionally, much of the ground surface in the vicinity is effectively sealed by impermeable surfaces (aircraft tarmac, buildings, parking lots, roadways). The sealed surface will enhance the SVE system ROI by limiting the amount of vacuum loss to the near surface atmospheric pressure regime.

Based on the pilot-scale test data, the November 2005 RFI report concluded that SVE would be an effective remedial alternative for the treatment of subsurface vapor-phase petroleum hydrocarbon and chlorinated solvent compounds at the site. The pilot-scale SVE test provided the basic information necessary for the phased design of the larger-scale SVE system that will be installed and operated at the site as part of the ICM. The ICM will be initiated utilizing the existing extraction well infrastructure that includes three wells in the source area, which are screened at variable depths and the existing blower equipment at the site. The extraction wells will be plumbed to a manifold system and connected to the existing blower to allow extraction from different wells to be manipulated and optimized. During system startup, initial operation and then on a regular monthly and/or quarterly basis, vapor concentrations in the SVE effluent stream, the extraction wells, and the existing vapor monitoring wells will be monitored to evaluate system operation. As previously mentioned, a formal work plan that will present the details of the ICM approach, expected operation and monitoring, and schedule will be submitted to NMED at a later date. As the larger-scale system is installed and operated and additional data are gathered the need to modify, enhance, or enlarge the system will be evaluated through an "observational" approach.

6. The NMED's 12 April 2006 NOD requested the installation of additional soil vapor borings around the former OWS and in the areas north and northeast of Building 482. Due to the transient nature of a soil vapor plume, KAFB is requesting that additional soil vapor sampling be deferred until after the ICM SVE system has been installed and operated for at least 6 to 12 months. Regular vapor sampling is planned to be performed at the already existing permanent soil vapor monitoring points as part of the ICM to evaluate system operation. Kirtland AFB would prefer to defer additional data collection in non-permanent soil vapor survey locations until the SVE system has operated a sufficient period of time to assess the impact the vapor extraction is having on the subsurface. Based on the results of the SVE pilot-testing Kirtland AFB feels that operation of the ICM SVE system may have rapid and far reaching effects on the subsurface vapor plume and it is possible that the periphery of the soil vapor plume may quickly contract towards the extraction well locations. Reevaluation of additional vapor sampling needs will be discussed with NMED as SVE system operation commences and operational data are collected. Furthermore, the 12 April 2006 NOD indicated that additional soil vapor samples should be analyzed for VOCs and semi-volatile organic compounds (SVOCs). Kirtland AFB requests that any soil vapor sampling be limited to VOCs as the presence of SVOCs in a vapor media tends to be very limited due to the inherently less-volatile nature of the compounds.

7. The NMED's 12 April 2006 NOD also requested the installation of an additional downgradient groundwater monitoring well. Kirtland AFB requests that installation of this additional well be postponed and then reevaluated after the ICM SVE system is installed and operated for at least 6 to 12 months. The existing well KAFB-7001 is located within 75 feet of the former OWS area in the downgradient groundwater flow direction. Figure 2 (Atch 2) depicts the regional groundwater flow direction in this general area of Kirtland AFB. Figure 3 (Atch 3) illustrates the localized groundwater flow direction at the site based on available data from wells KAFB-7001 and nearby well KAFB-835. Figure 3 (atch 3) also presents the most recent quarterly groundwater data from well KAFB-7001 that displayed any positive detections (July 2006) and the most recent available data from KAFB-8351.

Well KAFB-7001 has displayed some low-level, estimated (J-flagged) detections of TCE at concentrations of 1 µg/L or less since its installation in 2002. However, recent groundwater data from 2004 through 2006 has shown several series of consecutive quarters with no positive detections of TCE. The most recent quarterly data (July 2006) indicated a TCE concentration of 0.43 J µg/L and a total petroleum hydrocarbon diesel range organic concentration of 6.2 milligrams per liter (mg/L). Table Q306 70-01 (Atch 5), presents all quarterly sampling data from well KAFB-7001.

The KAFB-7001 groundwater concentrations have never exceeded the New Mexico Water Quality Control Commission (WQCC) or Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs).

Based on the vertical delineation of chlorinated solvent impacts in soil 300 to 400 feet above the groundwater table, and the very low level TCE detections in the groundwater, the current hypothesis is that vapor-phase chlorinated solvents in contact with the regional water table is the mechanism for low-concentration groundwater impacts beneath the site. The source area has not been remediated and therefore continues to represent the highest soil vapor concentration gradient between the OWS area and the groundwater table. If there have been soil vapor impacts to groundwater, the most severe impacts would be expected to be present in this source area. Therefore, the KAFB-7001 well, located on the downgradient side of the source area, provides a conservative worst case monitoring location to assess this maximum impact to groundwater. To date, however, all monitoring results have indicated concentrations well below applicable standards. Conceptually, it is not expected that higher concentration impacts to groundwater would persist further downgradient from the site due to the ongoing effects of dispersion, diffusion, and natural attenuation in groundwater. Operation of the SVE system at the site will provide vertical pneumatic containment of the vapor plume and mitigate further vapor impacts to groundwater at the site. Since the onsite well has not exceeded applicable regulatory standards and since the proposed SVE system will mitigate further and possibly reverse current impacts to groundwater, KAFB requests that additional downgradient well installation be deferred. KAFB requests that the need for an additional well be reevaluated and discussed with NMED after two to four quarters of continued groundwater sampling data from well KAFB-7001 are available after the SVE system is operational.

