DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)

31 January 2000

MEMORANDUM FOR MR. JOHN E. KIELING, ACTING MANAGER
RCRA PERMITS MANAGEMENT PROGRAM
HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU
NEW MEXICO ENVIRONMENT DEPARTMENT
PO BOX 26110
SANTA FE NM 87502

2000
RECEIVED

FROM: 377 ABW/EMR
2050 Wyoming Blvd SE, Rm 123
Kirtland AFB NM 87117-5270

SUBJECT: Request for Supplemental Information on Phase 2 RFI Report dated May 1997, [redacted], Landfill 1 (LF-01), Kirtland AFB NM

1. In response to your letter of 1 December 1999 concerning supplemental information on the SWMU 6-1 Landfill 1 (LF-01) portion of our Phase 2 RFI Report dated May 1997, please find the requested data attached.

2. Working with NMED, KAFB must find a way to minimize the use of Request for Supplemental Information (RSI) as a means of providing NMED with the data needed to reach a decision on the completeness of our previously submitted investigation/characterization documents. Re-engaging a contractor who prepared a document several years ago can be extremely costly or impossible for KAFB. In many cases the contract under which the document was prepared is no longer in force or, the contractor is no longer available and cannot be called upon to provide additional support. However, KAFB does maintain a complete library of all documents that have been compiled in conjunction with our RCRA Corrective Action Program. These documents are part of the administrative record located in the Restoration Branch offices, numerically indexed and readily available to be accessed for use in the review process. Utilizing these resources to the greatest extent possible as an alternative to our preparation of a supplemental report would be appreciated by KAFB. Otherwise, we will have to seek additional funds to compile RSI data, a process that could take over a year.

3. We are instructing our contractors on NMED requirements for data submittal/presentation for future documents. This should eliminate the need for similar RSIs in the future.

KAFB2113

4. Please call me at (505) 846-2751, if you need additional information or have any questions regarding this request.

CHRISTOPHER B. DeWITT
Director
Environmental Management Division

cc:
377 ABW/JA (Maj. Tolan)
NMED-HRMB (Mr. Bearzi)
NMED-HRMB (Mr. Dinwiddie)
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AR Doc # 1961

RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION PHASE 2 RCRA FACILITY INVESTIGATION REPORT DATED MAY 1997 FOR LANDFILL 1, SOLID WASTE MANAGEMENT UNIT 6-1 KIRTLAND AIR FORCE BASE, NM

Comments Regarding the Phase 2 RFI Report, Landfill 1 (LF-01)

General Comment

The New Mexico Environment Department's Hazardous and Radioactive Materials Bureau (HRMB) requires that all sample data be presented in summary tables, instead of ranges or maximum contaminant concentrations. Summary tables should include all sample identification numbers, analytical methods, approved background levels, units of measurement, sample depths, all analytes, results, detection limits and data qualifiers. See *Interim Corrective Measure Report for AOC SS-76, Fuel Tank Burn Area (SS-76), August 6, 1999*, for examples of suitable summary tables.

Response:

The Phase 2 Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for LF-01 tabulated and explicitly referenced data from previous reports dating back to December 1985. Of the several reports referenced, the Stage 2A RFI Report (USAF, 1993a) contains 16 volumes of various analytical data (soil, groundwater, geophysical, etc.). In an effort to maintain efficiency and provide a succinct presentation of available data, only conclusions were presented (with references) in the Phase 2 RFI Report for LF-01 dated May 1997.

As previously discussed and agreed upon, attachments included in this response to the Request for Supplemental Information (RSI) provide copies of the various laboratory summary data sheets, geophysical analytical data summaries, and explicit referenced locations (report, section, page numbers, etc.) of original source documentation as a response to each individual comment.

Summary tables from each of the three investigations performed are included as a response to the general comment of the RSI. Analytical methods, analytes and quantitation limits have been provided from the Stage 2 RFI (Attachment 1), Stage 2A RFI (Attachment 2), and Phase 2 Subject RFI (Attachment 3), as well as the approved background concentrations (Attachment 4) for Kirtland Air Force Base (AFB).

The referenced document in the general comment above has been obtained and the requisite formatting will be used during generation of all sample data summary tables in future reports.

INSTALLATION RESTORATION PROGRAM
STAGE 2

SAMPLING AND ANALYSIS PLAN

FOR

Kirtland Air Force Base, New Mexico 87117-5000

MILITARY AIRLIFT COMMAND
Scott Air Force Base, Illinois

October 1989

PREPARED BY

U.S. Geological Survey, Water Resources Division
(USGS-WRD)
4501 Indian School Rd. NE, Suite 200
Albuquerque, New Mexico 87110

USAF Contract No. OEH-88-024, Modification No. 1
OEH-88-009

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General Comment 1
Attachment 1

Table 2.--Analytical Methods and Total Number of Water Analyses

PARAMETER	ANALYTICAL METHOD	REPORTING UNITS	NUMBER OF ANALYSES	TRIP BLANKS	AMB COND BLANKS	EQUIP BLANKS	DUP/REP	SECOND COLUMN (f)	TOTAL ANALYSES
Alkalinity - Carbonate, Bicarbonate, & Hydroxide (Field Test)	A403	mg/L	36	-	-	3	3	-	42
Specific Conductance (Field Test)	E120.1	umhos/cm	36	-	-	-	-	-	36
pH (Field Test)	E150.1	pH Units	36	-	-	-	-	-	36
Total Dissolved Solids	E160.1	mg/L	36	-	-	-	3	-	39
Temperature (Field Test)	E170.1	deg C	36	-	-	-	-	-	36
Common Anions (Chloride Fluoride, Sulfate)	E300	mg/L	36	-	-	3	3	-	42
Nitrogen, Nitrate-Nitrite	E353.2	mg/L	36	-	-	3	3	-	42
Petroleum Hydrocarbons	E418.1	mg/L	36	-	-	3	3	-	42
ICP Screen (23 metals, exclude Boron and Silica)	SW3005/ SW6010	mg/L							
Total Recoverable			18	-	-	2	2	-	22
Dissolved (c)			18	-	-	2	2	-	22
Arsenic	SW7060	mg/L							
Total Recoverable			36	-	-	3	3	-	42
Dissolved (c)			36	-	-	3	3	-	42

Table 3.--Analytical Methods and Total Number of Soil Analyses

PARAMETER	ANALYTICAL METHOD	REPORTING UNITS	NUMBER OF ANALYSES	TRIP BLANKS	AMB COND BLANKS	EQUIP BLANKS	DUP/REP	SECOND COLUMN (f)	TOTAL ANALYSES
Petroleum Hydrocarbons	SW3550/ E418.1	mg/kg	65	-	-	-	7	-	72
ICP Screen (23 metals, exclude Boron & Silica)	SW3050/ SW6010	mg/kg	130	-	-	-	13	-	143
Mercury	SW7471	mg/kg	130	-	-	-	13	-	143
Chromium	SW3050/ SW7191	mg/kg	130	-	-	-	13	-	143
Volatile Organic Compounds	SW8240	mg/kg	130	13	-	-	13	-	156
Semivolatile Organic Compounds	SW3550/ SW8270	mg/kg	98	-	-	-	10	-	108
Extraction Procedure Toxicity, Metals and Pesticides	SW1310	mg/L	65	-	-	-	7	-	72
Extraction Procedure Toxicity, Metals only	SW1310	mg/L	20	-	-	-	2	-	22
Soil Moisture Content(b)	ASTM D2216	per cent (%)	165	-	-	-	17	-	182
Explosives	USATHAMA Method 4B Revised	mg/kg	59	-	-	-	6	-	65
Grain Size Distribution	ASTM D422	per method	20	-	-	-	-	-	20
Extraction, Nitrogen Species	ASTM D3987	-	145	-	-	-	15	-	160
Nitrogen Nitrate - Nitrite	E350.1	mg/kg	145	-	-	-	15	-	160
Nitrogen-Ammonia	E350.1	mg/kg	145	-	-	-	15	-	160
Total Kjeldahl Nitrogen	E351.2	mg/kg	145	-	-	-	15	-	160

E351.2(w)	Nitrogen, Total Kjeldahl	mg/L	.5	
D3987/E351.2(s)		mg/kg		50 on total soil 2.5 on DI leach
E365.2(w)	Phosphorus, Total	mg/L	.05	
SW9010(w)	Cyanide	mg/L	.02	
SW9010(s)		mg/kg		20
SW3010/6010(w)	ICP Screen	mg/L		
SW3050/6010(s)		mg/kg		
	Aluminum		.2	20
	Antimony		.2	20
	Arsenic		.3	30
	Barium		.1	10
	Beryllium		.002	.2
	Cadmium		.005	2
	Calcium		5	500
	Chromium		.03	4
	Cobalt		.04	4
	Copper		.03	3
	Iron		.04	4
	Lead		.2	20
	Magnesium		5	500
	Manganese		.01	1
	Molybdenum		.04	4
	Nickel		.04	4
	Potassium		5	500
	Selenium		.4	40
	Silver		.03	3
	Sodium		5	500
	Thallium		2	200
	Vanadium		.04	4
	Zinc		.01	1
SW7060(w)	Arsenic	mg/L	.005	
SW3050/7060(s)		mg/kg		.5
SW3020/7191(w)	Chromium	mg/L	.001	
SW3050/7191(s)		mg/kg		.1
SW3020/7421(w)	Lead	mg/L	.005	
SW3050/7421(s)		mg/kg		.5
SW7470(w)	Mercury	mg/L	.001	
SW7471(s)		mg/kg		.5
SW7740(w)	Selenium	mg/L	.005	

	1,1,1,2-Tetrachloroethane			5	.1
	1,2,3-Trichloropropane			5	.5
SW3520/8080(w)	Organochlorine Pesticides and PCBs		ug/L		
SW3550/8080(s)			mg/kg		
	Aldrin			.05	.01
	alpha-BHC			.05	.01
	beta-BHC			.05	.01
	delta-BHC			.05	1.01
	gamma-BHC (Lindane)			.05	.01
	Chlordane			.05	.1
	4,4°-DDD			.1	.02
	4,4°-DDE			.1	.02
	4,4°-DDT			.1	.02
	Dieldrin			.02	.02
	Endrin			.06	.02
	Endrin aldehyde			.1	.02
	Endosulfan I			.05	.01
	Endosulfan II			.1	.02
	Endosulfan sulfate			.1	.02
	Heptachlor			.02	.01
	Heptachlor epoxide			.05	.01
	Methoxychlor			.5	.1
	Toxaphene			1.0	.2
	PCB-1016			.5	.1
	PCB-1221			.5	.1
	PCB-1232			.5	.1
	PCB-1242			.5	.1
	PCB-1248			.5	.1
	PCB-1254			1	.2
	PCB-1260			1	.2
SW3520/8140(w)	Organophosphorus Pesticides	1.0	ug/L		
SW3550/8140(s)			mg/kg		
	Azinphos methyl			7.5	1.0
	Bolstar			.8	.1
	Chlorpyrifos			1.5	.2
	Coumaphos			7.5	1.0
	Demeton-O			1.3	.15
	Demeton-S			1.3	.15
	Diazinon			3.0	.4
	Dichlorvos			.5	.07
	Ethoprop			1.3	.15
	Fensulfothion			7.5	1.0
	Fenthion			.5	.07
	Merphos			1.3	.15

Di-n-octyl phthalate	10	.5
Ethyl methanesulfonate	50	2.5
Fluoranthene	10	.5
Fluorene	10	.5
Hexachlorobenzene	10	.5
Hexachlorobutadiene	10	.5
Hexachlorocyclopentadiene	10	.5
Hexachloroethane	10	.5
Indeno(1,2,3-c,d)pyrene	10	.5
Isophorone	10	.5
3-Methylcholanthrene	50	2.5
Methyl methanesulfonate	50	2.5
2-Methylnaphthalene	10	.5
Naphthalene	10	.5
1-Naphthylamine	50	2.5
2-Naphthylamine	50	2.5
2-Nitroaniline	50	2.5
3-Nitroaniline	50	2.5
4-Nitroaniline	58	2.5
Nitrobenzene	10	.5
n-Nitroso-di-n-butylamine	50	2.5
n-Nitrosodimethylamine	50	2.5
n-Nitrosodiphenylamine	10	.5
n-Nitrosodipropylamine	10	.5
n-Nitrosopiperidine	50	2.5
Pentachlorobenzene	50	2.5
Pentachloronitrobenzene	50	2.5
Phenacetin	50	2.5
Phenanthrene	10	.5
2-Picoline	50	2.5
Pronamide	50	2.5
Pyrene	10	2.5
1,2,4,5-Tetrachlorobenzene	50	2.5
1,2,4-Trichlorobenzene	10	.5
4-Chloro-3-methylphenol	10	.5
2-Chlorophenol	10	.5
2,4-Dichlorophenol	10	.5
2,6-Dichlorophenol	50	2.5
2,4-Dimethylphenol	10	.5
4,6-Dinitro-2-methylphenol	50	1.5
2,4-Dinitrophenol	50	1.5
2-Methylphenol	10	.5
4-Methylphenol	10	.5
2-Nitrophenol	10	.5
4-Nitrophenol	50	2.5
Pentachlorophenol	30	1.5
Phenol	10	.5
2,3,4,6-Tetrachlorophenol	50	2.5

	4-Methyl-2-pentanone		50	.1
	Styrene		5	.1
	1,1,2,2-Tetrachloroethane		7	.1
	Tetrachloroethene		3	.1
	Toluene		5	.1
	1,1,1-Trichloroethane		5	.1
	1,1,2-Trichloroethane		5	.1
	Trichloroethene		3	.1
	Trichlorofluoromethane		10	.1
	1,2,3-Trichloropropane		10	.1
	Vinyl acetate		50	.3
	Vinyl chloride		11	.1
	Xylenes(total)		5	.1
SW8150(w)	Chlorinated Phenoxy Acid Herbicides	ug/L		
SW8150(s)		mg/kg		
	2,4-D		1.2	.80
	2,4,5-T		.20	.10
	2,4,5-TP (Silvex)		.17	.10
	2,4-DB		.91	--
	Dalapon		5.8	3.9
	Dicamba		.27	.18
	Dichloroprop		.65	.44
	Dinoseb		.07	.05
	MCPA		250	170
	MCPP		190	130
SW1310(w&s)	Extraction Procedure Toxicity, Metals	mg/L in leachate		
	Arsenic		.5	.5
	Barium		5	5
	Cadmium		.05	.05
	Chromium		.5	.5
	Lead		.5	.5
	Mercury		.02	.02
	Selenium		.05	.05
	Silver		.5	.5
SW1310(w&s)	Extraction Procedure Toxicity, Pesticides	mg/L in leachate		
	Endrin		.002	.002
	Lindane		.04	.04
	Methoxychlor		1	1
	Toxaphene		.05	.05
	2,4-D		.21	.021
	2,4,5-TP		.017	.017
USATHAMA	Explosives			

Project Detection Limits for Appendix IX List of Constituent

Updated 3/21/90-- K.D. Peter, as instructed by Randy Thompson, RMAL
Deleted gamma-chlordane, replaced alpha-chlordane with total chlordane

Changed PDL: Tin, chlorobenzilate, diallate, isodrin, kepone, benzyl alcohol, 4-chloroaniline, 4-chloro-3-methylphenol, disulfoton, Famphur, hesachoropropene, 3-methylcholanthrene, methylparathion, phorate, pronamide, sulfotepp, 2,3,4,6-tetrachorophenol, o,o,o-triethyl phosphrorothioate, thionazine, acetronitrile, allyl chloride (3-chloroprene), 2-butanone, DBCP, EDB, Freon 12, 1,4-dioxane, isobutanol, methylene chloride, 2,4-D, 2,4,5-TP

6/27/89 SSDuncan
Updated

Appendix IX Project Detection Limits for Groundwater Samples

METHOD (1)	PARAMETER	REPORTING UNITS	PROJECT DETECTION LIMITS (2)
SW9010	Cyanide	mg/L	.01
SW9030	Sulfide	mg/L	.05
SW3010/6010	ICP Screen	mg/L	
	Antimony		.05
	Barium		.01
	Beryllium		.002
	Cadmium		.005
	Chromium		.01
	Cobalt		.01
	Copper		.01
	Nickel		.04
	Silver		.01
	Tin		.05
	Vanadium		.01
	Zinc		.01
SW7060	Arsenic	mg/L	.005
SW3020/7421	Lead	mg/L	.005

SW3520/8270	Semivolatile Organic Compounds	ug/L	
	Acenaphthene		10
	Acenaphthylene		10
	Acetophenone		10
	2-Acetylaminofluorene		50
	4-Aminobiphenyl		10
	Aniline		10
	Anthracene		10
	Aramite		10
	Benzo(a)anthracene		10
	Benzo(a)pyrene		10
	Benzo(b)fluoranthene		10
	Benzo(g,h,i)perylene		10
	Benzo(k)fluoranthene		10
	Benzyl alcohol		20
	4-Bromophenyl-phenylether		10
	Butylbenzylphthalate		10
	2-sec-Butyl-4,6-dinitrophenol		10
	4-Chloroaniline		20
	bis(2-Chloroethoxy)methane		10
	bis(2-Chloroethyl)ether		10
	bis(2-Chloroisopropyl)ether		10
	4-Chloro-3-methylphenol		10
	2-Chloronaphthalene		10
	2-Chlorophenol		10
	4-Chlorophenyl-phenylether		10
	Chrysene		10
	Di-n-butylphthalate		10
	Di-n-octylphthalate		10
	Dibenz(a,h)anthracene		10
	Dibenzofuran		10
	1,2-Dibromo-3-chloropropane		10
	1,2-Dichlorobenzene		10
	1,3-Dichlorobenzene		10
	1,4-Dichlorobenzene		10
	3,3°-Dichlorobenzidine		20
	2,4-Dichlorophenol		10
	2,6-Dichlorophenol		10
	Diethyl phthalate		10
	Dimethoate		-- (2a)

2-Naphthylamine	10	
2-Nitroaniline	50	
3-Nitroaniline	50	
4-Nitroaniline	50	
Nitrobenzene	10	
2-Nitrophenol	10	
4-Nitrophenol	50	
4-Nitroquinoline-1-oxide	--	(2a)
N-nitroso-di-n-butylamine	10	
N-nitrosodiethylamine	10	
n-Nitrosodimethylamine	10	
n-Nitrosodiphenylamine	10	
N-Nitroso-di-n-propylamine	10	
N-Nitrosomethylethylamine	10	
N-Nitrosomorpholine	10	
N-Nitrosopiperidine	10	
N-Nitrosopyrrolidine	10	
5-Nitro-o-toluidine	10	
Parathion	10	
Pentachlorobenzene	10	
Pentachloroethane	10	
Pentachloronitrobenzene	50	
Pentachlorophenol	50	
Phenacetin	10	
Phenanthrene	10	
Phenol	10	
4-Phenylenediamine	--	(2a)
Phorate	100	
2-Picoline	10	
Pronamide	20	
Pyrene	10	
Pyridine	20	
Safrole	10	(2d)
Sulfotepp	50	
1,2,4,5-Tetrachlorobenzene	10	
2,3,4,6-Tetrachlorophenol	20	
2-Toluidine	10	
1,2,4-Trichlorobenzene	10	
2,4,5-Trichlorophenol	50	
2,4,6-Trichlorophenol	10	

	Methylacrylonitrile		5
	Methylene Chloride		5
	4-Methyl-2-pentanone (MIBK)		10
	Propionitrile (ethyl cyanide)		5
	Styrene		5
	1,1,1,2-Tetrachloroethane		5
	1,1,2,2-Tetrachloroethane		5
	Tetrachloroethene		5
	1,1,1-Trichloroethane		5
	1,1,2-Trichloroethane		5
	Trichloroethene		5
	Trichlorofluoromethane (Freon 11)		5
	1,2,3-Trichloropropane		5
	Toluene		5
	Vinyl Acetate		10
	Vinyl Chloride		10
	Xylenes(total)		5
SW8150	Chlorinated Phenoxy Acid Herbicides	ug/L	
	2,4-D		1.2
	2,4,5-T		.2
	2,4,5-TP (Silvex)		.17
SW8280	Chlorinated Dioxins and Furans	ug/L	
	Tetrachlorodibenzodioxins (total)		.01 (2e)
	2,3,7,8-Tetrachlorodibenzodioxin		.005 (2e)
	Pentachlorodibenzodioxins		.01 (2e)
	Hexachlorodibenzodioxins		.01 (2e)
	Tetrachlorodibenzofurans		.01 (2e)
	Pentachlorodibenzofurans		.01 (2e)
	Hexachlorodibenzofurans		.01 (2e)

Footnotes:

(1) Method numbers preceded by E are from: Methods for Chemical Analysis of Water and Wastes, EPA Manual, 600/4-79-020 (USEPA, 1983 - with additions)

