APPENDIX G

Field Sampling Data
January – March 2011

G-1. Groundwater Purge Logs

G-2. Groundwater Sample Collection Logs

G-3. Soil-Vapor Purge Logs

G-4. Soil-Vapor Sample Collection Logs

G-5. Geophysical Logging QC Forms

G-6. Jet West Geophysical Logs

G-7. Geophysical Well Log Spreadsheet

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APPENDIX G-1

Groundwater Purge Logs

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: 2011 1st Quarter GW Monitoring **Well ID No.:** KAFB-1061

Site / SWMU No.: **Date:** 1-25-11

Weather: Sunny, cool - low 30s **Time:** 1023

Field Crew: R. Bailey, M. Lyon, D. Rust **Crew Signature:**

Review Signature: Mark Lyon **Date Review:** 1/27/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) Damaged - **Locked:** (Yes) - No **Well ID Mark:** (Yes) - No

Notes:
MSA 5 gas meter PID = 168 ppm; VOC LEL = 1, Read

CALCULATIONS

(A) Depth to Well Bottom	510.93 ft
(B) Pre-Purge Depth to Water	488.13 ft
(C) Water Column Height (A-B)	22.80 ft
(D) Casing Factor: (4"=0.65) 5"=1.02	
(E) One Well Casing Volume (C x D):	14.82 gal
(F) Depth to Top of Screen	483 ft
(G) Depth to Bottom of Screen	508 ft
(H) Saturated Filter Pack Length (G – F, or B)	25 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	30 gal
(K) Min Purge Volume (E + J)	44.82 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI Professional Plus	2431
Turbidity Meter Hach 2100P	2821
Pump Bennett Dedicated	—
Field Alkalinity Test Kit LaMotte 3467	3467

PURGING INFORMATION

Description first water purged:
Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C) °F	pH	Spec Cond (mS/cm²) µS/cm²	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1-25-11 1128	0	488.13	65.6	7.5	417.2	8.05	211.6	2.34	.4gpm increase pump
1137	5	488.10	66.8	7.51	458.4	4.41	-20.7	2.34	.74gpm decrease pump
1146	10	488.15	66.5	7.55	421.7	3.14	-77.2	NM	"
1152	15	488.12	66.1	7.60	401.5	1.96	-73.4	NM	" decrease pump
1201	20	488.11	66.2	7.61	382.1	3.17	-76.7	NM	.56
1210	25	488.12	66.2	7.62	384.6	2.30	-77.3	~~488.12~~	"
1217	30	488.10	66.3	7.65	381.0	2.48	-73.4	0.02	"
1227	35	488.10	66.3	7.64	377.9	1.88	-75.9	0.00	"
1235	40	488.09	66.3	7.64	377.6	1.96	-76.7	0.01	"

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KAFB-1061
1-25-11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C) (°F)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/25/11 ~~12:47~~ 12:43	45	488.08	66.3	7.65	375.0	2.05	-76.7	0.00	.56 gpm
12:49	46.5	488.07	66.1	7.66	382.3	1.60	-75.2	0.00	1.21 lpm
12:51	47	488.08	66.1	7.67	377.2	1.64	-74.9	0.00	"
12:55	48	488.08	65.9	7.67	378.2	1.93	-70.1	0.00	

Values Prior to Sampling

12:55	48	488.08	65.9	7.67	378.2	1.93	-70.1	0.00	1.21 lpm

Field Alkalinity Result 170 mg/L as $CaCO_3$ (likely biased high, operator error) (mae)

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

~~1.39~~
1.65

1.21/m

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/25/2011 11:27	410	6.74	207.6	7.49	18.3		KAFB-1061	1Q11	07J101514
1/25/2011 11:29	424.8	7.12	211.8	7.53	19.5		KAFB-1061	1Q11	07J101514
1/25/2011 11:31	432.3	7.14	208	7.58	19.4		KAFB-1061	1Q11	07J101514
1/25/2011 11:33	430.3	7.35	202.8	7.61	19		KAFB-1061	1Q11	07J101514
1/25/2011 11:35	434.1	7.39	173.9	7.76	18.9		KAFB-1061	1Q11	07J101514
1/25/2011 11:37	456.8	4.73	-8.7	7.53	19.3		KAFB-1061	1Q11	07J101514
1/25/2011 11:39	431.4	4.12	-41	7.51	19.3		KAFB-1061	1Q11	07J101514
1/25/2011 11:41	435.6	3.7	-57	7.52	19.2		KAFB-1061	1Q11	07J101514
1/25/2011 11:43	437.3	3.01	-68.3	7.54	19.2		KAFB-1061	1Q11	07J101514
1/25/2011 11:45	415.8	3.01	-74.6	7.54	19.2		KAFB-1061	1Q11	07J101514
1/25/2011 11:47	407.7	2.39	-77.4	7.55	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 11:49	408.1	4.12	-80	7.57	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 11:51	380.1	2.64	-75.8	7.6	19		KAFB-1061	1Q11	07J101514
1/25/2011 11:53	395.2	2.88	-76.2	7.6	18.9		KAFB-1061	1Q11	07J101514
1/25/2011 11:55	395	2.32	-72.6	7.61	19		KAFB-1061	1Q11	07J101514
1/25/2011 11:57	393.9	2.56	-75	7.6	19		KAFB-1061	1Q11	07J101514
1/25/2011 11:59	375.6	2.05	-79.3	7.59	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:01	401.5	2.92	-76.4	7.6	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:03	385.4	2.03	-77	7.6	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:05	370.5	1.95	-74.2	7.63	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:07	379.5	2.39	-78.3	7.61	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:09	386.5	2.63	-78.7	7.62	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:11	387	2.56	-76.8	7.62	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:13	380.9	2.2	-78.6	7.62	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:15	384.4	1.9	-77.1	7.63	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:17	378.4	2.49	-75.7	7.64	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:19	370.7	1.88	-77.6	7.63	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:21	368.4	1.9	-78.3	7.63	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:23	373.9	2.07	-76.4	7.66	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:25	364.8	3.53	-75.9	7.65	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:27	361.9	2.82	-76.4	7.65	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:29	362.1	2.59	-78.9	7.64	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:31	374.2	1.91	-79.5	7.63	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:33	364.1	1.83	-76.1	7.66	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:35	374.7	2	-76.6	7.65	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:37	363.9	3.3	-76.6	7.65	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:39	325.3	2.43	-75	7.66	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:41	373.4	1.87	-73.9	7.66	19.1		KAFB-1061	1Q11	07J101514
1/25/2011 12:43	375.9	2.31	-76.2	7.65	19		KAFB-1061	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/25/2011 12:45	379.8	3.76	-75.7	7.67	18.9		KAFB-1061	1Q11	07J101514
1/25/2011 12:47	381.9	2.04	-74.1	7.67	18.9		KAFB-1061	1Q11	07J101514
1/25/2011 12:49	386.8	2.21	-75	7.65	18.9		KAFB-1061	1Q11	07J101514
1/25/2011 12:51	377.9	1.73	-75	7.67	19		KAFB-1061	1Q11	07J101514
1/25/2011 12:53	380.8	2.01	-72	7.67	18.8		KAFB-1061	1Q11	07J101514
1/25/2011 12:55	374.9	2.19	-69.4	7.68	18.8		KAFB-1061	1Q11	07J101514
1/25/2011 12:57	381.6	2.15	-69.9	7.65	18.7	Collect Sample	KAFB-1061	1Q11	07J101514

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB 1062
Site / SWMU No.: KAFB 106
Date: 1/27/11
Weather: Sunny 50s
Time: 1330
Field Crew: RB, ML, DR, GP
Crew Signature: [signature]
Review Signature: Mark Ivan
Date Review: 1/27/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	507.13	ft
(B) Pre-Purge Depth to Water	485.43	ft
(C) Water Column Height (A-B)	21.7	ft
(D) Casing Factor: 4"=(0.65) 5"=1.02	~~14.10~~	
(E) One Well Casing Volume (C x D):	14.10	gal
(F) Depth to Top of Screen	488.13	ft
(G) Depth to Bottom of Screen	507.13	ft
(H) Saturated Filter Pack Length (G –F, or B)	21.7	ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10) = 1.07, _____	~~[illegible]~~	

(J) Filter Pack Volume (H x I)	20.5	gal
(K) Min Purge Volume (E + J)	34.60	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI PRO	2431	
Turbidity Meter: Hach	2821	
Pump: Bennett Dedicated	-	
Field Alkalinity: Lamotte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/27/11 1350	0	485.43	64.5	7.95	393.5	10.98	148.8	2.95	1 gpm
1355	5	485.48	65.8	7.93	370.2	5.41	122.0	4.43	
1340	10	485.48	65.7	7.92	373.5	3.10	101.8	2.62	
14:19	20	485.48	65.7	7.92	364.0	4.98	94.4	0.94	
1426	30	485.47	65.7	7.91	363.6	5.19	96.2	0.70	
1438	~~33~~ 35	485.43	65.2	7.92	360.1	4.77	90.6	.71	1 lpm
1441	~~34~~ 36	485.43	65.1	7.91	367.9	4.73	89.8	.35	

Values Prior to Sampling 36 485.43 65.1 7.91 367.9 4.73 89.8 .35 1 lpm

Alkalinity = 135 mg/l as $CaCO_3$

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KAFB-1062
01/27/2011

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond ~~(mS/cm²)~~ uS/cm²	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
	36	485.43	65.1	7.91	367.9	4.73	89.8	0.35	

Field Alkalinity Result 135 mg/l as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/27/2011 13:50	384.2	6.22	142.6	7.91	18.7	Start Purge 13:50	2	1Q11	07J101514
1/27/2011 13:52	374	5.62	133.9	7.92	18.8		2	1Q11	07J101514
1/27/2011 13:54	373.7	4.89	127.5	7.92	18.8		2	1Q11	07J101514
1/27/2011 13:56	371.9	4.74	121.7	7.93	18.8		2	1Q11	07J101514
1/27/2011 13:58	372.6	4.92	117.3	7.93	18.8		2	1Q11	07J101514
1/27/2011 14:00	374.2	6.06	112.6	7.92	18.7		2	1Q11	07J101514
1/27/2011 14:02	372	3.29	104.9	7.92	19		2	1Q11	07J101514
1/27/2011 14:04	373	2.87	97.8	7.91	19.1		2	1Q11	07J101514
1/27/2011 14:06	373.5	2.71	92.5	7.91	19.1		2	1Q11	07J101514
1/27/2011 14:08	371.4	5.63	93.2	7.92	18.5		2	1Q11	07J101514
1/27/2011 14:10	370.5	4.83	95.1	7.92	18.5		2	1Q11	07J101514
1/27/2011 14:12	367.9	6.24	94.1	7.93	18.6		2	1Q11	07J101514
1/27/2011 14:14	369.9	4.87	95.4	7.91	18.7		2	1Q11	07J101514
1/27/2011 14:16	365.8	5.61	95.4	7.92	18.7		2	1Q11	07J101514
1/27/2011 14:18	365.2	5.47	94.1	7.92	18.7		2	1Q11	07J101514
1/27/2011 14:20	363.7	5.95	94.1	7.92	18.7		2	1Q11	07J101514
1/27/2011 14:22	367.3	5.31	96.6	7.9	18.7		2	1Q11	07J101514
1/27/2011 14:24	360.6	7.16	96.9	7.92	18.7		2	1Q11	07J101514
1/27/2011 14:26	362.4	5.57	96.2	7.91	18.7		2	1Q11	07J101514
1/27/2011 14:28	365.4	5.99	96	7.91	18.7		2	1Q11	07J101514
1/27/2011 14:30	365	5.66	94.3	7.91	18.6		2	1Q11	07J101514
1/27/2011 14:32	362.7	3.5	89.1	7.91	19		2	1Q11	07J101514
1/27/2011 14:34	367	4.54	91.4	7.91	18.4		2	1Q11	07J101514
1/27/2011 14:36	360.4	4.75	90.8	7.92	18.5		2	1Q11	07J101514
1/27/2011 14:38	360.1	4.92	89.3	7.93	18.4		2	1Q11	07J101514
1/27/2011 14:40	366.4	4.68	89.9	7.91	18.4		2	1Q11	07J101514
1/27/2011 14:42	366.9	4.63	89.6	7.91	18.4	Sample at 14:41	2	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB ~~1063~~ BFF