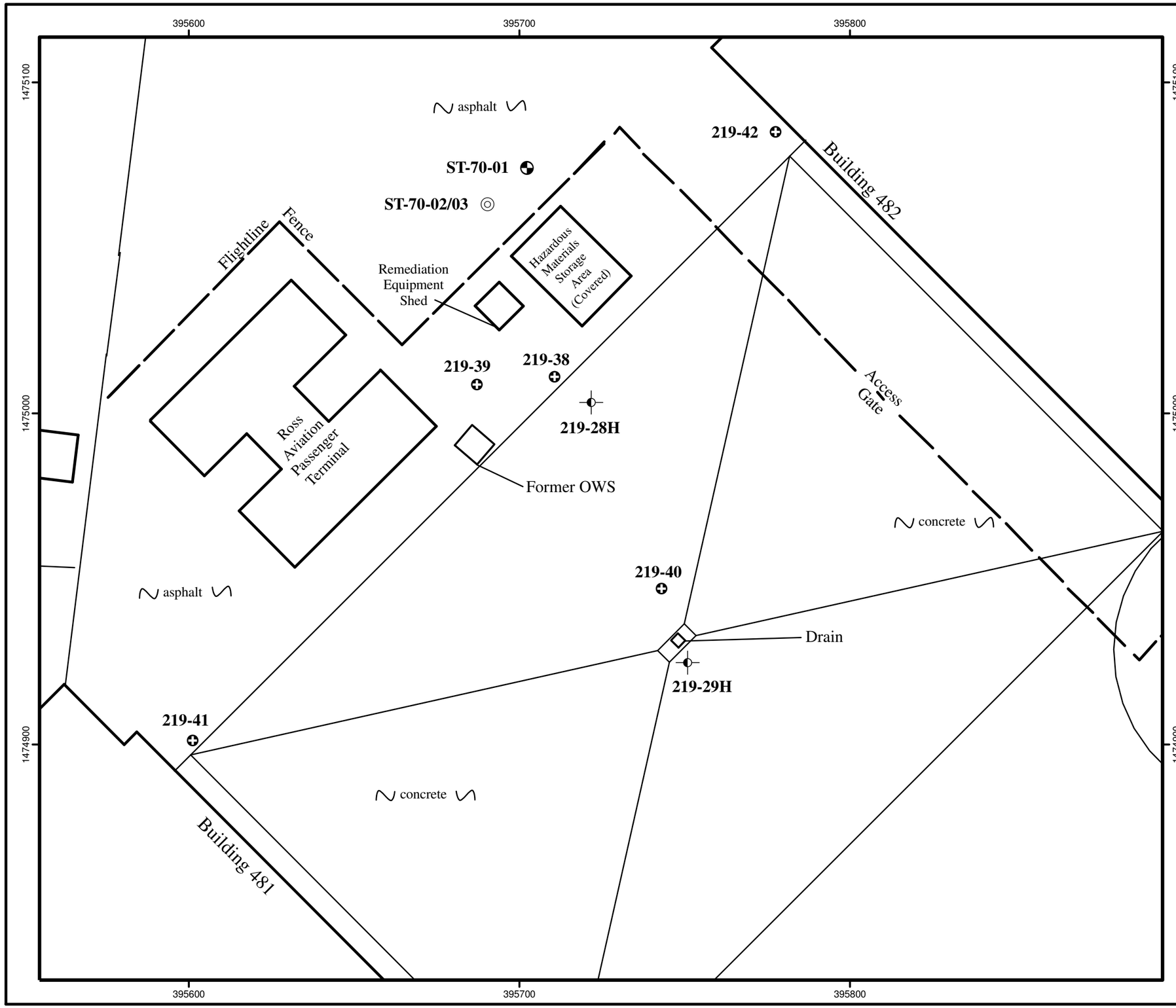
8. Pending NMED's concurrence with this NOD response, a formal ICM Work Plan will be prepared. The ICM Work Plan will describe the SVE system design, the schedule for installation, and the proposed operation and monitoring plan for the site. The ICM work plan will be submitted to NMED for review and approval. The SVE system installation is anticipated to commence in the fall of 2006 upon receipt of NMED's approval of the ICM work plan.

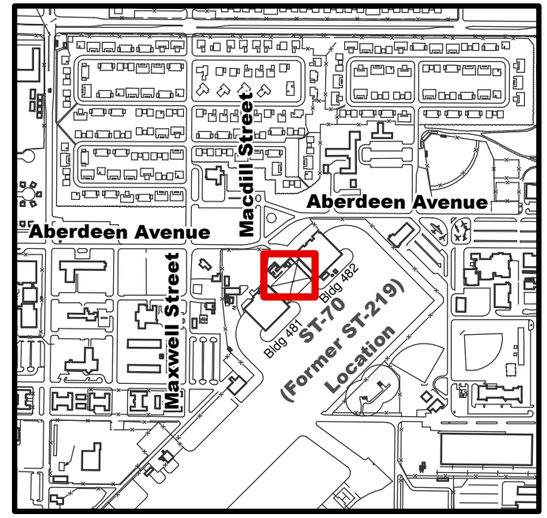
9. If you have any questions, please do not hesitate to contact me at (505) 853-6534 or Mark Holmes (505) 846-9005.

CARL J. LANZ, P.G., GS-13
Chief, Restoration Section

Attachments:
1. Figure 1, Site map
2. Figure 2, Groundwater Contour Map (Regional)
3. Figure 3, Groundwater Contour Map (Site)
4. Table 2-23, Summary of Soil Vapor Sampling
5. Table Q306, 70-01, Groundwater Sampling Results for KAFB-7001
6. Electronic Version of memo and attachments

cc:
NMED HWB-KAFB, Mr. McDonald, w atchs
USEPA-Region 6 (6PD-N), Ms. King, w atchs
NMED HWB-Chief, Mr. Bearzi, wo atchs
HQ AFMC/A7CVP, Ms. Linthicum, wo atchs
AFCEE, Mr. Hatfield, wo atchs
CH2MHill, Ms. Minchak, wo atchs
Admin Record, CNM, Montoya Campus, w atch 6 only
AR/IR, w atch 6 only
File





0 500 1,000 2,000 Feet

N W E S

0 15 30 60 90 Feet

LEGEND

- 395800 — State Plane Feet, NM Central Zone, NAD 27
- Soil Vapor Monitoring Well
- Soil Vapor Monitoring / Extraction Well (Former Bioventing Well)
- Soil Vapor Monitoring / Extraction Well
- Groundwater Monitoring Well