Method numbers preceded by SW are from: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition (USEPA, 1986)

Method numbers preceded by A are from: Standard Methods for the Examination of Water and Wastewater, 16th Edition (1985)

Method numbers preceded by D are from: American Society for Testing and Materials, 1919 Race

INSTALLATION RESTORATION PROGRAM (IRP)

STAGE 2A
SAMPLING AND ANALYSIS PLAN

Kirtland Air Force Base
New Mexico 87117-5000

U.S. Geological Survey - Water Resources Division, USGS-WRD
4501 Indian School Rd. NE, Suite 200
Albuquerque, New Mexico 87110

February 1992

FINAL

PREPARED FOR

Headquarters Military Airlift Command, HQ MAC/DEV
Scott Air Force Base, Illinois 62225-5001

United States Air Force
Air Force Center for Environmental Excellence
Brooks Air Force Base, Texas 78235-5000

General Comment 1
Attachment 2

Table 1.8.1.1--Analytical methods and sources

Parameter	Method Number
Water	
Alkalinity - Carbonate, Bicarbonate & Hydroxide (Field Test)	A403
Specific Conductance (Field Test)	E120.1
pH (Field Test)	E150.1
Temperature (Field Test)	E170.1
Turbidity (Field Test)	E180.1
Total Dissolved Solids	E160.1
Total Suspended Solids	E160.2
Common Anions (Chloride, Fluoride, Sulfate)	E300
Total Petroleum Hydrocarbons	E418.1
ICP Screen (23 metals, exclude Boron and Silica)	SW3005/SW6010
Total Recoverable	
Dissolved	
ICP Screen (9 metals)	
Total Recoverable	SW3005/SW6010
Dissolved	SW3005/SW6010
Arsenic	
Total Recoverable	SW3005/SW7060
Dissolved	
Lead	SW3005/SW7421
Total Recoverable	
Dissolved	
Mercury	SW7470
Total Recoverable	
Dissolved	

Table 1.8.1.1--Analytical methods and sources--Continued

Parameter	Method Number
Water	
Chromium	
Total	SW3020/SW7191
Dissolved	SW3005/SW7191
Chromium - hexavalent	
Total	SW7196
Dissolved	SW7196
Selenium	
Total Recoverable	SW3005/SW7740
Dissolved	
Purgeable Halocarbons	SW5030/SW8010
Purgeable Aromatics	SW5030/SW8020
Semivolatile Organic	SW3510/SW8270
Total Organic Carbon	E415.1
Total Organic Halides	SW9020
Nitrate + Nitrite	E353.2
Volatile Organic Compounds	SW8240
Uranium	A711B
Gross Alpha & Gross Beta	E900
Radium 226	H705
Radium 228	Latest Method
Nitroglycerin & Petn	USATHAMA UW14
RDX	USATHAMA 97.1
Chlorinated Pesticides and PCB's	SW3520/8080

Table 1.8.2.1.—Project detection limits

[NA, not applicable; NR, not recovered; NS, no standard available; uS/cm, micro Siemens per centimeter; deg. C, degrees Celsius; mg/L, milligrams per liter; ug/L, micrograms per liter; mg/kg, milligrams per kilogram, pCi/L, picocuries per liter]

Method (w, water; s, soil)	Parameter	Reporting units	Project detection[1] limits water	Project detection[1] limits soil
E120.1(w)	Specific conductance	uS/cm	10.0	NA
E150.1(w)	pH	pH units	0.1	NA
E170.1(w)	Temperature	deg. C	0.1	NA
A403(w)	Alkalinity, field test	mg/L		
	Bicarbonate Alkalinity		10	NA
	Carbonate Alkalinity as $CaCO_3$		10	NA
	Hydroxide Alkalinity as $CaCO_3$		10	NA
	Total Alkalinity as $CaCO_3$		10	NA
E160.1(w)	Total Dissolved Solids	mg/L	10	NA
E160.2(w)	Total Suspended Solids	mg/L	10	NA
E300(w)	Common Anions	mg/L		
	Chloride		.5	NA
	Fluoride		.5	NA
	Sulfate		1	NA
E353.2(w)	Nitrogen, Nitrate+Nitrite	mg/L	.1	NA
A711B(w)	Uranium	mg/L	0.002	
E900.0 (w)	Gross Alpha	pCi/L	1.6	
E900.0 (w)	Gross Beta	pCi/L	10	
H705 (w)	Radium-226	pCi/L	.2	
Latest Method	Radium-228	pCi/L	1	
SW3005/6010 (w)	ICP Screen	mg/L		

Table 1.8.2.1.—Project detection limits—Continued

Method (w, water; s, soil)	Parameter	Reporting units	Project detection[1] limits water	soil
SW5030/8010(w)	Purgeable Halocarbons	ug/L		
	Bromodichloromethane		.5	
	Bromoform		1	
	Bromomethane		6	
	Carbon tetrachloride		.6	
	Chlorobenzene		1.2	
	Chloroethane		3	
	2-Chloroethyl vinyl ether		5.5	
	Chloroform		.3	
	Chloromethane		1.1	
	Dibromochloromethane		.6	
	1,2-Dichlorobenzene		.5	
	1,3-Dichlorobenzene		1	
	1,4-Dichlorobenzene		.5	
	Dichlorodifluoromethane		9	
	1,1-Dichloroethane		.4	
	1,2-Dichloroethane		.5	
	1,1-Dichloroethene		.7	
	1,2-Dichloropropane		.5	
	Methylene chloride		2	
	1,1,2,2-Tetrachloroethane		1.4	
	Tetrachloroethene		.4	
	trans-1,2-Dichloroethene		.5	
	trans-1,3-Dichloropropene		2	
	1,1,1-Trichloroethane		.2	
	1,1,2-Trichloroethane		.2	
	Trichloroethene		.6	
	Trichlorofluoromethane		5	
	Vinyl chloride		.6	
	Benzyl chloride		6.8	
	Bromobenzene		5.0	
	Bis(2-chloroethoxy)methane		NR	
	Bis(2-chloroisopropyl)ether		10	
	Chloroacetaldehyde		NR	
	1-Chlorohexane		5	
	Chloromethyl methyl ether		NR	
	4-Chlorotoluene		23	
	Dibromomethane		5	
	1,1,1,2-Tetrachloroethane		5	
	1,2,3-Trichloropropane		5	

Table 1.8.2.1.—Project detection limits—Continued

Method (w, water; s, soil)	Parameter	Reporting units	Project detection[1] limits water	soil
	Methylene chloride		17	.1
	4-Methyl-2-pentanone		50	.1
	Styrene		5	.1
	1,1,2,2-Tetrachloroethane		7	.1
	Tetrachloroethene		3	.1
	Toluene		5	.1
	1,1,1-Trichloroethene		5	.1
	1,1,2-Trichloroethane		5	.1
	Trichloroethene		3	.1
	Trichlorofluoromethane		10	.1
	1,2,3-Trichloropropane		10	.1
	Vinyl acetate		50	.3
	Vinyl chloride		11	.1
	Xylenes (total)		5	.1
SW3510/SW8270(w)		ug/L		
SW3550/SW8270(s)		mg/kg		
	Semivolatile organic compounds			
	Acenaphthene		10	.5
	Acenaphthylene		10	.5
	Acetophenone		50	2.5
	Aniline		50	2.5
	Anthracene		10	.5
	4-Aminobiphenyl		50	2.5
	Benzidine		170	5.6
	Benzoic acid		50	2.5
	Benzo(a)anthracene		10	.5
	Benzo(b)fluoranthene		10	.5
	Benzo(k)fluoranthene		10	.5
	Benzo(g,h,i)perylene		10	.5
	Benzo(a)pyrene		10	.5
	Benzyl alcohol		20	1.0
	bis(2-Chloroethoxy)methane		10	.5
	bis(2-Chloroethyl)ether		10	.5
	bis(2-Chloroisopropyl)ether		10	.5
	bis(2-Ethylhexyl)phthalate		10	.5
	4-Bromophenyl phenyl ether		10	.5
	Butylbenzyl phthalate		10	.5
	4-Chloroaniline		20	1.0
	1-Chloronaphthalene		50	2.5
	2-Chloronaphthalene		10	.5
	4-Chlorophenyl phenyl ether		10	.5
	Chrysene		10	.5

Table 1.8.2.1.—Project detection limits—Continued

Method (w, water; s, soil)	Parameter	Reporting units	Project detection[1] limits water	soil
	Pentachlorobenzene		50	2.5
	Pentachloronitrobenzene		50	2.5
	Phenacetin		50	2.5
	Phenanthrene		10	.5
	2-Picoline		50	2.5
	Pronamide		50	2.5
	Pyrene		10	2.5
	1,2,4,5-Tetrachlorobenzene		50	2.5
	1,2,4-Trichlorobenzene		10	.5
	4-Chloro-3-methylphenol		10	.5
	2-Chlorophenol		10	.5
	2,4-Dichlorophenol		10	.5
	2,6-Dichlorophenol		50	2.5
	2,4-Dimethylphenol		10	.5
	4,6-Dinitro-2-methylphenol		50	1.5
	2,4-Dinitrophanol		50	1.5
	2-Methylphenol		10	.5
	4-Methylphenol		10	.5
	2-Nitrophenol		10	.5
	4-Nitrophenol		50	2.5
	Pentachlorophanol		30	1.5
	Phenol		10	.5
	2,3,4,6-Tetrachlorophenol		50	2.5
	2,4,5-Trichlorophenol		50	1.5
	2,4,6-Trichlorophenol		10	.5
USATHAMAUW14(w)				
USATHAMA97.1(W)	Explosives	ug/L		
Method LW12(s)		mg/kg		
	Nitrobenzene		2.0	1.0
	2,4-Dinitrotoluene		2.0	1.0
	2,6-Dinitrotoluene		2.0	1.0
	sym-Trinitrobenzene		2.0	1.0
	TNT		2.0	1.0
	RDX		2.0	1.0
	HMX		2.0	1.0
	Tetryl		2.0	
E415.1(w)	Total Organic Carbon	mg/L	NA	
SW9020	Total Organic Halides	mg/L	NA	

Table 1.8.2.1.—Project detection limits—Continued

Method (w, water; s, soil)	Parameter	Reporting units	Project detection[1] limits water	soil
SW3520/SW8080	Chlorinated pesticides and PCBs	ug/L		
	Aldrin		.05	
	Aroclor 1016		1.0	
	Aroclor 1221		1.0	
	Aroclor 1232		1.0	
	Aroclor 1242		1.0	
	Aroclor 1248		1.0	
	Aroclor 1254		1	
	Aroclor 1260		1	
	alpha-BHC		.05	
	beta-BHC		.05	
	delta-BHC		.05	
	gamma-BHC (Lindane)		.05	
	alpha Chlordane		.05	
	gamma Chlordane		.05	
	Chlorobenzilate		.1	
	4,4'-DDD		.1	
	4,4'-DDE		.1	
	4,4'-DDT		.1	
	Diallate		1.0	
	Dieldrin		.1	
	Endosulfan I		.05	
	Endosulfan II		.1	
	Endosulfan Sulfate		.1	
	Endrin		.1	
	Endrin Aldehyde		.1	
	Heptachlor		.05	
	Heptachlor Epoxide		.05	
	Isodrin		.1	
	Kepone		1.0	
	Methoxychlor		.5	
	Toxaphene		5	
SW3510/SW8270	Semivolatile organic compounds	ug/L		
	Acenaphthene		10	
	Acenaphthylene		10	
	Acetophenone		10	
	2-Acetylaminofluorene		100	
	4-Aminobiphenyl		10	
	Aniline		10	
	Anthracene		10	
	Aramite		10 (1d)	
	Benzo(a)anthracene		10	

Table 1.8.2.1.—Project detection limits—Continued

Method (w, water; s, soil)	Parameter	Reporting units	Project detection[1] limits water	soil
	bis(2-Ethylhexyl)phthalate		10	
	Ethyl methanesulfonate		10	
	Famphur		-- (1a)	
	Fluoranthene		10	
	Fluorene		10	
	Hexachlorobenzene		10	
	Hexachlorobutadiene		10	
	Hexachlorocyclopentadiene		10	
	Hexachloroethane		10	
	Hexachlorophene		— (1a)	
	Hexachloropropene		10	
	Indeno(1,2,3-c,d)pyrene		10	
	Isophorone		10	
	Isosafrole		20	
	Methapyrilene		10	
	3-Methylcholanthrene		20	
	Methyl methanesulfonate		10	
	2-Methylnaphthalene		10	
	Methylparathion		50	
	2-Methylphenol		10	
	3-Methylphenol, 4-Methylphenol		10 (1c)	
	Naphthalene		10	
	1,4-Naphthoquinone		10	
	1-Naphthylamine		10	
	2-Naphthylamine		10	
	2-Nitroaniline		50	
	3-Nitroaniline		50	
	4-Nitroaniline		50	
	Nitrobenzene		10	
	2-Nitrophenol		10	
	4-Nitrophenol		50	
	4-Nitroquinoline-1-oxide		— (1a)	
	N-nitroso-di-n-butylamine		10	
	N-nitrosodiethylamine		10	
	n-Nitrosodimethylamine		10	
	n-Nitrosodiphenylamine		10	
	N-Nitroso-di-n-propylamine		10	
	N-Nitrosomethylethylamine		10	
	N-Nitrosomorpholine		10	
	N-Nitrosopiperidine		10	
	N-Nitrosopyrrolidine		10	
	5-Nitro-o-toluidine		10	
	Parathion		50	

Table 1.8.2.1.—Project detection limits—Continued

Method (w, water; s, soil)	Parameter	Reporting units	Project detection[1] limits water	soil
	Dibromochloromethane		5	
	1,2-Dibromo-3-chloropropane (DBCP)		10	
	1,2-Dibromoethane (EDB)		10	
	Dibromomethane		5	
	trans-1,4-Dichloro-2-butene		5	
	Dichlorodifluoromethane (Freon 12)		20	
	1,1-Dichloroethane		5	
	1,2-Dichloroethene		5	
	1,1-Dichloroethene		5	
	1,2-Dichloroethene (total)		5	
	1,2-Dichloropropane		5	
	cis-1,3-Dichloropropene		5	
	trans-1,3-Dichloropropene		5	
	1,4-Dioxane		500	
	Ethylbenzene		5	
	Ethyl methacrylate		20	
	Iodomethane		5	
	Isobutanol		200	
	2-Hexanone		10	
	Methyl methacrylate		20	
	Methylacrylonitrile		5	
	Methylene Chloride		5	
	4-Methyl-2-pentanone (MIBK)		10	
	Propionitrile (ethyl cyanide)		5	
	Styrene		5	
	1,1,1,2-Tetrachloroethane		5	
	1,1,2,2-Tetrachloroethane		5	
	Tetrachloroethene		5	
	1,1,1-Trichloroethane		5	
	1,1,2-Trichloroethane		5	
	Trichloroethene		5	
	Trichlorofluoromethane (Freon 11)		5	
	1,2,3-Trichloropropane		5	
	Toluene		5	
	Vinyl Acetate		10	
	Vinyl Chloride		10	
	Xylenes(total)		5	
SW3520/SW8150	Chlorinated phenoxy acid herbicides	ug/L		
	2,4-D		1.2	
	2,4,5-T		.2	
	2,4,5-TP (Silvex)		.17	

Table 4-1

Project Quantification Limits[1] for Volatile Organics - Method 5030/8260

Analyte	Water (µg/l)	Low Soil (µg/kg)
Chloromethane	2.0	10
Bromomethane	2.0	10
Vinyl Chloride	2.0	10
Chloroethane	2.0	10
Acetone	2.0	10
Carbon Disulfide	1.0	5
1,1-Dichloroethene	1.0	5
1,1-Dichloroethane	1.0	5
1,2-Dichloroethene (total)	1.0	5
Methylene Chloride	1.0	5
Chloroform	1.0	5
1,2-Dichloroethane	1.0	5
2-Butanone	2.0	10
1,1,1-Trichloroethane	1.0	5
Carbon Tetrachloride	1.0	5
Bromodichloromethane	1.0	5
1,2-Dichloropropane	1.0	5
cis-1,3-Dichloropropene	1.0	5
Trichloroethene	1.0	5
Dibromochloromethane	1.0	5
1,1,2-Trichloroethane	1.0	5
1,1,2,2-Tetrachloroethane	1.0	5
Benzene	1.0	5
Toluene	1.0	5
trans-1,3-Dichloropropene	1.0	5
Bromoform	1.0	5
4-Methyl-2-pentanone	2.0	10
2-Hexanone	2.0	10
Tetrachloroethene	1.0	5
Chlorobenzene	1.0	5
Ethyl benzene	1.0	5
Styrene	1.0	5
Xylenes (total)	1.0	5

[1] In accordance with the provision of EPA SW-846, 3rd Edition Revision 2, September 1994, these limits are based on laboratory historical data or SW-846 method limits, whichever are the most stringent. The laboratory historical data are updated periodically, and, if the limits are updated prior to or during analysis of samples, an Addendum will be filed to amend the DCQAP.

Table 4-2

Project Quantification Limits for Semivolatile Organics - Method 3510/8270 and 3550/8270

Analyte1	Water (3510/8270) (µg/l)	Low Soil (3550/8270) (µg/kg)
Acenaphthene	10	330
Acenaphthylene	10	330
Anthracene	10	330
Benzo(a)anthracene	10	330
Benzo(b)fluoranthene	10	330
Benzo(k)fluoranthene	10	330
Benzo(g,h,i)perylene	10	330
Benzo(a)pyrene	10	330
4-Bromophenylphenyl ether	10	330
Butyl benzyl phthalate	10	330
4-Chloroaniline	10	330
4-Chloro-3-methyphenol	10	330
2-Chloronaphthalene	10	330
2-Chlorophenol	10	330
4-Chlorophenylphenyl ether	10	330
Chrysene	10	330
Dibenz(a,h)anthracene	10	330
Dibenzofuran	10	330
Di-n-butyl phthalate	10	330
1,2-Dichlorobenzene	10	330
1,3-Dichlorobenzene	10	330
1,4-Dichlorobenzene	10	330
3,3'-Dichlorobenzidene	20	660
2,4-Dichlorophenol	10	330
Diethyl phthalate	10	330
2,4-Dimethylphenol	10	330
4,6-Dinitro-2-methylphenol	50	1600
2,4-Dinitrophenol	50	1600
2,4-Dinitrotoluene	10	330

Table 4-2 (Concluded)

Project Quantification Limits for Semivolatile Organics - Method 3510/8270 and 3550/8270

Analyte1	Water (3510/8270) (µg/l)	Low Soil (3550/8270) (µg/kg)
bis (2-Chloroethyl)ether	10	330
4-Methylphenol	10	330
2,2'-Oxybis(1-chloropropane)	10	330
Dimethylphthalate	10	330
Phenanthrene	10	330
Anthracene	10	330
Carbazole	10	330

In accordance with the provisions for EPA SW-846, 3rd Edition Revision 2, September 1994, specific quantitation limits are highly matrix-dependent. The reporting limits listed herein are provided for guidance and may not always be achievable. Reporting limits listed for soil are based on a wet weight. Reporting limits calculated by the laboratory for soil, calculated on a dry weight basis, will be higher.