Well ID No.: KAFB 1063

Site / SWMU No.: 106

Date: 1-27-11

Weather: Sunny 40s

Time: 1105

Field Crew: RB, ML, DR, GP

Crew Signature: [signature]

Review Signature: [signature]

Date Review: 1-27-11

WELL OBSERVATIONS

Protective Casing / Vault: Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	505.15 ft
(B) Pre-Purge Depth to Water	482.91 ft
(C) Water Column Height (A-B)	22.24 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	14.45 gal
(F) Depth to Top of Screen	478.15 ft
(G) Depth to Bottom of Screen	505.15 ft
(H) Saturated Filter Pack Length (G –F, or B)	22.24 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	26 gal
(K) Min Purge Volume (E + J)	41 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI Pro	2431
Turbidity Meter Hach Turbidmeter 2100p	2821
Pump Bennett Dedicated	—
Field Alkalinity Lamotte Model DR-A	3467

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C) F	pH	Spec Cond (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/27/11 1135	0	482.91	61.0	7.78	878	9.99	136.8	49.0	.4 gal/m
1144	5	482.95	64.4	7.88	789	9.72	56.7	2.96	
1153	10	482.95	64.4	7.88	800	9.67	60.9	3.32	Start logging
1212	20	482.94	64.3	7.89	734	9.48	65.6	2.32	
1231	30	482.95	64.4	7.89	785	10.09	70.1	2.43	
1241	35	482.94	64.5	7.89	845	9.54	72.7	2.43	
1250	40	482.95	64.6	7.90	818	9.68	70.1	1.72	
1252	41	482.94	64.6	7.90	810	9.73	69.6	1.63	(Final)

Values Prior to Sampling 41 482.94 64.6 7.90 810 9.73 69.6 1.63

Alkalinity = 100 mg/l in $CaCO_3$

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Shaw Environmental, Inc.

KAFB-1063
1-27-11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
					uS/cm2				
Values Prior to Sampling									
	41	482.94	64.6	7.90	810	9.73	69.6	1.63	

Field Alkalinity Result 100 mg/l in CaCO

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/27/2011 11:56	858	9.78	62.2	7.88	18.1	Start Purge 11:35 - started logging late	3	1Q11	07J101514
1/27/2011 11:58	840	9.69	63.4	7.88	18		3	1Q11	07J101514
1/27/2011 12:00	850	9.66	64	7.89	18		3	1Q11	07J101514
1/27/2011 12:02	854	9.54	64.7	7.89	17.9		3	1Q11	07J101514
1/27/2011 12:04	828	9.97	65.1	7.89	18		3	1Q11	07J101514
1/27/2011 12:06	810	10.1	65.6	7.89	17.9		3	1Q11	07J101514
1/27/2011 12:08	834	9.74	65.7	7.89	18		3	1Q11	07J101514
1/27/2011 12:10	847	9.76	65.4	7.89	18		3	1Q11	07J101514
1/27/2011 12:12	836	9.78	65.5	7.89	17.9		3	1Q11	07J101514
1/27/2011 12:14	809	9.71	65.9	7.89	18		3	1Q11	07J101514
1/27/2011 12:16	829	9.76	66	7.89	18		3	1Q11	07J101514
1/27/2011 12:18	833	9.77	66.9	7.89	18		3	1Q11	07J101514
1/27/2011 12:20	833	9.67	67.4	7.91	18		3	1Q11	07J101514
1/27/2011 12:22	833	10.09	67.3	7.89	18		3	1Q11	07J101514
1/27/2011 12:24	852	10.13	67.3	7.89	18		3	1Q11	07J101514
1/27/2011 12:26	780	9.7	67.8	7.89	17.9		3	1Q11	07J101514
1/27/2011 12:28	831	9.62	68.6	7.89	18		3	1Q11	07J101514
1/27/2011 12:30	838	10.02	69.1	7.89	18		3	1Q11	07J101514
1/27/2011 12:32	798	10.09	70.1	7.9	18		3	1Q11	07J101514
1/27/2011 12:34	829	9.85	71.1	7.89	18		3	1Q11	07J101514
1/27/2011 12:36	840	9.97	71.3	7.89	18		3	1Q11	07J101514
1/27/2011 12:38	851	10.3	71.6	7.9	18		3	1Q11	07J101514
1/27/2011 12:40	858	10.05	72.2	7.89	18		3	1Q11	07J101514
1/27/2011 12:42	856	9.53	72.6	7.89	18.1		3	1Q11	07J101514
1/27/2011 12:44	841	9.87	72.8	7.9	18		3	1Q11	07J101514
1/27/2011 12:46	835	9.74	72.9	7.9	18.1		3	1Q11	07J101514
1/27/2011 12:48	833	9.91	71.9	7.9	18.1		3	1Q11	07J101514
1/27/2011 12:50	841	10.51	70.3	7.9	18.1		3	1Q11	07J101514
1/27/2011 12:52	837	10.53	69.6	7.9	18.1	Sample at 12:52	3	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB Bulk Fuels Facility
Well ID No.: KAFB-1064
Site / SWMU No.:
Date: 01/27/11
Weather: Sunny - 40s 20s - 30
Time: 0845
Field Crew: RB, ML, DR, GP
Crew Signature:
Review Signature: Mark Jan
Date Review: 1/27/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes: Clear

CALCULATIONS

(A) Depth to Well Bottom	512.44	ft
(B) Pre-Purge Depth to Water	489.45	ft
(C) Water Column Height (A-B)	22.99	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	14.94	gal
(F) Depth to Top of Screen	486.44	ft
(G) Depth to Bottom of Screen	512.44	ft
(H) Saturated Filter Pack Length (G –F, or B)	22.99	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	27	gal
(K) Min Purge Volume (E + J)	42	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI Pro	2431	
Turbidity Meter 2100P (Hach)	2821	
Pump Bennett Dedicated		
Field Alkalinity Lamotte	3467	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp °C °F	pH	Spec Cond (mS/cm²) µS/cm²	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/27/11 0910	0	489.45	63.6	7.70	549.2	8.48	188.2	18.2	1 gpm
918	5	489.49	65.2	7.76	553.9	6.90	145.9	9.83	
925	10	489.49	65.1	7.78	555.8	7.15	152.2	4.42	
934	20	489.49	65.1	7.78	553.9	7.11	168.7	1.57	
944	30	489.49	65.1	7.78	555.1	6.50	124.3	.94	
949	35	489.48	65.2	7.78	557.2	7.91	93.6	.53	
953	40	489.48	65.1	7.78	557.3	7.33	73.1	.52	
1002	44	489.45	64.0	7.78	559.2	6.25	72.5	.52	1 gpm
1005	45	489.45	63.9	7.78	559.7	6.23	74.2	.36	

140705

KAFB 1064
1/27/11

Shaw™ Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (~~mS/cm~~) uS/cm2	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1007	47	489.43	63.8	7.78	559.7	6.23	79.8	.65	1 lpm
Values Prior to Sampling									
1010	47	489.43	63.8	7.78	559.7	6.23	79.8	.65	1 lpm

Field Alkalinity Result 102 mg/l CaCO

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/27/2011 9:08	-99999	13.02	564	6.84	9.9		4	1Q11	07J101514
1/27/2011 9:10	-99999	13.29	447.6	6.81	9.3	Start Purge 09:10	4	1Q11	07J101514
1/27/2011 9:12	-99999	15.91	205.5	7.36	3		4	1Q11	07J101514
1/27/2011 9:14	548	9.11	190.8	7.7	17.7		4	1Q11	07J101514
1/27/2011 9:16	554	7.32	168.1	7.73	18.4		4	1Q11	07J101514
1/27/2011 9:18	554	6.71	148.5	7.76	18.5		4	1Q11	07J101514
1/27/2011 9:20	555	8.15	146.3	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:22	555	6.94	148.6	7.77	18.4		4	1Q11	07J101514
1/27/2011 9:24	554	7.26	151.4	7.79	18.4		4	1Q11	07J101514
1/27/2011 9:26	554	6.68	154.9	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:28	554	6.81	157.7	7.79	18.4		4	1Q11	07J101514
1/27/2011 9:30	553	6.94	160.4	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:32	554	7.08	161.8	7.79	18.4		4	1Q11	07J101514
1/27/2011 9:34	555	7.08	163.7	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:36	556	7.47	162.1	7.79	18.4		4	1Q11	07J101514
1/27/2011 9:38	553	7.19	155.1	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:40	554	6.37	145.2	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:42	555	7.16	141	7.79	18.4		4	1Q11	07J101514
1/27/2011 9:44	556	7.15	128.6	7.77	18.4		4	1Q11	07J101514
1/27/2011 9:46	556	7.49	112.4	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:48	558	7.2	109.5	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:50	556	7.28	89.8	7.77	18.4		4	1Q11	07J101514
1/27/2011 9:52	558	7.11	85.8	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:54	557	7.05	74	7.78	18.4		4	1Q11	07J101514
1/27/2011 9:56	555	6.28	69.8	7.78	18.3		4	1Q11	07J101514
1/27/2011 9:58	558	7.64	71.7	7.79	17		4	1Q11	07J101514
1/27/2011 10:00	559	6.25	71.3	7.78	17.8		4	1Q11	07J101514
1/27/2011 10:02	560	6.19	72.9	7.78	17.8		4	1Q11	07J101514
1/27/2011 10:04	560	6.26	74.5	7.78	17.7		4	1Q11	07J101514
1/27/2011 10:06	559	6.24	78.9	7.79	17.7	Sample at 10:05	4	1Q11	07J101514
1/27/2011 10:08	560	6.24	80.2	7.79	17.5		4	1Q11	07J101514
1/27/2011 10:10	558	5.01	81.9	7.79	17		4	1Q11	07J101514
1/27/2011 10:12	559	4.82	83.1	7.79	16.5		4	1Q11	07J101514
1/27/2011 10:14	559	4.76	83.7	7.79	16.1		4	1Q11	07J101514
1/27/2011 10:16	559	4.76	84.2	7.8	15.7		4	1Q11	07J101514
1/27/2011 10:18	559	4.77	84.4	7.8	15.3		4	1Q11	07J101514
1/27/2011 10:20	561	5.79	84.7	7.79	14.8		4	1Q11	07J101514
1/27/2011 10:22	6.5	16.38	-129.6	7.27	7.3		4	1Q11	07J101514
1/27/2011 10:24	8.6	18.16	123.8	8.57	6.4		4	1Q11	07J101514
1/27/2011 10:26	8.5	16.8	133.3	8.39	7.6		4	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny
Field Crew: AT, RB, ML
Review Signature: Mark Ryan

Well ID No.: KAFB-1065
Date: 2/21/11
Time: 1235
Crew Signature: ~~AT, RB, ML~~ at
Date Review: 2/22/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged - **Locked:** Yes - (No) **Well ID Mark:** (Yes) - No

Notes: PID - 2000 ppm VOC, 9.7% O_2, LEL=34, Breathing Zone: 0 ppm VOC, 20.8% O_2, LEL=0)