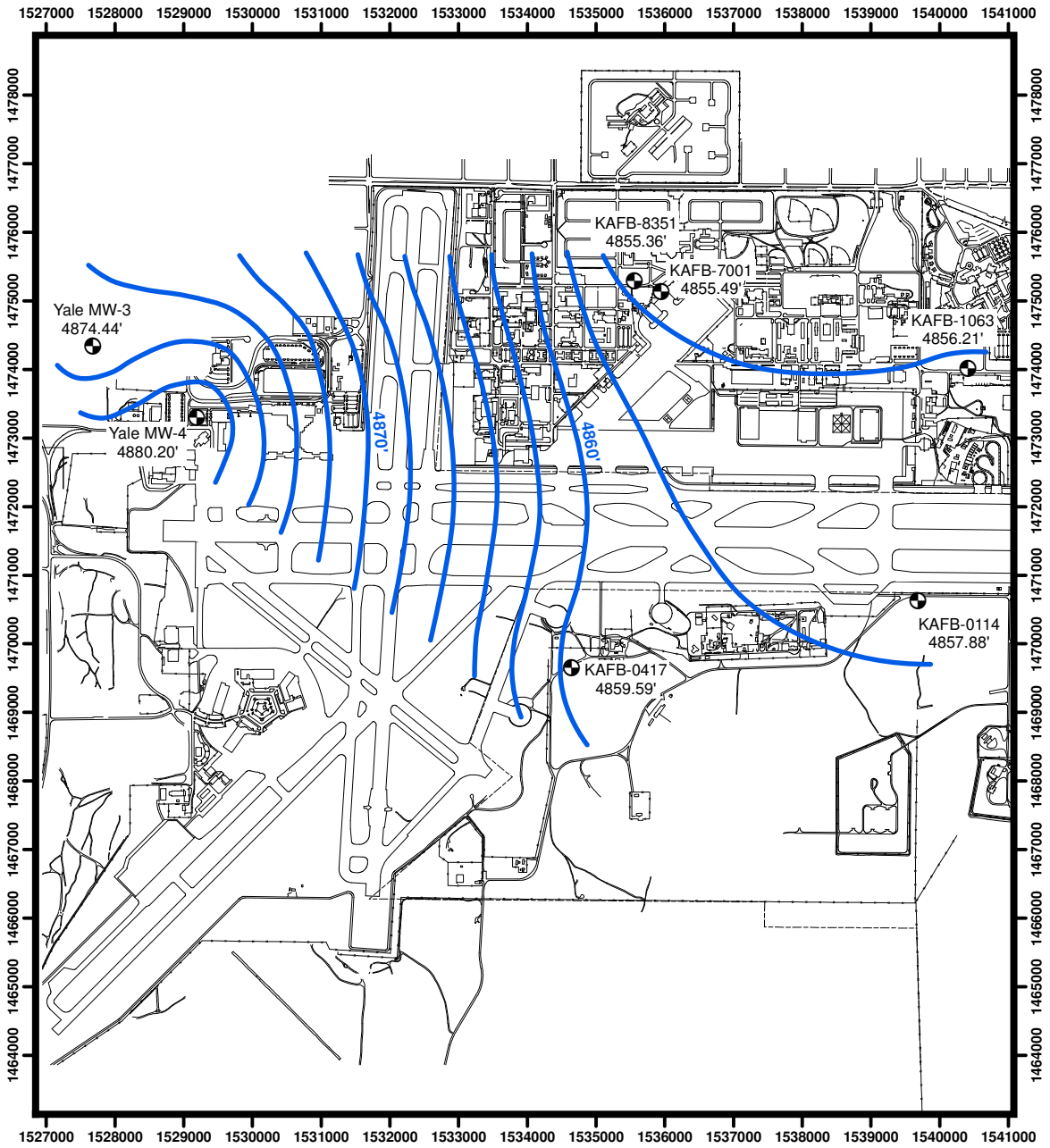
Revision Date: 09/01/2006	ST-219_Fig1.mxd

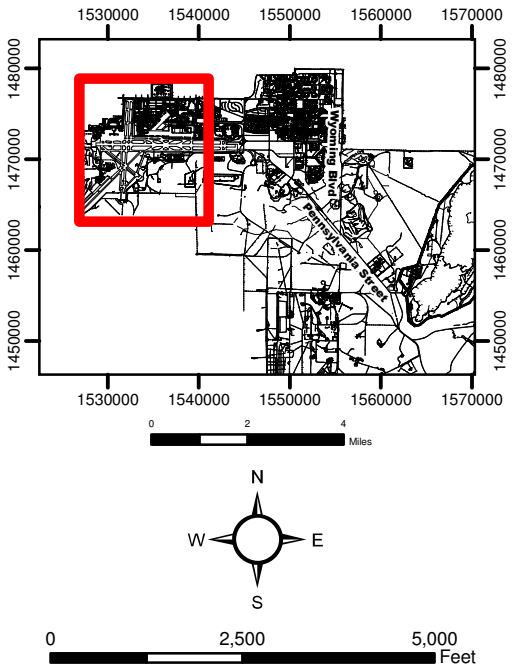
LOCATION AND SITE FEATURES SWMU ST-70 (FORMER ST-219)

Kirtland Air Force Base - Albuquerque, New Mexico

SWMU ST-70 (Former ST-219):
Former OWS between Bldgs. 481 & 482

Figure 1





LEGEND

Groundwater Monitoring Well Location

Groundwater Elevation (feet amsl)
Note: Contoured by hand and regionally interpreted from SNL/KAFB, 2005

