DANIEL B. STEPHENS & ASSOCIATES, INC.
ENVIRONMENTAL SCIENTISTS AND ENGINEERS

August 25, 1994

 0933-3186-94

Mr. Christopher DeWitt, R.P.G.
Acting Chief, Restoration Branch
Environmental Management Division
377 ABW/EMR
2000 Wyoming Blvd. SE
Kirtland AFB, New Mexico 87117-5659

Re: Kirtland Air Force Base Sewage Lagoons and Golf Course Main Pond Post-Closure Plan

Dear Mr. DeWitt:

This letter serves as the initial Phase I quarterly monitoring report for the period May 1 through July 31, 1994, as required by the post-closure plan (PCP) for the Kirtland Air Force Base (KAFB) sewage lagoons and golf course main pond. The PCP was approved July 6, 1994 by the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau.

The principal accomplishments of the last quarter include:

- Measurement of depths to ground water in all wells on June 27, 1994
- Collection of ground-water samples on June 29 through July 17, 1994 from KAFB monitor wells 0501, 0502, 0503, and 0504 located at the sewage lagoons and from KAFB monitor wells 0602, 0608, 0609, and 0610 located at the golf course main pond
- Collection of composite sludge samples on July 14, 1994 from the north and south sewage lagoons

This letter report includes the analytical results for sludge samples collected from the north and south sewage lagoons and for ground-water samples collected from all monitoring at the sewage lagoons and the golf course main pond. The sampling was conducted by Daniel B. Stephens and Associates, Inc. (DBS&A).

Ground-water split-samples were obtained by NMED personnel (Terry Davis and Frank Sanchez) from KAFB monitor wells 0502 and 0608. Figures 1 and 2 (Attachment 1) show the general site layout, including all monitor well and sludge subsampling locations for the sewage lagoons and golf course main pond, respectively.

Ground-Water Table Elevations

Depth to ground water was measured and ground-water elevations were calculated on June 27, 1994 and again when each well was sampled. Table 1 (Attachment 2) presents ground-water elevation data calculated for June 27, 1994 and for each individual monitor well sampling date. Figures 1 and 2 show the ground-water elevations and contours at the sewage lagoons and golf

course main pond, respectively, using the June 27, 1994 data. The ground-water elevations in wells at the golf course main pond have increased and the gradient decreased compared to the 1992 data; however, the ground-water flow direction at both sites is consistent with observations made in 1990 and 1992 (DBS&A, 1994).

Ground-Water Sampling

All monitor wells were purged and sampled using a low-flow, submersible pump. All nondisposable sampling equipment was carefully decontaminated with Liquinox® and rinsed with distilled water prior to use as specified in the PCP and DBS&A standard operating procedures.

Ground-water elevation data (shown in Table 1) were used to calculate the volume of water in each monitor well (casing volume) as listed in Table 2. Although the PCP stated that three to five well volumes were to be purged from each well prior to sampling, this guideline was not followed in an effort to minimize any disturbance that could generate suspended sediment in ground-water samples. After consultation with KAFB and NMED personnel, DBS&A adopted a low-flow, minimum purge-volume procedure designed for collecting ground-water samples to be analyzed for metals (Puls and Barcelona, 1989; Puls and Powell, 1992; see Attachment 3). The change in procedure was consistent with the hypothesis presented in the PCP that suspended sediment was the cause for the variable and occasionally excessive (greater than 50 parts per billion) chromium (Cr) values observed during previous rounds of ground-water sampling and analysis. The low-flow method uses the stabilization of water-quality parameters (pH, electrical conductivity, and turbidity) to determine when fresh, representative ground water has entered the well screen/casing interval to be sampled.

An additional benefit associated with the low-flow procedure is that purge volumes are minimized, which reduces the volume of water that may have to be disposed. At least one casing volume was purged from all wells except for KAFB monitor wells 0502 at the sewage lagoons and 0602 at the golf course main pond. The low purge volumes for all wells at the sewage lagoons is due to the low hydraulic conductivity of the aquifer surrounding the monitor wells and small lengths of wetted screen in the wells due to a falling water table in the area. The largest volume of water purged (31.8 gallons from 0504) was obtained during three separate days of effort. As noted above, stabilized values for water-quality parameters were observed prior to sampling. In the case for wells 0502 and 0602, these values, especially turbidity, stabilized at acceptable values prior to purging one casing volume. Water quality parameter values observed immediately prior to sample collection are presented in Table 3.

Ground-water samples were collected on June 29 through July 17, 1994 from KAFB monitor wells 0501, 0502, 0503, and 0504 located at the sewage lagoons, and from KAFB monitor wells 0602, 0608, 0609, and 0610 located at the golf course main pond (Figures 1 and 2). Ground-water samples were collected using a submersible pump. Extreme care was taken to minimize the turbidity of the ground-water samples, and measurements of turbidity were recorded in the field.

Samples were collected in clean bottles provided by the analytical laboratory and were handled as specified in the PCP, except for hand-delivery to a local laboratory, Soil and Water West of Rio Rancho. The samples were analyzed for total Cr by Environmental Protection Agency (EPA) method 7191, hexavalent Cr by EPA method 7196, and turbidity by EPA method 180.1. Sampling and preservation requirements are shown in Table 4. Chain-of-custody documentation is included in Attachment 4.