CALCULATIONS

489.72 product
489.89 bw

(A) Depth to Well Bottom	507.10	ft
(B) Pre-Purge Depth to Water	489.89	ft
(C) Water Column Height (A-B)	17.11	ft
(D) Casing Factor: 4"=(0.65) 5"=1.02	~~1.2~~ .65	
(E) One Well Casing Volume (C x D):	11.2	gal
(F) Depth to Top of Screen	479.0	ft
(G) Depth to Bottom of Screen	506.0	ft
(H) Saturated Filter Pack Length (G –F, or (B))	16.11	ft
(I) Casing/Borehole Factor 4/10 = (1.2), 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	19.3	gal
(K) Min Purge Volume (E + J)	30.5	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500		
Turbidity Meter: Hach 2100P	2821	
Pump: Portable Bennett Pump		
Field Alkalinity: La Motte model AK-A	3467	

PURGING INFORMATION

Description first water purged: Brownish / yellow

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1418	0	489.89	18.41	8.07	753.3	2.63	14	557	1.2 L/m
1435	5	n/m	21.31	6.64	1107	2.78	-66	346 557	
1452	10	n/m	21.10	6.53	1109	2.63	-61	715	
1514	15	n/m	21.09	6.47	1125	2.51	-57	575	
1534	20	n/m	20.87	6.45	1149	2.41	-55	481	
1550	25	n/m	20.86	6.44	1141	2.33	-58	426	
1610	30	n/m	20.97	6.42	1137	2.21	-60	392	
1614	31	n/m	20.99	6.43	1133	2.06	-61	369	

140705

KAFB-1065

2/21/11

Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp ~~(°C)~~ °F	pH	Spec Cond ~~(mS/cm²)~~ uS/cm²	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1614	31	n/m	20.59	6.43	1133	2.06	-61	369	

Field Alkalinity Result 200 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB1065-2-21-2011.flo

Operator Name:	RB						
Company Name:	SHAW						
Project Name:	KAFB						
Site Name:							
Well ID:	KAFB1065						
pH Sensor:	Installed	Target Value	0	[pH]	Target Perc	0	[%]
ORP Sensor:	Installed	Target Value	0	[mV]	Target Perc	0	[%]
RDO Sensor:	Installed	Target Value	0	[mg/L]	Target Perc	0	[%]
Cond Sensor:	Installed	Target Value	0	[µS/cm @2	Target Perc	0	[%]
Turb Sensor:	Installed	Target Value	0	[NTU]	Target Perc	0	[%]

Pump Model/Type:	BENNETT	
Tubing Type:		
Tubing Diam:	0	[in]
Tubing Length:	0	[ft]
Well Depth:	507	[ft]
Well Diam:	4	[in]
Screen Len:	324	[in]
Screen Depth:	479	[ft]
Pump Inlet Depth:	0	[in]
Depth to Water:	489.89	[ft]
Pump Level (TOC):	485	[ft]
Final Pumping Rate:	0	[mL/min]
Stable Draw Down:	0	[in]
Total Volume Formula:	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)	
Calculated Total Volume:	600	[mL]
Actual Total Volume:	600	[mL]
Calculated Measurement Interval:	18000	[sec]
Actual Measurement Interval:	120	[sec]
Start date/time:	2/21/2011	2:18:10 PM
End date/time:	2/21/2011	4:15:22 PM
Total Time:	1:57:12	

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L	Variance	Cond [µS/c	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	6.43	0	-59.32	-0.47	2.28	0.01	1124.46	-15.74	239.35	-22.83	20.94	0.01	16:06:20
3	6.42	-0.01	-59.58	-0.26	2.21	-0.07	1137.25	12.79	298.55	59.2	20.97	0.04	16:08:21
2	6.42	0	-60.17	-0.6	2.08	-0.13	1135.98	-1.28	189.25	-109.3	20.95	-0.03	16:10:25
1	6.43	0.01	-60.82	-0.64	2.06	-0.02	1132.99	-2.99	228.19	38.94	20.99	0.04	16:12:26
0	6.42	-0.01	-60.9	-0.09	2.12	0.06	1124.21	-8.78	435.04	206.85	20.97	-0.02	16:14:28

pH Min:	6.42
pH Max:	6.43

ORP Min:	-60.9
ORP Max:	-59.32
RDO Min:	2.06
RDO Max:	2.28
Cond Min:	1124.21
Cond Max:	1137.25
Turb Min:	189.25
Turb Max:	435.04
Temp Min:	20.94
Temp Max:	20.99

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP
Report generated:	2/23/2011 4:17:40 PM
Report from file:	...\KAFB--KAFB1065-2-21-2011.flo.bin
Win-Situ® Version	4.58.16.0
Serial number:	48808
Firmware Version	2.13
Unit name:	Troll 9000 mw-1
Test name:	LowFlow
Test defined on:	2/21/2011 2:18:10 PM
Test started on:	2/21/2011 2:18:10 PM
Test stopped on:	N/A N/A

Data gathered using Event testing

Time between data points:	0.000 Minutes.
Time between default storages:	(Minutes.
Monitoring data on channel [1]	
Data stored if delta value exceeds:	0 Celsius
Number of data samples:	58

TOTAL DATA SAMPLES 58

Channel number [1]

Measurement type:	Temperature
Channel name:	

Channel number [3]
Measurement type: Barometric Pressure
Channel name:

Channel number [4]
Measurement type: Turbidity
Channel name:

Channel number [5]
Measurement type: Battery Voltage
Channel name:

Channel number [11]
Measurement type: ORP
Channel name:

Channel number [12]
Measurement type: pH
Channel name:

Channel number [37]
Measurement type: Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [37]
Measurement type: RDO %Saturation
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [45]
Measurement type: Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/21/2011	2:18:10 PM	0	18.41	24.579	828	2.794	14	8.07	2.68	35.0812	1420.09	
2/21/2011	2:20:11 PM	2.0167	20.5	24.579	980	2.823	-34	7.28	1.74	23.711	753.34	
2/21/2011	2:22:14 PM	4.0667	21.35	24.575	521.1	2.823	-54	7.03	1.85	25.61	910.12	
2/21/2011	2:24:16 PM	6.1	21.46	24.572	396.9	2.852	-60	6.96	2.23	31.0601	1043.47	
2/21/2011	2:26:19 PM	8.15	21.37	24.573	617.6	2.823	-63	6.88	2.72	37.7717	1082.25	
2/21/2011	2:28:22 PM	10.2	21.43	24.574	348.9	2.852	-66	6.82	2.3	31.9976	1115.03	
2/21/2011	2:30:25 PM	12.25	21.44	24.577	386.6	2.852	-65	6.75	2.3	31.9866	1094.02	

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/21/2011	2:32:27 PM	14.2833	21.38	24.575	333.3	2.823	-66	6.7	2.44	33.8194	1103.77	
2/21/2011	2:34:29 PM	16.3167	21.31	24.575	346	2.852	-66	6.64	2.78	38.515	1107.3	
2/21/2011	2:36:33 PM	18.3833	21.38	24.577	359.1	2.823	-66	6.62	2.46	34.2129	1094.62	
2/21/2011	2:38:35 PM	20.4167	21.43	24.579	359.1	2.823	-65	6.6	2.03	28.2115	1088.8	
2/21/2011	2:40:37 PM	22.45	21.36	24.581	348.4	2.823	-65	6.59	2.04	28.2691	1104.31	
2/21/2011	2:42:40 PM	24.5	21.19	24.581	438.5	2.852	-65	6.57	2.43	33.5464	1123.32	
2/21/2011	2:44:42 PM	26.5333	21.22	24.582	303.8	2.852	-65	6.55	2.48	34.3188	1112.24	
2/21/2011	2:46:43 PM	28.55	21.18	24.582	428.8	2.823	-63	6.54	2.68	37.0282	1125.37	
2/21/2011	2:48:46 PM	30.6	21.04	24.583	584.6	2.823	-63	6.53	2.69	37.0665	1128.16	
2/21/2011	2:50:48 PM	32.6333	21.1	24.583	470.2	2.852	-63	6.53	2.61	36.0425	1117.66	
2/21/2011	2:52:50 PM	34.6667	21.1	24.585	400.5	2.794	-61	6.51	2.63	36.248	1109.3	
2/21/2011	2:54:53 PM	36.7167	21.1	24.587	488.2	2.794	-59	6.5	2.97	41.002	1107.57	
2/21/2011	2:56:56 PM	38.7667	21.1	24.586	393.3	2.794	-58	6.49	2.6	35.8021	1103.35	
2/21/2011	2:58:59 PM	40.8167	21.06	24.585	329.5	2.852	-58	6.49	2.55	35.1227	1132.15	
2/21/2011	3:01:01 PM	42.85	21.05	24.585	392.8	2.823	-58	6.48	3.07	42.2884	1116.55	
2/21/2011	3:03:04 PM	44.9	21.13	24.584	327.4	2.794	-58	6.48	2.59	35.7151	1140.53	
2/21/2011	3:05:08 PM	46.9667	21.12	24.585	243.7	2.794	-57	6.47	2.53	34.9539	1142.21	
2/21/2011	3:07:09 PM	48.9833	21.09	24.586	481.1	2.852	-56	6.46	2.6	35.8257	1121.12	
2/21/2011	3:09:11 PM	51.0167	21.06	24.586	286.1	2.852	-57	6.48	2.41	33.2482	1145.78	
2/21/2011	3:11:13 PM	53.05	21.07	24.586	231.7	2.823	-56	6.46	2.76	38.0311	1140.33	
2/21/2011	3:13:15 PM	55.0833	21.09	24.586	321	2.823	-57	6.47	2.51	34.677	1124.86	
2/21/2011	3:15:17 PM	57.1167	21.07	24.586	473.7	2.794	-57	6.46	2.55	35.1273	1138.39	
2/21/2011	3:17:20 PM	59.1667	21.03	24.585	222.9	2.852	-56	6.45	2.42	33.2996	1139.12	
2/21/2011	3:19:23 PM	61.2167	21.06	24.583	205.6	2.823	-55	6.46	2.41	33.2246	1142.89	
2/21/2011	3:21:25 PM	63.25	20.99	24.582	278.2	2.794	-55	6.45	2.68	36.848	1145.89	
2/21/2011	3:23:28 PM	65.3	20.97	24.582	246.7	2.794	-55	6.45	2.58	35.4608	1155.19	
2/21/2011	3:25:30 PM	67.3333	20.94	24.583	142.6	2.823	-55	6.45	2.38	32.807	1165.12	
2/21/2011	3:27:31 PM	69.35	20.92	24.582	235.1	2.794	-55	6.46	2.47	33.9054	1144.4	
2/21/2011	3:29:33 PM	71.3833	20.86	24.583	293.1	2.852	-55	6.45	2.55	35.0579	1152.13	
2/21/2011	3:31:36 PM	73.4333	20.87	24.584	300.3	2.852	-55	6.44	2.46	33.7695	1126.63	
2/21/2011	3:33:39 PM	75.4833	20.87	24.583	196.9	2.794	-55	6.45	2.41	33.0567	1149.21	
2/21/2011	3:35:41 PM	77.5167	20.89	24.583	320	2.852	-55	6.44	2.41	33.0872	1116.47	
2/21/2011	3:37:44 PM	79.5667	20.92	24.584	132.8	2.823	-55	6.44	2.37	32.5459	1132.71	
2/21/2011	3:39:46 PM	81.6	20.88	24.583	296.3	2.794	-56	6.44	2.31	31.7341	1150.27	
2/21/2011	3:41:48 PM	83.6333	20.95	24.583	313.1	2.823	-56	6.43	2.51	34.5375	1139.29	
2/21/2011	3:43:51 PM	85.6833	20.89	24.581	282.2	2.852	-56	6.42	2.37	32.566	1130.21	
2/21/2011	3:45:54 PM	87.7333	20.96	24.581	236.5	2.794	-56	6.43	2.23	30.655	1134.46	
2/21/2011	3:47:56 PM	89.7667	20.93	24.58	192.5	2.823	-58	6.44	2.23	30.6502	1145.52	
2/21/2011	3:49:59 PM	91.8167	20.86	24.58	230.6	2.794	-58	6.44	2.33	31.9925	1140.66	
2/21/2011	3:52:01 PM	93.85	20.8	24.579	253.9	2.823	-58	6.42	2.42	33.1522	1134.53	
2/21/2011	3:54:03 PM	95.8833	20.88	24.58	235.5	2.794	-58	6.43	2.33	32.0755	1126.99	
2/21/2011	3:56:05 PM	97.9167	20.87	24.579	270.4	2.794	-58	6.43	2.25	30.8794	1128.74	
2/21/2011	3:58:08 PM	99.9667	20.88	24.579	182.5	2.794	-58	6.42	2.3	31.5772	1122.48	