1545612 NM Central State Plane Feet, NAD 83

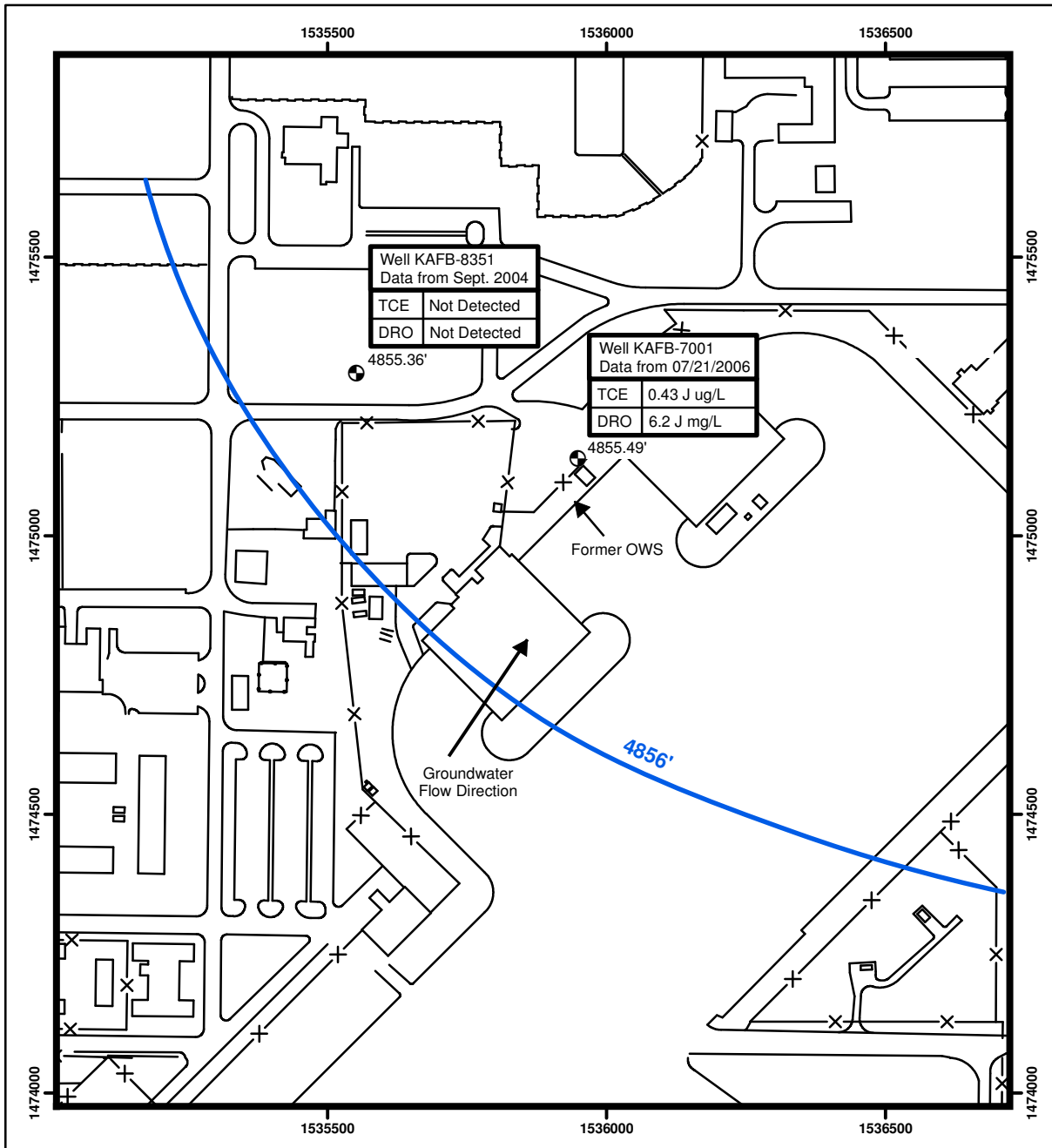
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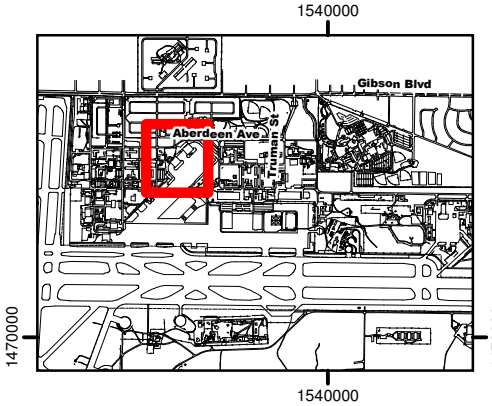
GROUNDWATER CONTOUR MAP (Fall 2005)

Kirtland Air Force Base - Albuquerque, New Mexico

SWMU ST-70 (Former ST-219):
Former OWS between Bldgs. 481 & 482

Figure 2





LEGEND

Groundwater Monitoring Well Location

Groundwater Elevation (feet amsl)
Note: Contoured by hand and regionally interpreted from SNL/KAFB, 2005

1545612 NM Central State Plane Feet, NAD 83

Revision Date: 09/01/2006	ST-219_Fig3.mxd

GROUNDWATER CONTOUR MAP (Fall 2005)

Kirtland Air Force Base - Albuquerque, New Mexico

SWMU ST-70 (Former ST-219):
Former OWS between Bldgs. 481 & 482

Figure 3

Table 2-23. Summary of 2003 SVE Pilot-Scale Test, Soil Vapor Sampling, ST-70 (Former ST-219), Kirtland AFB, NM [a]