Table 4-4

Project Quantification Limits for Herbicides - Method 3510/8150 and 3550/8080

Analyte	Water (3510/8080) (µg/l)	Low Soil (3550/8080) (µg/kg)
2,4-D	1.2	40
2,4,5-TP (Silvex)	0.17	10
2,4-DB	5.0	100
2,4,5-T	0.20	10
Dalapon	5.0	100
Dicamba	0.5	10
Dichloroprop	1.0	20
Dinoseb	1.0	20
MCPA	250	5000
MCPP	250	5000

Note: 2,4 D = 2,4 Dichlorophenoxyacetic acid
2,4-DB = 4(2,4-Dichlorophenoxy) butric acid
2,4,5-T = 2,4,5-Trichlorophenoxyacetic acid
2,4,5-TP = 2-(2,4,5-Trichlorophenoxy) Propionic acie
MCPA = 4-Chloro-2-methylphenoxyacetic acid
MCPP = 2-(4-Chloro-2-methylphenoxy)propionic acid

Table 4-5

Project Quantification Limits for Explosives - Method SW8330

Analyte	Water (µg/l)	Low Soil (µg/kg)
HMX	0.80	2000
RDX	0.84	1000
1,3,5-Trinitrobenzene	0.26	250
1,3-Dinitrobenzene	0.11	250
Nitrobenzene	0.25	260
Tetryl	0.80	650
2,4,6-Trinitrotoluene	0.11	260
2,6-Dinitrotoluene	0.31	250
2,4-Dinitrotoluene	0.020	250
2-Nitrotoluene	0.25	250
3-Nitrotoluene	0.25	250
4-Nitrotoluene	0.25	250
4-Amino-2,6-dinitrotoluene	0.060	250
2-Amino-4,6-dinitrotoluene	0.035	250

Table 4-8

Project Quantification Limits for Metals by AA - Method 3005/7000 and 3050/7000

Analyte	Water (µg/l)	Low Soil (mg/kg)
Arsenic	5	0.5
Lead	5	0.5
Selenium	5	0.5
Thallium	5	0.5
Mercury (CVAA)	0.2	0.2

Table 4-9

Project Quantification Limits for ICP Metals - Method 3005/6010 and 3050/6010

Analyte	Water (3005/6010) (µg/l)	Low Soil (3050/6010) (mg/kg)
Aluminum	100	10
Antimony	60	6
Barium	10	1
Beryllium	2	0.2
Cadmium	5	0.5
Calcium	200	20
Chromium	10	1
Cobalt	10	1
Copper	20	2
Iron	100	10
Magnesium	200	20
Manganese	10	1
Nickel	40	4
Potassium	5000	500
Silver	10	1
Sodium	5000	500
Vanadium	10	1
Zinc	20	2

New Mexico Environment Department Hazardous and Radioactive Materials Bureau

Approved Background Concentrations,
Sandia National Laboratories/Kirtland Air Force Base

Table 1
Chemical Constituents in Soil

COC (Depth) Area Group[1]	SNL Median (mg/kg)	SNL 95th Percentile or UTL (mg/kg)	HRMB Median (mg/kg)	HRMB Maximum Sample Value (mg/kg)	HRMB Maximum Background (mg/kg)
Sb (surface and subsurface) N/T/SW/CTF/Off	<6	3.9	NA[2]	NA	3.9
As (surface)			2.5	8.4	
N/SW/CTF/Off	2.5	5.6			5.6
(subsurface)					
N/T/SW/Off	2	4.4			4.4
CTF	2.7	7			7
Ba (surface)			90.5	200	
N/Off	100	200			200
T	156	534			281
SW/CTF	59	130			130
(Subsurface)					
SW/CTF	71.7	214			214
N/T/Off	101	336			200
Be (surface and subsurface)			<1	<1	
N/T	0.43	0.80			0.80
SW/CTF/Off	0.34	0.65			0.65
Cd (surface)			<1	<1	
N/SW/CTF/Off	<0.5	1.6			<1
T	1.0	5.1			<1
(subsurface)					
N/T/SW/CTF/Off	<0.5	0.9			0.9

General Comment 1
Attachment 4

Table 1
Chemical Constituents in Soil (con'd.)

COC (Depth) Area Group[1]	SNL Median (mg/kg)	SNL 95th Percentile or UTL (mg/kg)	HRMB Median (mg/kg)	HRMB Maximum Sample Value (mg/kg)	HRMB Maximum Background (mg/kg)
Total Cr					
(surface)			8.0	20.0	
N/SW/CTF/Off	6.3	17.3			17.3
T	12.35	21.8			21.8
SW					
(subsurface)	5.7	12.8			12.8
T	9.10	16.2			16.2
SW	6.4	15.9			15.9
Cr^{+6}					
(surface and subsurface)			NA	NA	
SW	<0.1	<2.5			1
Co					
(surface)			5.0	9.3	
N/Off	4.4	7.1			7.1
T	5.8	11.6			9.3
SW/CTF	2.95	5.2			5.2
(subsurface)					
N/Off	4.8	8.8			8.8
T	6.6	10.7			9.3
SW/CTF	3.0	5.2			5.2
Cu					
(surface)			10.0	17	
N	10.1	25.5			17
T	16.7	27.7			17
SW/CTF/Off	5.9	15.4			15.4
(subsurface)					
N	14.7	88.2			17
T	27.35	224			17
SW/CTF/Off	6.3	18.2			18.2
Pb					
(surface)			11	39	
N/T	13.0	68			39
SW/CTF/Off	7.8	21.4			21.4
(subsurface)					
N/T	5.0	11.2			11.2
SW/Off	4.9	11.8			11.8

Table 1
Chemical Constituents in Soil (con'd.)

COC (Depth) Area Group[1]	SNL Median (mg/kg)	SNL 95th Percentile or UTL (mg/kg)	HRMB Median (mg/kg)	HRMB Maximum Sample Value (mg/kg)	HRMB Maximum Background (mg/kg)
Hg					
(surface)			<0.25	<0.25	
N/T/SW/CTF/Off	<0.1	0.31			<0.25
(subsurface)					
N/T/SW/CTF/Off	<0.1	<0.1			<0.1
Ni					
(surface and subsurface)			8.0	21.0	
N/Off	7.0	25.4			25.4
T	11.5	52.5			21.0
SW/CTF	6.0	11.5			11.5
Se					
(Surface and subsurface)			NA	NA	
N/T/SW/CTF/Off	<1	<1			<1
Ag					
(surface)			<1	<1	
N/SW/CTF/Off	<1	2.0			<1
(subsurface)					
N/T/SW/CTF/Off	<1	<1			<1
Tl					
(surface and subsurface)			<1	2	
N/T/SW/CTF/Off	<0.5	<1.1			<1.1
Sn					
(surface and subsurface)			<10	<10	
N/T/CTF/Off	<51.5	<122			<10
Total U					
(surface)			NA	NA	
N/T/SW/CTF/Off	2.2	3.42			3.42
(subsurface)					
N/SW	1.25	2.3			2.3
V					
(surface)			23.0	33.0	
N/T	25.0	47.2			33.0
SW/CTF/Off	12.1	20.4			20.4
(subsurface)					
N/T	23.75	42.8			33.0
SW/Off	13.8	21.5			21.5

Table 1
Chemical Constituents in Soil (con'd.)

COC (Depth) Area Group[1]	SNL Median (mg/kg)	SNL 95th Percentile or UTL (mg/kg)	HRMB Median (mg/kg)	HRMB Maximum Sample Value (mg/kg)	HRMB Maximum Background (mg/kg)
Zn (surface and subsurface)			32.0	76	
N	33.7	82.4			76
T	44.8	117			76
SW/CTF/Off	22.75	62			62
Zr (surface and subsurface)			NA	NA	
Off	5.35	9.2			9.2

Notes:
(1) Area Groups: N = North, T = Tijeras, SW = Southwest, CTF = Coyote Test Field, Off = Off-site
(2) NA = not analyzed

Comment 1

Specific Comments

1. **Kirtland Air Force Base (KAFB) should submit sample analysis results for soil samples obtained from exploratory boring LF-01-E (drilled in Phase II, Stage 1 RFI). See General Comment 1.**

Response:

One exploratory borehole (LF #1) was completed to 100 feet (ft) at LF-01 to characterize the general subsurface conditions. However, no mention of the identification "LF-01-E" was found in the report. As stated in the Phase II, Stage 1 RFI Report, Section 3.2.5, pages 3-7 to 3-8, Exploratory Drilling, (SAIC, 1985):

> "The data which were to be generated by the [exploratory] borings included moisture content, density, grain size distribution and lithology."

The summary table of laboratory test data for Borehole LF #1 was taken from Appendix I, page I-17 (SAIC, 1985) and is included as Attachment 1 for Comment 1. No chemical analyses were requested for the exploratory boring samples during the Phase II, Stage I RFI.

SUMMARY OF LABORATORY TEST DATA

LF#1

TEST HOLE	DEPTH OF SAMPLE (ft)	NATURAL DRY DENSITY (pcf)	NATURAL MOISTURE CONTENT (%)	ATTERBERG LIMITS LL	PI	Sieve Analysis % Passing No. 4	No. 10	No. 40	No. 80	No. 200	SOIL DESCRIPTION	REMARKS
LF#1	5	108	5.1	-	-	99	98	93	72	20	silty SAND SM	
LF#1	10	84	8.6	-	-	100	97	48	7	3	clean SAND SP	
LF#1	15	95	2.9	-	-	-	-	-	-	-	clean SAND SP	
LF#1	20	78	6.6	-	-	-	-	-	-	-	clean SAND SP	
LF#1	25	104	17.2	22	NP	-	-	-	-	-	very silty SAND SM-ML	
LF#1	30	111	11.3	-	-	100	92	54	35	14	silty SAND SM	
LF#1	35	107	11.7	23	NP	-	-	-	-	-	silty SAND SM	
LF#1	40	99	27.0	-	-	100	99	94	83	56	very sandy CLAY SC-CL	
LF#1	45	94	12.3	-	-	100	100	96	70	7	clean SAND SP	
LF#1	50	92	3.5	-	-	99	98	72	12	1	clean SAND SP	
LF#1	60	92	5.5	-	-	-	-	-	-	-	clean SAND SP	
LF#1	70	106	4.1	-	-	91	73	25	6	2	clean SAND SP	
LF#1	80	110	6.2	-	-	86	65	29	7	3	clean SAND SP	
LF#1	90	100	4.4	-	-	-	-	-	-	-	clean SAND SP	
LF#1	100	95	10.0	-	-	-	-	-	-	-	clean SAND SP	

Comment 2

2. **KAFB should submit sample analysis results for the six hand augered soil samples (0101 through 0106) collected during Phase II, Stage 2 RFI. See General Comment 1.**

Response:

As described on page 3-16, Section 3.2.1.3 of the Phase II, Stage 2 RFI Report (USAF, 1993b), seven hand-augured soil samples were collected at six different locations (0101, 0102, 0103, 0104, 0105, and 0106, and a duplicate sample at 0106).

Analytes detected in the seven soil samples taken from the Phase II, Stage 2 RFI Report (USAF, 1993b, page 3-22), are listed in Summary Table 3.2.1.3.1 contained in Attachment 1 for Comment 2. Soil samples were analyzed for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), inductively coupled plasma metals screen, mercury, chromium, total nitrogen (nitrate/nitrite nitrogen, ammonia-nitrogen, total Kjeldhal nitrogen [TKN]), explosives, and soil moisture content. Complete laboratory analytical reports are contained in Appendix G, Volume III, pages G-1 to G-77 (USAF, 1993b).

Attachment 2 for Comment 2 contains a comparison made between the September 1997 Kirtland AFB / Sandia National Laboratory Approved Background Concentrations and the Method Detection Limits (MDL) used for sample analyses during the Stage 2 investigation. Summary Table A2 compares the MDL to the approved background concentrations and identifies those analytes with a MDL greater than the approved background concentration (i.e., a nondetectable result may occur when the actual concentration was above the 1997 approved background concentration and below the MDL).

Table 3.2.1.3.1--Analytes detected in soil samples from shallow, hand-augered borings at site 1 (Landfill 1)
[Boldface indicates result equals or exceeds action level. ND means analyte was not detected. ND is in parentheses with sample detection limit if sample detection limit was different from project detection limit]

			FIELD SAMPLE NUMBER	010101-1	010201-1	010301-1	010401-1	010501-1
			LAB SAMPLE NUMBER	06351-001	06351-002	06351-003	06351-004	06351-005
				07472-009*	07472-010*	07472-011*	07472-012*	07472-014*
			SAMPLE DATE	30 AUG 89	30 AUG 89	30 AUG 89	30 AUG 89	30 AUG 89
			SAMPLE DESCRIPTION	Site 1	Site 1	Site 1	Site 1	Site 1
				Soil boring 1	Soil boring 2	Soil boring 3	Soil boring 4	Soil boring 5
				3 feet	3 feet	3 feet	3 feet	3 feet
Analyte (units)	Method	Project detection limit	Action Level	Result	Result	Result	Result	Result
Moisture (percent)	E160.3	0.1	-	2.7	1.6	4.1	2.7	2.2
Nitrogen, Kjeldahl (mg/kg)	E351.2	50.	-	102.	95.	ND	98.	61.
Nitrogen, nitrate-nitrite(mg/kg)	E353.2	1.	100000	6.3#	(ND 0.5)	(ND 0.5)	(ND 0.5)	0.5#
Petroleum hydrocarbons (mg/kg)	SW3550/E418.1	30.	-	ND	ND	ND	ND	30.7
Aluminum (mg/kg)	SW3050/SW6010	20.	-	3659.	2673.	3243.	3731.	3354.
Barium (mg/kg)	SW3050/SW6010	10.	5000	81. #J[1]	78. #J[1]	104. #J[1]	94. #J[1]	63. #J[1]
Beryllium (mg/kg)	SW3050/SW6010	.2	0.1	**0.3**	**0.2**	**0.2**	**0.3**	0.2
Calcium (mg/kg)	SW3050/SW6010	500.	-	30832. #	15244. #	12930. #	23535. #	18200. #
Chromium (mg/kg)	SW3050/SW7191	.1	400	5.1*J[2]	2.9*J[2]	6.2*J[2]	5.7*J[2]	3.9*J[2]
Copper (mg/kg)	SW3050/SW6010	3.	-	4.	ND	4.	3.	6.
Iron (mg/kg)	SW3050/SW6010	4.	-	4656. #	3933. #	4432. #	5118. #	5716. #
Magnesium (mg/kg)	SW3050/SW6010	500.	-	2590. #	1311. #	1783. #	2364. #	2086. #
Manganese (mg/kg)	SW3050/SW6010	1.	400	101.	90.	131.	145.	155.
Potassium (mg/kg)	SW3050/SW6010	500.	-	643.	508.	785.	856.	1043.
Sodium (mg/kg)	SW3050/SW6010	500.	-	171. #J[1]	(ND 90.)J[1]	(ND 90.)J[1]	(ND 90.)J[1]	(ND 90.)J[1]
Vanadium (mg/kg)	SW3050/SW6010	4.	500	11.	7.	9.	12.	12.
Zinc (mg/kg)	SW3050/SW6010	1.	20000	14. J[1]	12. J[1]	19. J[1]	18. J[1]	30. J[1]
Di-n-octyl phthalate (mg/kg)	SW3550/SW8270	.5	1000	1.02	ND	ND	ND	ND

Table 3.2.1.3.1–Analytes detected in soil samples from shallow, hand-augered borings at site 1 (Landfill 1)–Concluded

		FIELD SAMPLE NUMBER		010601-1	010602-1
		LAB SAMPLE NUMBER		06351-006	06351-007
				07472-013*	07472-015*
		SAMPLE DATE		30 AUG 89	30 AUG 89
		SAMPLE DESCRIPTION		Site 1	Site 1
				Soil boring 6	Soil boring 6
				3 feet	3 feet Dup.
Analyte (units)	Method	Project detection limit	Action Level	Result	Result
Moisture (percent)	E160.3	0.1	-	5.3	2.7
Nitrogen, Kjeldahl (mg/kg)	E351.2	50.	-	ND	ND
Nitrogen, nitrate-nitrite (mg/kg)	E353.2	1.	100000	(ND 0.5)	(ND 0.5)
Petroleum hydrocarbons (mg/kg)	SW3550/E418.1	30.	-	ND	ND
Aluminum (mg/kg)	SW3050/SW6010	20.	-	3580.	4101.
Barium (mg/kg)	SW3050/SW6010	10.	5000	59. #J[1]	49. #J[1]
Beryllium (mg/kg)	SW3050/SW6010	.2	0.1	0.3	0.3
Calcium (mg/kg)	SW3050/SW6010	500.	-	10982. #	11614. #
Chromium (mg/kg)	SW3050/SW7191	.1	400	5.5*J[2]	4.9*J[2]
Copper (mg/kg)	SW3050/SW6010	3.	-	5.	5.
Iron (mg/kg)	SW3050/SW6010	4.	-	5449. #	5899. #
Magnesium (mg/kg)	SW3050/SW6010	500.	-	1816. #	2055. #
Manganese (mg/kg)	SW3050/SW6010	1.	400	141.	129.
Potassium (mg/kg)	SW3050/SW6010	500.	-	909.	993.
Sodium (mg/kg)	SW3050/SW6010	500.	-	(ND 90.)J[1]	(ND 90.)J[1]
Vanadium (mg/kg)	SW3050/SW6010	4.	500	11.	12.
Zinc (mg/kg)	SW3050/SW6010	1.	20000	22. J[1]	23. J[1]
Di-n-Octyl Phthalate (mg/kg)	SW3550/SW8270	.5	1000	ND	1.1

Footnotes:

* Chromium results from method 7191. Sample analyzed at a later date.

\# Sample detection limit differs from project detection limit. (Sample detection limits are listed in Appendix G.)

J[1] Estimate. Recovery of analyte from matrix spike and/or matrix spike duplicate was not within limits.

J[2] Estimate. Analyte detected in method blank.

Summary Table A2: Phase II, Stage 2 Data Comparison

Analyte / Symbol	Phase II, Stage 2 Method Detection Limits (mg/kg)	1997 Approved Background Concentrations (mg/kg) (1)
Antimony / Sb (2)	***20***	***3.9***
Arsenic / As	NT	4.4
Barium / Ba	1.0	200
Beryllium / Be	0.2	0.80
Cadmium / Cd (2)	***2.0***	***0.9***
Total Chromium / Cr	4.0	17.3
Cobalt / Co	4.0	8.8
Copper / Cu	3.0	17
Lead / Pb (2)	***20***	***11.2***
Mercury / Hg	0.1	<0.1
Nickel / Ni	5.0	25.4
Selenium / Se	NT	<1.0
Silver / Ag (2)	***4.0***	***<1.0***
Thallium / Tl (2)	***200***	***<1.0***
Tin / Sn	NT	<10
Uranium / U	NT	2.3
Vanadium / V	4.0	33.0
Zinc / Zn	1.0	76.0

(1) = Approved Background Concentrations, Sandia National Laboratories/Kirtland AFB, September 1997, Table 1. Concentrations are those for the North Super Group Area.

(2) = Laboratory detection limit exceeds KAFB/NMED/HRMB approved background concentration (bold/italicized).

NT = not tested.

< = less than

Comment 3

3. KAFB should submit sample analysis results for the surface-water samples (0108 and 0109) collected during the Phase II, Stage 2 RFI. See General Comment 1.

Response:

As described on page 3-16, Section 3.2.1.3 of the Phase II, Stage 2 RFI Report, (USAF, 1993b) three surface water samples were collected at two locations (0108, 0109, and duplicate sample at 0109).

Detected analytes for the three surface-water samples, taken from the Phase II, Stage 2 RFI report (USAF, 1993b, page 3-25), are listed in Summary Table 3.2.1.3.3 contained in Attachment 1 for Comment 3.

Surface water samples were analyzed for TPH; halogenated VOCs; aromatic VOCs; SVOCs; total-recoverable and dissolved-metals screen, arsenic, lead, mercury, chromium and selenium; total dissolved solids; common anions; total nitrogen (nitrate/nitrite nitrogen, ammonia-nitrogen, TKN); and explosives. Complete laboratory analytical reports are contained in Appendix G, Volume III, pages G-92 to G-151 (USAF, 1993b).

Table 3.2.1.3.3–Analytes detected in surface-water samples at site 1 (Landfill 1)

[Boldface indicates result equals or exceeds action level. ND means analyte was not detected. ND is in parentheses with sample detection limit if sample detection limit was different from project detection limit]

		FIELD SAMPLE NUMBER		010801-2	010901-2	010902-2
		LAB SAMPLE NUMBER		09261-001	09261-002	09261-003
		SAMPLE DATE		25 APR 90	25 APR 90	25 APR 90
		SAMPLE DESCRIPTION		Site 1 Location 8 Surface-water sample	Site 1 Location 9 Surface-water sample	Site 1 Location 9 Surface-water sample dup.
Analyte (units)	Method	Project detection limit	Action level	Result	Result	Result
Alkalinity, total (mg/L)	A403	10.	-	76.	63.	60.
pH (pH units)	E150.1	NA	-	8.22	7.81	7.76
Specific conductance (uS/cm)	E120.1	NA	-	110.	138.	140.
Nitrogen, Kjeldahl (mg/L)	E351.2	.5	-	0.86	0.68	0.58
Nitrogen, nitrate-nitrite (mg/L)	E353.2	.1	10.0 *	0.20 #	0.21 #	0.21 #
Petroleum hydrocarbons (mg/L)	E418.1	1.	-	0.54 #	0.25 #	0.27 #
Total dissolved solids (mg/L)	E160.1	10.	-	115. R	126. R	124. R
Chloride (as Cl) (mg/L)	A429	.5	-	1.3	1.5	1.4
Phosphorus (as P) (mg/L)	A429	.5	-	0.87	0.86	0.86
Sulfate (as SO_4) (mg/L)	A429	.5	-	4.9	6.0	6.0
Calcium, dissolved (mg/L)	SW6010	5.	-	14.5	18.3	18.5
Calcium, total (mg/L)	SW3005/SW6010	5.	-	14.8	18.8	18.9
Chromium, gotal (mg/L)	SW3005/SW7191	.001	0.05	0.0024	0.0022	0.0025
Iron, dissolved (mg/L)	SW6010	.04	-	0.064	ND	ND
Iron, total (mg/L)	SW3005/SW6010	.04	-	0.093	ND	0.052
Zinc, total (mg/L)	SW3005/SW6010	.04	10.0	(ND 0.01)	(ND 0.01)	0.011 #
Di-n-butyl phthalate (µg/L)	SW3520/SW8270	10.	3,000	16.	43.	29.