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/21/2011	4:00:10 PM	102	20.93	24.579	202.5	2.823	-59	6.43	2.19	30.0726	1122.49	
2/21/2011	4:02:13 PM	104.05	20.97	24.579	241.1	2.794	-59	6.42	2.22	30.5966	1133.01	
2/21/2011	4:04:16 PM	106.1	20.93	24.578	262.2	2.794	-59	6.42	2.28	31.3337	1140.2	
2/21/2011	4:06:20 PM	108.1667	20.94	24.577	239.4	2.794	-59	6.43	2.28	31.4309	1124.46	
2/21/2011	4:08:21 PM	110.1833	20.97	24.577	298.5	2.794	-60	6.42	2.21	30.4633	1137.25	
2/21/2011	4:10:25 PM	112.25	20.95	24.577	189.3	2.823	-60	6.42	2.08	28.6329	1135.98	
2/21/2011	4:12:26 PM	114.2667	20.99	24.577	228.2	2.794	-61	6.43	2.06	28.4357	1132.99	
2/21/2011	4:14:28 PM	116.3	20.97	24.578	435	2.794	-61	6.42	2.12	29.1877	1124.22	

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy, Windy
Field Crew: AT, RB, ML, DR
Review Signature: Mark Ipsen

Well ID No.: KAFB 1066
Date: 2/21/11
Time: 0920
Crew Signature: [signature]
Date Review: 2/22/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged - **Locked:** Yes - (No) **Well ID Mark:** (Yes) - No

Notes: PID - 2000+ ppm. VOC, 13.3% O_2, LEL = 100 - Breathing zone 0 ppm, 20.8% O_2 LEL 0. LNAPL @ 494.10', water 495.13' => 1.03' product

CALCULATIONS

Intake @ 503 pump @ 489'

(A) Depth to Well Bottom	511.00	ft
(B) Pre-Purge Depth to Water	495.13	ft
(C) Water Column Height (A-B)	15.87	ft
(D) Casing Factor: 4"=(0.65) 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	10.31	gal
(F) Depth to Top of Screen	483.5	ft
(G) Depth to Bottom of Screen	508.5	ft
(H) Saturated Filter Pack Length (G –F, or (B))	13.37	ft
(I) Casing/Borehole Factor 4/10 = (1.2), 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	16.04	gal
(K) Min Purge Volume (E + J)	26.35	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500		
Turbidity Meter: Hach 2100P	2821	
Pump: Portable Bennett Pump		
Field Alkalinity: LaMotte model DR-A	3467	

PURGING INFORMATION

Description first water purged: Grey, Cloudy

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0911	0	495.13	12.02	6.97	443.3	3.73	30	25.7	1.1 L/m
0929	5	n/m	18.12	7.13	447.3	4.03	-76	26.7	
0944	10	n/m	18.24	7.16	442.3	4.30	-97	15.0	
0959	15	n/m	18.27	7.17	442.8	4.47	-103	11.6	
1015	20	n/m	18.25	7.16	437.2	5.15	-103	11.3	
1032	25	n/m	18.19	7.17	436.2	4.98	-101	9.70	
1036	26	n/m	18.21	7.18	431.3	4.34	-98	7.60	

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Shaw Environmental, Inc.

KAFB-1066

2/21/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond ~~(mS/cm²)~~ uS/cm2	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1036	26	NM	18.21	7.18	431.3	4.31	-98	7.60	

Field Alkalinity Result 165 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB1066-2-21-2011.flo

Operator Name:	RB						
Company Name:	SHAW						
Project Name:	KAFB						
Site Name:							
Well ID:	KAFB1066						
pH Sensor:	Installed	Target Value	0	[pH]	Target Perc	0	[%]
ORP Sensor:	Installed	Target Value	0	[mV]	Target Perc	0	[%]
RDO Sensor:	Installed	Target Value	0	[mg/L]	Target Perc	0	[%]
Cond Sensor:	Installed	Target Value	0	[µS/cm @2	Target Perc	0	[%]
Turb Sensor:	Installed	Target Value	0	[NTU]	Target Perc	0	[%]
Pump Model/Type:	BENNETT						
Tubing Type:							
Tubing Diam:	0	[in]					
Tubing Length:	0	[ft]					
Well Depth:	511	[ft]					
Well Diam:	4	[in]					
Screen Len:	300	[in]					
Screen Depth:	483.5	[ft]					
Pump Inlet Depth:	0	[in]					
Depth to Water:	495.13	[ft]					
Pump Level (TOC):	489	[ft]					
Final Pumping Rate:	0	[mL/min]					
Stable Draw Down:	0	[in]					
Total Volume Formula:	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)						
Calculated Total Volume:	600	[mL]					
Actual Total Volume:	600	[mL]					
Calculated Measurement Interval:	18000	[sec]					
Actual Measurement Interval:	120	[sec]					
Start date/time:	2/21/2011	9:05:36 AM					
End date/time:	2/21/2011	10:41:43 AM					
Total Time:	1:36:07						

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L	Variance	Cond [µS/c	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	7.17	0	-100.78	-1.62	4.98	0.02	436.28	-0.24	8.38	-12.95	18.19	0.07	10:31:30
3	7.18	0.01	-101.24	-0.46	4.58	-0.4	434.18	-2.1	9.16	0.78	18.21	0.02	10:33:32
2	7.18	0	-101.32	-0.08	4.6	0.02	431.3	-2.89	6.02	-3.14	18.21	0	10:35:35
1	7.18	0	-97.9	3.42	4.34	-0.26	432.98	1.69	7.35	1.32	18.24	0.03	10:37:38
0	7.2	0.02	-97.6	0.3	6.43	2.09	69.12	-363.86	18.81	11.47	18.33	0.1	10:39:40

pH Min:	7.17
pH Max:	7.2
ORP Min:	-101.32
ORP Max:	-97.6

RDO Min:	4.34
RDO Max:	6.43
Cond Min:	69.12
Cond Max:	436.28
Turb Min:	6.02
Turb Max:	18.81
Temp Min:	18.19
Temp Max:	18.33

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP	
Report generated:	2/23/2011	4:19:06 PM
Report from file:	...\KAFB--KAFB1066-2-21-2011.flo.bin	
Win-Situ® Version	4.58.16.0	
Serial number:	48808	
Firmware Version	2.13	
Unit name:	Troll 9000 mw-1	
Test name:	LowFlow	
Test defined on:	2/21/2011	9:05:36 AM
Test started on:	2/21/2011	9:05:36 AM
Test stopped on:	N/A	N/A

Data gathered using Event testing

Time between data points:	0.0000	Minutes.
Time between default storages:	0	Minutes.
Monitoring data on channel [1]		
Data stored if delta value exceeds:	0	Celsius
Number of data samples:	47	

TOTAL DATA SAMPLES 47

Channel number [1]

Measurement type:	Temperature
Channel name:	

Channel number [3]

Measurement type:	Barometric Pressure
Channel name:	

Channel number [4]
Measurement type: Turbidity
Channel name:

Channel number [5]
Measurement type: Battery Voltage
Channel name:

Channel number [11]
Measurement type: ORP
Channel name:

Channel number [12]
Measurement type: pH
Channel name:

Channel number [37]
Measurement type: Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [37]
Measurement type: RDO %Saturation
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [45]
Measurement type: Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm Specific Conductivity
2/21/2011	9:11:44 AM	6.1333	14.74	24.686	30.9	2.794	30	6.8	3.73	44.8086	443.3
2/21/2011	9:13:46 AM	8.1667	16.69	24.687	35.2	2.794	-24	6.95	2.79	34.9519	449.89
2/21/2011	9:15:50 AM	10.2333	17.24	24.685	42.8	2.794	-27	7.06	3.22	40.7876	455.08
2/21/2011	9:17:52 AM	12.2667	17.37	24.686	185.5	2.794	-30	7.07	4.19	53.2156	455.8
2/21/2011	9:19:55 AM	14.3167	17.53	24.685	86.8	2.794	-37	7.11	4.12	52.4981	454.51
2/21/2011	9:21:59 AM	16.3833	17.72	24.685	165	2.794	-42	7.1	4.27	54.6971	451.99
2/21/2011	9:24:01 AM	18.4167	17.85	24.693	36.3	2.794	-49	7.11	3.82	49.0151	451.84
2/21/2011	9:26:03 AM	20.45	17.85	24.684	55.4	2.794	-52	7.13	4.34	55.7178	450.56
2/21/2011	9:28:06 AM	22.5	17.96	24.686	53.1	2.794	-58	7.13	4.24	54.6001	452.8
2/21/2011	9:30:10 AM	24.5667	18.04	24.686	65.2	2.794	-63	7.15	4.21	54.2329	449.65
2/21/2011	9:32:11 AM	26.5833	18.12	24.685	39.3	2.794	-67	7.13	3.87	49.9021	450.39
2/21/2011	9:34:14 AM	28.6333	18.16	24.683	37.4	2.794	-76	7.15	4.03	52.0626	447.23
2/21/2011	9:36:15 AM	30.65	18.09	24.681	31.1	2.794	-82	7.15	4.02	51.9033	446.71