Sample Location		ST-70-01		ST-70-02		ST-70-03		219-29H [c]		219-38-41		219-38-99		219-39-75		219-40-20		219-41		SVE Outlet	
Sample ID		ST-70-01	ST-70-01	ST-70-02	ST-70-02	ST-70-03	ST-70-03	ST219-29H	219-29H	219-38-41	219-38-41	219-38-99	219-38-99	219-39-75 [d]	219-39-75	219-40-20	219-40-20	ST-219-41	219-41	219-Eff01 [d]	219-Eff02
Lab ID		C256208	C256604	C256210	C2566002	C256209	C256601	C256204	C256609	C256206	C256605	C256207	C256606	C256211	C256607	C256205	C256608	C256212	C256610	C256213	C256603
Canister ID		991	717	318	300	867	377	466	343	273	380	992	316	993	363	426	383	350	879	898	386
Date Collected		12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003	12/8/2003	12/10/2003
ANALYTES																					
VOCs (ppbv)	**MDL [b]**																				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.26 - 55.17	0.27 J	<0.27	<2.32	<4.40	<1.26	1.82 J	<1.54	<1.53	<44.98	<55.17	<8.22	<0.76	<1.82	<4.92 R	<32.77	<15.88 UJ	<1.50	<2.45	<0.54	<0.26
1,1,2,2-Tetrachloroethane	0.52 - 111.43	<0.52	<0.54	<4.68	<8.89	<2.55	<2.59	<3.12	<3.09	<99.6	666	<18.19	<1.53	<3.68	<9.94 R	<66.17	<32.06 UJ	<3.02	<4.96	<1.10	<0.53
1,1-Dichloroethane	0.22 - 48.28	<0.23	<0.23	<2.03	<3.58	<1.10	<1.12	15.1	15	<43.16	<48.28	<7.88	<0.66	<1.60	4.37 J	32 J	26.8 J	42.6	40.8	<0.48	<0.23
1,1-Dichloroethene	0.38 - 80.61	<0.38	<0.39	<3.39	<6.43	<1.84	<1.88	<2.25	<2.24	110 J	132 J	<13.16	<1.11	<2.66	<7.19 R	<47.87	31 J	<2.19	<3.59	<0.79	<0.38
cis-1,2-Dichloroethene	0.39 - 80.46	5.98	5.21	114	210	65.9	35.7	308	330	31000	44300	3010	24.7	<2.66	3140	8800	8400	1000	1190	1.93 J	0.70 J
1,2-Dibromoethane	0.32 - 68.26	<0.32	<0.33	<2.87	<5.45	<1.56	2.39 J	<1.91	<1.89	<61.01	<68.26	<11.14	<0.94	<2.26	<6.09 R	<40.54	<19.64 UJ	<1.85	<3.04	<0.67	<0.33
1,2,4-Trichlorobenzene	0.5 - 106.77	<0.5	<0.52	<4.49	<8.52	<2.44	<2.48	<2.99	<2.96	<95.44	<106.77	<17.43	<1.47	<3.53	<9.52 R	<63.41	<30.72 UJ	<2.90	<4.75	<1.05	<0.51
1,2,4-Trimethylbenzene	0.45 - 96.58	119	7.57	38.7	19.6 J	56.1	84	5.07 J	117	2350	2290	959	<1.33	<3.19	163 J	9760	8350 J	188	374	12.4	1.68 J
1,3,5-Trimethylbenzene	0.45 - 96.58	46.3	6.55	19.6 J	9.38 J	34.1	43.6	7.81 J	56.4	1840	2110	503	<1.33	<3.19	128 J	4280	3320 J	84.3	151	5.8	0.61 J
Benzene	0.4 - 84.77	<0.4	1.62 J	<3.56	15.6 J	2.46 J	46.2	6.3 J	<2.35	180 J	245 J	76	3.84 J	5.99 J	72.5 J	<50.34	<24.39 UJ	3.19 J	<3.77	1.16 J	3.56
Carbon tetrachloride	0.38 - 81.44	2.95	3.47	3.71 J	<6.50	7.62 J	16.8	<2.28	<2.26	<72.8	<81.44	<13.3	<1.12	<2.69	<7.26 R	<48.36	<23.43 UJ	<2.21	<3.62	<0.8	0.61 J
Chlorobenzene	0.31 - 63.21	<0.3	<0.31	<2.66	<5.04	<1.44	<1.47	<1.77	<1.75	<56.5	<63.21	<10.32	<0.87	<2.09	<5.64 R	<37.54	<18.19 UJ	<1.72	<2.81	<0.62	<0.30
Chloroform	0.36 - 74.14	2.22 J	2.55	31.9	27.8 J	16.8	18	6.99 J	2.99 J	<66.27	<74.14	96.8	<1.02	<2.45	23.6 J	<44.03	<21.33 UJ	16.6	17.4 J	<0.73	4.98
Chloromethane	0.46 - 94.08	0.5 J	1.09 J	<3.96	<7.15	<2.15	<2.19	<2.63	<2.61	<84.1	<94.08	<15.36	<1.29	<3.11	<8.39 R	<55.87	<27.07 UJ	<2.55	<4.19	<0.93	3.56
Dichlorodifluoromethane	0.31 - 63.85	0.53 J	0.55 J	<2.68	<5.09	<1.46	<1.49	<1.79	<1.77	<57.07	<63.85	<10.42	<0.88	<2.11	<5.69 R	<37.92	<18.37 UJ	<1.73	<2.84	0.97 J	<0.30
Ethylbenzene	0.43 - 89.33	2.08 J	1.48 J	<3.76	<7.13	<2.04	244	<2.5	4.35 J	149 J	225 J	77.6 J	<1.23	4.05 J	12.7 J	783	836 J	<2.42	7.41 J	<0.88	0.94 J
Hexachlorobutadiene	0.59 - 121.52	<0.57	<0.59	<5.11	<9.70	<2.78	<2.83	<3.4	<3.37	<108.62	<121.52	<19.84	<1.67	<4.02	<10.84 R	<72.17	<34.97 UJ	<3.30	<5.41	<1.20	<0.58
Methylene chloride	0.93 - 191.25	1.74 J	<10.4	314	27.4 J	17.1	<17.6	<5.35	<6.80	201 J	363 J	52 J	42.7	255	45.9 J	212 J	123 J	8.51 J	<8.51	249	<3.98
m,p-Xylenes	0.74 - 152.83	37.4	7.19	8.03 J	23.1 J	16.1 J	691	<4.27	52.6	639 J	818 J	230	<2.10	9.23 J	37.2 J	9760	9300	29.5	115	2.03 J	3.67 J
o-xylene	0.45 - 92.37	0.73 J	1.14 J	<3.88	<7.37	<2.11	254	<2.58	<2.56	<82.56	<92.37	<15.08	<1.27	3.73 J	8.74 J	<54.85	<26.58 UJ	<2.51	<4.11	<0.91	1.33 J
Tetrachloroethene (PCE)	0.34 - 69.43	39.3	35.4	433	572	268	119	64.7	46.4	<62.06	<69.43	43.2 J	<0.96	5.67 J	1100 J	<41.23	<19.98 UJ	967	1310	2.56 J	2.78
Toluene	0.30 - 61.30	<0.29	4.93	<2.58	24.6 J	<1.40	594	<1.71	<1.70	<54.79	<61.30	79.2 J	57.8	209	24.9 J	<36.4	21.2 J	<1.66	<2.73	2.90 J	1.59 J
Trichloroethene (TCE)	0.37 - 76.78	83.2	87.9	1890	2380	1080	1050	685	521	832	647	6030	578	1210	1860 J	5350	4590 J	1310	1680	6.47	11.5
Trichlorofluoromethane	0.39 - 79.82	<0.37	<0.39	<3.36	<6.37	<1.82	<1.86	<2.23	<2.22	<71.35	<79.82	<13.03	<1.10	<2.64	<7.12 R	<47.4	<22.97 UJ	<2.17	<3.55	<0.79	<0.38
Vinyl chloride	0.11 - 23.06	1.10 J	4.5	<0.97	<1.84	<0.53	<0.54	<0.64	<0.64	56.9 J	68.6 J	<3.76	<0.32	<0.76	<2.06 R	<13.69	15.5 J	<0.63	<1.03	<0.23	<0.11
Petroleum Hydrocarbons (mg/L)																					
TPH - Gasoline	27.48 - 41.57	<31.95	<33.20	<34.6	<38.22	<35.85	<39.62	<33.06	631	2750	5020	691	103	<27.48	892	6700	6440	<33.48	67 J	<35.71	<32.64
Fixed Gases (percent)																					
Oxygen	0.68 - 1.08	12.3	19	18.7	12.1	15.9	36.5	10.5	10.4	9.74	8.23	9.19	23.4	NA	7.49	9.69	4.78	20.9	17.5	40.5	19.3
Nitrogen	0.98 - 1.57	42.8	62.6	76.1	39.1	63.4	125	83.8	72	80.3	72.7	68.3	75.1	NA	70.3	92.8	35	72.2	65.2	136	77.8
Carbon Monoxide	0.14 - 0.23	<0.14	<0.15	<0.15	<0.17	<0.16	<0.17	<0.14	<0.15	<0.16	<0.18	<0.15	<0.23	NA	<0.16	<0.18	<0.15	<0.29	<0.16	<0.41	<0.14
Methane	0.16 - 0.25	<0.16	<0.16	<0.17	<0.19	<0.17	<0.19	<0.16	<0.17	<0.18	<0.20	<0.16	<0.25	NA	<0.18	<0.20	<0.17	<0.32	<0.18	<0.46	<0.16
Carbon Dioxide	0.13 - 0.21	<0.13	<0.14	2.52	3.03	1.58	<0.16	10.8	11.5	13.9	16.4	8.89	<0.21	NA	13.4	16.8	8.57	7.1	5.49	7.46	4.87