Sample detection limit differs from project detection limit. (Sample detection limits are listed in Appendix G.)
* Action level is for nitrate.
R May be unusable for some purposes. Holding time exceeded.

Comment 4

4. KAFB should submit sample analysis results for the sediment samples (0108 and 0109) collected during the Phase II, Stage 2 RFI. See General Comment 1.

Response:

As described on page 3-16, Section 3.2.1.3 of the Phase II, Stage 2 RFI Report (USAF, 1993b) three ephemeral stream-bottom sediment samples were collected at two locations (0108, 0109, and a duplicate sample at 0109).

Analytes detected in the three stream-bottom sediment samples taken from the Phase II, Stage 2 RFI Report (USAF, 1993b, page 3-24), are listed in Summary Table 3.2.1.3.2 contained in Attachment 1 for Comment 4.

Stream-bottom sediments were analyzed for the same constituents as the soil samples (refer to comment response 2). Complete laboratory analytical reports are contained in Appendix G, Volume III, pages G-92 to G-151 (USAF, 1993b).

Table 3.2.1.3.2--Analytes detected in samples from stream-bottom sediment at site 1 (Landfill 1)
[Boldface indicates results equals or exceeds action level. ND means analyte was not detected. ND is in parentheses with sample detection limit if sample detection limit was different from project detection limit]

		FIELD SAMPLE NUMBER		010801-1	010901-1	010902-1
		LAB SAMPLE NUMBER		09261-004	09261-005	09261-006
		SAMPLE DATE		25 APR 90	25 APR 90	25 APR 90
		SAMPLE DESCRIPTION		Site 1 Location 8 Stream-bottom sediment	Site 1 Location 9 Stream-bottom sediment	Site 1 Location 9 Stream-bottom sediment dup.
Analyte (units)	Method	Project detection limit	Action Level	Result	Result	Result
Moisture (percent)	E160.3	0.1	-	10.7	8.3	9.6
Nitrogen, ammonia (mg/kg)	E350.1	.5	-	0.64	0.75	0.95
Nitrogen, Kjeldahl (mg/kg)	E351.2	50.	-	11.6 #	8.6 #	8.1 #
Nitrogen, nitrate-nitrite (mg/kg)	E353.2	1.	100000	0.78#	(ND 0.5)	(ND 0.5)
Petroleum hydrocarbons (mg/kg)	SW3550/E418.1	30.	-	28.9 #	76.9 #	8.3 #
Aluminum (mg/kg)	SW3050/SW6010	20.	-	1736.	2530.	2456.
Barium (mg/kg)	SW3050/SW6010	10.	5000	31.8	108.4	35.5
Beryllium (mg/kg)	SW3050/SW6010	.2	0.1	ND	0.22	ND
Calcium (mg/kg)	SW3050/SW6010	500.	-	8141.	7088.	5033.
Chromium (mg/kg)	SW3050/SW7191	.1	400	6.7J	7.3J	8.1J
Copper (mg/kg)	SW3050/SW6010	3.	-	5.6	5.9	7.9
Iron (mg/kg)	SW3050/SW6010	4.	-	21053.	19520.	22788.
Magnesium (mg/kg)	SW3050/SW6010	500.	-	1054.	1472.	1571.
Manganese (mg/kg)	SW3050/SW6010	1.	400	130.	142.	156.
Potassium (mg/kg)	SW3050/SW6010	500.	-	ND	603.	822.
Silver (mg/kg)	SW3050/SW6010	3.	400	8.6	8.2	9.5
Vanadium (mg/kg)	SW3050/SW6010	4.	500	44.8	45.0	51.5
Zinc (mg/kg)	SW3050/SW6010	1.	20000	15.0	20.4	23.7

Sample detection limit differs from project detection limit. (Sample detection limits are listed in Appendix G.)
J Estimate. Analyte detected in method blank.

Comment 5

5. **KAFB should submit analytical results for ground-water samples collected from monitor well KAFB 0107. Results should include those of the December 1983 sampling event (Phase II Stage 1 RFI) and any other sampling events that have occurred after 1983. See General Comment 1.**

Response:

Groundwater samples were collected from monitoring well KAFB-0107 during three events since 1983. The three periods are described below and include the Phase II, Stage 1 RFI (SAIC, 1985), the Phase II, Stage 2 RFI (USAF, 1993b), and the Phase II, Stage 2A RFI (USAF, 1993a).

Phase II, Stage 1 (1984 Data)

Two water samples (DM-01 #1 and DM-01 #2) were collected for total organic halogens (TOX), total organic carbon (TOC), and nitrate nitrogen analysis at groundwater monitoring well DM-01 (previous designation for well KAFB-0107). Sample DM-01 #1 was destroyed during shipment to the laboratory; and, subsequent collection and analysis of DM-01 #2 was performed later in January 1984. The results of these analyses are presented in Summary Table 4.2 (Attachment 1 for Comment 5). The laboratory analytical report taken from Appendix G (SAIC, 1985) is also included as Attachment 2 for Comment 5.

Phase II, Stage 2 (1990 Data)

Groundwater samples were collected three times in 1990 for the Stage 2 investigation from existing monitoring well KAFB-0107 (U.S. Geological Survey designation and current identification for well DM-01). This well had not been sampled since its initial sampling in 1984 by SAIC. The first water sample from well KAFB-0107 (April 24, 1990) was analyzed for the same constituents as were the surface water samples (see comment response 3 above). The second sample from this well (September 18, 1990) was analyzed for halogenated VOCs, total-recoverable and dissolved chromium, total nitrogen, nitrate/nitrite nitrogen, TOC, and TOX. The third sample from this well (December 4, 1990) was analyzed for total-recoverable and dissolved chromium, total nitrogen, nitrate/nitrite nitrogen, TOC, and TOX. At the request of the United States Environmental Protection Agency (EPA), the third sample was also analyzed for explosives and RCRA Appendix IX contaminants including: VOCs, SVOCs, dioxins, furans, pesticides, polychlorinated biphenyls, herbicides, total-recoverable and dissolved-metals screen, cyanide, and sulfide.

Analytes detected in groundwater are listed in Summary Table 3.2.1.3.4 (Attachment 3 for Comment 5), and complete laboratory analytical reports are contained in Appendix G, Volume III, pages G-78 to G-91PP (USAF, 1993b).

Phase II, Stage 2A (1991-1993 Data)

Monitoring well KAFB-0107 was sampled five times from 1991 through 1993. This well was sampled only for the inorganics total chromium, hexavalent chromium, chloride, and nitrate plus nitrite. Table 4.2.1.3 (Attachment 4 for Comment 5) summarizes the detected analyte results of

groundwater analyses for inorganic constituents from monitoring well KAFB-0107, as well as the seven groundwater monitoring wells installed at LF-01 (KAFB-0110 through KAFB-0115 and KAFB-0117).

Table 4.2.1.4 summarizes the detected analyte results of groundwater analyses for organic constituents. Monitoring well KAFB-0107 was sampled four times for TOX and TOC from 1991 through 1993. Groundwater monitoring well analytical results for KAFB-0110 through KAFB-0115 and KAFB-0117 are also included as Attachment 5 for Comment 5.

The Phase II, Stage 2A groundwater section text (USAF, 1993a, pages 4.39 to 4.46 [without figures]) has been included in Attachments 4-6 for Comment 5 and includes summary detections of VOCs (see Attachment 6 for Comment 5). Complete laboratory analytical reports are contained in Appendix G, Volume V, pages 1-1 to 1-331 (USAF, 1993a).

1984 Groundwater Data

Comment 5
Attachments 1 & 2

TABLE 4.2 SUMMARY OF WATER SAMPLING AT WELLS DM-01 AND DM-02, KIRTLAND AIR FORCE BASE, NM

PARAMETER	DM-01	DM-02 N/A
Screened Interval	415-465 ft, BGS(1)	378-428 ft, BGS
Total Depth	475 ft, BGS	438 ft, BGS
Static Water Level	421 ft, BGS	378 ft, BGS
Pump Intake	440 ft, BGS	398 ft, BGS
Pumping Rate	8 hrs at 1 gpm	5 hrs at 2 gpm
Field Conductivity	290 mmhos	650 mmhos
Collection Date	23 January 1984	27 January 1984
Sample Number	DM-01 #2(2)	DM-02 #1
TOX (Haloscan)		
Organic Chloride	0.02 mg/l(3)	0.1 mg/l
Organic Bromide	ND(4)	0.004 mg/l
Organic Iodide	ND	ND
Total Organic Carbon	ND	ND
Nitrate Nitrogen	0.03 mg/l	4.0 mg/l

(1)ft, BGS = feet below ground surface
(2)DM-01 #1 destroyed in transit
(3)mg/l = milligrams per liter
(4)ND = not detected

Comment 5
Attachment 1

ANALYTICAL REPORT

ENVIRONMENTAL RESEARCH GROUP, INC.

ERG PROJECT NO. A1630 - JRB ASSOCIATES, INC 02-23-84

N/A

CLIENT I.D.: DM-02 #1
ERG SAMPLE NO: 01/102099
MATRIX: NATURAL WATER
DATE COLLECTED: 01-27-84

PARAMETER	RESULTS	UNITS
CARBON, TOTAL ORGANIC,	ND (2)	mg/L
HALOSCAN - T		
ORGANIC CHLORIDE	0.01	mg/L
ORGANIC BROMIDE	0.004	mg/L
ORGANIC IODINE	ND (0.002)	mg/L
NITROGEN, NITRATE	4.0	mg/L

N/A

CLIENT I.D.: DM-01 #2
ERG SAMPLE NO: 01/102100
MATRIX: NATURAL WATER
DATE COLLECTED: 01-23-84

PARAMETER	RESULTS	UNITS
CARBON, TOTAL ORGANIC,	ND (2)	mg/L
HALOSCAN - T		
ORGANIC CHLORIDE	0.02	mg/L
ORGANIC BROMIDE	ND (0.004)	mg/L
ORGANIC IODINE	ND (0.002)	mg/L
NITROGEN, NITRATE	0.03	mg/L

FR - SEE FIELD REPORT FOR RESULT
NA - NOT APPLICABLE TO TEST REQUESTED
ND - NONDETECTED, DETECTION LIMIT IN ()
SD - SAMPLE DAMAGED
SR - SEE ATTACHED REPORT FOR RESULT
< - POSITIVE RESULT BUT AT UNQUANTIFIABLE CONCENTRATION BELOW INDICATED LEVEL

THANK YOU FOR YOUR BUSINESS !

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PAGE 9 LAST PAGE

Comment 5
Attachment 2

1990 Groundwater Data

Comment 5
Attachment 3

Table 3.2.1.3.4—Analytes detected in ground-water samples from monitoring well DM-01 at site 1 (Landfill 1)
[ND means analyte was not detected. ND is in parentheses with sample detection limit if sample detection limit was different from project detection limit. Dash (-) indicates that concentration was not determined]

		FIELD SAMPLE NUMBER		010701-2	010703-2	010705-2	010707-2
		LAB SAMPLE NUMBER		09226-001	11386-001	12703-002	12703-001
		SAMPLE DATE		24 APR 90	18 SEP 90	04 DEC 90	04 DEC 90
		SAMPLE DESCRIPTION		Site 1 Well DM-01 Environmental sample	Site 1 Well DM-01 Environmental sample	Site 1 Well DM-01 Duplicate	Site 1 Well DM-01 Environmental sample
Analyte (units)	Method	Project detection limit	Action level	Result	Result	Result	Result
Alkalinity, total (mg/L)	A403	10.	-	122.	-	-	-
pH (pH units)	E150.1	NA	-	8.05	8.04	8.11	8.11
Specific conductance (uS/cm)	E120.1	NA	-	290.	280.	280.	280.
Temperature (degrees Celsius)	E170.1	NA	-	19.0	20.7	17.5	17.5
Turbidity (ntu)	E180.1	NA	-	-	-	95.	95.
Nitrogen, nitrate-nitrite (mg/L)	E353.2	.1	10.0 *	0.065 #	(ND 0.050)	(ND 0.05)	(ND 0.05)
Petroleum hydrocarbons (mg/L)	E418.1	1.	-	0.20 #	-	-	-
Total dissolved solids (mg/L)	E160.1	10.	-	198. R	-	-	-
Chloride (as Cl) (mg/L)	A429	.5	-	8.3	-	-	-
Fluoride (mg/L)	A429	.5	1.6	0.50	-	-	-
Phosphorus (as P) (mg/L)	A429	.5	-	0.88	-	-	-
Sulfate (as SO_4) (mg/L)	A429	.5	-	27.2	-	-	-
Barium, dissolved (mg/L)	SW6010	.1	1.0	0.11	-	0.12 #	0.13 #
Barium, total (mg/L)	SW3005/SW6010	.1	1.0	0.11 #	-	-	-
Barium, total (mg/L)	SW3010/SW6010	.1	1.0	-	-	0.21 #	0.20 #
Calcium, dissolved (mg/L)	SW6010	5.	-	33.3	-	-	-
Calcium, total (mg/L)	SW3005/SW6010	5.	-	32.6	-	-	-
Chromium, dissolved (mg/L)	SW7191	.001	0.05	0.0066	(ND 0.005)	(ND 0.010)	(ND 0.005)
Chromium, total (mg/L)	SW3005/SW7191	.001	0.05	0.0080J	-	-	-

Table 3.2.1.3.4–Analytes detected in ground-water samples from monitoring well DM-01 at site 1 (Landfill 1)–Concluded

		FIELD SAMPLE NUMBER		010701-2	010703-2	010705-2	010707-2
		LAB SAMPLE NUMBER		09226-001	11386-001	12703-002	12703-001
		SAMPLE DATE		24 APR 90	18 SEP 90	04 DEC 90	04 DEC 90
		SAMPLE DESCRIPTION		Site 1 Well DM-01 Environmental sample	Site 1 Well DM-01 Environmental sample	Site 1 Well DM-01 Duplicate	Site 1 Well DM-01 Environmental sample
Analyte (units)	Method	Project detection limit	Action level	Result	Result	Result	Result
Chromium, total (mg/L)	SW3020/SW7191	0.001	0.05	-	0.024 #	0.0064#	(ND 0.010)
Lead, total (mg/L)	SW3020/SW7421	.005	0.05	-	-	0.0072	0.0063
Magnesium, tissolved (mg/L)	SW6010	5.	-	5.3	-	-	-
Magnesium, total (mg/L)	SW3005/SW6010	5.	-	5.0	-	-	-
Manganese, dissolved (mg/L)	SW6010	.01	0.1	0.013	-	-	-
Manganese, total (mg/L)	SW3005/SW6010	.01	0.1	0.015	-	-	-
Sodium, dissolved (mg/L)	SW6010	5.	-	20.5	-	-	-
Sodium, total (mg/L)	SW3005/SW6010	5.	-	20.6	-	-	-
Vanadium, total (mg/L)	SW3010/SW6010	.04	0.2	-	-	0.013 #	0.012 #
Zinc, dissolved (mg/L)	SW6010	.04	10.0	0.24 #J	-	0.058 #	0.030 #
Zinc, total (mg/L)	SW3010/SW6010	.04	10.0	-	-	0.38 #	0.37 #
Zinc, total (mg/L)	SW3005/SW6010	.04	10.0	0.23 #	-	-	-
Total organic carbon (mg/L)	SW9060	.5	-	-	0.69	ND	0.72

Sample detection limit differs from project detection limit. (Sample detection limits are listed in Appendix G.)
* Action level is for nitrate.
R May be unusable for some purposes. Holding time exceeded.
J Estimate. Recovery of analyte from matrix spike and/or matrix spike duplicate was not within limits.

1991-1993 Groundwater Data

Comment 5
Attachments 4 & 5

4.2.1.5.4 Ground water

Seven ground-water monitoring wells were installed to determine whether a release had occurred at Site 1. The monitor well network installed at Site 1 was based on an assumed northeasterly ground-water flow direction. Well DM-01 was sampled periodically during the project and was given the well designation KAFB0107.

Table 4.2.1.3 summarizes the results of ground-water analyses for inorganic constituents. In the following discussion of metals, which were analyzed for dissolved and total concentrations, only detections in the dissolved analyses are discussed. In the total analyses, the sediments which were collected with the water sample were digested and included in the analyses, and thus the results do not reflect the natural level of dissolved metals in the water.

Well KAFB0107, drilled and sampled prior to Stage 2A, was sampled five times in 1991 through 1993. This well was sampled only for the inorganics chromium (total), hexavalent chromium, chloride, and nitrate plus nitrite. Nitrate plus nitrite was detected at concentrations of 0.051 to 0.060 mg/L in three of the samples, but not in the most recent sample (January, 1993), which had a lower quantitation limit than the previous samples. These concentrations are very small compared to the action level of 10 mg/L and the UTL of 9.78 mg/L. Dissolved chromium (total species) was detected at 0.0030 mg/L in the June 1991 sample but not in three other samples. The action level for chromium (total) is 0.05 mg/L and the UTL is 0.026 mg/L. Dissolved hexavalent chromium was detected in the first two samples from KAFB0107 at 0.011 and 0.016 mg/L. The action level for hexavalent chromium is listed as 0.175 mg/L on table 4.1.3.2, but since it is included in the total species analysis, the action level is 0.05 mg/L. Chloride was detected in the June and November 1991 samples at levels less than 4 percent of the action level of 250 mg/L and the UTL of 194 mg/L.

Analyses of dissolved metals in the seven Stage 2A monitor wells at Site 1 showed that no metals were detected above RCRA risk-based or other action levels or UTLs except that arsenic was detected at 0.014 mg/L (action level 0.011 mg/L, UTL 0.005 mg/L) in the sample from monitor well KAFB0112. Aluminum, antimony, beryllium, cadmium, cobalt, iron, mercury, nickel, silver, thallium, and tin were not detected in dissolved analyses from these seven wells. The following table summarizes the detections of metals that have action levels.