Table 5 summarizes the results of ground-water chemical analytical data from this quarter's sampling activities. Copies of laboratory reports are included in Appendix A. All Cr values (total and hexavalent) were below the New Mexico Water Quality Control Commission (WQCC) standard of 0.050 milligrams per liter (mg/L), except for the sample collected from KAFB monitor well 0502 which is located at the north end of the sewage lagoons. The analytical results for the sample collected by NMED (and analyzed by an independent laboratory) were nearly identical and increase the confidence with which this result must be viewed. This result was unexpected because all previous ground-water samples collected from this well have contained no Cr at levels above the WQCC standard (DBS&A, 1994). As illustrated in Table 2, the purge volume of well 0502 was significantly lower than volumes purged from the other wells. This may be correlatable to the higher Cr value in this well. Stable water quality parameter values, especially for turbidity, were measured prior to and following the collection of the samples from this monitor well. However, as was true for all sewage lagoon monitor wells, the water column above the pump inlet was purged and the well allowed to recover. Several cycles of purging and waiting for recharge were executed at all the sewage lagoon wells until the water quality parameter values stabilized.

Unlike the slow recharge at the sewage lagoon monitor wells, the recharge in the wells at the golf course main pond was adequate to allow water-quality parameter values to stabilize without shutting down the pump. Based on the data on purge volumes presented in Table 2, it appears that stagnant water was mixed with fresh water in the sample collected from monitor well 0502. Although a mechanism for the presence of hexavalent Cr in the ground water is not understood, it may be associated with the use of 304 stainless steel for the monitor well screen. It is possible that some combination of corrosion and microbial activity may account for this observation. An orange microbial film was observed after six months on the outside of dedicated stainless steel pumps used at a location south of the sewage lagoons (Casadevall, per. comm.). During future sampling the submersible pump should be lowered to the bottom of the well casing to allow as much of the water column to be removed as possible.

Because the concentration of total Cr in at least one ground-water sample exceeded one half the WQCC standard (0.5 x 0.050 mg/L = 0.025 mg/L), an additional background ground-water sample is being collected from KAFB production well 4, which is located approximately 200 yards away southeast of the south sewage lagoon. Samples will also be collected from this well during the remaining rounds of quarterly ground-water sampling.

Sludge Sampling

Four sludge samples were collected from each of the two KAFB sewage lagoons and were combined into one composite sample for each lagcon. Subsamples were collected using clean stainless steel equipment in accordance with the PCP. One split-ring sample was collected from each of the four subsampling locations and, after thorough mixing, one sampling jar for each lagoon was filled with the composite sludge material. Sampling and preservation methods are summarized in Table 4. Sludge samples were hand-delivered to Soil and Water West for analysis of total Cr by EPA Method 7191, Cr(VI) by EPA Method 7196 (furnace atomic absorption), and for Cr by the toxicity characteristic leaching procedure (TCLP). EPA methods 3050 and 1311 were used for sample preparation. Matrix and matrix spike duplicate data are presented with the data sheets in Attachment 4.

The analytical results in Table 5 for the sludge samples indicate that excessive concentrations of Cr are not present in the sewage lagoon sludge. The TCLP values are well below the EPA Cr standard of 5.0 milligrams per liter in the extracting solution.

We believe that this report satisfactorily describes all significant activities undertaken during the quarter. If you have any questions or comments, please call me at 822-9400.

Sincerely yours,

DANIEL B. STEPHENS & ASSOCIATES, INC.