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/21/2011	9:38:19 AM	32.7167	18.12	24.681	120.2	2.794	-89	7.15	4.05	52.3204	450.84	
2/21/2011	9:40:20 AM	34.7333	18.1	24.68	99.6	2.794	-94	7.16	3.93	50.7146	450.93	
2/21/2011	9:42:22 AM	36.7667	18.24	24.679	25.1	2.823	-96	7.16	3.96	51.1894	447.22	
2/21/2011	9:44:25 AM	38.8167	18.22	24.681	195.6	2.823	-97	7.17	4.3	55.652	442.33	
2/21/2011	9:46:28 AM	40.8667	18.17	24.679	24.6	2.794	-99	7.17	4.36	56.2972	442.35	
2/21/2011	9:48:30 AM	42.9	17.89	24.676	14.5	2.823	-99	7.15	4.9	62.9226	442.83	
2/21/2011	9:50:34 AM	44.9667	18.01	24.678	12.2	2.794	-101	7.15	4.63	59.6418	444.54	
2/21/2011	9:52:37 AM	47.0167	18.27	24.676	12.4	2.823	-103	7.16	5.09	65.9466	441.22	
2/21/2011	9:54:40 AM	49.0667	18.07	24.671	29.4	2.823	-102	7.16	4.74	61.0874	438.79	
2/21/2011	9:56:43 AM	51.1167	18.14	24.672	37.1	2.794	-103	7.16	4.62	59.6482	444.49	
2/21/2011	9:58:45 AM	53.15	18.27	24.673	46.8	2.794	-103	7.17	4.47	57.9453	442.81	
2/21/2011	10:00:49 AM	55.2167	18.15	24.675	16.1	2.794	-106	7.17	4.63	59.7783	441.53	
2/21/2011	10:02:50 AM	57.2333	18.13	24.677	166.9	2.794	-109	7.17	4.41	56.9851	441.56	
2/21/2011	10:04:54 AM	59.3	18.17	24.677	54.3	2.794	-106	7.18	5.01	64.7905	443.73	
2/21/2011	10:06:57 AM	61.35	18.1	24.674	18	2.823	-106	7.16	5.01	64.6897	440.95	
2/21/2011	10:09:00 AM	63.4	18.23	24.676	15.9	2.823	-107	7.16	5.29	68.5143	440.08	
2/21/2011	10:11:03 AM	65.45	18.12	24.672	12.2	2.823	-105	7.16	5.31	68.6202	440.65	
2/21/2011	10:13:05 AM	67.4833	18.17	24.671	181.6	2.794	-104	7.16	5.22	67.4816	439.65	
2/21/2011	10:15:08 AM	69.5333	18.25	24.672	24.5	2.794	-103	7.16	5.45	70.5444	437.19	
2/21/2011	10:17:10 AM	71.5667	18.12	24.67	11.5	2.823	-103	7.17	5.4	69.7381	436.47	
2/21/2011	10:19:13 AM	73.6167	18.09	24.669	9.2	2.823	-102	7.17	5.75	74.2745	433.83	
2/21/2011	10:21:15 AM	75.65	18.08	24.669	24.8	2.794	-103	7.16	5.1	65.7667	431.13	
2/21/2011	10:23:19 AM	77.7167	18.19	24.672	40.1	2.823	-102	7.16	5.28	68.2736	436.73	
2/21/2011	10:25:22 AM	79.7667	18.28	24.671	10	2.794	-101	7.16	5.13	66.4363	435.91	
2/21/2011	10:27:24 AM	81.8	18.33	24.669	190.5	2.823	-101	7.17	5.56	72.1763	433.45	
2/21/2011	10:29:27 AM	83.85	18.11	24.667	21.3	2.794	-99	7.17	4.97	64.1467	436.52	
2/21/2011	10:31:30 AM	85.9	18.19	24.668	8.4	2.852	-101	7.17	4.98	64.438	436.28	
2/21/2011	10:33:32 AM	87.9333	18.21	24.666	9.2	2.823	-101	7.18	4.58	59.3149	434.18	
2/21/2011	10:35:35 AM	89.9833	18.21	24.666	6	2.794	-101	7.18	4.6	59.5604	431.3	

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB-1067
Site / SWMU No.: KAFB 106
Date: 2/3/11
Weather: Sunny, Cold, Windy
Time: 0848
Field Crew: RB, AT, ML
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 2/3/2011

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes: Pump operation with Nitrogen, Dedicated Bennett

CALCULATIONS

(A) Depth to Well Bottom	516.20 ft
(B) Pre-Purge Depth to Water	492.56 ft
(C) Water Column Height (A-B)	23.64 ft
(D) Casing Factor: (4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	15.36 gal
(F) Depth to Top of Screen	489.20 ft
(G) Depth to Bottom of Screen	516.20 ft
(H) Saturated Filter Pack Length (G –F, or B)	23.64 ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	28.3 gal
(K) Min Purge Volume (E + J)	52.0 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Pro	2431
Turbidity Meter: Hach 2100	2821
Pump: Bennett Dedicated	
Field Alkalinity: Lamotte	3467

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/3/11 1110	0	492.56	19.4	7.87	.355	7.73	164.6		~~1.5 gpm~~
1122	5	492.56	18.3	7.86	.354	6.00	78.7	1.44	1.1 gpm
11:29	10	492.56	18.1	7.88	.355	6.35	68.3	.63	
11:38	20	492.56	18.3	7.89	.352	6.64	32.6	1.62	
11:50	30	492.56	18.3	7.87	.354	6.93	58.9	.34	
12:04	40	492.56	18.3	7.89	.355	6.64	68.8	.35	
12:08	~~50~~ 45	492.56	17.3	7.88	.361	4.95	74.7	1.05	.86 gpm
12:37	50	492.56	17.3	7.85	.367	4.80	87.7	1.12	1.5 gpm Change "N" bottles
12:42	52	492.56	17.6	7.81	.374	4.71	87.9	.55	

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Shaw Environmental, Inc.

KAFB-1067 02-03-11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
12:42	52	492.56	17.6	7.81	.374	4.71	87.9	0.55	—

Field Alkalinity Result 140 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/3/2011 11:12	358.3	9.97	171.1	7.87	16.9	Start Purge 11:10	7	1Q11	07J101514
2/3/2011 11:14	353.7	7.46	163.7	7.87	17.7		7	1Q11	07J101514
2/3/2011 11:16	354.6	6.52	99.4	7.83	18.3		7	1Q11	07J101514
2/3/2011 11:18	353.2	6.64	81.7	7.84	18.3		7	1Q11	07J101514
2/3/2011 11:20	356.4	6.85	73.4	7.87	18		7	1Q11	07J101514
2/3/2011 11:22	353	6.29	71.6	7.84	18.1		7	1Q11	07J101514
2/3/2011 11:24	355	6.2	71.2	7.88	18		7	1Q11	07J101514
2/3/2011 11:26	350.2	6.38	69.8	7.88	18.1		7	1Q11	07J101514
2/3/2011 11:28	353.8	6.53	68.3	7.88	18		7	1Q11	07J101514
2/3/2011 11:30	352.1	6.6	67.6	7.88	18.1		7	1Q11	07J101514
2/3/2011 11:32	354.2	6.59	63.1	7.88	18.2		7	1Q11	07J101514
2/3/2011 11:34	354	6.63	47.7	7.89	18.2		7	1Q11	07J101514
2/3/2011 11:36	351.6	6.39	33	7.89	18.2		7	1Q11	07J101514
2/3/2011 11:38	353.2	6.76	33.2	7.9	18.3		7	1Q11	07J101514
2/3/2011 11:40	353.5	6.19	34.3	7.9	18.3		7	1Q11	07J101514
2/3/2011 11:42	357	6.44	45.6	7.89	18.3		7	1Q11	07J101514
2/3/2011 11:44	350.8	5.93	51.1	7.89	18.3		7	1Q11	07J101514
2/3/2011 11:46	353.2	5.93	54.4	7.89	18.2		7	1Q11	07J101514
2/3/2011 11:48	351.9	6.53	57.5	7.89	18.4		7	1Q11	07J101514
2/3/2011 11:50	353.7	6.02	59.3	7.88	18.4		7	1Q11	07J101514
2/3/2011 11:52	352.9	7.1	61.7	7.89	18.4		7	1Q11	07J101514
2/3/2011 11:54	349.1	5.87	62.5	7.92	18.4		7	1Q11	07J101514
2/3/2011 11:56	358.6	4.57	65.3	7.91	17.5		7	1Q11	07J101514
2/3/2011 11:58	355.5	6.38	68.9	7.9	17.4		7	1Q11	07J101514
2/3/2011 12:00	353.5	5.89	68.6	7.88	18.2		7	1Q11	07J101514
2/3/2011 12:02	355	5.93	68.7	7.88	18.2		7	1Q11	07J101514
2/3/2011 12:04	350.9	6.24	69	7.88	18.3		7	1Q11	07J101514
2/3/2011 12:06	361	5.25	71	7.88	17.9		7	1Q11	07J101514
2/3/2011 12:08	361.3	4.96	75.7	7.88	16.9		7	1Q11	07J101514
2/3/2011 12:10	361.4	4.88	78.1	7.87	17		7	1Q11	07J101514
2/3/2011 12:12	361.1	4.89	79.8	7.87	16.5		7	1Q11	07J101514
2/3/2011 12:14	361.5	4.92	81.2	7.87	16.7		7	1Q11	07J101514
2/3/2011 12:16	361.4	4.93	82.6	7.87	16.6		7	1Q11	07J101514
2/3/2011 12:18	360.9	4.87	83.8	7.87	16.2		7	1Q11	07J101514
2/3/2011 12:20	360.8	4.74	85.2	7.88	15.6		7	1Q11	07J101514
2/3/2011 12:22	361.1	4.85	86.6	7.88	15.3		7	1Q11	07J101514
2/3/2011 12:24	360.8	4.81	88.2	7.88	15		7	1Q11	07J101514
2/3/2011 12:26	360.8	4.9	89.7	7.88	14		7	1Q11	07J101514
2/3/2011 12:28	360.5	4.89	91.1	7.88	13.2		7	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/3/2011 12:30	362.8	4.9	89	7.87	17.3		7	1Q11	07J101514
2/3/2011 12:32	362	4.94	87.9	7.86	17.3		7	1Q11	07J101514
2/3/2011 12:34	364	4.85	87.5	7.85	17.4		7	1Q11	07J101514
2/3/2011 12:36	368.1	4.79	87.8	7.84	17.5		7	1Q11	07J101514
2/3/2011 12:38	369.7	4.77	88	7.83	17.6		7	1Q11	07J101514
2/3/2011 12:40	372.8	4.78	88.3	7.81	17.5		7	1Q11	07J101514
2/3/2011 12:42	372.1	4.59	88.2	7.77	17.4	Sample at 12:42	7	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny, Windy
Field Crew: RB, AT, ML, DR
Review Signature: [signature]

Well ID No.: KAFB 1068
Date: 2/18/2011
Time: 0900
Crew Signature: [signature]
Date Review: 2/18/2011

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No

Notes:
271ppm VOC, O_2 -20.8%, LEL 0 ~~495.83~~ product
Pump set @ ~~488'~~ 487' - intake of pump @ ~~502'~~ 501'
494.79 - product
495.83 - water
1.04' LNAPL

CALCULATIONS

(A) Depth to Well Bottom	513.5	ft
(B) Pre-Purge Depth to Water 495.83 ~~494.79~~		ft
(C) Water Column Height (A-B)	17.67	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	11.48	gal
(F) Depth to Top of Screen	486	ft
(G) Depth to Bottom of Screen	511	ft
(H) Saturated Filter Pack Length (G -F, or B)	15.17	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	18.20	gal
(K) Min Purge Volume (E + J)	29.68	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: IN-SITU 9500		
Turbidity Meter: HACH 2100P	2821	
Pump: Portable Bennett pump		
Field Alkalinity: LaMotte Model DR-A	3467	

PURGING INFORMATION

Description first water purged: Cloudy - yellow/white

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10:57	0	495.83	17.60	6.78	422.9	5.25	37	98.8	.76L/g
11:19	5	n/m	18.54	7.19	454.3	9.36	-20	15.0	
11:39	10	n/m	18.42	7.23	457.5	9.31	-5	10.4	
12:01	15	n/m	18.95	7.25	458.0	8.62	-41	8.3	
1224	20	n/m	18.51	7.26	452.7	7.78	-45	7.41	
1246	25	n/m	18.97	7.26	455.9	7.93	-48	7.51	
~~45~~ 1306	30	n/m	19.31	7.28	454.5	7.40	-53	7.95	

Alkalinity - 190 mg/l as $CaCO_3$

140705

KAFB-1068
2/18/11

Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1306	30	NM	19.31	7.28	454.5	7.40	-53	3.95	

Field Alkalinity Result 190 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB1068-2-18-2011.flo

Operator Name:	RB
Company Name:	SHAW
Project Name:	KAFB
Site Name:	
Well ID:	KAFB1068

pH Sensor:	Installed	Target Valu	0	[pH]	Target Perc	0	[%]
ORP Sensor:	Installed	Target Valu	0	[mV]	Target Perc	0	[%]
RDO Sensor:	Installed	Target Valu	0	[mg/L]	Target Perc	0	[%]
Cond Sensor:	Installed	Target Valu	0	[µS/cm @2	Target Perc	0	[%]
Turb Sensor:	Installed	Target Valu	0	[NTU]	Target Perc	0	[%]