Table 4.2.1.3--Concentrations of inorganic analytes above quantitation limit in ground-water samples from Site 1

Well/sample ID:	KAFB010708-2		KAFB010709-2		KAFB010711-2		KAFB010714-2		KAFB010715-2		KAFB010716-2	
Date sampled:	3-12-91		3-12-91		6-7-91		11-20-91		5-22-92		1-22-93	
Depth (feet):	440		440		444		443		443		453	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
SW7191D (mg/L) Chromium	ND	0.0010	ND	0.0010	0.0030	0.0020	ND	0.0020	--	--	--	--
SW7191T (mg/L) Chromium	0.011	0.0010	0.0092	0.0010	ND	0.0040	0.0097	0.0020	--	--	--	--
SW7196D (mg/L) Chromium (VI)	0.011	0.010	0.016	0.010	ND	0.010	ND	0.0010	--	--	--	--
SW7196T (mg/L) Chromium (VI)	0.020	0.010	0.024	0.010	ND	0.010	0.011	0.010	--	--	--	--
A429 (mg/L) Chloride	--	--	--	--	6.50	0.50	5.90	0.50	--	--	--	--
E353.2 (mg/L) Nitrate plus Nitrite as N	ND	0.10	ND	0.10	0.060	0.050	0.053	0.050	0.051	0.050	--	--

Well/sample ID:	KAFB011008-2		KAFB011108-2		KAFB011109-2		KAFB011206-2		KAFB011312-2		KAFB011409-2		KAFB011508-2		KAFB011707-2	
Date sampled:	3-16-93		3-18-93		3-18-93		4-1-93		3-15-93		3-23-93		3-19-93		3-22-93	
Depth (feet):	390		450		450		441		400		445		431		430	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
SW6010D (mg/L)																
Aluminum	ND	0.30	ND	0.30	ND	0.30	ND	0.30	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Antimony	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Barium	0.093	0.010	0.099	0.010	0.094	0.010	0.018	0.010	0.10	0.010	0.10	0.010	0.099	0.010	0.087	0.010
Beryllium	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040
Cadmium	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050
Calcium	33.7	0.50	35.3	0.50	34.9	0.50	8.20	0.50	34.3	0.50	31.0	0.50	37.7	0.50	31.7	0.50
Cobalt	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040
Copper	ND	0.020	0.0054 J	0.020	ND	0.020	ND	0.020	ND	0.020	ND	0.020	ND	0.020	ND	0.020
Iron	ND	0.050	ND	0.050	ND	0.050	ND	0.050	ND	0.050	ND	0.050	ND	0.050	ND	0.050
Magnesium	5.70	0.40	6.70	0.40	6.80	0.40	2.15	0.40	5.70	0.40	5.13	0.40	6.40	0.40	4.77	0.40
Manganese	0.015	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010	ND	0.010
Molybdenum	ND	0.040	ND	0.040	0.0091 J	0.040	0.031 J	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040
Nickel	ND	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060
Potassium	3.00 J	5.0	3.90 J	5.0	3.80 J	5.0	3.03 J	5.0	3.10 J	5.0	2.90 J	5.0	3.40 J	5.0	2.97 J	5.0
Silver	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040
Sodium	22.9	1.0	27.6	1.0	28.9	1.0	106	1.0	24.6	1.0	22.6	1.0	28.2	1.0	24.2	1.0
Tin	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Vanadium	ND	0.030	0.012 J	0.030	0.011 J	0.030	0.0087J	0.030	ND	0.030	0.0073 J	0.030	0.0083 J	0.030	0.0084 J	0.030
Zinc	0.070	0.020	0.011 J	0.020	0.0092 J	0.020	ND	0.020	0.021	0.020	ND	0.020	0.024	0.020	ND	0.020

Table 4.2.1.3--Concentrations of inorganic analytes above quantitation limit in ground-water samples from Site 1--Continued

Well/sample ID: Date sampled: Depth (feet):	KAFB011008-2 3-16-93 390		KAFB011108-2 3-18-93 450		KAFB011109-2 3-18-93 450		KAFB011206-2 4-1-93 441		KAFB011312-2 3-15-93 400		KAFB011409-2 3-23-93 445		KAFB011508-2 3-19-93 431		KAFB011707-2 3-22-93 430	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
SW6010T (mg/L)																
Aluminum	20.7	0.30	0.080 J	0.30	ND	0.30	0.094 J	0.30	0.37	0.30	0.32	0.30	0.12 J	0.30	0.10 J	0.30
Antimony	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Barium	0.77	0.010	0.093	0.010	0.095	0.010	0.029	0.010	0.12	0.010	0.13	0.010	0.093	0.010	0.097	0.010
Beryllium	0.0025 J	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040	ND	0.0040
Cadmium	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050
Calcium	69.7	0.50	30.7	0.50	31.4	0.50	9.27	0.50	31.5	0.50	30.7	0.50	32.8	0.50	30.7	0.50
Cobalt	0.015 J	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040
Copper	0.038	0.020	0.0067 J	0.020	0.0053 J	0.020	0.0061J	0.020	0.0060 J	0.020	0.0058 J	0.020	ND	0.020	ND	0.020
Iron	24.2	0.050	ND	0.050	ND	0.050	0.061	0.050	0.65	0.050	0.40	0.050	ND	0.050	0.12	0.050
Magnesium	15.7	0.40	5.60	0.40	5.80	0.40	2.66	0.40	4.90	0.40	5.00	0.40	5.30	0.40	4.49	0.40
Manganese	2.10	0.010	0.013	0.010	0.0029 J	0.010	0.0037J	0.010	0.052	0.010	0.040	0.010	0.0078 J	0.010	0.0096 J	0.010
Molybdenum	ND	0.040	ND	0.040	ND	0.040	0.031 J	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040
Nickel	0.033 J	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060	ND	0.060
Potassium	6.10	5.0	2.70 J	5.0	2.60 J	5.0	3.41 J	5.0	2.80 J	5.0	2.77 J	5.0	2.60 J	5.0	2.29 J	5.0
Silver	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040	ND	0.040
Sodium	25.4	1.0	22.7	1.0	24.5	1.0	108	1.0	23.1	1.0	21.7	1.0	24.8	1.0	21.1	1.0
Tin	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Vanadium	0.036	0.030	0.011 J	0.030	0.0079 J	0.030	0.012 J	0.030	0.0091 J	0.030	0.010 J	0.030	0.0079 J	0.030	0.0071 J	0.030
Zinc	1.70	0.020	0.019 J	0.020	0.023	0.020	0.036	0.020	0.37	0.020	0.044	0.020	0.030	0.020	0.056	0.020
SW7060D (mg/L) Arsenic	0.0010 J	0.0050	0.0013 J	0.0050	0.0014 J	0.0050	0.014	0.0050	0.0013 J	0.0050	0.0011 J	0.010	0.0010 J	0.0050	0.0015 J	0.010
SW7060T (mg/L) Arsenic	0.0030 J	0.0050	0.0015 J	0.0050	0.0017 J	0.0050	0.021	0.010	0.0013 J	0.0050	0.014	0.0050	0.0013 J	0.0050	0.0014 J	0.0050
SW7191D (mg/L) Chromium	0.0080 J	0.020	0.0032 J	0.020	0.0044 J	0.020	0.0074J	0.020	0.010	0.010	0.0033 J	0.020	0.0040 J	0.020	0.019	0.010
SW7191T (mg/L) Chromium	0.049	0.010	0.0099 J	0.020	0.0092 J	0.020	0.022	0.010	0.022	0.010	0.010	0.010	0.0088 J	0.020	0.010	0.010
SW7421D (mg/L) Lead	0.0027 J	0.010	0.0028 J	0.010	0.0023 J	0.010	ND	0.010	0.0022 J	0.010	ND	0.010	ND	0.010	ND	0.010
SW7421T (mg/L) Lead	0.044	0.010	ND	0.0050	0.0023 J	0.0050	ND	0.0050	0.0049 J	0.0050	0.0031 J	0.0050	0.0022 J	0.0050	ND	0.0050
SW7740D (mg/L) Selenium	ND	0.0050	ND	0.0050	ND	0.0050	0.0023J	0.0050	ND	0.0050	ND	0.0050	ND	0.0050	ND	0.0050
SW7740T (mg/L) Selenium	ND	0.0050	ND	0.0050	ND	0.0050	0.0020J	0.0050	0.0020 J	0.0050	ND	0.0050	ND	0.0050	ND	0.0050
A429 (mg/L)																
Nitrate as N	0.36	0.10	0.71	0.10	0.71	0.10	ND	0.10	0.54	0.10	ND	0.10	0.48	0.10	ND	0.10
Orthophosphate as P	ND	0.50	1.10	0.50	0.94	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50

Table 4.2.1.3--Concentrations of inorganic analytes above quantitation limit in ground-water samples from Site 1--Continued

Well/sample ID: Date sampled: Depth (feet):	KAFB011008-2 3-16-93 390		KAFB011108-2 3-18-93 450		KAFB011109-2 3-18-93 450		KAFB011206-2 4-1-93 441		KAFB011312-2 3-15-93 400		KAFB011409-2 3-23-93 445		KAFB011508-2 3-19-93 431		KAFB011707-2 3-22-93 430	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
E300 (mg/L)																
Chloride	7.70	0.50	11.9	0.50	11.9	0.50	7.90	0.50	10.6	0.50	6.40	0.50	8.40	0.50	7.10	0.50
Fluoride	0.42	0.20	0.36	0.20	0.38	0.20	ND	0.20	0.42	0.20	0.40	0.20	0.38	0.20	0.38	0.20
Sulfate	27.5	1.0	32.7	1.0	32.6	1.0	48.0	1.0	29.2	1.0	26.3	1.0	27.9	1.0	26.2	1.0
E353.2 (mg/L) Nitrate plus Nitrite as N	0.25	0.10	0.72	0.10	0.73	0.10	0.17	0.10	0.47	0.10	0.061 J	0.10	0.43	0.10	0.17	0.10
E160.1 (mg/L) Total Dissolved Solids	229	30.0	232	30.0	229	30.0	319	30.0	221	30.0	192	30.0	217	30.0	195	30.0
E160.2 (mg/L) Total Suspended Solids	1850	125	4.40 J	5.0	4.00 J	5.0	4.00 J	5.0	30.0	5.0	21.6	5.0	5.20	5.0	5.20	5.0
E418.1 (mg/L)Total Petroleum Hydrocarbons	ND	1	ND	1	ND	1	ND	1	1.40	1	ND	1	ND	1	ND	1
D2907 (µg/L)Uranium	2.10	1.50	1.80	1.50	ND	1.50	1.80	1.50	ND	1.50	ND	1.50	3.50	1.50	ND	1.50
SW9310 (pCi/L)																
Gross Alpha	4.00 J	6.40	ND	6.40	ND	6.40	ND	6.40	2.50 J	6.40	ND	6.40	ND	6.40	ND	6.40
Gross Beta	17.0	8.0	4.00 J	8.0	5.10 J	8.0	3.00 J	8.0	4.50 J	8.0	3.80 J	8.0	3.70 J	8.0	2.40 J	8.0
E903.1 (pCi/L) Radium-226	ND	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0
E904.1 (pCi/L) Radium-228	ND	4.0	ND	4.0	ND	4.0	2.50 J	4.0	ND	4.0	ND	4.0	ND	4.0	2.50 J	4.0

Metal	Maximum Concentration (mg/L)	Action Level (mg/L)	UTL (mg/L)	Number of Wells with Detections
Barium	0.10	1.0	0.153	7
Copper	0.0054	1.0	none	1
Manganese	0.015	0.175	0.048	1
Molybdenum	0.031	0.175	none	2
Vanadium	0.12	0.315	0.017	5
Zinc	0.070	10	0.088	4
Arsenic	0.014	0.011	0.005	7
Chromium (total)	0.019	0.05	0.026	7
Lead	0.0027	0.015	none	3
Selenium	0.0023	0.05	none	1

Detections of other inorganic constituents are summarized in the following table. None of

Constituent	Maximum Concentration	Action Level	UTL	Number of Wells with Detections
Nitrate (mg/L)	0.71	10	none	4
Chloride (mg/L)	11.9	250	194	7
Fluoride (mg/L)	0.42	1.6	1.5	6
Sulfate (mg/L)	32.7	250	171	7
Nitrate plus Nitrite (mg/L)	0.73	10	9.78	7
Total Dissolved Solids (mg/L)	319	1,000	851	7
Total Petroleum Hydrocarbons (mg/L)	1.4	none	none	1
Uranium (µg/L)	3.5	20	5.71	4
Gross Alpha (pCi/L)	4.0	15	none	2
Gross Beta (pCi/L)	17.0	50	none	7
Radium 228 (pCi/L)	2.5	20	none	2

these constituents were detected above action levels or UTLs.

Table 4.2.1.4 summarizes the results of ground-water analyses for organic constituents. Well KAFB0107 was sampled for total organic halogen (TOX) and total organic carbon (TOC) four times in 1991 to 1993. TOX was detected at concentrations of 43.1 and 494 µg/L in the two most recent samples (no action level). TOC was detected at concentrations of 0.69 to 3.9 mg/L in the three most recent samples (no action level).

Table 4.2.1.4.--Concentrations of organic analytes above quantitation limit in ground-water samples from Site 1

Well/sample ID:	KAFB010708-2		KAFB10709-2		KAFB010711-2		KAFB010714-2		KAFB010715-2		KAFB010716-2	
Date sampled:	3-12-91		3-12-91		6-7-91		11-20-91		5-22-92		1-22-93	
Depth (feet):	440		440		444		443		443		453	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
SW9020 (ug/L) Total Organic Halogen as Cl	ND	30.5	ND	30.0	ND	30.0	--	--	43.1	30.0	494	150
E415.1 (mg/L) Total Organic Carbon	ND	0.50	ND	0.50	0.90	0.50	--	--	0.69	0.50	3.90	0.50

Well/sample ID:	KAFB011008-2		KAFB011108-2		KAFB011109-2		KAFB011206-2		KAFB011312-2		KAFB011409-2		KAFB011508-2		KAFB011707-2	
Date sampled:	3-16-93		3-18-93		3-18-93		4-1-93		3-15-93		3-23-93		3-19-93		3-22-93	
Depth (feet):	390		450		450		441		400		445		431		430	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
SW8260 (µg/L)																
Acetone	ND	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND	10	3.39 J	10
Acetonitrile	ND	50	ND	50	53.0	50	ND	50	ND	50	ND	50	ND	50	ND	50
Chloromethane	1.00	1.0	ND	1.0	ND	1.0	ND	1.0	1.20	1.0	ND	1.0	ND	1.0	ND	1.0
Dichlorodifluoromethane	0.64 J	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0	ND	2.0
EDB (1,2-Dibromoethane)	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Methylene chloride	0.54 J	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	0.35 J	1.0	ND	1.0	0.35 J	1.0
Tetrachloroethene	0.22 J	1.0	ND	1.0	ND	1.0	0.32 J	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Toluene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Trichloroethene	0.36 J	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,1-Dichloroethane	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,3-Dichlorobenzene	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
1,4-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND	0.50
2-Hexanone	3.40 J	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND	10	3.19 J	10
SW8270 (µg/L)																
Chrysene	1.10 J	3.0	ND	3.0	ND	3.0	ND	3.0	ND	3.0	ND	3.0	ND	3.0	ND	3.0
bis(2-Ethylhexyl) phthalate	ND	8.0	ND	8.0	ND	8.0	ND	8.0	ND	8.0	ND	8.0	ND	8.0	ND	8.0
SW8080 (µg/L) alpha-BHC	0.094	0.030	ND	0.030	ND	0.030	ND	0.030	ND	0.030	ND	0.030	ND	0.030	ND	0.030

VOCs were detected in six of the seven Stage 2A wells at concentrations below action levels. The following table summarizes detections of VOCs in monitor wells at Site 1. Most of these

Compound	Maximum Concentration (µg/L)	Action Level (µg/L)	Number of Wells with Detections
Acetone	3.39	3,500	1
Acetonitrile	53.0	210	1
Chloromethane	1.20	none	2
Dichlorodifluoromethane		7,000	1
Methylene chloride	0.54	4.67	3
Tetrachloroethene	0.32	5	2
Trichloroethene	0.36	5	1
2-hexanone	3.40	none	2

VOCs were detected below the quantitation limits and are flagged with "J"s as estimated.

Two other organic constituents were detected. The semi-volatile organic compound (SVOC) chrysene was detected in well KAFB0110 at a concentration of 1.10 µg/L, below the quantitation limit, but above the proposed action level of 0.2 µg/L. This proposed action level is 93 percent below the quantitation limit for Stage 2A. The pesticide alpha-BHC was detected in well KAFB0110 at a concentration of 0.094 µg/L, well above the action level of 0.0056 µg/L, which is 81 percent below the quantitation limit for Stage 2A.

Comment 6

6. KAFB should submit sample analysis results for the eight soil borings (0110 through 0117) completed during the Phase II, Stage 2A RFI. See General Comment 1.

Response:

Section 4.1.2, Statistical Analysis and Results of Background Data (USAF, 1993a, pages 4-4 to 4-18), details the analytical results of the RFI and how the data were statistically evaluated to determine relative Base wide background concentrations for naturally occurring metals in soil and groundwater quality parameters. Detected concentrations of soil (and groundwater) parameters were compared to the calculated upper tolerance limits (UTLs) for background values (approved background values did not exist at the time). Section 4.2.1 (pages 4-19 to 4-48) of Phase II, Stage 2A Report summarizes the entire investigation.

As described in Section 4.2.1.3.1, Soil, of the Phase II, Stage 2A Report (USAF, 1993a, page 4-22):

> A 100-foot-deep borehole was augured at each of eight sample locations. Soil samples were collected from depths at or near 5, 25, 50, and 100 feet from each borehole. In some boreholes, additional soil samples were collected at other depths, for beryllium analysis, and results are presented in Attachment 1 for Comment 6 (Phase II, Stage 2A RFI Report, Section 4.2.1.5.1). Boreholes KAFB-0113 and KAFB-0116 were each augured twice in close proximity to the first borehole, and soil samples were collected from each borehole. All samples were analyzed for metals, VOCs, SVOCs, and soil moisture.

Summary Tables 4.2.1.1 and 4.2.1.2 detail the results of soil analyses for inorganic and organic constituents, respectively, and are contained in Attachments 1 and 2 for Comment 6. A complete list of the laboratory analytical data including ND (non-detects), is contained in Appendix G, Volume IV, pages 1-1 to 1-287 (USAF, 1993a).

For purposes of continuity, the text of Section 4.2.1.5.1 from the Phase II, Stage 2A Report, (pages 4-25 to 4-35) has been included in the Attachments. The text describes and summarizes soil samples collected, laboratory analyses performed, and resulting laboratory analytical results for LF-01 during the Stage 2A investigation.

As described in comment response 2 above, detection limits for the Stage 2 investigation were compared to approved background concentrations and results were provided in Summary Table A2. The same comparison was performed for the Stage 2A investigation data; the results are detailed in Summary Table A6 contained in Attachment 3 for Comment 6.

4.2.1.5.1 Soils

Table 4.2.1.1 summarizes the results of soil analyses for inorganic constituents. Antimony, arsenic, cadmium, lead, mercury, molybdenum, selenium, silver, and thallium were not detected in soil samples at Site 1. Barium was detected in all samples to a maximum of 179 mg/kg, about 3 percent of the RCRA risk-based action level of 5,600 mg/kg. Total chromium was detected at a maximum of 19 mg/kg, less than 0.03 percent of the action level of 80,000 mg/kg, and about 5 percent of the action level of 400 mg/kg for hexavalent chromium. Nickel was detected at a maximum of 18.1 mg/kg, about 1 percent of the action level of 1,600 mg/kg. Zinc was detected at a maximum of 64.4 mg/kg, less than 1 percent of the action level of 24,000 mg/kg. Cobalt was detected at a maximum of 7.0 mg/kg; there is no action level for cobalt. Vanadium was detected at a maximum of 40.9 mg/kg: there is no action level for vanadium. These detected metals were found in most or all of the soil samples collected at Site 1.

The only inorganic constituents detected above action levels at Site 1 were beryllium and manganese. The action level for beryllium is 0.2 mg/kg, based on its carcinogenicity. The UTL for beryllium, based on 18 analyses, is 0.643 mg/kg. The following table summarizes the results of beryllium analyses at Site 1. Beryllium was detected in 29 of the 48 samples collected at Site 1

Depth (feet)	Soil Boring Number									
	0110	0111	0112	0113	0113	0114	0115	0116	0116	0117
5	0.30	0.33	0.68	1.2	0.92	ND	0.28, ND	0.33	0.24	ND
6	–	0.39	–	–	–	–	–	–	–	–
14	ND	–	–	–	–	–	–	–	–	–
25	0.30	0.40	0.32	ND	ND	0.47	0.36	0.84	0.87	0.84
30	–	–	–	–	–	–	–	ND	–	–
50	ND	0.39, 0.40	0.23	ND	ND	1.3	ND	0.66	0.29	1.1
69	–	–	–	–	–	–	ND	–	–	–
80	0.49	–	–	–	–	–	–	–	–	–
84	–	–	–	–	–	–	–	–	–	ND
100	ND (99)	0.53	ND	ND	0.32	ND	ND	ND	0.33	0.47

Notes: ND, not detected; –, not sampled; number or ND following a comma, duplicate sample result; number in parentheses, depth different from but near that shown at left; values are in milligrams per kilogram.

at a maximum concentration of 1.3 mg/kg. In eight of the samples, concentrations were above the UTL. These eight high concentrations were from five boreholes on various sides of the site at

Table 4.2.1.1--Concentrations of inorganic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)

Field ID:	KAFB011001-1		KAFB011002-1		KAFB011003-1		KAFB011004-1	
Batch ID:	014964-0001		014964-0002		014964-0003		014964-0004	
Depth (feet):	5		14		25		50	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	3650	20.0	1550	20.0	6470	20.0	1310	20.0
Barium	76.9	10.0	35.5	10.0	141	10.0	37.7	10.0
Beryllium	0.30	0.20	ND	0.20	0.30	0.20	ND	0.20
Calcium	12900	500	5500	500	12300	500	863	500
Chromium	4.1	3.0	ND	3.0	3.4	3.0	ND	3.0
Cobalt	ND	4.0	ND	4.0	4.6	4.0	ND	4.0
Copper	9.2	3.0	3.4	3.0	8.2	3.0	ND	3.0
Iron	7200	4.0	4940	4.0	12600	4.0	3610	4.0
Magnesium	1860	500	805	500	4790	500	819	500
Manganese	176	1.0	96.9	1.0	331	1.0	82.4	1.0
Nickel	4.1	4.0	ND	4.0	5.3	4.0	ND	4.0
Potassium	1070	500	ND	500	3420	500	ND	500
Sodium	ND	500	ND	500	ND	500	ND	500
Vanadium	14.2	4.0	5.5	4.0	19.3	4.0	6.8	4.0
Zinc	26.1	1.0	13.7	1.0	50.4	1.0	12.5	1.0