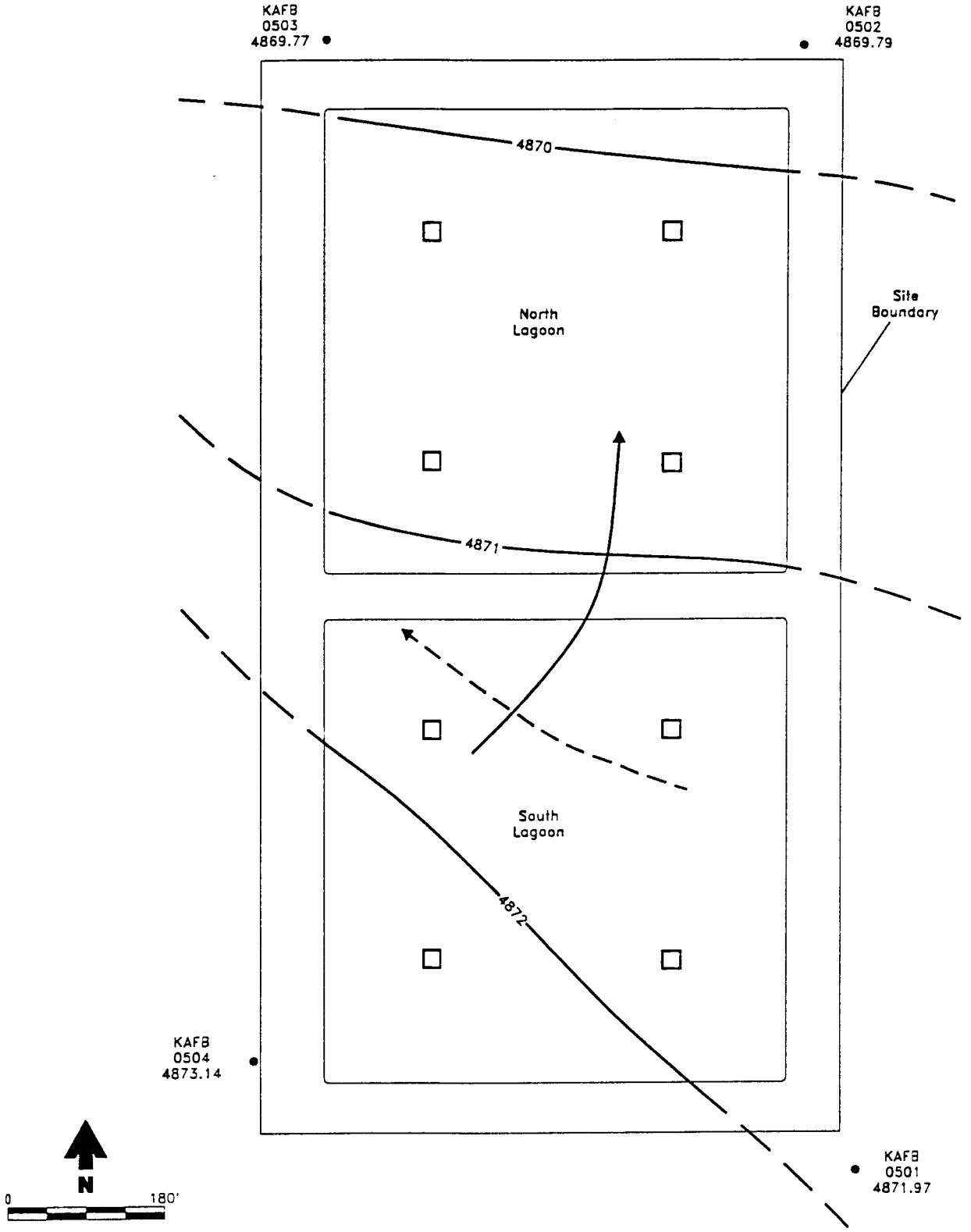
R Meixner

Richard Meixner, Ph.D.
Senior Scientist

Attachments (4)

ATTACHMENT 1

FIGURES



Explanation

- 4872.41 — Monitor Well, Number is Altitude of Water Level, July 1994
- 4872 — Water-Level Contour, July, 1994 Contour Interval = 1 foot
- Region Ground-Water-Flow Direction, 1960
- Regional Ground-Water-Flow Direction, July 1994
- Sludge Subsample Location

KAFB POST-CLOSURE MONITORING

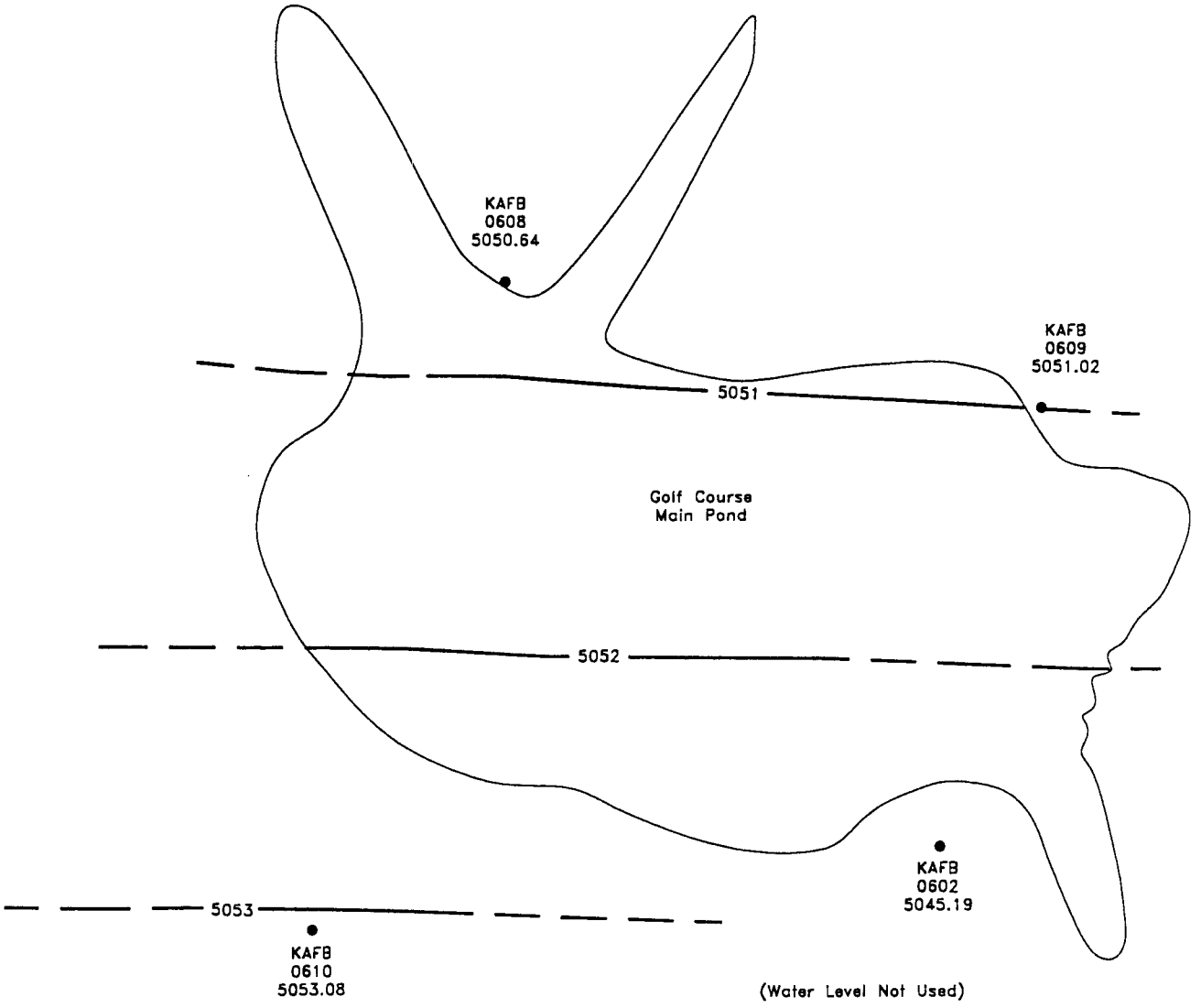
Sewage Lagoons 1994 Water Table Contour Map and Sludge Subsample Locations