[a] Complete laboratory analytical results are presented in Appendix T to this report. A data validation report is included in Appendix Q to this report.

[b] MDL column gives range of MDLs for all collected samples. Within table non-detect values are reported as < the specific MDL for that sample and compound.

[c] Sample ID 219-29H on 12/10/2004 was incorrectly listed as sample ID 219-28H on the COC. Well 28H was not sampled.

[d] Sampling canister had a leak and arrived at ambient pressure, was therefore analyzed for VOCs and TPHg, but not for fixed gases.

Notes: -- not analyzed

J - The analyte was positively identified but the associated numerical value is below the reporting limit and above the MDL.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte cannot be verified.

Table 1. Summary of Detected Concentrations in Groundwater for KAFB-7001, 02 October 2001 (Q301) through 21 July 2006 (Q306), Kirtland AFB, New Mexico

Chemical Class & Analytical Method	Analyte	EPA MCLs [a]	Well KAFB-7001 [b] Sample Date and Quarter																	
			10/02/2001	12/26/2001	07/22/2002	11/05/2002	02/17/2003	07/19/2003	10/24/2003	01/29/2004	04/21/2004	07/20/2004	10/14/2004	01/26/2005	04/29/2005	07/20/2005	10/20/2005	01/27/2006	04/17/06	07/21/06
			Q301	Q401	Q302	Q402	Q103	Q303	Q403	Q104	Q204	Q304	Q404	Q105	Q205	Q305	Q405	Q106	Q206	Q306
TPH (mg/L) EPA Method 8015	DRO	NA	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.20	<0.050	6.2 J
	MRO	NA	<5.0	<5.0	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<1.0	<0.20	NA
	GRO	NA	<0.05	<0.05	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.05	<1.0	NA
VOCs (µg/L) EPA Method 8260B	1,1,1,2-Tetrachloroethane	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,1,1-Trichloroethane	60 *	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,1,2,2-Tetrachloroethane	10 *	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,1,2-Trichloroethane	5.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,1-Dichloroethane	25 *	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	1.0 U
	1,1-Dichloroethene	5.0 *	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,1-Dichloropropene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,2,3-Trichlorobenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,2,3-Trichloropropane	NA	<2.0	<2.0	--	--	--	--	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.0 U
	1,2,4-Trichlorobenzene	70	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,2,4-Trimethylbenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,2-Dibromo-3-chloropropane (DBCP) [c]	0.2	**<2.0**	**<2.0**	--	--	--	--	**<2.0**	**<1.0**	**<2.0**	**<2.0**	**<2.0**	**<2.0**	**<2.0**	**<2.0**	**<2.0**	<0.01	<0.010	0.020 U
	1,2-Dibromoethane (EDB) [c]	0.05	**<1.0**	**<1.0**	--	--	--	--	**<1.0**	**<0.5**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	<0.01	<0.01	<0.010	0.020 U
	1,2-Dichlorobenzene	600	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,2-Dichloroethane (EDC)	5.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,2-Dichloropropane	5.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,3,5-Trimethylbenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,3-Dichlorobenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,3-Dichloropropane	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1,4-Dichlorobenzene	75	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	1-Methylnaphthalene	30* [d]	<4.0	<4.0	--	--	--	--	<4.0	<2.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	---
	2,2-Dichloropropane	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	5.0 U
	2-Butanone	NA	--	--	<100	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	5.0 U
	2-Chloroethylvinyl ether	NA	--	--	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	--	--
	2-Chlorotoluene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	2-Hexanone	NA	--	--	<50	<50	<50	<50	--	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	5.0 U
	2-Methylnaphthalene	30* [d]	<4.0	<4.0	--	--	--	--	<4.0	<2.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	---
	4-Chlorotoluene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	4-Isopropyltoluene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	4-Methyl-2-pentanone	NA	--	--	<50	<50	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	5.0 U
	Acetone	NA	--	--	<100	<100	<100	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2.4 BJ
	Benzene	5.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Bromobenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Bromochloromethane	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Bromodichloromethane	NA	<1.0	<1.0	<5.0	0.11 J	<5.0	0.08 J	<1.0	<0.5	<1.0	<1.0	<1.0	0.8 J	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Bromoform	NA	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Bromomethane	NA	<1.0	<1.0	<10	<10	<10	<10	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0 U
	Carbon disulfide	NA	--	--	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	2.0 U
	Carbon tetrachloride	5.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	1.0 U
	Chlorobenzene	100	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Chloroethane	NA	<2.0	<2.0	<10	<10	<10	<10	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0 U
	Chloroform	100 *	<1.0	<1.0	<5.0	<5.0	0.13 J	0.1 J	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Chloromethane	NA	<1.0	<1.0	<10	<10	<10	<10	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0 U
	cis-1,2-Dichloroethene	70	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
VOCs (µg/L) EPA Method 8260B	cis-1,3-Dichloropropene	NA	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Dibromochloromethane	NA	<1.0	<1.0	0.23 J	<5.0	0.18 J	0.11 J	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Dibromomethane	NA	<2.0	<2.0	--	--	--	--	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.0 U
	Dichlorodifluoromethane	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0 U
	Ethylbenzene	700	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Hexachlorobutadiene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	1.0 U
	Isopropylbenzenene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	m/p-Xylene	NA	--	--	<5.0	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	--	--	--	--	2.0 U