Field ID:	KAFB011005-1		KAFB011006-1		KAFB011101-1		KAFB011102-1	
Batch ID:	014984-0001		015012-0001		015092-0001		015092-0002	
Depth (feet):	80.5		99		5		6	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	3210	20.0	1640	20.0	3610	20.0	4550	20.0
Barium	84.3	10.0	68.9	10.0	58.4	10.0	83.5	10.0
Beryllium	0.49	0.20	ND	0.20	0.33	0.20	0.39	0.20
Calcium	1900	500	1080	500	17900	500	38800	500
Chromium	ND	4.0	ND	4.0	ND	4.0	ND	4.0
Cobalt	ND	4.0	ND	4.0	ND	4.0	ND	4.0
Copper	5.0	3.0	ND	3.0	3.9	3.0	5.0	3.0
Iron	4390	4.0	3140	4.0	5290	4.0	6580	4.0
Magnesium	2820	500	647	500	1750	500	2820	500
Manganese	271	1.0	59.1	1.0	117	1.0	136	1.0
Nickel	ND	4.0	ND	4.0	4.9	4.0	5.2	4.0
Potassium	954	500	ND	500	656	500	942	500
Sodium	ND	500	ND	500	ND	500	522	500
Vanadium	7.8	4.0	4.7	4.0	12.7	4.0	14.0	4.0
Zinc	17.1	1.0	11.5	1.0	14.3	1.0	19.1	1.0

Table 4.2.1.1—Concentrations of inorganic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)—Continued

Field ID:	KAFB011103-1		KAFB01104-1		KAFB011105-1		KAFB011106-1	
Batch ID:	015092-0003		015138-0001		015138-0002		015152-0006	
Depth (feet):	25		50		50 Dup		100	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	5500	20.0	5530	20.0	6780	20.0	4810	20.0
Barium	83.8	10.0	84.4	10.0	73.5	10.0	88.7	10.0
Beryllium	0.40	0.20	0.39	0.20	0.40	0.20	0.53	0.20
Calcium	11700	500	21500	500	21200	500	2310	500
Chromium	4.9	4.0	6.8	4.0	8.2	4.0	5.9	4.0
Cobalt	ND	4.0	ND	4.0	ND	4.0	ND	4.0
Copper	7.4	3.0	7.7	3.0	8.1	3.0	5.7	3.0
Iron	9930	4.0	10500	4.0	11600	4.0	10400	4.0
Magnesium	3170	500	3100	500	3540	500	2010	500
Manganese	251	1.0	214	1.0	246	1.0	198	1.0
Nickel	6.7	4.0	6.7	4.0	7.5	4.0	5.1	4.0
Potassium	1520	500	1240	500	1470	500	676	500
Sodium	ND	500	ND	500	ND	500	ND	500
Vanadium	19.9	4.0	21.3	4.0	23.0	4.0	22.3	4.0
Zinc	31.2	1.0	28.8	1.0	32.7	1.0	29.2	1.0

Field ID:	KAFB011201-1		KAFB011202-1		KAFB011203-1		KAFB011204-1	
Batch ID:	015152-0005		015152-0004		015152-0003		15152-0007	
Depth (feet):	5		25		50		100	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	8520	20.0	5710	20.0	2310	20.0	1500	20.0
Barium	122	10.0	56.8	10.0	40.5	10.0	14.7	10.0
Beryllium	0.68	0.20	0.32	0.20	0.23	0.20	ND	0.20
Calcium	17700	500	8450	500	14500	500	1140	500
Chromium	7.4	4.0	5.7	4.0	ND	4.0	ND	4.0
Cobalt	ND	4.0	ND	4.0	ND	4.0	ND	4.0
Copper	6.9	3.0	4.7	3.0	ND	3.0	ND	3.0
Iron	13500	4.0	7850	4.0	6350	4.0	4910	4.0
Magnesium	4610	500	2340	500	1310	500	699	500
Manganese	262	1.0	165	1.0	92.8	1.0	85.6	1.0
Nickel	7.0	4.0	4.9	4.0	ND	4.0	ND	4.0
Potassium	2020	500	1300	500	ND	500	ND	500
Sodium	1170	500	ND	500	ND	500	ND	500
Vanadium	27.1	4.0	16.2	4.0	7.0	4.0	8.9	4.0
Zinc	36.3	1.0	21.6	1.0	16.6	1.0	14.3	1.0

Table 4.2.1.1—Concentrations of inorganic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)—Continued

Field ID:	KAFB011301-1		KAFB011302-1		KAFB011303-1		KAFB011304-1	
Batch ID:	018075-0001		018075-0002		018075-0003		018090-0003	
Depth (feet):	5		25		50		100	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	22900	40.0	2210	20.0	1790	20.0	3130	20.0
Barium	179	20.0	40.8	10.0	39.7	10.0	58.5	10.0
Beryllium	1.2	0.40	ND	0.20	ND	0.20	ND	0.20
Calcium	57100	500	4890	500	1040	500	1640	500
Chromium	19.0	8.0	ND	4.0	ND	4.0	ND	4.0
Cobalt	ND	8.0	ND	4.0	ND	4.0	ND	4.0
Copper	17.8	6.0	ND	3.0	ND	3.0	5.0	3.0
Iron	23000#	8.0	4900#	4.0	4720#	4.0	6610	4.0
Magnesium	9420	1000	934	500	750	500	1370	500
Manganese	362	2.0	105	1.0	81.4	1.0	109	1.0
Nickel	18.1	8.0	ND	4.0	ND	4.0	ND	4.0
Potassium	3800	1000	ND	500	ND	500	590	500
Sodium	ND	1000	ND	500	ND	500	ND	500
Vanadium	40.9	8.0	7.8	4.0	9.5	4.0	12.1	4.0
Zinc	64.4	8.0	14.2	1.0	15.2	1.0	18.4	1.0

Field ID:	KAFB011305-1		KAFB011306-1		KAFB011307-1		KAFB011308-1	
Batch ID:	021346-0001		021346-0002		021346-0003		021346-0004	
Depth (feet):	5		25		50		100	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	12300	20.0	1800	20.0	2680	20.0	1880	20.0
Barium	57.5	10.0	55.3	10.0	30.4	10.0	31.6	10.0
Beryllium	0.92	0.20	ND	0.20	ND	0.20	0.32	0.20
Calcium	54500	500	8170	500	1360	500	1130	500
Chromium	9.6	4.0	ND	4.0	7.5	4.0	ND	4.0
Cobalt	6.5	4.0	ND	4.0	ND	4.0	ND	4.0
Copper	14.8	3.0	ND	3.0	4.0	3.0	3.1	3.0
Iron	15000	4.0	4570	4.0	8340	4.0	4690	4.0
Magnesium	6780	500	862	500	1480	500	916	500
Manganese	321	1.0	141	1.0	156	1.0	65.3	1.0
Nickel	14.0	4.0	ND	4.0	6.4	4.0	ND	4.0
Potassium	2060	500	ND	500	ND	500	ND	500
Sodium	602	500	ND	500	ND	500	ND	500
Vanadium	31.1	4.0	7.4	4.0	16.0	4.0	8.3	4.0
Zinc	38.8	1.0	11.2	1.0	31.9	1.0	11.7	1.0

Table 4.2.1.1--Concentrations of inorganic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)--Continued

Field ID:	KAFB011401-1		KAFB011402-1		KAFB011403-1		KAFB011405-1	
Batch ID:	018090-0001		018090-0002		018400-0002		018514-0006	
Depth (feet):	5		25		50		100	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	5300	20.0	8670	20.0	19000	40.0	1540	20.0
Barium	65.9	10.0	132	10.0	166	20.0	33.2	10.0
Beryllium	ND	0.20	0.47	0.20	1.3	0.40	ND	0.20
Calcium	34600	500	18100	500	66600	1000	1240	500
Chromium	5.7	4.0	7.2	4.0	16.7	8.0	ND	4.0
Cobalt	ND	4.0	4.7	4.0	ND	8.0	ND	4.0
Copper	4.4	3.0	10.5	3.0	18.6	6.0	ND	3.0
Iron	7760	4.0	14100	4.0	21200	8.0	3980	4.0
Magnesium	2400	500	4540	500	8690	1000	852	500
Manganese	89.9	1.0	304	1.0	456	2.0	94.6	1.0
Nickel	4.2	4.0	7.9	4.0	17.5	8.0	ND	4.0
Potassium	1030	500	2360	500	3140	1000	ND	500
Sodium	ND	500	ND	500	ND	1000	ND	500
Vanadium	17.6	4.0	27.3	4.0	37.6	8.0	7.7	4.0
Zinc	16.6	1.0	39.4	1.0	61.7*	2.0	10.9	1.0

Field ID:	KAFB011501-1		KAFB011502-1		KAFB011503-1		KAFB011504-1	
Batch ID:	018514-0007		018514-0008		018514-0009		018514-0010	
Depth (feet):	5		5 Dup		25		50	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	3530	20.0	2550	20.0	5760	20.0	3180	20.0
Barium	50.0	10.0	74.9	10.0	149	10.0	25.7	10.0
Beryllium	0.28	0.20	ND	0.20	0.36	0.20	ND	0.20
Calcium	22100	500	12200	500	12000	500	1270	500
Chromium	ND	4.0	ND	4.0	5.1	4.0	ND	4.0
Cobalt	ND	4.0	ND	4.0	4.2	4.0	ND	4.0
Copper	5.3	3.0	4.4	3.0	7.1	3.0	ND	3.0
Iron	7720	4.0	5990	4.0	13600	4.0	5410	4.0
Magnesium	2280	500	1580	500	3820	500	1460	500
Manganese	166	1.0	113	1.0	260	1.0	98.8	1.0
Nickel	4.1	4.0	ND	4.0	5.2	4.0	ND	4.0
Potassium	973	500	701	500	2290	500	751	500
Sodium	ND	500	ND	500	ND	500	ND	500
Vanadium	14.9	4.0	10.9	4.0	24.8	4.0	10.8	4.0
Zinc	21.8	1.0	16.3	1.0	35.5	1.0	13.5	1.0

Table 4.2.1.1--Concentrations of inorganic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)--Continued

Field ID:	KAFB011505-1		KAFB011506-1		KAFB011601-1		KAFB011602-1	
Batch ID:	018514-0011		018514-0012		018647-0001		018647-0002	
Depth (feet):	69		100		5		25	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	2800	20.0	1900	20.0	4230	20.0	13800	20.0
Barium	75.9	10.0	55.9	10.0	118	10.0	112	10.0
Beryllium	ND	0.20	ND	0.20	0.33	0.20	0.84	0.20
Calcium	6690	500	1810	500	17100	500	47700	500
Chromium	ND	4.0	ND	4.0	5.0	4.0	9.9	4.0
Cobalt	ND	4.0	ND	4.0	ND	4.0	5.9	4.0
Copper	ND	3.0	ND	3.0	7.1	3.0	11.7	3.0
Iron	4010	4.0	5270	4.0	12900	4.0	15300	4.0
Magnesium	879	500	1030	500	2480	500	6220	500
Manganese	86.2	1.0	104	1.0	178	1.0	450	1.0
Nickel	ND	4.0	ND	4.0	4.5	4.0	11.7	4.0
Potassium	ND	500	ND	500	1180	500	3130	500
Sodium	ND	500	ND	500	ND	500	ND	500
Vanadium	6.3	4.0	9.6	4.0	27.9	4.0	24.9	4.0
Zinc	12.7	1.0	14.8	1.0	24.6	1.0	42.6	1.0

Field ID:	KAFB011603-1		KAFB011604-1		KAFB011605-1		KAFB011607-1	
Batch ID:	018647-0003		018647-0004		018647-0005		021346-0005	
Depth (feet):	30		50		100		5	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	2760	20.0	7840	20.0	2420	20.0	4790	20.0
Barium	168	10.0	99.2	10.0	136	10.0	71.4	10.0
Beryllium	ND	0.20	0.66	0.20	ND	0.20	0.24	0.20
Calcium	14300	500	20700	500	1620	500	20600	500
Chromium	ND	4.0	6.8	4.0	ND	4.0	4.6	4.0
Cobalt	ND	4.0	ND	4.0	ND	4.0	4.6	4.0
Copper	3.5	3.0	8.0	3.0	3.5	3.0	8.3	3.0
Iron	4790	4.0	11100	4.0	5070	4.0	9980	4.0
Magnesium	1120	500	3780	500	937	500	3110	500
Manganese	505	1.0	246	1.0	87.9	1.0	240	1.0
Nickel	ND	4.0	6.9	4.0	ND	4.0	6.2	4.0
Potassium	ND	500	2020	500	ND	500	1420	500
Sodium	ND	500	ND	500	ND	500	ND	500
Vanadium	7.4	4.0	18.8	4.0	10.3	4.0	22.1	4.0
Zinc	13.6	1.0	32.8	1.0	12.9	1.0	27.8	1.0

Table 4.2.1.1--Concentrations of inorganic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)--Continued

Field ID:	KAFB011608-1		KAFB011609-1		KAFB011610-1		KAFB011701-1	
Batch ID:	021346-0006		021346-0007		021346-0008		018514-0001	
Depth (feet):	25		50		100		5	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	12000	20.0	5570	20.0	1680	20.0	6980	20.0
Barium	150	10.0	68.2	10.0	32.2	10.0	48.3	10.0
Beryllium	0.87	0.20	0.29	0.20	0.33	0.20	ND	0.40
Calcium	27800	500	15900	500	2510	500	56300	500
Chromium	8.6	4.0	5.7	4.0	ND	4.0	5.7	4.0
Cobalt	5.5	4.0	ND	4.0	ND	4.0	ND	4.0
Copper	10.5	3.0	6.6	3.0	ND	3.0	8.2	3.0
Iron	14400	4.0	8940	4.0	4320	4.0	10200	20.0
Magnesium	5850	500	2900	500	891	500	3710	500
Manganese	367	1.0	164	1.0	66.9	1.0	189	2.0
Nickel	11.7	4.0	5.8	4.0	ND	4.0	ND	8.0
Potassium	2600	500	1630	500	ND	500	1590	1000
Sodium	ND	500	ND	500	ND	500	ND	1000
Vanadium	21.6	4.0	16.3	4.0	8.9	4.0	21.4	4.0
Zinc	37.8	1.0	24.6	1.0	11.1	1.0	30.2	2.0

Field ID:	KAFB011702-1		KAFB011703-1		KAFB011704-1		KAFB011705-1	
Batch ID:	018514-0002		5018514-0003		018514-0004		018514-0005	
Depth (feet):	25		50		84		100	
Analyses	Result	QL	Result	QL	Result	QL	Result	QL
SW6010 - Metals								
Aluminum	10500	20.0	11300	20.0	1610	20.0	3630	20.0
Barium	260	10.0	103	10.0	26.5	10.0	46.4	10.0
Beryllium	0.84	0.20	1.1	0.20	ND	0.20	0.47	0.20
Calcium	43700	500	34900	500	1180	500	3350	500
Chromium	10.3	4.0	9.3	4.0	ND	4.0	ND	4.0
Cobalt	4.5	4.0	7.0	4.0	ND	4.0	ND	4.0
Copper	11.5	3.0	14.9	3.0	3.4	3.0	4.2	3.0
Iron	13200	4.0	14200	4.0	5330	4.0	7730	4.0
Magnesium	5430	500	5430	500	970	500	1800	500
Manganese	225	1.0	532	1.0	121	1.0	187	1.0
Nickel	11.1	4.0	15.6	4.0	ND	4.0	4.9	4.0
Potassium	2050	500	2480	500	ND	500	670	500
Sodium	ND	500	ND	500	ND	500	ND	500
Vanadium	26.2	4.0	21.2	4.0	7.6	4.0	24.1	4.0
Zinc	38.0	1.0	45.6	1.0	13.2	1.0	20.3	1.0

Table 4.2.1.1--Concentrations of inorganic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)--Continued

Notes--For this table and the following tables for inorganic analytes:

- The analytes listed for a site are those that were detected above quantitation limits in one or more samples in any borehole at any depth at that site; analytes listed below the quantitation limit but above the detection limit are flagged with a "J" as estimated.
- Duplicate samples are designated "Dup" next to the depth in each "sample identification" heading.
- The quantitation limits are listed next to the lists of the analytes.
- ND, not detected
- * indicates detection of analyte in equipment blank
  ** indicates detection of analyte in equipment blank and laboratory blank
  # indicates laboratory blank not within acceptance criteria

depths from 5 to 50 feet. Beryllium concentrations generally decrease with depth in the eight boreholes at Site 1, but not in all boreholes. There is no pattern of beryllium concentration related to direction from the landfill, to surface slope, or to the slight westward dip of the basin-full deposits. The probable source of beryllium on Kirtland AFB and the relation of detected concentrations to the RCRA risk-based action level and the UTL is discussed in section 4.1.4.

Manganese was detected in all of the soil samples collected at Site 1 at concentrations of 59.1 to 532 mg/kg. Manganese was detected in four samples above the RCRA risk-based action level of 400 mg/kg; in two of those samples, manganese concentration was above the UTL of 482 mg/kg. In borehole KAFB0114, adjacent to the north site of Landfill No. 1, manganese concentration was 456 mg/kg at a depth of 50 feet. In borehole KAFB0116, to the southeast of the landfill, manganese was detected at 450 mg/kg at 25 feet and 505 mg/kg at 30 feet. In borehole KAFB0117, manganese was detected at 532 mg/kg at 50 feet. Manganese concentration is a small variable fraction of iron concentration, and generally, when iron concentration is large, manganese concentration is large. Manganese and iron are commonly associated in igneous and other rocks.

Table 4.2.1.2 summarizes the results of soil analyses for organic constituents. Volatile organic compounds were detected in four samples, in three boreholes. All of these VOCs that have action levels were detected at concentrations of less than 0.02 percent of action level. Acetone was detected in two samples at Site 1; in borehole KAFB0110 at depth 50 feet, acetone concentration was 1.5 mg/kg and in borehole KAFB0116 at depth 25 feet, acetone concentration was 0.37 mg/kg. The action level for acetone is 8,000 mg/kg. The VOC 2-butanone was detected in borehole KAFB0111 at depth 50 feet at a concentration of 9.4 mg/kg (no action level). In the 5-foot sample at borehole KAFB0114, several VOCs were detected. The compounds, concentrations, and action levels, if existing are given below:

Compound	Concentration (mg/kg)	Action level (mg/kg)
2-Butanone	0.0063	48,000
2-Hexanone	0.0044	none
4-Methyl-2-pentanone	0.0050	none
Benzene	0.0035	24
Carbon disulfide	0.0033	8,000
Ethylbenzene	0.0036	8,000
Methylene chloride	0.0088	93
Tetrachloroethene	0.0042	800
Toluene	0.0040	16,000
Xylenes	0.0032	160,000

Table 4.2.1.2--Concentrations of organic analytes above project quantitation limit in soil samples from Site 1, in mg/kg (dry weight)

[ND, not detected at or above project detection limit; numbers in parentheses indicate the laboratory reporting limit which is dependent on sample dilution]

Field ID:	[1]KAFB011004-1		[2]KAFB011304-1		[2]KAFB011608-1	
Batch ID:	014964-0004		018090-0003		021346-0006	
Depth (feet):	50		100		25	
Analyses	Results	QL	Results	QL	Results	QL
SW8240-Volatile Organic Compounds						
Acetone	1.5	0.10	ND	0.10	0.37	0.10
2-Butanone	9.4	1.0	ND	0.20	ND	0.20
SW8270-Semivolatile Organic Compounds						
bis (2-ethylhexyl) phthalate	ND	0.50	4.8[#]	0.50	ND	0.50
Di-n-octyl phthalate	ND	0.50	4.1[#]	0.50	ND	0.50

Field ID:	KAFB011407-1		KAFB011409-1	
Batch ID:	027746-0002		027746-0004	
Depth (feet):	5		25	
Analyses	Results	QL	Results	QL
SW8240				
2-Butanone (MEK)	0.0063 J	0.010	0.0027 J	0.011
2-Hexanone	0.0044 J	0.010	ND	0.011
4-Methyl-2-pentanone (MIBK)	0.0050 J	0.010	ND	0.011
Benzene	0.0035	0.0021	ND	0.0021
Carbon disulfide	0.0033 J	0.0052	ND	0.0053
Ethylbenzene	0.0036	0.0021	ND	0.0021
Methylene chloride	0.0088	0.0031	0.0048	0.0032
Tetrachloroethene	0.0042	0.0021	ND	0.0021
Toluene	0.0040	0.0031	ND	0.0032
Xylenes (total)	0.0032 J	0.0052	ND	0.0053

[1]Samples were collected from this borehole at depths of 5, 14, 25, 50, 80.5 and 99 feet. No other organic analytes were detected from this sample; no organic analytes were detected in the other samples from this borehole or in samples from other boreholes at Site 01, except those shown on this table.

[2]Samples were collected from this borehole at depths of 5, 25, 50 and 100 feet.

[#]Laboratory blank not within acceptance criteria.

Benzene, ethylbenzene, and toluene are common components of gasoline, and may reflect a small gasoline contamination of the sample before or during sampling. Tetrachloroethene is a common organic solvent. Methylene chloride is a common laboratory contaminant and was also detected in the field trip blank and the field equipment blank at concentrations of 1.3 and 1.5 µg/L, and was detected in the laboratory blank below the quantitation limit at 0.0046 mg/kg.