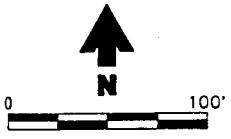
DANIEL B. STEPHENS & ASSOCIATES, INC.

8-94 JN 3186

Figure 1

D\3186\3186T01.DWG





Explanation

4872.41 ● Monitor Well, Number is Altitude of Water Level, July 1994

4872 Water-Level Contour, July 1994 Contour Interval – 1 foot

D\3186\31286TO2.DWG

DANIEL B. STEPHENS & ASSOCIATES, INC.

8-94 JN 3186

KAFB POST-CLOSURE MONITORING

Golf Course Main Pond
1994 Water Table Contour Map

Figure 2

ATTACHMENT 2

TABLES

Table 1. Ground-Water Elevation Data

Well Designation	Water Elevation (fmsl)	Sampling Date	Depth to Water[1]
KAFB0501	4871.97	06/27/94	486.13
		06/29/94	486.07
KAFB0502	4869.79	06/27/94	491.39
		06/30/94	491.42
KAFB0503	4869.77	06/27/94	487.95
		07/06/94	487.95
KAFB0504	4873.14	06/27/94	482.17
		07/17/94	481.09
KAFB0602	5045.19	06/27/94	316.30
		07/08/94	316.30
KAFB0608	5050.64	06/27/94	306.70
		07/05/94	306.59
KAFB0609	5051.02	06/27/94	311.05
		07/06/94	310.93
KAFB0610	5053.08	06/27/94	302.60
		07/14/94	302.52

[1] All depths measured from top of well casing

fmsl = feet above mean sea level

Table 2. Purge Volume Information

Well Designation	Water Column (feet)	Casing Volume (gallons)	Volume Purged (gallons)
Sewage Lagoons			
KAFB0501	18.84	12.4	13.2
KAFB0502	15.14	9.9	6.7
KAFB0503	13.88	9.1	23.3
KAFB0504	19.64	12.9	31.8
Golf Course Main Pond			
KAFB0602	152.01	99.7	57.4
KAFB0608	33.06	21.7	27
KAFB0609	34.84	22.9	25.5
KAFB0610	61.52	40.4	45

Table 3. Water Quality Parameter Values

Well Location	Date	Temperature (°C)	Electrical Conductivity (mS/cm)	pH	Turbidity (NTU)
Sewage Lagoons					
KAFB0501	06/29/94	20.0	0.584	7.36	2.1
KAFB0502	06/30/94	20.6	0.600	8.20	1.1
KAFB0503	07/06/94	NA	0.535	7.23	0.8
KAFB0504	07/07/94	21.0	0.500	8.55	7.4
	07/15/94	20.4	0.556	7.83	3.1
	07/17/94	21.7	0.570	7.78	3.2
Golf Course Main Pond					
KAFB0602	07/08/94	20.7	0.698	7.41	0.3
KAFB0608	07/05/94	NA	0.729	7.25	2.2
KAFB0609	07/06/94	NA	0.630	7.18	1.0
KAFB0610	07/14/94	25.4	0.683	6.65	1.6

mS/cm = Millisiemens per centimeter
NTU = Nephelometric turbidity units
NA = Not available