Pump Model/Typ	BENNETT	
Tubing Type:		
Tubing Diam:	0	[in]
Tubing Length:	0	[ft]
Well Depth:	513.5	[ft]
Well Diam:	4	[in]
Screen Len:	300	[in]
Screen Depth:	486	[ft]
Pump Inlet Depth	0	[in]
Depth to Water:	495.83	[ft]
Pump Level (TOC)	497	[ft]
Final Pumping Rat	0	[mL/min]
Stable Draw Dow	0	[in]
Total Volume For	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)	
Calculated Total V	600	[mL]
Actual Total Volu	600	[mL]
Calculated Measu	18000	[sec]
Actual Measurem	120	[sec]
Start date/time:	2/18/2011	########
End date/time:	2/18/2011	########
Total Time:	2:36:37	

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L	Variance	Cond [µS/c	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	7.3	0.05	-43.21	3.6	6.16	-0.33	1.23	-0.05	-0.97	-0.49	25.67	1.92	13:13:36
3	7.34	0.04	-38.67	4.54	6.05	-0.1	1.2	-0.03	0.09	1.07	26.81	1.14	13:15:39
2	7.37	0.03	-34.85	3.82	5.94	-0.11	1.18	-0.03	-0.9	-0.99	28.01	1.2	13:17:43

1	7.29	-0.08	-34.5	0.35	5.93	-0.02	1.16	-0.02	1.96	2.86	28.78	0.77	13:19:46
0	7.28	-0.02	-33.21	1.29	5.89	-0.03	1.15	-0.01	0.24	-1.72	29.42	0.64	13:21:48

pH Min:	7.28
pH Max:	7.37
ORP Min:	-43.21
ORP Max:	-33.21
RDO Min:	5.89
RDO Max:	6.16
Cond Min:	1.15
Cond Max:	1.23
Turb Min:	-0.97
Turb Max:	1.96
Temp Min:	25.67
Temp Max:	29.42

Notes:

Device Record:

In-Situ Inc. Troll 9000 Profiler XP

Report generated 2/23/2011 ########
Report from file: ...\KAFB--KAFB1068-2-18-2011.flo.bin
Win-Situ® Versior 4.58.16.0

Serial number: 48808
Firmware Version 2.13
Unit name: Troll 9000 mw-1

Test name: LowFlow

Test defined on: 2/18/2011 ########
Test started on: 2/18/2011 ########
Test stopped on: N/A N/A

Data gathered using Event testing
Time between c Minutes.
Time between c Minutes.
Monitoring data on channel [1]

Data stored if d 0 Celsius
Number of data 77

TOTAL DATA SAM 77

Channel number [1]
Measurement ty Temperature
Channel name:

Channel number [3]
Measurement ty Barometric Pressure
Channel name:

Channel number [4]
Measurement ty Turbidity
Channel name:

Channel number [5]
Measurement ty Battery Voltage
Channel name:

Channel number [11]
Measurement ty ORP
Channel name:

Channel number [12]
Measurement ty pH
Channel name:

Channel number [37]
Measurement ty Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psi 0.00 psu

Channel number [37]
Measurement ty RDO %Saturation
Channel name:
Fixed Salinity(psi 0.00 psu

Channel number [45]

Measurement ty Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/18/2011	10:58:38 AM	12.2333	18.3	24.804	389	2.852	31	6.9	5.21	67.1916	438.54	
2/18/2011	11:00:38 AM	14.2333	18.43	24.803	2577.6	2.794	23	6.98	6.71	86.7875	431.43	
2/18/2011	11:02:42 AM	16.3	18.43	24.803	1443.2	2.794	16	7.05	9.57	123.7399	434.9	
2/18/2011	11:04:44 AM	18.3333	18.54	24.802	934.2	2.852	10	7.09	11.14	144.3673	438.94	
2/18/2011	11:06:47 AM	20.3833	18.57	24.8	1043.7	2.823	4	7.11	10.66	138.2233	442.78	
2/18/2011	11:08:48 AM	22.4	18.58	24.799	846	2.794	-2	7.14	11.31	146.6463	447	
2/18/2011	11:10:52 AM	24.4667	18.56	24.798	676.1	2.823	-6	7.16	10.1	130.9253	448.27	
2/18/2011	11:12:54 AM	26.5	18.53	24.797	2939.1	2.852	-10	7.16	9.98	129.37	450.44	
2/18/2011	11:14:55 AM	28.5167	18.47	24.795	705.5	2.852	-13	7.18	8.82	114.2011	451.59	
2/18/2011	11:16:58 AM	30.5667	18.54	24.796	819.8	2.823	-17	7.18	9.2	119.2628	452.94	
2/18/2011	11:19:00 AM	32.6	18.56	24.793	1081.8	2.823	-20	7.19	9.36	121.315	454.27	
2/18/2011	11:21:03 AM	34.65	18.62	24.792	540.5	2.852	-23	7.2	9.17	119.1127	454.96	
2/18/2011	11:23:07 AM	36.7167	18.67	24.791	1321.9	2.823	-25	7.2	8.45	109.7878	453.47	
2/18/2011	11:25:09 AM	38.75	18.66	24.788	682.8	2.823	-27	7.21	9.09	118.1091	455.58	
2/18/2011	11:27:12 AM	40.8	18.69	24.788	369.4	2.823	-28	7.21	8.53	110.942	455.03	
2/18/2011	11:29:15 AM	42.85	18.63	24.788	355.8	2.823	-29	7.21	8.34	108.2908	455.31	
2/18/2011	11:31:18 AM	44.9	18.53	24.787	326.4	2.852	-31	7.22	8.62	111.6903	456.66	
2/18/2011	11:33:22 AM	46.9667	18.43	24.785	314.7	2.823	-32	7.23	8.32	107.5795	457.69	
2/18/2011	11:35:23 AM	48.9833	18.34	24.785	1917.7	2.823	-33	7.23	7.76	100.2456	457.17	
2/18/2011	11:37:27 AM	51.05	18.38	24.786	1148.6	2.852	-35	7.23	9.31	120.3299	457.53	
2/18/2011	11:39:29 AM	53.0833	18.42	24.788	1792.7	2.823	-35	7.23	9.76	126.273	457.67	
2/18/2011	11:41:32 AM	55.1333	18.39	24.786	330	2.823	-36	7.23	9.03	116.7782	458.45	
2/18/2011	11:43:35 AM	57.1833	18.37	24.786	244.7	2.823	-37	7.24	8.89	114.8387	458.8	
2/18/2011	11:45:37 AM	59.2167	18.63	24.788	180.2	2.823	-38	7.24	8.46	109.9179	458.1	
2/18/2011	11:47:40 AM	61.2667	18.64	24.784	200.3	2.852	-38	7.25	8.42	109.3904	458.52	
2/18/2011	11:49:43 AM	63.3167	18.76	24.786	210.3	2.823	-39	7.24	8.3	108.0635	457.3	
2/18/2011	11:51:47 AM	65.3833	18.93	24.784	251.9	2.823	-39	7.25	9.45	123.5061	458.36	
2/18/2011	11:53:48 AM	67.4	18.87	24.783	541.9	2.852	-39	7.25	8.82	115.2062	458.67	
2/18/2011	11:55:52 AM	69.4667	18.89	24.779	78.5	2.852	-40	7.25	8.6	112.2891	459.54	
2/18/2011	11:57:53 AM	71.4833	18.85	24.778	1686.6	2.852	-40	7.25	8.24	107.5896	458.08	
2/18/2011	11:59:57 AM	73.55	18.95	24.775	464.6	2.823	-41	7.25	7.99	104.5006	457.99	
2/18/2011	12:01:59 PM	75.5833	18.85	24.775	2101.1	2.852	-41	7.25	8.62	112.5474	458.01	
2/18/2011	12:04:02 PM	77.6333	18.86	24.769	349	2.852	-42	7.25	8.08	105.541	458.82	

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/18/2011	12:06:04 PM	79.6667	18.94	24.766	2939.1	2.823	-42	7.25	9.07	118.685	458.02	
2/18/2011	12:08:07 PM	81.7167	18.88	24.764	317.7	2.823	-43	7.25	8.5	111.067	457.63	
2/18/2011	12:10:10 PM	83.7667	18.77	24.762	59.3	2.823	-43	7.26	7.9	103.074	459.21	
2/18/2011	12:12:13 PM	85.8167	18.85	24.763	464.5	2.852	-44	7.25	8.45	110.3965	458.74	
2/18/2011	12:14:17 PM	87.8833	18.9	24.76	59.2	2.823	-44	7.26	8.12	106.1158	458.35	
2/18/2011	12:16:18 PM	89.9	18.88	24.758	51.7	2.823	-44	7.26	7.63	99.7778	456.05	
2/18/2011	12:18:22 PM	91.9667	19	24.756	59.7	2.852	-44	7.26	8.84	115.903	457.16	
2/18/2011	12:20:24 PM	94	18.74	24.756	1855.9	2.882	-44	7.25	8.73	113.7602	457.93	
2/18/2011	12:22:27 PM	96.05	18.57	24.752	45.3	2.823	-45	7.26	8.61	111.8487	456.53	
2/18/2011	12:24:30 PM	98.1	18.51	24.751	2404.2	2.823	-45	7.26	7.78	100.9644	452.7	
2/18/2011	12:26:33 PM	100.15	18.41	24.75	1119.8	2.852	-46	7.26	8.79	113.8124	455.85	
2/18/2011	12:28:35 PM	102.1833	18.42	24.75	2165.6	2.823	-46	7.26	7.92	102.5352	458.66	
2/18/2011	12:30:38 PM	104.2333	18.5	24.75	43.6	2.823	-47	7.26	7.77	100.8121	457.35	
2/18/2011	12:32:42 PM	106.3	18.68	24.752	1459.8	2.882	-46	7.25	8.99	117.1257	456.92	
2/18/2011	12:34:44 PM	108.3333	18.88	24.751	281.8	2.823	-47	7.26	7.88	103.094	457.53	
2/18/2011	12:36:47 PM	110.3833	18.82	24.747	67.2	2.882	-47	7.26	8.47	110.6828	457.18	
2/18/2011	12:38:49 PM	112.4167	18.82	24.746	42.7	2.823	-47	7.26	8.15	106.5082	456.55	
2/18/2011	12:40:52 PM	114.4667	18.93	24.744	28.9	2.823	-48	7.26	8.34	109.1594	455.73	
2/18/2011	12:42:54 PM	116.5	18.95	24.743	26.3	2.882	-48	7.26	7.82	102.3654	456.25	
2/18/2011	12:44:57 PM	118.55	18.99	24.742	923.6	2.852	-48	7.26	7.93	103.9661	455.95	
2/18/2011	12:47:00 PM	120.6	18.85	24.74	43	2.852	-48	7.26	7.51	98.1849	456.37	
2/18/2011	12:49:03 PM	122.65	18.93	24.741	57	2.852	-49	7.26	7.88	103.1596	456.72	
2/18/2011	12:51:06 PM	124.7	19.01	24.737	31.4	2.823	-49	7.26	7.52	98.6719	456.65	
2/18/2011	12:53:08 PM	126.7333	19.15	24.737	24.6	2.852	-50	7.26	7.62	100.3069	456.28	
2/18/2011	12:55:13 PM	128.8167	19.22	24.736	38.1	2.823	-50	7.27	7.44	98.0324	455.37	
2/18/2011	12:57:14 PM	130.8333	19.31	24.734	80.2	2.823	-51	7.26	7.84	103.445	456.44	
2/18/2011	12:59:17 PM	132.8833	19.28	24.73	354	2.852	-51	7.27	7.58	100.0604	456.93	
2/18/2011	1:01:20 PM	134.9333	19.34	24.729	220.2	2.852	-52	7.28	7.48	98.7987	456.06	
2/18/2011	1:03:23 PM	136.9833	19.27	24.728	49.9	2.852	-52	7.28	7.59	100.1639	455.65	
2/18/2011	1:05:26 PM	139.0333	19.31	24.725	794.4	2.852	-53	7.28	7.4	97.6984	454.45	