In the 25-foot sample at borehole KAFB0114, only two of the VOCs found in the 5-foot sample were detected. Methylene chloride and 2-butanone were found at concentrations of 0.0048 and 0.0027 mg/kg.

The only other organic constituents detected were two semivolatile organics in borehole KAFB0113 in the 100-foot sample. Bis(2-ethylhexyl) phthalate was found at a concentration of 4.8 mg/kg (action level 50 mg/kg) and di-n-octyl phthalate was detected at 4.1 mg/kg (action level 1,000 mg/kg). Bis(2-ethylhexyl) phthalate was also detected in the laboratory blank at 0.72 mg/kg.

Summary Table A6: Phase II, Stage 2A Data Comparison

Analyte / Symbol	Phase II, Stage 2A Method Detection Limits (mg/kg)	1997 Approved Background Concentrations (mg/kg) (1)
Antimony / Sb (2)	***20.4***	***3.9***
Arsenic / As	30.7	4.4
Barium / Ba	10.2	200
Beryllium / Be	0.20	0.80
Cadmium / Cd	0.51	0.9
Total Chromium / Cr	3.1	17.3
Cobalt / Co	4.1	8.8
Copper / Cu	3.1	17
Lead / Pb (2)	***20.4***	***11.2***
Mercury / Hg	NT	<0.1
Nickel / Ni	4.1	25.4
Selenium / Se (2)	***40.9***	***<1.0***
Silver / Ag (2)	***3.1***	***<1.0***
Thallium / Tl (2)	***204***	***<1.0***
Tin / Sn	NT	<10
Uranium / U	NT	2.3
Vanadium / V	4.1	33.0
Zinc / Zn	1.0	76.0

(1) = Approved Background Concentrations, Sandia National Laboratories/Kirtland AFB, September 1997, Table 1. Concentrations are those for the North Super Group Area.

(2) = Laboratory detection limit exceeds KAFB/NMED/HRMB approved background concentration (bold/italicized).

NT = not tested.

< = less than

Comment 7

7. **KAFB should submit all analytical results for ground-water samples collected from monitor wells located nearest to Landfill 1. Ground-water monitor wells of the greatest interest include KAFB-0111, 0113, 0114, and 0115. See General Comment 1.**

Response:

Analytical data have been collected at wells KAFB-0111, -0113, -0114, and -0115 on a quarterly or semiannual basis since May 1996 as part of the Long-Term Groundwater Monitoring (LTM) program at Kirtland AFB. Two summary tables are contained in Attachments 1 and 2 for Comment 7 to provide the analytical information. Table 1 summarizes the analytical methods performed for each sampling event per well. Table 2 provides a summary of the analytical detections for each of the wells, per each sampling event. The information provided on Table 2 includes the well identification or sample identification number (Location), sample collection date (LogDate), analytical method (Method), analyte detected (Parameter), results or sample concentration (Value), units of measurement (Units), detection limit (MDL), data qualifiers (EPAQual), and comparison standard (New Mexico Solid Waste Management Regulations Water Quality Control Commission or EPA drinking water standard (gross alpha/beta only).

Approved background levels and sample depths are not included in Table 2 since these elements do not apply to groundwater data. The method detection limits for all LTM analytes are below the applicable standard and are presented in the Long-Term Groundwater Monitoring Plan Revision 1 (USAF, 1997).

Groundwater monitoring well analytical results from 1991 through 1993 for wells KAFB-0111, -0113, -0114, and -0115 were provided in comment response 5.

Table 1: Sampling Events and Analytical Methods

Kirtland Air Force Base

Long Term Groundwater Monitoring

Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
KAFB0111	**5/21/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
KAFB0113	**5/21/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
KAFB0114	**5/22/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
KAFB0115	**5/22/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
KAFB0111	**8/22/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide. AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
KAFB0113	**8/23/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
KAFB0114	**8/23/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
KAFB0115	**8/23/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E415.1	Total Organic Carbon (Combustion or Oxidation)
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
KAFB0113	**12/23/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
KAFB0114	**12/23/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
KAFB0111	**12/30/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)
		E375.4	Sulfate (As SO4), Turbidimetric
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
KAFB0115	**12/30/1996**		
		E325.2	Chloride (As CL), Colorimetric Automated Ferricyanide, AA II
		E340.2	Fluoride, Potentiometric, Ion Selective Electrode
		E353.1	Nitrogen, Nitrate-Nitrite (Colorimetric Automated, Hydrazine Reduction)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E375.4	Sulfate (As SO4), Turbidimetric
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)
		E900	Gross Alpha and Beta Radiation
		E903.1	Radium 226 in Drinking Water
		E904.0	Radium 228 in Drinking Water (Beta Activity)
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW7060	Arsenic, (AA, Furnace Technique)
		SW7131	Cadmium (AA, Furnace Technique)
		SW7421	Lead (AA, Furnace Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7740	Selenium (AA, Furnace Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
KAFB0111	**3/14/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0113	**3/14/1997**		

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0114	**3/14/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0115	**3/14/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0111	**6/25/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0113	**6/25/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0114	**6/25/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0115	**6/26/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0113	**9/22/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0114	**9/22/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0111	**9/23/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0115	**9/23/1997**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0111	**3/27/1998**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0113	**3/27/1998**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0114	**3/27/1998**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0115	**3/30/1998**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
KAFB0113	**9/15/1998**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0114	**9/15/1998**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0111	**9/16/1998**		

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0115	**9/16/1998**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0111	**4/14/1999**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0113	**4/14/1999**		
		A2320	Alkalinity
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric. Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0114	**4/14/1999**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0115	**4/15/1999**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8150	Chlorinated Herbicides
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0111	**9/28/1999**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0113	**9/28/1999**		
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E310.1	Alkalinity (Titrimetric)
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228
KAFB0114	**9/28/1999**		

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Sample Events

Location	LogDate	Method	Parameter
		E300	Determination of Inorganic Anions In Water By Ion Chromatography
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
		E504	1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane
		SW6010	Inductively Coupled Plasma Atomic Emission Spectroscopy
		SW6020	Inductively Coupled Plasma Mass Spectrometry
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW8081	Organochlorine Pesticides and PCBs as Aroclors by Gas Chromatography Capillary Column Technique
		SW8151	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique
		SW8260	Volatile Organic Compounds by Gas Chromatgraph/Mass Spectrometry (GC/MS): CAPILLARY COLUMN TECHNIW
		SW9020	Total Organic Halides (TOX)
		SW9060	Total Organic Carbon
		SW9310	Gross Alpha & Gross Beta
		SW9315	Alpha-Emitting Radium Isotopes
		SW9320	Radium-228

Table 2: Analytical Detections for Individual Monitoring Wells

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
KAFB0111	5/21/1996							
		E325.2	CHLORIDE (AS CL)	8	MG/L	3		250
		E340.2	FLUORIDE	0.46	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.26	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	30	MG/L	5		250
		E900	BETA, GROSS	0.3	MREM/YR	0.19		4 (1)
		SW6010	BARIUM	920	UG/L	200		1000
		SW6010	SODIUM	18000	UG/L	1000		
		SW7421	LEAD	38	UG/L	4		50
KAFB0113	5/21/1996							
		E325.2	CHLORIDE (AS CL)	7	MG/L	3		250
		E340.2	FLUORIDE	0.54	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.16	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	27	MG/L	5		250
		E900	ALPHA, GROSS	1	PCI/L	1		15 (1)
		E900	BETA, GROSS	0.1898	MREM/YR	0.19		4 (1)
		SW6010	SODIUM	17000	UG/L	1000		
KAFB0114	5/22/1996							
		E325.2	CHLORIDE (AS CL)	7	MG/L	3		250
		E340.2	FLUORIDE	0.53	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.2	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	26	MG/L	5		250
		E900	BETA, GROSS	0.19929	MREM/YR	0.19		4 (1)
		SW6010	SODIUM	18000	UG/L	1000		
KAFB0115	5/22/1996							
		E325.2	CHLORIDE (AS CL)	10	MG/L	3		250
		E340.2	FLUORIDE	0.49	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.43	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	28	MG/L	5		250
		E900	ALPHA, GROSS	1.6	PCI/L	1		15 (1)
		E900	BETA, GROSS	0.22	MREM/YR	0.19		4 (1)
		SW6010	SODIUM	19000	UG/L	1000		
KAFB0111	8/22/1996							
		E325.2	CHLORIDE (AS CL)	8.2	MG/L	3		250
		E340.2	FLUORIDE	0.4	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.26	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	31	MG/L	5		250
		E900	BETA, GROSS	0.21	MREM/YR	0.19		4 (1)
		SW6010	SODIUM	20000	UG/L	1000		

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
KAFB0113	8/23/1996							
		E325.2	CHLORIDE (AS CL)	7.3	MG/L	3		250
		E340.2	FLUORIDE	0.48	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.14	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	30	MG/L	5		250
		E900	ALPHA, GROSS	2.4	PCI/L	1		15 (1)
		E900	BETA, GROSS	0.24	MREM/YR	0.19		4 (1)
		E903.1	RADIUM-226	1	PCI/L	1		5
		SW6010	SODIUM	19000	UG/L	1000		
KAFB0114	8/23/1996							
		E325.2	CHLORIDE (AS CL)	6.8	MG/L	3		250
		E340.2	FLUORIDE	0.51	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.19	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	29	MG/L	5		250
		E900	ALPHA, GROSS	2.6	PCI/L	1		15 (1)
		E900	BETA, GROSS	0.25	MREM/YR	0.19		4 (1)
		SW6010	SODIUM	20000	UG/L	1000		
		SW8260	METHYLENE CHLORIDE	11	UG/L	10	B	5
KAFB0115	8/23/1996							
		E325.2	CHLORIDE (AS CL)	9.2	MG/L	3		250
		E340.2	FLUORIDE	0.46	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.38	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	33	MG/L	5		250
		SW6010	SODIUM	21000	UG/L	1000		
		SW8260	METHYLENE CHLORIDE	12	UG/L	10	B	5
KAFB0113	12/23/1996							
		E325.2	CHLORIDE (AS CL)	7.8	MG/L	3		250
		E340.2	FLUORIDE	0.46	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.14	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	31	MG/L	5		250
		SW6010	SODIUM	18000	UG/L	1000		
KAFB0114	12/23/1996							
		E325.2	CHLORIDE (AS CL)	10	MG/L	3		250
		E340.2	FLUORIDE	0.44	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.19	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	39	MG/L	5		250
		SW6010	SODIUM	19000	UG/L	1000		
KAFB0111	12/30/1996							
		E325.2	CHLORIDE (AS CL)	10	MG/L	3		250

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
		E340.2	FLUORIDE	0.37	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.26	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	32	MG/L	5		250
		SW6010	SODIUM	19000	UG/L	1000		
		SW7421	LEAD	21	UG/L	4		50
KAFB0115	**12/30/1996**							
		E325.2	CHLORIDE (AS CL)	12	MG/L	3		250
		E340.2	FLUORIDE	0.41	MG/L	0.2		1.6
		E353.1	NITROGEN, NITRATE-NITRITE	0.42	MG/L	0.05		10 (2)
		E375.4	SULFATE (AS SO4)	33	MG/L	5		250
		SW6010	SODIUM	21000	UG/L	1000		
		SW7131	CADMIUM	0.94	UG/L	0.4		5
KAFB0111	**3/14/1997**							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	FLUORIDE	0.4	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	28	MG/L	10		250
		SW6010	IRON	67.7	UG/L	23		300
		SW6010	SODIUM	20500	UG/L	110		
		SW6020	ARSENIC	1.6	UG/L	0.45		50
		SW6020	BARIUM	108	UG/L	0.45		1000
		SW6020	CHROMIUM	10.7	UG/L	2.3		50
		SW6020	SELENIUM	2	UG/L	0.45		10
		SW9060	TOTAL ORGANIC CARBON	2.7	MG/L	1		
KAFB0113	**3/14/1997**							
		E300	CHLORIDE (AS CL)	7	MG/L	1		250
		E300	FLUORIDE	0.6	MG/L	0.2		1.6
		E300	SULFATE (AS SO4)	27	MG/L	10		250
		SW6010	SODIUM	19200	UG/L	110		
		SW6020	ARSENIC	1.1	UG/L	0.45		50
		SW6020	BARIUM	104	UG/L	0.45		1000
		SW9060	TOTAL ORGANIC CARBON	2.6	MG/L	1		
		SW9310	ALPHA, GROSS	1.1	PCI/L	1.1		15 (1)
KAFB0114	**3/14/1997**							
		E300	CHLORIDE (AS CL)	7	MG/L	1		250
		E300	FLUORIDE	0.6	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.2	MG/L	0.2		10
		E300	SULFATE (AS SO4)	27	MG/L	10		250
		SW6010	IRON	127	UG/L	23		300
		SW6010	SODIUM	20000	UG/L	110		

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Long Term Groundwater Monitoring
Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
		SW6020	ARSENIC	1.2	UG/L	0.45		50
		SW6020	BARIUM	115	UG/L	0.45		1000
		SW8260	TETRACHLOROETHYLENE(PCE)	0.5	UG/L	0.5		5
		SW9060	TOTAL ORGANIC CARBON	2.9	MG/L	1		
KAFB0115	**3/14/1997**							
		E300	CHLORIDE (AS CL)	10	MG/L	1		250
		E300	FLUORIDE	0.5	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.4	MG/L	0.2		10
		E300	SULFATE (AS SO4)	28	MG/L	10		250
		SW6010	SODIUM	21100	UG/L	110		
		SW6020	ARSENIC	1.2	UG/L	0.45		50
		SW6020	BARIUM	105	UG/L	0.45		1000
		SW6020	SELENIUM	1.2	UG/L	0.45		10
		SW9060	TOTAL ORGANIC CARBON	2.6	MG/L	1		
		SW9310	ALPHA, GROSS	1.5	PCI/L	1.3		15 (1)
KAFB0111	**6/25/1997**							
		E300	FLUORIDE	0.4	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.4	MG/L	0.2		10
		E300	SULFATE (AS SO4)	31	MG/L	10		250
		SW6010	SODIUM	19700	UG/L	250		
		SW6020	ARSENIC	1.4	UG/L	0.45		50
		SW6020	BARIUM	95.7	UG/L	0.45		1000
		SW6020	CHROMIUM	13.4	UG/L	2.3		50
		SW6020	SELENIUM	1.8	UG/L	0.45		10
		SW9060	TOTAL ORGANIC CARBON	1.4	MG/L	1		
KAFB0113	**6/25/1997**							
		E300	FLUORIDE	0.5	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	29	MG/L	10		250
		SW6010	SODIUM	18600	UG/L	250		
		SW6020	ARSENIC	1.4	UG/L	0.45		50
		SW6020	BARIUM	95.2	UG/L	0.45		1000
		SW6020	SELENIUM	1.1	UG/L	0.45		10
KAFB0114	**6/25/1997**							
		E300	FLUORIDE	0.6	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	28	MG/L	10		250
		SW6010	SODIUM	20600	UG/L	250		
		SW6020	BARIUM	100	UG/L	0.45		1000
		SW6020	SELENIUM	1.4	UG/L	0.45		10

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Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
		SW8260	TETRACHLOROETHYLENE(PCE)	0.6	UG/L	0.5		5
		SW8260	TRICHLOROETHYLENE (TCE)	0.3	UG/L	0.3		5
KAFB0115	**6/26/1997**							
		E300	CHLORIDE (AS CL)	11	MG/L	10		250
		E300	FLUORIDE	0.6	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.5	MG/L	0.2		10
		E300	SULFATE (AS SO4)	31	MG/L	10		250
		SW6010	SODIUM	21200	UG/L	250		
		SW6020	ARSENIC	1.3	UG/L	0.45		50
		SW6020	BARIUM	93.3	UG/L	0.45		1000
		SW6020	SELENIUM	1.9	UG/L	0.45		10
KAFB0113	**9/22/1997**							
		E300	CHLORIDE (AS CL)	8	MG/L	1		250
		E300	FLUORIDE	0.6	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	28	MG/L	10		250
		SW6010	IRON	430	UG/L	50		300
		SW6010	SODIUM	18200	UG/L	250		
		SW6020	ARSENIC	1.7	UG/L	1		50
		SW6020	BARIUM	108	UG/L	1		1000
		SW6020	CHROMIUM	35.6	UG/L	5		50
		SW6020	SELENIUM	1.3	UG/L	1		10
KAFB0114	**9/22/1997**							
		E300	CHLORIDE (AS CL)	7	MG/L	1		250
		E300	FLUORIDE	0.5	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	28	MG/L	10		250
		SW6010	IRON	405	UG/L	50		300
		SW6010	SODIUM	19700	UG/L	250		
		SW6020	ARSENIC	1.6	UG/L	1		50
		SW6020	BARIUM	107	UG/L	1		1000
		SW6020	CHROMIUM	12.4	UG/L	5		50
		SW6020	SELENIUM	1.3	UG/L	1		10
		SW8260	TETRACHLOROETHYLENE(PCE)	0.5	UG/L	0.5		5
		SW8260	TRICHLOROFLUOROMETHANE	1.1	UG/L	0.5	B	10
		SW9020	TOTAL ORGANIC HALIDES (TOX)	0.02	MG/L	0.01		
KAFB0111	**9/23/1997**							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	FLUORIDE	0.3	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.4	MG/L	0.2		10

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Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
		E300	SULFATE (AS SO4)	30	MG/L	10		250
		SW6010	SODIUM	19800	UG/L	250		
		SW6020	ARSENIC	1.6	UG/L	1		50
		SW6020	BARIUM	103	UG/L	1		1000
		SW6020	CHROMIUM	19.4	UG/L	5		50
		SW6020	SELENIUM	1.2	UG/L	1		10
		SW9060	TOTAL ORGANIC CARBON	1.5	MG/L	1		
KAFB0115	**9/23/1997**							
		E300	CHLORIDE (AS CL)	10	MG/L	1		250
		E300	FLUORIDE	0.5	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.5	MG/L	0.2		10
		E300	SULFATE (AS SO4)	31	MG/L	10		250
		SW6010	SODIUM	20200	UG/L	250		
		SW6020	ARSENIC	1.3	UG/L	1		50
		SW6020	BARIUM	100	UG/L	1		1000
		SW6020	SELENIUM	1.8	UG/L	1		10
KAFB0111	**3/27/1998**							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	FLUORIDE	0.4	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	27	MG/L	1		250
		SW6010	SODIUM	22200	UG/L	250		
		SW6020	ARSENIC	1.6	UG/L	1		50
		SW6020	BARIUM	101	UG/L	1		1000
		SW6020	CHROMIUM	9.7	UG/L	5		50
		SW6020	SELENIUM	1.8	UG/L	1		10
		SW7470	MERCURY	0.22	UG/L	0.2		2
		SW8260	TRICHLOROFLUOROMETHANE	0.7	UG/L	0.5		10
		SW9060	TOTAL ORGANIC CARBON	8.3	MG/L	1		
KAFB0113	**3/27/1998**							
		E300	CHLORIDE (AS CL)	8	MG/L	1		250
		E300	FLUORIDE	0.5	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	26	MG/L	1		250
		SW6010	SODIUM	20500	UG/L	250		
		SW6020	ARSENIC	1.6	UG/L	1		50
		SW6020	BARIUM	102	UG/L	1		1000
		SW6020	SELENIUM	1.2	UG/L	1		10
		SW7470	MERCURY	0.32	UG/L	0.2		2
		SW9060	TOTAL ORGANIC CARBON	11	MG/L	1		

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Long Term Groundwater Monitoring
Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
KAFB0114	3/27/1998							
		E300	CHLORIDE (AS CL)	7	MG/L	1		250
		E300	FLUORIDE	0.6	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	25	MG/L	1		250
		SW6010	SODIUM	21800	UG/L	250		
		SW6020	ARSENIC	1.3	UG/L	1		50
		SW6020	BARIUM	112	UG/L	1		1000
		SW6020	CHROMIUM	7.7	UG/L	5		50
		SW6020	SELENIUM	1.9	UG/L	1		10
		SW8260	TETRACHLOROETHYLENE(PCE)	0.8	UG/L	0.5		5
		SW9060	TOTAL ORGANIC CARBON	16	MG/L	1		
KAFB0115	3/30/1998							
		E300	CHLORIDE (AS CL)	10	MG/L	1		250
		E300	FLUORIDE	0.5	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.5	MG/L	0.2		10
		E300	SULFATE (AS SO4)	27	MG/L	1		250
		SW6010	SODIUM	22300	UG/L	250		
		SW6020	ARSENIC	1.6	UG/L	1		50
		SW6020	BARIUM	98.3	UG/L	1		1000
		SW6020	CHROMIUM	6.4	UG/L	5		50
		SW6020	SELENIUM	2.2	UG/L	1		10
		SW9060	TOTAL ORGANIC CARBON	12	MG/L	1		
KAFB0113	9/15/1998							
		E300	CHLORIDE (AS CL)	8	MG/L	1		250
		E300	FLUORIDE	0.4	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	28	MG/L	1		250
		SW6010	SODIUM	19500	UG/L	110		
		SW6020	ARSENIC	1.6	UG/L	1		50
		SW6020	BARIUM	122	UG/L	1		1000
		SW6020	SELENIUM	1.7	UG/L	1		10
KAFB0114	9/15/1998							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	FLUORIDE	0.5	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2		10
		E300	SULFATE (AS SO4)	29	MG/L	1		250
		SW6010	SODIUM	20600	UG/L	110		
		SW6020	ARSENIC	1.3	UG/L	1		50
		SW6020	BARIUM	126	UG/L	1		1000