Table 4. Container/Preservative Requirements for Sludge and Ground-Water Samples

Sample Type	Analysis	Container	Preservative	Holding Time (from sampling date)
Sludge	Total chromium	4-oz. jar	--	6 months
Sludge	Hexavalent chromium	4-oz. jar	--	28 days
Sludge	TCLP chromium	8-oz. jar	--	6 months
Ground water	Total chromium	16-oz. plastic	1 mL HNO_3	6 months
Ground water	Hexavalent chromium	16-oz. plastic	Unpreserved	24 hours
Ground water	Turbidity	4-oz. plastic	Unpreserved	48 hours

Table 5. Chemical Analytical Data
Sewage Lagoons and Golf Course Main Pond

Ground-Water Sample Results				
Well Designation	Date Sampled	Total Chromium (mg/L)	Hexavalent Chromium (mg/L)	Turbidity (NTU)
Sewage Lagoons				
KAFB0501	06/29/94	0.02	0.02	4
KAFB0502	06/30/94	0.13	0.13	<1
KAFB0503	07/06/94	<0.02	<0.01	<1
KAFB0504	07/17/94	0.02	0.01	1
Golf Course Main Pond				
KAFB0602	07/08/94	0.03	<0.01	<1
KAFB0608	07/05/94	0.02	0.02	2
KAFB0608Dup	07/05/94	<0.02	<0.01	2
KAFB0609	07/06/94	<0.02	<0.01	<1
KAFB0610	07/14/94	0.02	<0.01	<1

Sludge Sample Results				
Location	Date Sampled	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	TCLP Chromium (mg/L)
North	07/11/94	57	0.3	<0.02
NorthDup	07/11/94	46	0.3	NA
South	07/11/94	54	0.2	<0.02

mg/L = Milligrams per liter
NTU = Nephelometric turbidity units
mg/kg = Milligrams per kilogram
TCLP = Toxic Characteristic Leaching Procedure
NA = Not analyzed

ATTACHMENT 3

REFERENCES

References

Daniel B. Stephens & Associates, Inc. [DBS&A]. 1994. Post-Closure Plan, Sewage Lagoons and Golf Course Main Pond, Kirtland Air Force Base, New Mexico. Prepared for Kirtland Air Force Base, Albuquerque, New Mexico, April 1, 1994.

Puls, R. W. and M. J. Barcelona. 1989. Ground Water Sampling for Metals Analyses, Superfund Ground Water Issue. U.S. Environmental Protection Agency EPA/540/4-89/001, March 1989.

Puls, R. W. and R. M. Powell, 1992. Aquisition of Representative Ground Water Quality Samples for Metals. Ground Water Monitoring Review 12:167-176.

ATTACHMENT 4

LABORATORY DATA AND CHAIN-OF-CUSTODY SHEETS

Soil and Water West, Inc.

Natural Resource Consultants and Testing Laboratories
1700 Southern Blvd., Rio Rancho, NM 87124
(505) 891-9472 FAX (505) 892-6607

Chain of Custody Record

Page 1 of 1

Laboratory ID No.: 1539
Date Delivered: 6/29/94
Time in Lab: 3:30

Contact: RICH MEIXNER
Company: D. B. STEPHENS & ASSOC.
Address: 6020 ACADEMY NE, STE. 100
ALBUQUERQUE, NM 87109
Phone (FAX): (505) 822-8877
Sampler: (Print) LORI J. DATSON/JOHN EICHTENBERGER
Signature: Lori J. Datson

Analysis Request

Matrix	Date	Time	Sample ID	Lab ID	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	TURBIDITY	Remarks
WATER	6/28/94	1433	PZ-EL-501		X	X	X	

Relinquished by: Lori J. Datson
Received by: Jerry Silva
Date and Time: 6/29/94, 1530

Relinquished by:
Received by:
Date and Time:

Remarks: N/A

SOIL AND WATER WEST, INC.

NATURAL RESOURCE CONSULTANTS
AND TESTING LABORATORIES

1700 Southern Blvd.
Rio Rancho, N. M. 87124

(505) 891-9472
FAX 892-6607

NAME: D. B. Stephens & Associates DATE: 7/06/94
ADDRESS: 6020 Academy NE, Suite 100 PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Rich Meixner PROJECT/PO#:
DATE RECEIVED: 6/29/94 TIME RECEIVED:3:30pm NUMBER OF SAMPLES: 1

LAB #	SAMPLE ID	TOTAL Cr mg/L	HEX Cr mg/L	TURBIDITY NTU
1539	KAFB0501	0.02	0.02	4
1539-D	DUPLICATE	0.02	0.02	4
1539-S	MATRIX SPIKE REC	115%	104%	

COMMENTS:

SIGNED: Russell H. Zittlosen DATE: 7/6/94
Russell H. Zittlosen
Laboratory Director

SIGNED: Clifford R. Landers DATE: 7/6/94
Clifford R. Landers
President

Soil and Water West, Inc.