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-13FF

Site / SWMU No.: 106

Weather: Sunny, windy

Field Crew: AT, KB, MC, DR

Review Signature: Mark Ryan

Well ID No.: KAFB 1069

Date: 2/17/11

Time: ~~0~~ 13:00

Crew Signature: [illegible]

Date Review: 2/17/11

WELL OBSERVATIONS

Protective Casing / Vault: Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: Malfunction for detached pump

sheen @ 487.72

CALCULATIONS

(A) Depth to Well Bottom	507.5	ft
(B) Pre-Purge Depth to Water	487.73	ft
(C) Water Column Height (A-B)	19.77	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	12.85	gal
(F) Depth to Top of Screen	480	ft
(G) Depth to Bottom of Screen	505	ft
(H) Saturated Filter Pack Length (G –F, or B)	17.27	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	20.7	gal
(K) Min Purge Volume (E + J)	33.57	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter DH-SITU 9500		
Turbidity Meter Hach 2100	2821	
Pump Portable Bennett pump		
Field Alkalinity Lamotte model DrA		

PURGING INFORMATION

Description first water purged: Dark Grey, odor

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1312	0	487.73	21.64	6.83	820.6	4.73	-74	2.51	.8 lpm
1329	5	n/m	21.41	6.76	787.2	5.07	-85	13.9	
1349	15	n/m	21.39	6.79	782.4	4.55	-59	16.3	
1408	20	n/m	21.49	6.74	798.1	4.87	-100	18.0	
1426	25	n/m	21.81	6.71	801.1	4.18	-117	16.3	
1443	30	n/m	21.77	6.73	793.7	4.04	-118	13.3	
1456	34	n/m	21.72	6.73	807.8	3.82	-127	15.2	

Alkalinity - 382 mg/l as $CaCO_3$

140705

KAFB-1069
2/17/11

Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1456	34	n/m	21.72	6.73	807.8	3.82	-127	15.2	

Field Alkalinity Result 382 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB1069-2-17-2011.flo

Operator Name:	RB						
Company Name:	SHAW						
Project Name:	KAFB						
Site Name:							
Well ID:	KAFB1069						
pH Sensor:	Installed	Target Value	0	[pH]	Target Perc	0	[%]
ORP Sensor:	Installed	Target Value	0	[mV]	Target Perc	0	[%]
RDO Sensor:	Installed	Target Value	0	[mg/L]	Target Perc	0	[%]
Cond Sensor:	Installed	Target Value	0	[µS/cm @2	Target Perc	0	[%]
Turb Sensor:	Installed	Target Value	0	[NTU]	Target Perc	0	[%]
Pump Model/Type:	BENNETT						
Tubing Type:							
Tubing Diam:	0	[in]					
Tubing Length:	0	[ft]					
Well Depth:	507.5	[ft]					
Well Diam:	4	[in]					
Screen Len:	300	[in]					
Screen Depth:	480	[ft]					
Pump Inlet Depth:	0	[in]					
Depth to Water:	487.73	[ft]					
Pump Level (TOC):	497	[ft]					
Final Pumping Rate:	0	[mL/min]					
Stable Draw Down:	0	[in]					
Total Volume Formula:	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)						
Calculated Total Volume:	600	[mL]					
Actual Total Volume:	600	[mL]					
Calculated Measurement Interval:	18000	[sec]					
Actual Measurement Interval:	120	[sec]					
Start date/time:	2/17/2011	1:18:05 PM					
End date/time:	2/17/2011	3:00:27 PM					
Total Time:	1:42:22						

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L	Variance	Cond [µS/c	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	6.73	0	-125.77	-1.62	3.83	-0.17	806.33	1.2	1204.68	1164.51	21.64	-0.07	14:53:55
3	6.73	0	-127.27	-1.49	3.82	-0.02	807.81	1.48	1356.56	151.88	21.72	0.07	14:55:57
2	6.73	0	-124.91	2.36	3.73	-0.09	808.82	1.01	28.95	-1327.61	21.77	0.05	14:57:59
1	6.8	0.07	-114.6	10.31	6.59	2.86	1.31	-807.52	-1.38	-30.33	22.53	0.76	14:59:42
0	6.79	-0.01	-113.14	1.45	6.58	-0.01	1.31	0	-1.25	0.13	22.59	0.06	15:00:24

pH Min:	6.73
pH Max:	6.8
ORP Min:	-127.27
ORP Max:	-113.14
RDO Min:	3.73
RDO Max:	6.59
Cond Min:	1.31
Cond Max:	808.82
Turb Min:	-1.38
Turb Max:	1356.56
Temp Min:	21.64
Temp Max:	22.59

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP	
Report generated:	2/23/2011	4:22:43 PM
Report from file:	...\KAFB--KAFB1069-2-17-2011.flo.bin	
Win-Situ® Version	4.58.16.0	
Serial number:	48808	
Firmware Version	2.13	
Unit name:	Troll 9000 mw-1	
Test name:	LowFlow	
Test defined on:	2/17/2011	1:18:05 PM
Test started on:	2/17/2011	1:18:05 PM
Test stopped on:	N/A	N/A

Data gathered using Event testing

Time between data points:	0.0000	Minutes.
Time between default storages:	0.(	Minutes.
Monitoring data on channel [1]		
Data stored if delta value exceeds:	0	Celsius
Number of data samples:	52	

TOTAL DATA SAMPLES 52

Channel number [1]
Measurement type: Temperature
Channel name:

Channel number [3]
Measurement type: Barometric Pressure
Channel name:

Channel number [4]
Measurement type: Turbidity
Channel name:

Channel number [5]
Measurement type: Battery Voltage
Channel name:

Channel number [11]
Measurement type: ORP
Channel name:

Channel number [12]
Measurement type: pH
Channel name:

Channel number [37]
Measurement type: Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [37]
Measurement type: RDO %Saturation
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [45]
Measurement type: Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DC milligrams/	Chan[37] Rugged DC %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/17/2011	1:18:05 PM	0	21.61	24.617	2913	2.852	-74	6.83	4.73	65.7291	820.58	
2/17/2011	1:20:08 PM	2.05	21.55	24.616	36.5	2.823	-78	6.81	4.76	66.152	804.04	
2/17/2011	1:22:10 PM	4.0833	21.42	24.616	305.7	2.823	-79	6.79	5.01	69.4083	786.65	
2/17/2011	1:24:13 PM	6.1333	21.48	24.617	618.7	2.823	-81	6.78	4.97	68.9122	786.82	
2/17/2011	1:26:16 PM	8.1833	21.43	24.616	2301.6	2.882	-83	6.77	4.83	66.9124	792.79	
2/17/2011	1:28:17 PM	10.2	21.41	24.613	2601.1	2.823	-85	6.76	5.04	69.8525	787.2	
2/17/2011	1:30:19 PM	12.2333	21.44	24.613	2939.1	2.882	-87	6.75	5.07	70.2997	782.95	
2/17/2011	1:32:21 PM	14.2667	21.51	24.616	113.1	2.882	-89	6.76	4.86	67.4599	789.85	
2/17/2011	1:34:24 PM	16.3167	21.49	24.614	28.2	2.882	-90	6.75	4.93	68.3558	789.46	
2/17/2011	1:36:26 PM	18.35	21.48	24.613	2298.3	2.852	-91	6.75	5.13	71.1888	790.01	
2/17/2011	1:38:28 PM	20.3833	21.5	24.612	781.2	2.882	-92	6.75	5.14	71.2759	794.09	
2/17/2011	1:40:30 PM	22.4167	21.46	24.612	24.8	2.823	-94	6.75	4.95	68.6637	793.91	
2/17/2011	1:42:33 PM	24.4667	21.39	24.611	183.2	2.882	-95	6.74	4.97	68.857	795.17	
2/17/2011	1:44:35 PM	26.5	21.42	24.609	2939.1	2.823	-97	6.74	5.02	69.523	793.54	
2/17/2011	1:46:38 PM	28.55	21.48	24.611	105	2.823	-98	6.75	4.9	67.9997	793.34	
2/17/2011	1:48:39 PM	30.5667	21.39	24.612	95.5	2.852	-99	6.74	4.95	68.5423	792.39	
2/17/2011	1:50:41 PM	32.6	21.36	24.612	1474.1	2.823	-99	6.74	5.04	69.6984	793.76	
2/17/2011	1:52:43 PM	34.6333	21.43	24.613	1247.5	2.852	-100	6.74	5.02	69.5366	795.25	
2/17/2011	1:54:46 PM	36.6833	21.41	24.611	934.6	2.823	-100	6.74	4.95	68.573	795.69	
2/17/2011	1:56:49 PM	38.7333	21.51	24.614	26.5	2.882	-101	6.74	5.01	69.5721	793.96	
2/17/2011	1:58:51 PM	40.7667	21.6	24.615	1583.7	2.852	-101	6.74	5.02	69.785	728.81	
2/17/2011	2:00:54 PM	42.8167	21.62	24.612	866.3	2.823	-102	6.74	4.88	67.8436	795.91	
2/17/2011	2:02:57 PM	44.8667	21.62	24.611	19.8	2.852	-104	6.74	4.9	68.1003	796.52	
2/17/2011	2:04:59 PM	46.9	21.57	24.611	53.9	2.823	-104	6.74	4.83	67.0956	796.32	
2/17/2011	2:07:02 PM	48.95	21.49	24.611	2939.1	2.823	-106	6.74	4.87	67.6235	798.12	
2/17/2011	2:09:04 PM	50.9833	21.53	24.614	600.5	2.852	-108	6.74	4.87	67.6399	796.77	
2/17/2011	2:11:07 PM	53.0333	21.49	24.609	2939.1	2.882	-109	6.74	4.77	66.2414	799.01	
2/17/2011	2:13:10 PM	55.0833	21.57	24.609	182.7	2.882	-110	6.74	4.47	62.1712	799.6	
2/17/2011	2:15:12 PM	57.1167	21.49	24.608	67.7	2.882	-111	6.74	4.57	63.3884	797.8	
2/17/2011	2:17:14 PM	59.15	21.65	24.612	517.2	2.852	-113	6.73	4.58	63.7113	799.24	
2/17/2011	2:19:17 PM	61.2	21.72	24.61	569.8	2.852	-115	6.73	4.54	63.2268	799.99	
2/17/2011	2:21:19 PM	63.2333	21.78	24.609	528.2	2.882	-114	6.74	4.27	59.5711	788.58	
2/17/2011	2:23:22 PM	65.2833	21.79	24.609	1376.1	2.823	-117	6.74	4.06	56.6913	802.89	
2/17/2011	2:25:23 PM	67.3	21.81	24.61	218.6	2.882	-117	6.74	4.18	58.3727	801.12	
2/17/2011	2:27:26 PM	69.35	21.73	24.609	331.6	2.882	-117	6.74	4.17	58.1164	804.18	
2/17/2011	2:29:28 PM	71.3833	21.81	24.61	2167	2.823	-117	6.73	4.11	57.4631	803.29	
2/17/2011	2:31:31 PM	73.4333	21.74	24.608	616.5	2.823	-116	6.73	4.09	57.105	802.59	
2/17/2011	2:33:32 PM	75.45	21.74	24.606	512.5	2.882	-116	6.73	4.12	57.492	803.6	
2/17/2011	2:35:34 PM	77.4833	21.7	24.607	658.6	2.852	-116	6.74	4.08	56.9321	805.74	
2/17/2011	2:37:37 PM	79.5333	21.71	24.608	938.4	2.823	-117	6.73	4.06	56.613	803.5	
2/17/2011	2:39:40 PM	81.5833	21.76	24.607	16.4	2.852	-117	6.73	4.08	56.9156	805.35	
2/17/2011	2:41:41 PM	83.6	21.77	24.607	914.6	2.823	-117	6.73	4.09	57.0478	802.08	
2/17/2011	2:43:43 PM	85.6333	21.71	24.605	1443.1	2.852	-118	6.73	4.04	56.2714	793.72	
2/17/2011	2:45:45 PM	87.6667	21.71	24.605	337.9	2.882	-119	6.73	3.98	55.4468	802.2	
2/17/2011	2:47:47 PM	89.7	21.64	24.604	2939.1	2.823	-121	6.73	3.94	54.7995	805.26	