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Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
		SW6020	SELENIUM	2.2	UG/L	1		10
		SW8260	TETRACHLOROETHYLENE(PCE)	0.6	UG/L	0.5		5
KAFB0111	9/16/1998							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	FLUORIDE	0.3	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.4	MG/L	0.2		10
		E300	SULFATE (AS SO4)	29	MG/L	1		250
		SW6010	SODIUM	21200	UG/L	110		
		SW6020	ARSENIC	1.2	UG/L	1		50
		SW6020	BARIUM	112	UG/L	1		1000
		SW6020	CHROMIUM	7.6	UG/L	5		50
		SW6020	SELENIUM	1.8	UG/L	1		10
		SW9060	TOTAL ORGANIC CARBON	4.6	MG/L	1		
KAFB0115	9/16/1998							
		E300	CHLORIDE (AS CL)	10	MG/L	1		250
		E300	FLUORIDE	0.4	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.4	MG/L	0.2		10
		E300	SULFATE (AS SO4)	29	MG/L	1		250
		SW6010	SODIUM	21200	UG/L	110		
		SW6020	ARSENIC	1.2	UG/L	1		50
		SW6020	BARIUM	120	UG/L	1		1000
		SW6020	SELENIUM	2.1	UG/L	1		10
		SW8260	TOLUENE	0.5	UG/L	0.5	B	750
		SW9060	TOTAL ORGANIC CARBON	1.3	MG/L	1		
KAFB0111	4/14/1999							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	SULFATE (AS SO4)	27	MG/L	1		250
		SW6010	SODIUM	20500	UG/L	450		
		SW6020	ARSENIC	1	UG/L	0.45		50
		SW6020	BARIUM	118	UG/L	0.9	J	1000
KAFB0113	4/14/1999							
		A2320	ALKALINITY, BICARBONATE (AS CACO3	100	MG/L	2		
		E300	CHLORIDE (AS CL)	10	MG/L	1		250
		E300	NITROGEN, NITRATE (AS N)	1	MG/L	0.2		10
		E300	SULFATE (AS SO4)	26	MG/L	1		250
		SW6010	CALCIUM	31800	UG/L	450		
		SW6010	MAGNESIUM	4740	UG/L	450		
		SW6010	POTASSIUM	2540	UG/L	450		
		SW6010	SODIUM	19400	UG/L	450		
		SW6020	ARSENIC	1.7	UG/L	0.45		50

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
		SW6020	BARIUM	117	UG/L	0.9	J	1000
		SW6020	CADMIUM	1	UG/L	0.45		5
		SW9310	ALPHA, GROSS	2.6	PCI/L	1.8		15 (1)
KAFB0114	**4/14/1999**							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	SULFATE (AS SO4)	27	MG/L	1		250
		SW6010	SODIUM	20400	UG/L	450		
		SW6020	ARSENIC	1	UG/L	0.45		50
		SW6020	BARIUM	139	UG/L	0.9	J	1000
		SW9310	ALPHA, GROSS	2.4	PCI/L	2		15 (1)
		SW9315	RADIUM-226	0.72	PCI/L	0.7		5
KAFB0115	**4/15/1999**							
		E300	CHLORIDE (AS CL)	9	MG/L	1		250
		E300	SULFATE (AS SO4)	27	MG/L	1		250
		SW6010	SODIUM	20300	UG/L	450		
		SW6020	ARSENIC	1.1	UG/L	0.45		50
		SW6020	BARIUM	122	UG/L	0.9	J	1000
		SW9060	TOTAL ORGANIC CARBON	1.2	MG/L	1		
		SW9310	ALPHA, GROSS	2.4	PCI/L	1.9		15 (1)
KAFB0111	**9/28/1999**							
		E300	CHLORIDE (AS CL)	10	MG/L	1		250
		E300	FLUORIDE	0.3	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2	J	10
		E300	SULFATE (AS SO4)	28	MG/L	1		250
		SW6010	CALCIUM	27500	UG/L	1000		
		SW6010	MAGNESIUM	6400	UG/L	1000		
		SW6010	POTASSIUM	2490	UG/L	1000		
		SW6010	SODIUM	21500	UG/L	1000		
		SW6020	ARSENIC	1	UG/L	1		50
		SW6020	BARIUM	98.3	UG/L	2		1000
		SW9060	TOTAL ORGANIC CARBON	2.6	MG/L	1.5		
		SW9310	ALPHA, GROSS	2.8	PCI/L	2.7		15 (1)
KAFB0113	**9/28/1999**							
		E300	CHLORIDE (AS CL)	11	MG/L	1		250
		E300	FLUORIDE	0.4	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.5	MG/L	0.2	J	10
		E300	SULFATE (AS SO4)	28	MG/L	1		250
		E310.1	ALKALINITY, BICARBONATE (AS CACO3	100	MG/L			
		SW6010	CALCIUM	33700	UG/L	1000		
		SW6010	MAGNESIUM	4980	UG/L	1000		

Kirtland Air Force Base
Long Term Groundwater Monitoring
Summary of LF01 Analytical Detections

Location	LogDate	Method	Parameter	Value	Units	MDL	EPAQual	NMSWMR
		SW6010	POTASSIUM	2600	UG/L	1000		
		SW6010	SODIUM	20000	UG/L	1000		
		SW6020	ARSENIC	1.3	UG/L	1		50
		SW6020	BARIUM	108	UG/L	2		1000
		SW9060	TOTAL ORGANIC CARBON	5.2	MG/L	1.5		
KAFB0114	**9/28/1999**							
		E300	CHLORIDE (AS CL)	8	MG/L	1		250
		E300	FLUORIDE	0.4	MG/L	0.2		1.6
		E300	NITROGEN, NITRATE (AS N)	0.3	MG/L	0.2	J	10
		E300	SULFATE (AS SO4)	28	MG/L	1		250
		SW6010	SODIUM	20400	UG/L	1000		
		SW6020	BARIUM	94.7	UG/L	2		1000
		SW9060	TOTAL ORGANIC CARBON	2.3	MG/L	1.5		

LogDate - Sample Collection Date
MDL - Method Detection Limit
EPAQUAL - EPA validation qualifier
NMSWMR - New Mexico Solid Waste Management Regulation
MG/L - milligrams per liter
UG/L - micrograms per liter
MREM/YR - millirems per year
PCI/L - picocuries per liter
B - Blank contaminated data
J - Estimated data
1 - Derived from EPA primary drinking water standard
2 - Nitrate-nitrite reported for nitrate nitrogen

Comment 8

8. KAFB should clarify if chemical analyses have been performed on ground-water samples from monitor wells KAFB 0112, 0116, and 0117. If there have been chemical analysis performed on samples from these wells, then KAFB shall provide all sample analysis results. See General Comment 1.

Response:

Chemical analyses performed on groundwater samples from monitoring wells KAFB-0112 and KAFB-0117, both considered upgradient of the LF-01 site, are presented in comment response 5. Monitoring well KAFB-0113, also upgradient of the site, is included in the LTM Program at Kirtland AFB (see comment response 7) and used for background comparison purposes.

The "monitoring well" mistakenly identified as KAFB-0116 does not exist at the LF-01 site. The location identified as "0116" was actually a soil boring completed during the Stage 2A RFI (see comment response 6).

Comment 9

9. KAFB should submit sample analysis results for the soil-gas survey conducted during the Phase II, Stage 2A RFI. The soil-gas survey included sample locations 1 through 18. See General Comment 1.

Response:

Soil gas samples were collected at the LF-01 site in order to map relative contamination from VOCs in the shallow unsaturated zone. Sampling locations were determined by noting and marking trench locations or other anomalies during surface geophysical surveys (see comment response 10). The soil gas samples were analyzed on site using a gas chromatograph-photoionization detector and concentrations of VOCs were determined relative to headspace analysis of an aqueous standard. Therefore, the soil gas data was not directly compared to other soil sample data for LF01. The soil gas data was used to determine where elevated levels of VOCs were present relative to an aqueous standard in order to determine potential areas of contamination (i.e. a detection vs. a ND).

Procedures and results of the field analysis of soil gas samples from the LF-01 site are included in Attachment 1 for Comment 9. Complete soil gas field analysis chromatograms (initial calibration checks and quality assurance sample analysis) are contained in Volume III, Appendix E, pages 1 to 30 (USAF, 1993a).

Soil-gas surveys were conducted by USGS personnel in June 1993 at IRP sites 1, 2, and 3 in order to map contamination from volatile organic compounds (VOC's) in the shallow unsaturated zone. Approximately 15 points at each of the three sites were sampled in areas delineated by surface geophysical surveys. All sampling points were located on an appropriate scale site-specific base map. Whenever possible, stainless steel soil-gas probes were hydraulically driven three feet below land surface. In rough terrain, a slide hammer was used to create a small-diameter hole into which a soil-gas probe was inserted. The hole was sealed at land surface to prevent atmospheric air from entering the hole. The probes were cleaned with a detergent wash and burned at 105°C prior to use. A low volume vacuum pump was used to withdraw three liters of soil gas at a flow rate of approximately 200 mL/min. in order to flush the system with soil gas and establish a standard sampling point. The flow of soil gas was monitored with a flow meter to ensure that the soil-gas probe was not plugged and that a soil-gas sample was collected. The samples were collected with glass, gas-tight syringes through a septum in an in-line sampling port located between the probe and the vacuum pump and immediately injected into the gas chromatograph (GC) and analyzed.

The soil-gas samples were analyzed with a Photovac 10S50 GC equipped with a photoionization detector and a dimethyl polysiloxane capillary column. A back-up GC was available, and in most cases, a soil-gas sample was analyzed on both GC's. The same instrumental operating conditions were used on the two GC's but one of the GC's was configured with the precolumn backflush system. Prior to sample analysis, the GC's were allowed to warm-up and their baselines were monitored to verify their stability. Working standards were prepared twice daily at two concentrations from a stock-standard solution obtained from the USGS National Water Quality Laboratory. The working-standard solutions contained the following compounds at the specified concentrations:

	Concentration (µg/L)	
Compound	High standard	Low standard
trans-1,2-Dichloroethene	2	1
cis-1,2-Dichloroethene	18	9
Benzene	6	3
Trichloroethene	8	4
Toluene	6	3
Tetrachloroethene	12	6
m-Xylene	13	6.5

After the GC's were allowed to warm up, the two standards were injected until the peak heights of the compounds were proportional, within ± 15 percent, to their concentrations and the retention times of the compounds were within ± 5 percent of each other. Working standards were analyzed as required to monitor changing response factors and retention times. Due to changes in these conditions, it was more advantageous to have theUSGS analytical chemist who was operating the GC tentatively identify and quantitate compounds in the soil-gas samples manually by comparing sample chromatographic peaks to the peaks generated by headspace analysis of the standard solution than use the GC's library system. In samples where gasoline/ other fuels were determined to be present and individual peaks could not be identified, an estimated concentrations was determined based on an average response factor for benzene, toluene, and m-xylene. Ambient blanks, sampling equipment blanks, and instrument blanks/ working standards were analyzed after highly contaminated samples to check for residual contamination before analyzing the next sample as necessary. Samples that had off-scale peaks

were reanalyzed by adjusting the volume of sample injected into the GC until the peaks remained on-scale. A log of all instrument injections was maintained that contained all information pertinent to the analyses.

IRP Site 1	Concentration in µg/L relative to headspace analysis of the aqueous standard
Location 01	ND
Location 02	ND
Location 03	ND
Location 04	ND
Location 05	ND
Location 06	ND
Location 07	ND
Location 08	Toluene: 2
	Estimated unknowns: 4
Location 09	ND
Location 10	Benzene: 2
	Estimated unknowns: 4
Location 11	ND
Location 12	ND
Location 13	ND
Location 14	ND
Location 15	cis-1,2-Dichloroethene: 21
	Benzene: 2
	Trichloroethene: 49
	Toluene: 4
	Tetrachloroethene: 6
	Estimated unknowns: 26
Location 16	ND
Location 17	cis-1,2-Dichloroethene: 6
	Benzene: 6
	Trichloroethene: 2
	Estimated unknowns: 2
Location 18	ND

Comment 10

10. § SWMU 6-1, Landfill 1 (LF-01), 3.1.3.2 Geophysical Survey and Aerial Photograph Review Results

"The maps for Landfill 1 identify two potential disposal trenches on the west side of the survey grid (Figure 3-5). The disposal trenches are indicated by the north-south trending anomalies colored pink on the maps."

KAFB should provide additional information regarding the possible ammunition disposal trenches, including the nature, horizontal dimensions and depths of the trenches.

Response:

On October 3, 1994, Kirtland AFB notified the EPA of a new site designated as solid waste management unit (SWMU) DP-69, Ammunition Storage Area Disposal Site (see correspondence as Attachment 1 for Comment 10). The site was located adjacent to Landfill 1 but was believed to be a separate and distinct unit because of the type of materials found to be buried there. The site was originally named DP-69, Ammunition Storage Area Disposal Site, because of its proximity to the building 750 area, the KAFB Ammunition Storage Facility, and not because ammunition was disposed of at the site.

The location of the ammunition storage area at the end of Ammunition Road is approximately 300 ft east of the access road (bordering Landfill 1 on the east) as depicted in Figure 3-1 of the subject RFI report. The nature of materials disposed in the trenches were identified as rocket motors, inert practice bombs, and fire extinguishers (Attachment 1 for Comment 10).

On April 4, 1995, correspondence from the EPA approved a request from Kirtland AFB to move SWMU DP-69 from Appendix VI to Appendix I of the Kirtland AFB Part B permit (see second correspondence Attachment 2 for Comment 10). A memorandum of record was generated on April 6, 1995, confirming the intent of Kirtland AFB to combine SWMU DP-69 with SWMU 6-1 (LF-01) and accelerate investigation activities (last correspondence Attachment 3 for Comment 10).

Two independent geophysical surveys were performed with results of one survey detailed in the subject RFI and the second survey completed during the Phase II, Stage 2A RFI. Both surveys corroborate the fact that geophysical anomalies appear to be caused by piles of concrete rubble and surface debris.

Additionally, based on geophysical survey results, two boreholes (F and G) were located within the survey grids and in close proximity to the edge of the two identified trenches (approximately 45 feet wide and 400 feet long, Figure 3-5 of the subject RFI). Boreholes F and G were sampled to depths of approximately 120 ft below grade and soil sample analytical results were summarized in Tables 3-4 and 3-5. Complete laboratory analytical reports are detailed in Volume III, Appendix F, pages 82 to 188. No explosive compounds (analyzed in accordance with EPA SW846 Method 8270) or other analytes identified as contaminants of concern were detected in soil proximal or beneath the identified trenches.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)

CERTIFIED MAIL: Z 106 120 470
RETURN RECEIPT REQUESTED

3 OCT 1994

377 ABW/EM
2000 Wyoming Blvd SE
Kirtland AFB NM 87117-5659

Mr. William K. Honker, P.E.
Chief, RCRA Permits Branch
U.S. EPA Region 6
1445 Ross Ave, Ste 1200
Dallas TX 75202-2733

Dear Mr. Honker

In late September 1994, our Compliance Branch officially notified the Restoration Branch that, during cleanup of an area southwest of Landfill 1 (SWMU 6-1), they had uncovered a variety of hazardous materials. The Restoration Branch conducted a visual investigation of this area on 3 October 1994 and determined this area warrants further investigation via a SWMU assessment report (SAR). When first encountered, we originally thought this area was part of Landfill 1, but have since determined it is a separate disposal site. The following information is provided:

a. **SITE DESIGNATION**: Ammo Storage Area Disposal Site, DP-69

b. **LOCATION**: South of Kirtland Road, immediately west of the Ammo Storage Area, in a small arroyo which drains off the south side of the runway into Tijeras Arroyo (Attachment 1)

c. **MATERIALS NOTED**: Rocket motors, practice bombs (varied sizes), fire extinguisher cylinders (some partially filled), 55-gallon drums containing petroleum products, and assorted metal containers.

(1) The visible extinguishers, rocket motors, and two drums were removed; however, we do not know how much material is still buried or if any hazardous constituents contaminated the soils under the area.

(2) Compliance tested the two drums; results are at Attachment 2.

(3) There are several drums still on the site that were not removed as they were beyond the scope of the project at the time.

Comment 10
Attachment 1

d. **AGE OF SITE**: We believe this area was abandoned prior to 1975, when Landfill I was closed.

If the SAR reveals contamination, we will add this site to Appendix VI, with the draft RFI Report due 31 December 1996.

Please contact Mr. Christopher DeWitt, Acting Chief, Restoration Branch, (505) 846-2773/0053, if you have any questions.

Respectfully

SCOTT E. STREIFERT, Major, USAF
Director
Environmental Management Division

Attachments:
1. Map
2. Test Results

cc:
EPA (Ms. Morlock)
NMED-HRMB (Mr. Pullen)
AFMC/CEVR (Mr. Waite)
AFCEE/ESR (Mr. Arnold)
377 ABW/EMC (Mr. Kitt)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

16-1-3
16-1-2

APR 0 4 1995

Mr. Christopher B. DeWitt, R.P.G.
Chief, Restoration Branch
Environmental Management Division
377 ABW/EMR
2000 Wyoming Boulevard SE
Kirtland AFB, NM 87117-5659

Dear Mr. DeWitt:

The Environmental Protection Agency (EPA) hereby approves your request to move Solid Waste Management Unit (SWMU) DP-69, the Ammo Storage Area Disposal Site, from Appendix VI to Appendix I of the Kirtland Air Force Base RCRA Part B Permit. This approval is based upon the fact that the proposed permit modification will result in an accelerated investigative schedule for SWMU DP-69. The future RFI Work Plan for Appendix I should include the proposed investigation for SWMU DP-69.

Because numerous SWMUs have been added to the Kirtland RCRA Permit recently, the EPA is requesting that Kirtland submit a copy of their most recent SWMU listings for Appendices I through VI. The EPA will compare Kirtland's SWMU listings with the current permit to ensure that there are no discrepancies. In the future, Class 1 permit modification requests should be accompanied by a copy of the appropriate permit appendix with the proposed changes clearly noted.

Please contact me at (214) 665-6650 if you have any questions or need additional information.

Sincerely yours,

Nancy R. Morlock
RCRA Permits Branch

cc: Mr. Benito Garcia
New Mexico Environment Department
Mr. Steve Pullen
New Mexico Environment Department

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Comment 10
Attachment 2

DEPARTMENT OF THE AIR FORCE
Headquarters 377th Air Base Wing (AFMC)

16-1-B
16-9-2

6 Apr 95

MEMORANDUM FOR RECORD

FROM: 377 ABW/EMR

SUBJECT: SWMU DP-69

1. On 6 April 1995, we received a letter from EPA Region 6, approving our moving SWMU DP-69 from Appendix VI to Appendix I in our RCRA Part B Permit. Our original intent, as outlined in our 10 Mar 95 letter to EPA, was to combine SWMU DP-69 with SWMU 6-1, Landfill 1, and accelerate remediation activities.

2. On 6 April 1995, in a telephone conversation with Ms. Nancy Morlock, RCRA Permits Branch, EPA Region 6, we were given verbal permission to combine DP-69 with 6-1. This change is reflected in the Class I permit modification, dated 7 Apr 95.

CHRISTOPHER B. DeWITT, R.P.G.
Chief, Restoration Branch
Environmental Management Division

cc:
EPA Region 6 (Ms. Morlock)

Comment 10
Attachment 3

References

REFERENCES

SAIC, 1985. *Installation Restoration Program, Phase II, Stage 1, Field Investigation.* Kirtland AFB, New Mexico.

USAF, 1993a. *RCRA Facility Investigation, Phase II, Stage 2A, Technical Report.* Kirtland AFB, New Mexico.

USAF, 1993b. *Installation Restoration Program, Phase II, Stage 2 RFI, Technical Report.* Kirtland AFB, New Mexico.

USAF, 1997. *Kirtland AFB, Final Draft Long-Term Groundwater Monitoring Report – Revision 1.* Kirtland AFB, New Mexico.