Natural Resource Consultants and Testing Laboratories
1700 Southern Blvd., Rio Rancho, NM 87124
(505) 891-9472 FAX (505) 892-6607

Chain of Custody Record

Page 1 of 1

Laboratory ID No.: 1542
Date Delivered: 7/1/94
Time in Lab: 8:40 AM

Contact: RICH MEIXNER
Company: U.S. STEPHENS & ASSOC.
Address: 6020 ACADEMY NE, STE. 100, ALBUQUERQUE, NM 87109
Phone (FAX): (505) 822-8877
Sampler: (Print) L. WATSON/J. EICHENBERGER
Signature: Lori Dotson

Analysis Request

Matrix	Date	Time	Sample ID	Lab ID	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	FIELD PH	Remarks
WATER	6/30/94	1540	KAFB0502		X	X	X	
~~WATER~~	~~6/30/94~~	~~1545~~	~~DUPLICATE KAFB0502~~		X	X	X	

Relinquished by: Lori Dotson
Received by:
Date and Time: 6/30/94; 1640

Relinquished by:
Received by:
Date and Time: 7/1/94 8:40

Remarks: N/A

RECEIVED JUL 0 8 1994

SOIL AND WATER WEST, INC.
NATURAL RESOURCE CONSULTANTS
AND TESTING LABORATORIES

1700 Southern Blvd.
Rio Rancho, N. M. 87124

(505) 891-9472
FAX 892-6607

NAME: D. B. Stephens & Associates DATE: 7/06/94
ADDRESS: 6020 Academy NE, Suite 100 PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Rich Meixner PROJECT/PO#:
DATE RECEIVED: 7/05/94 TIME RECEIVED:5:12pm NUMBER OF SAMPLES: 3

LAB #	SAMPLE ID	TOTAL Cr mg/L	HEX Cr mg/L	TURBIDITY NTU
1542	KAFB0502	0.13	0.13	<1
1542-D	DUPLICATE	0.13	0.13	<1
1542-S	MATRIX SPIKE REC		96%	
1539-S	MATRIX SPIKE REC	115%		

COMMENTS:

SIGNED: Russell H. Zittlosen DATE: 7/6/94
Russell H. Zittlosen
Laboratory Director

SIGNED: Clifford R. Landers DATE: 7/6/94
Clifford R. Landers
President

Soil and Water West, Inc.

Natural Resource Consultants and Testing Laboratories
1700 Southern Blvd., Rio Rancho, NM 87124
(505) 891-9472 FAX (505) 892-6607

Chain of Custody Record

Page 1 of 1

Laboratory ID No.:

Date Delivered:

Time in Lab:

Contact: RICH HEINZER

Company: O. S. STEPHENS & ASSOC.

Address: 6020 ACADEMY NE, STE. 100,
ALBUQUERQUE, NM 87059

Phone (FAX): 822-8877

Sampler: (Print) L. WATSON / J. EICHENBERGER

Signature: Lori L Dotson

Analysis Request

Matrix	Date	Time	Sample ID	Lab ID	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	TCLP METALS	Remarks
water	7/5/94		KAL-0600					
water	7/5/94	1444	KAL-0602		X	X	X	
water	7/5/94	1448	KAL-0602D		X	X	X	
water	7/5/94	0855	TRIP BLANK		X	X	X	

Relinquished by: Lori Dotson
Received by: RV Jones
Date and Time: 7/5/94; 5:12 PM

Relinquished by: _____
Received by: _____
Date and Time: _____

Remarks:

SOIL AND WATER WEST, INC.

NATURAL RESOURCE CONSULTANTS
AND TESTING LABORATORIES

1700 Southern Blvd.
Rio Rancho, N. M. 87124

(505) 891-9472
FAX 892-6607

NAME: D. B. Stephens & Associates DATE: 7/12/94
ADDRESS: 6020 Academy NE, Suite 100 PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Rich Meixner PROJECT/PO#:
DATE RECEIVED: 7/05/94 TIME RECEIVED:5:12pm NUMBER OF SAMPLES: 3

LAB #	SAMPLE ID	TOTAL Cr mg/L	HEX Cr mg/L	TURBIDITY NTU
1549-1	KAFB0608	0.02	0.02	2
1549-2	KAFB0608D	<0.02	<0.01	2
1549-3	RINSATE	<0.02	<0.01	<1
1549-3d	DUPLICATE	<0.02	<0.01	<1

COMMENTS:

SIGNED: Russell H. Zittlosen DATE: 7/13/94
Russell H. Zittlosen
Laboratory Director

SIGNED: Clifford R. Landers /s/ DATE: 7/13/94
Clifford R. Landers
President

Soil and Water West, Inc.

Natural Resource Consultants and Testing Laboratories
1700 Southern Blvd., Rio Rancho, NM 87124
(505) 891-9472 FAX (505) 892-6607

Chain of Custody Record

Page 1 of 1

Laboratory ID No.: 155[illegible]

Date Delivered: 7/7/94

Time in Lab: 8:13 AM

Contact: RICH MEIXNER

Company: D. B. STEPHENS & ASSOC.

Address: 6020 ACADEMY NE, STE. 100, ALBUQUERQUE, NM 87109

Phone (FAX): 822-8877

Sampler: (Print) DOTSON/J. EICHENBERGER

Signature: [illegible]

Analysis Request

Matrix	Date	Time	Sample ID	Lab ID	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	TURBIDITY	Remarks
WATER	7/6/94							
WATER	7/6/94	1253	KAFB0503		X	X	X	
WATER	7/6/94	1725	KAFB0609		X	X	X	

Relinquished by: [illegible]
Received by: [illegible]
Date and Time: 7/6/94 0800

Relinquished by: [illegible]
Received by: [illegible]
Date and Time: 7/7/94 8:13

Remarks:

SOIL AND WATER WEST, INC.