Table 1. Summary of Detected Concentrations in Groundwater for KAFB-7001, 02 October 2001 (Q301) through 21 July 2006 (Q306), Kirtland AFB, New Mexico

Chemical Class & Analytical Method	Analyte	EPA MCLs [a]	Well KAFB-7001 [b] Sample Date and Quarter																	
			10/02/2001	12/26/2001	07/22/2002	11/05/2002	02/17/2003	07/19/2003	10/24/2003	01/29/2004	04/21/2004	07/20/2004	10/14/2004	01/26/2005	04/29/2005	07/20/2005	10/20/2005	01/27/2006	04/17/06	07/21/06
			Q301	Q401	Q302	Q402	Q103	Q303	Q403	Q104	Q204	Q304	Q404	Q105	Q205	Q305	Q405	Q106	Q206	Q306
VOCs (µg/L) EPA Method 8260B	Methyl tert-butyl ether (MTBE)	NA	<1.0	<1.0	--	--	--	--	--	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.0 U
	Methylene chloride	5.0	<3.0	<3.0	<5.0	<5.0	<5.0	<5.0	<3.0	<1.5	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	5.0 U
	Naphthalene	30* [d]	<2.0	<2.0	--	--	--	--	<2.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.0 U
	n-Butylbenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	n-Propylbenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	o-Xylene	NA	--	--	<5.0	<5.0	<5.0	<5.0	--	--	--	--	--	--	--	--	--	--	--	1.0 U
	sec-Butylbenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Styrene	100	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	tert-Butylbenzene	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Tetrachloroethene	5.0	<1.0	<1.0	<5.0	<5.0	<5.0	0.06 J	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Toluene	750 *	<1.0	<1.0	0.16 J	<5.0	<5.0	0.1 J	<1.0	<0.5	<1.0	<1.0	<1.0	1.1	6.2	19	<1.0	<1.0	<1.0	1.0 U
	trans-1,2-DCE	100	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	trans-1,3-Dichloropropene	NA	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Trichloroethene	5.0	1.0	0.9 J	0.79 J	0.58 J	0.67 J	0.58 J	<1.0	0.69	<1.0	<1.0	<1.0	0.7 J	<1.0	1.0	<1.0	<1.0	<1.0	0.43 J
	Trichlorofluoromethane	NA	<1.0	<1.0	--	--	--	--	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0 U
	Vinyl acetate	NA	--	--	<5.0	<5.0	<50	<5.0	--	--	--	--	--	--	--	--	--	--	--	2.4 BJ
	Vinyl chloride	1.0 *	**<2.0**	**<2.0**	<1.0	<1.0	<1.0	<1.0	**<2.0**	<1.0	**<2.0**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0 U
	Xylenes, total	620 *	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0 U
SVOCs (µg/L) EPA Method 8270	1,2,4-Trichlorobenzene	70	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	---	10 U
	1,2-Dichlorobenzene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	1,3-Dichlorobenzene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	1,4-Dichlorobenzene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2,4,5-Trichlorophenol	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2,4,6-Trichlorophenol	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	2,4-Dichlorophenol	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2,4-Dimethylphenol	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2,4-Dinitrophenol	NA	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	50 U
	2,4-Dinitrotoluene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2,6-Dinitrotoluene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2-Chloronaphthalene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2-Chlorophenol	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2-Methylnaphthalene	30* [d]	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	2-Methylphenol	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	2-Nitroaniline	NA	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	50 U
	2-Nitrophenol	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	20 U
	3,3´-Dichlorobenzidine	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	20 U
	4-Methylphenol	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<20	--	--
	3-Nitroaniline	NA	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<20	20 U
	4,6-Dinitro-2-methylphenol	NA	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.6 J	<50	50 U
SVOCs (µg/L) EPA Method 8270	4-Bromophenyl phenyl ether	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<50	50 U
	4-Chloro-3-methylphenol	NA	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<20	<10	10 U
	4-Chloroaniline	NA	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<20	<20	10 U
	4-Chlorophenyl phenyl ether	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<20	20 U
	4-Nitroaniline	NA	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<20	<15	10 U
	4-Nitrophenol	NA	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<20	50 U
	Acenaphthene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<50	50 U
	Acenaphthylene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Aniline	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<20	<10	10 U
	Anthracene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<20	10 U
	Azobenzene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Benz(a)anthracene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<10	10 U
	Benzidine	NA	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	150 U
	Benzo(a)pyrene	0.2	**<10**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**<15**	<15	10 U
	Benzo(b)fluoranthene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	**<15**	**10 U**
	Benzo(g,h,i)perylene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<15	10 U
	Benzo(k)fluoranthene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U

Table 1. Summary of Detected Concentrations in Groundwater for KAFB-7001, 02 October 2001 (Q301) through 21 July 2006 (Q306), Kirtland AFB, New Mexico