NATURAL RESOURCE CONSULTANTS
AND TESTING LABORATORIES

1700 Southern Blvd.
Rio Rancho, N. M. 87124

(505) 891-9472
FAX 892-6607

NAME: D. B. Stephens & Associates — DATE: 7/12/94
ADDRESS: 6020 Academy NE, Suite 100 — PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Rich Meixner — PROJECT/PO#:
DATE RECEIVED: 7/07/94 — TIME RECEIVED: 8:13am — NUMBER OF SAMPLES: 2

LAB #	SAMPLE ID	TOTAL Cr mg/L	HEX Cr mg/L	TURBIDITY NTU
1551-1	KAFB0503	<0.02	<0.01	<1
1551-2	KAFB0609	<0.02	<0.01	<1
1551-2d	DUPLICATE	<0.02	<0.01	<1
1551-2s	MATRIX SPIKE REC.	120%	99%	

COMMENTS:

SIGNED: Russell H. Zittlosen — DATE: 7/13/94
Russell H. Zittlosen
Laboratory Director

SIGNED: Clifford R. Landers — DATE: 7/13/94
Clifford R. Landers
President

Analytical Technologies, Inc., Albuquerque, NM

San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

CHAIN OF CUSTODY

DATE: 7/8/94 PAGE 1 OF 1

ATI LAB I.D.

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER: RICH MEIXNER

COMPANY: DANIEL B. STEPHENS & ASSOCIATES
ADDRESS: 6020 ACADEMY NE
ALBUQUERQUE NM 87109
PHONE: (505) 822-9400
FAX:

BILL TO: JE DANIEL B. STEPHENS & ASSOCIATES
COMPANY: C/O RICH MEIXNER
ADDRESS: 6020 ACADEMY NE
ALBUQUERQUE

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
KAFB 0602	7/8/94	1411	H_2O	

Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	TOTAL CHROMIUM	CHROMIUM (VI) TURBIDITY	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.			Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)			SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal			The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)		NUMBER OF CONTAINERS
				X	X																						

PROJECT INFORMATION

PROJ. NO.: 3186 05.4A.05
PROJ. NAME: KIRTLAND MW SAMPLING
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS: 2
CUSTODY SEALS: Y / N / NA
RECEIVED INTACT:
RECEIVED COLD:

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

Comments:

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time: 7/8/94 1636	Signature: Time:	Signature: Time:
Printed Name: JOHN EICHER Date: 7/8/94	Printed Name: Date:	Printed Name: Date:
Company: DB STEPHENS Phone: 822-9400	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time: 7/8/94	Signature: Time:	Signature: Time:
Printed Name: KH Z. H Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI • Pink - ORIGINATOR

SOIL AND WATER WEST, INC.

NATURAL RESOURCE CONSULTANTS
AND TESTING LABORATORIES

1700 Southern Blvd.
Rio Rancho, N. M. 87124

(505) 891-9472
FAX 892-6607

NAME: D. B. Stephens & Associates — DATE: 7/21/94
ADDRESS: 6020 Academy NE, Suite 100 — PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Rich Meixner — PROJECT/PO#:
DATE RECEIVED: 7/8/94 — TIME RECEIVED: — NUMBER OF SAMPLES: 1

LAB #	SAMPLE ID	TOTAL Cr mg/L	HEX Cr mg/L	TURBIDITY NTU
1554	KAFB0602	0.03	<0.01	<1
1554-d	DUPLICATE	0.02	<0.01	<1
1554-s	MATRIX SPIKE REC.		95%	
1565-1s	MATRIX SPIKE REC.	110%		

COMMENTS:

SIGNED: Russell H. Zittlosen — DATE: 7/22/94
Russell H. Zittlosen
Laboratory Director

SIGNED: Clifford R. Landers — DATE: 7/22/94
Clifford R. Landers
President

Soil and Water West, Inc.

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Chain of Custody Record

Page 1 of 1

Laboratory ID No.: 1559
Date Delivered: 7/12/94
Time in Lab: 11:10

Contact: LORI DOTSON
Company: Daniel B. Stephens & Assoc.
Address: 6020 Academy NE, Suite 100
Albuquerque, NM 87109
Phone (FAX): 822-9400 (822-8877 fax)
Sampler: (Print) JACK KIRK
Signature: Jack J. Kirk

Analysis Request

Matrix	Date	Time	Sample ID	Lab ID	~~Total~~ Hexavalent CHROMIUM	TCLP CHROMIUM	TOTAL CHROMIUM	Remarks
SOIL	7-11-94	1440	KAEB - NORTH SEW. LAGOON		X	X	X	
SOIL	7-11-94	1445	KMB-SOUTH SEWAGE LAGOON		X	X	X	

Relinquished by: Jack J. Kirk
Received by: Kathrine Kirk
Date and Time: 7/12/94 11:00 am

Relinquished by: Kathrine Kirk
Received by: Tracy Sidera
Date and Time: 7/12/94 11:10

Remarks:

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NAME: D. B. Stephens & Associates DATE: 7/21/94
ADDRESS: 6020 Academy NE, Suite 100 PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Lori Dotson PROJECT/PO#:
DATE RECEIVED: 7/12/94 TIME RECEIVED: 11:10am NUMBER OF SAMPLES: 2

LAB #	SAMPLE ID	TOTAL Cr mg/Kg	HEX Cr mg/Kg	TCLP Cr mg/L
1559-1	KAFB North Sew. Lagoon	57	0.3	<0.02
1559-2	KAFB South Sew. Lagoon	54	0.2	<0.02
1559-1d	DUPLICATE	46	0.3	
1559-1s	MATRIX SPIKE REC.	118%	78%	109%

COMMENTS:

SIGNED: Russell H Zitalosen DATE: 7/22/94
Russell H. Zitalosen
Laboratory Director

SIGNED: Clifford R Landers/cs DATE: 7/22/94
Clifford R. Landers
President

Soil and Water West, Inc.

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Chain of Custody Record

Page 1 of 1

Laboratory ID No.: 1565
Date Delivered: 7/15/14
Time in Lab: 10:20

Contact: RICH MEIXNER
Company: DANIEL B. STEPHENS & ASSOC.
Address: 6020 ACADEMY NE
ALBUQUERQUE, NM 87109
Phone (FAX): (505) 822-8877
Sampler: (Print) J. EICHENBERGER
Signature:

Analysis Request

Matrix	Date	Time	Sample ID	Lab ID	TOTAL CHROMIUM	CHROMIUM (VI)	TURBIDITY	Remarks
H_2O	7/14/14	1637	WFB 0610 #1		X			
H_2O	7/14/14	1637	WFB 0610 #2			X	X	

Relinquished by: [signature]
Received by: [signature]
Date and Time: 7/14/14 1900

Relinquished by: [signature]
Received by: [signature]
Date and Time: 7/15/14 10:20AM

Remarks: TOTAL Cr PRESERVED W/ HNO_3

SOIL AND WATER WEST, INC.

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1700 Southern Blvd.
Rio Rancho, N. M. 87124

(505) 891-9472
FAX 892-6607

NAME: D. B. Stephens & Associates DATE: 7/21/94
ADDRESS: 6020 Academy NE, Suite 100 PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Rich Meixner PROJECT/PO#:
DATE RECEIVED: 7/15/94 TIME RECEIVED: 10:20am NUMBER OF SAMPLES: 2

LAB #	SAMPLE ID	TOTAL Cr mg/L	HEX Cr mg/L	TURBIDITY NTU
1565-1	KAFB0610 #1	0.02		
1565-2	KAFB0610 #2		<0.01	<1
1565-1d	DUPLICATE	0.02		
1565-1s	MATRIX SPIKE REC.	110%		
1565-2d	DUPLICATE		<0.01	<1
1565-2s	MATRIX SPIKE REC.		96%	

COMMENTS:

SIGNED: Russell H. Zittleson DATE: 7/22/94
Russell H. Zittleson
Laboratory Director

SIGNED: Clifford R. Landers DATE: 7/22/94
Clifford R. Landers
President

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Chain of Custody Record

Page 1 of 1

Laboratory ID No.:

Date Delivered:

Time in Lab:

Contact: Rich Meixner

Company: Daniel B. Stephens & Assoc.

Address: 6020 Academy NE Suite 100
Albuquerque NM 87106

Phone (FAX):

Sampler: (Print) John Eichenberger / Al Potter

Signature: / Al Potter

Analysis Request

Matrix	Date	Time	Sample ID	Lab ID	Total Chromium	Chromium (VI)	Turbidity
H_2O	7/17/94	1415	KAFB 0504 #1		X		
H_2O	7/17/94	1415	KAFB 0504 #6			X	X

Remarks: Collected 2:15 pm 7/17/94

Relinquished by: Al Potter 7/18/94 7:49 am.
Received by: Clifford R. Lindo
Date and Time: 7/18/94 7:49 Am

Relinquished by:
Received by:
Date and Time:

Remarks: KAFB 0504 #1 PRESERVED w/ HNO_3

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NAME: D. B. Stephens & Associates DATE: 7/21/94
ADDRESS: 6020 Academy NE, Suite 100 PHONE: 822-9400
Albuquerque, N.M. 87109
CONTACT: Rich Meixner PROJECT/PO#:
DATE RECEIVED: 7/18/94 TIME RECEIVED: 7:49am NUMBER OF SAMPLES: 2

LAB #	SAMPLE ID	TOTAL Cr mg/L	HEX Cr mg/L	TURBIDITY NTU
1567-1	KAFB0504 #5	0.02		
1567-2	KAFB0504 #6		0.01	1
1567-1d	DUPLICATE	0.02		
1567-2s	MATRIX SPIKE REC.		102%	
1565-1s	MATRIX SPIKE REC.	110%		

COMMENTS:

SIGNED: Russell H. Zittlosen DATE: 7/22/94
Russell H. Zittlosen
Laboratory Director

SIGNED: Clifford R. Landers DATE: 7/22/94
Clifford R. Landers
President