Chemical Class & Analytical Method	Analyte	EPA MCLs [a]	Well KAFB-7001 [b] Sample Date and Quarter																	
			10/02/2001	12/26/2001	07/22/2002	11/05/2002	02/17/2003	07/19/2003	10/24/2003	01/29/2004	04/21/2004	07/20/2004	10/14/2004	01/26/2005	04/29/2005	07/20/2005	10/20/2005	01/27/2006	04/17/06	07/21/06
			Q301	Q401	Q302	Q402	Q103	Q303	Q403	Q104	Q204	Q304	Q404	Q105	Q205	Q305	Q405	Q106	Q206	Q306
SVOCs (µg/L) EPA Method 8270	Benzoic acid	NA	<50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<50	<50	10 U
	Benzyl alcohol	NA	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<20	<20	10 U
	Bis(2-chloroethoxy)methane	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Bis(2-chloroethyl)ether	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	Bis(2-chloroisopropyl)ether	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	Bis(2-ethylhexyl)phthalate	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	Butyl benzyl phthalate	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	Carbazole	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Chrysene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	Dibenz(a,h)anthracene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Dibenzofuran	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Diethyl phthalate	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Dimethyl phthalate	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Di-n-butyl phthalate	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Di-n-octyl phthalate	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	Fluoranthene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Fluorene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Hexachlorobenzene	1.0	**<10**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**<10**	<10	10 U
	Hexachlorobutadiene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Hexachlorocyclopentadiene	50	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Hexachloroethane	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Indeno(1,2,3-cd)pyrene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Isophorone	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Naphthalene	30* [d]	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Nitrobenzene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	N-Nitrosodi-n-propylamine	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	N-Nitrosodimethylamine	NA	<20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	N-Nitrosodiphenylamine	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Pentachlorophenol	1	**<50**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**<50**	<50	50 U
	Phenanthrene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<10	<10	10 U
	Phenol	5.0 *	**<10**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**<10**	<15	10 U
SVOCs (µg/L) EPA Method 8270	Pyrene	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<15	<15	10 U
	Pyridine	NA	<10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<30	<30	10 U
PAHs (µg/L) Method 8310	1-Methylnaphthalene	30* [d]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2.5	<2.5	1.0 U
	2-Methylnaphthalene	30* [d]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2.5	<2.5	1.0 U
	Acenaphthene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2.5	<2.5	1.0 U
	Acenaphthylene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2.5	<2.5	1.0 U
	Anthracene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.6	<0.60	0.30 U
	Benz(a)anthracene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.020	0.20 U
	Benzo(a)pyrene	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.20	0.20 U
	Benzo(b)fluoranthene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.05	<0.050	0.20 U
	Benzo(g,h,i)perylene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.03	<0.030	0.20 U
	Benzo(k)fluoranthene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.020	0.10 U
	Chrysene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.20	0.20 U
	Dibenz(a,h)anthracene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.04	<0.040	0.30 U
	Fluoranthene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.3	<0.30	0.40 U
	Fluorene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.8	<0.040	<0.30 U
	Indeno(1,2,3-cd)pyrene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.08	<0.080	0.20 U
	Naphthalene	30* [d]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<2.5	<2.5	1.0 U
	Phenanthrene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.6	<0.60	0.30 U
	Pyrene	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.3	<0.030	0.20 U
Metals (mg/L) Method 6010	Iron (dissolved)	0.3 (s)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.02	<0.020	22 U
	Manganese (dissolved)	0.05 (s)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00062 J	0.00025 J	1.8 U
Anions (mg/L) Method 300.0	Nitrate (as N) [e]	10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	*6.1*	*4.8*	*5.3*

Table 1. Summary of Detected Concentrations in Groundwater for KAFB-7001, 02 October 2001 (Q301) through 21 July 2006 (Q306), Kirtland AFB, New Mexico

Chemical Class & Analytical Method	Analyte	EPA MCLs [a]	Well KAFB-7001 [b] Sample Date and Quarter																	
			10/02/2001	12/26/2001	07/22/2002	11/05/2002	02/17/2003	07/19/2003	10/24/2003	01/29/2004	04/21/2004	07/20/2004	10/14/2004	01/26/2005	04/29/2005	07/20/2005	10/20/2005	01/27/2006	04/17/06	07/21/06
			Q301	Q401	Q302	Q402	Q103	Q303	Q403	Q104	Q204	Q304	Q404	Q105	Q205	Q305	Q405	Q106	Q206	Q306
Field Parameters [f]	Temperature (degrees C)		--	--	--	--	--	--	--	19.8	23.1	24.5	22.4	19.6	21.38	21.38	18.93	17.18	20.49	22.5
	pH (standard pH units)		--	--	--	--	--	--	--	7.32	7.53	7.51	7.62	7.55	6.64	6.64	7.25	8.16	7.76	7.75
	Conductivity (mS/cm)		--	--	--	--	--	--	--	0.87	0.96	0.97	1.04	1.15	0.96	0.96	0.00	1.21	0.663	0.11
	Dissolved Oxygen (mg/L)		--	--	--	--	--	--	--	7.00	8.39	8.80	9.30	6.01	9.51	9.51	5.02	9.69	6.36	7.56
	Turbidity (NTU)		--	--	--	--	--	--	--	0.0	0.0	2.1	0.4	1.2	89.9	89.9	0.0	24.5	0	3
	Redox Potential (eH in mV)		--	--	--	--	--	--	--	85	146	123	98	159	17	17	81	174	122	123

a. EPA National Primary Drinking Water Standards - Maximum Contaminant Levels (MCLs), or if more stringent, New Mexico Water Quality Control Commission (WQCC) Regulations as denoted by "*". Concentrations exceeding standards shown in BOLD. Standards followed by (s) are EPA National Secondary Drinking Water Standards.

b. Within table non-detect values are reported as less than (<) the specific Practical Quantitation Limits (PQL) for that sample and compound.

c. Samples analyzed for EDB using Methods 8260B and 504.1. Table includes only Method 504.1 results because this method has a lower quantitation limit.

d. The WQCC regulation for PAHs of 30 µg/L is a total of the concentrations of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.

e. NMED HWB Approved Background Concentration, SNL/Kirtland AFB, Chemical Consitituents in Ground Water for Nitrate and Nitrite (NO3/NO2) is 4.0 mg/L. Concentrations exceeding background are shown in italics. No other analytes on this table have associated NMED HWB approved background concentrations.

f. Field Parameters collected throughout well purge, reported parameter values were taken at time of sample collection.

Notes: NA - not applicable --- not analyzed J - estimated value, concentration is less than PQL but greater than Laboratory Method Detection Limit

Shaded cells indicate detected analytes.