2/17/2011	2:49:50 PM	91.75	21.71	24.606	2939.1	2.823	-123	6.73	4.01	55.9276	805.56
2/17/2011	2:51:52 PM	93.7833	21.72	24.607	40.2	2.823	-124	6.73	4	55.8132	805.13
2/17/2011	2:53:55 PM	95.8333	21.64	24.605	1204.7	2.852	-126	6.73	3.83	53.3887	806.33
2/17/2011	2:55:57 PM	97.8667	21.72	24.606	1356.6	2.852	-127	6.73	3.82	53.216	807.81
2/17/2011	2:57:59 PM	99.9	21.77	24.605	28.9	2.823	-125	6.73	3.73	52.0467	808.83

Shaw - Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: 104
Weather: Cloudy
Field Crew: AT, RB, MC, DL
Review Signature: Mark Lynn

Well ID No.: KAFB 10610
Date: 2/16/2011
Time: 0900
Crew Signature: [signature]
Date Review: 2/16/2011

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged - **Locked:** Yes - No **Well ID Mark:** Yes - No

Notes: PID - 385.0 ppm VOC - O_2 - 20.8; pump set @ 497'

CALCULATIONS

(A) Depth to Well Bottom	510.5	ft
(B) Pre-Purge Depth to Water	487.49	ft
(C) Water Column Height (A-B)	23.01	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	14.9	gal
(F) Depth to Top of Screen	483	ft
(G) Depth to Bottom of Screen	508	ft
(H) Saturated Filter Pack Length (G –F, or B)	20.5	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	24.6	gal
(K) Min Purge Volume (E + J)	39.5	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In-Situ, Troll 9500	67992	
Turbidity Meter: Hach 2100P	2821	
Pump: portable Bennett pump		
Field Alkalinity: CaMotte DRA	2467	

PURGING INFORMATION

Description first water purged: Clear/grey, ~~and~~ odor, slippery @10gal.

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0921 2/15	0	487.49	18.19	7.16	585.8	.21	-160	4.96	.5gl.
0932	5	487.48	18.25	7.39	590.1	.06	-162	1.72	
0942	10	487.48	18.28	7.40	605.1	.01	-166	1.70	
0952	15	487.48	18.41	7.44	607.8	-.01	-175	1.24	
1002	20	487.48	18.42	7.45	607.1	-.03	-182	1.28	
1022	30	487.48	18.48	7.48	611.2	-.04	-193	.97	
1032	35	487.48	18.47	7.48	614.4	-.05	-201	.84	
1037	38	487.48	18.45	7.49	612.2	-.05	-203	.79	1 l/m
1045	40	487.48	18.55	7.48	619.3	-.05	-206	.90	

140705

Shaw Environmental, Inc.

KAFB-10610
2/16/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1045	40	487.48	18.55	7.48	619.3	-0.05	-206	0.90	

Field Alkalinity Result 127 mgL as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB10610-2-16-2011.flo

Operator Name:	RB						
Company Name:	SHAW						
Project Name:	KAFB						
Site Name:							
Well ID:	KAFB10610						
pH Sensor:	Installed	Target Value	0	[pH]	Target Percent	0	[%]
ORP Sensor:	Installed	Target Value	0	[mV]	Target Percent	0	[%]
RDO Sensor:	Installed	Target Value	0	[mg/L]	Target Percent	0	[%]
Cond Sensor:	Installed	Target Value	0	[µS/cm @25C]	Target Percent	0	[%]
Turb Sensor:	Installed	Target Value	0	[NTU]	Target Percent	0	[%]

Pump Model/Typ	BENNETT	
Tubing Type:		
Tubing Diam:	0	[in]
Tubing Length:	0	[ft]
Well Depth:	510.5	[ft]
Well Diam:	4	[in]
Screen Len:	300	[in]
Screen Depth:	483	[ft]
Pump Inlet Depth	0	[in]
Depth to Water:	487.49	[ft]
Pump Level (TOC)	497	[ft]
Final Pumping Rat	0	[mL/min]
Stable Draw Dow	0	[in]
Total Volume Forr	Volume is user calculated.	
Calculated Total V	600	[mL]
Actual Total Volur	600	[mL]
Calculated Measu	18000	[sec]
Actual Measurem	120	[sec]

Start date/time:	2/16/2011	9:24:54 AM
End date/time:	2/16/2011	10:57:34 AM
Total Time:	1:32:40	

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L]	Variance	Cond [µS/cm @25	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	7.51	0	-205.2	0.3	-0.07	-0.01	615.82	-0.56	19.36	4.14	18.32	-0.1	10:48:52
3	7.51	0	-204.9	0.3	-0.08	0	615.26	-0.56	19.52	0.15	18.25	-0.06	10:50:55
2	7.51	0	-204.9	0	-0.08	0	614.91	-0.36	19.36	-0.16	18.19	-0.06	10:52:56
1	7.51	0	-204.94	-0.04	-0.08	0	614.88	-0.03	19.52	0.16	18.12	-0.07	10:54:59
0	7.5	-0.01	-199.08	5.86	-0.08	0.01	1.45	-613.42	15.19	-4.33	18.21	0.09	10:57:02

pH Min:	7.5
pH Max:	7.51
ORP Min:	-205.2
ORP Max:	-199.08
RDO Min:	-0.08
RDO Max:	-0.07
Cond Min:	1.45
Cond Max:	615.82
Turb Min:	15.19
Turb Max:	19.52
Temp Min:	18.12
Temp Max:	18.32

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP	
Report generated	2/17/2011	4:57:33 PM
Report from file:	...\KAFB--KAFB10610-2-16-2011.flo.bin	
Win-Situ® Version	4.58.16.0	
Serial number:	48808	
Firmware Version	2.13	
Unit name:	Troll 9000 mw-1	
Test name:	LowFlow	
Test defined on:	2/16/2011	9:24:54 AM
Test started on:	2/16/2011	9:24:54 AM
Test stopped on:	N/A	N/A

Data gathered using Event testing

Time between d	Minutes.	
Time between d	Minutes.	
Monitoring data on channel [1]		
Data stored if de	0	Celsius
Number of data	46	

TOTAL DATA SAM	46

Channel number [1]
Measurement ty Temperature
Channel name:

Channel number [3]
Measurement ty Barometric Pressure
Channel name:

Channel number [4]
Measurement ty Turbidity
Channel name:

Channel number [5]
Measurement ty Battery Voltage
Channel name:

Channel number [11]
Measurement ty ORP
Channel name:

Channel number [12]
Measurement ty pH
Channel name:

Channel number [37]
Measurement ty Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psı 0.00 psu

Channel number [37]
Measurement ty RDO %Saturation
Channel name:
Fixed Salinity(psı 0.00 psu

Channel number [45]
Measurement ty Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperature Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/L	Chan[37] Rugged DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm Specific Conductivity
2/16/2011	9:24:54 AM	0	18.19	24.722	40.3	2.852	-160	7.16	0.21	2.6674	585.77
2/16/2011	9:26:57 AM	2.05	18.28	24.721	46.5	2.794	-160	7.24	0.14	1.7602	585.24
2/16/2011	9:28:58 AM	4.0667	18.26	24.723	44.1	2.852	-159	7.31	0.1	1.3252	584.43
2/16/2011	9:31:02 AM	6.1333	18.25	24.723	42.4	2.852	-159	7.34	0.07	0.9671	590.06
2/16/2011	9:33:03 AM	8.15	18.28	24.723	41.6	2.823	-162	7.36	0.06	0.7506	598.21
2/16/2011	9:35:07 AM	10.2167	18.32	24.725	43.4	2.794	-161	7.37	0.04	0.5555	599.93
2/16/2011	9:37:09 AM	12.25	18.32	24.726	38	2.794	-163	7.39	0.03	0.3926	600.77
2/16/2011	9:39:12 AM	14.3	18.3	24.728	38.9	2.823	-165	7.4	0.02	0.2947	599.07
2/16/2011	9:41:14 AM	16.3333	18.28	24.728	36.9	2.852	-166	7.4	0.01	0.186	604.97
2/16/2011	9:43:18 AM	18.4	18.36	24.728	38.3	2.823	-169	7.42	0.01	0.0993	601.42
2/16/2011	9:45:21 AM	20.45	18.37	24.728	32.6	2.852	-170	7.42	0	0.0341	605.47
2/16/2011	9:47:25 AM	22.5167	18.42	24.728	35.1	2.794	-172	7.42	0	-0.0529	607.57
2/16/2011	9:49:28 AM	24.5667	18.38	24.726	34.2	2.852	-174	7.43	-0.01	-0.0964	606.96
2/16/2011	9:51:31 AM	26.6167	18.41	24.724	30.7	2.823	-175	7.44	-0.01	-0.1509	607.76
2/16/2011	9:53:34 AM	28.6667	18.42	24.724	31	2.794	-177	7.44	-0.01	-0.1945	605.82
2/16/2011	9:55:36 AM	30.7	18.4	24.722	31.6	2.823	-178	7.44	-0.02	-0.238	614.77
2/16/2011	9:57:39 AM	32.75	18.41	24.722	28.8	2.823	-180	7.45	-0.02	-0.2707	604.86
2/16/2011	9:59:42 AM	34.8	18.42	24.722	26.9	2.823	-181	7.45	-0.02	-0.3034	607.09
2/16/2011	10:01:44 AM	36.8333	18.44	24.722	27.5	2.794	-182	7.46	-0.03	-0.3471	608.84
2/16/2011	10:03:48 AM	38.9	18.47	24.718	28.1	2.794	-183	7.46	-0.03	-0.3691	611.71
2/16/2011	10:05:51 AM	40.95	18.43	24.719	25.1	2.823	-184	7.46	-0.03	-0.3907	609.23
2/16/2011	10:07:54 AM	43	18.44	24.717	25.2	2.823	-185	7.46	-0.03	-0.4234	612.01
2/16/2011	10:09:58 AM	45.0667	18.46	24.716	23.1	2.794	-187	7.47	-0.04	-0.4564	610.65
2/16/2011	10:12:00 AM	47.1	18.46	24.715	24.9	2.852	-188	7.46	-0.04	-0.4891	617.1
2/16/2011	10:14:03 AM	49.15	18.49	24.715	22.2	2.823	-190	7.47	-0.04	-0.5003	610.73
2/16/2011	10:16:06 AM	51.2	18.45	24.714	20.9	2.794	-191	7.47	-0.04	-0.5108	610.51
2/16/2011	10:18:09 AM	53.25	18.44	24.714	19.8	2.852	-191	7.48	-0.04	-0.5433	609.59
2/16/2011	10:20:12 AM	55.3	18.48	24.713	19.5	2.823	-193	7.48	-0.04	-0.5548	611.18
2/16/2011	10:22:15 AM	57.35	18.47	24.715	17.7	2.852	-194	7.48	-0.05	-0.5873	613.45
2/16/2011	10:24:18 AM	59.4	18.45	24.715	18.4	2.823	-196	7.47	-0.05	-0.5979	614.88
2/16/2011	10:26:20 AM	61.4333	18.48	24.715	19.4	2.823	-196	7.48	-0.05	-0.6202	615.43
2/16/2011	10:28:23 AM	63.4833	18.46	24.714	18	2.823	-198	7.48	-0.05	-0.6308	613.97
2/16/2011	10:30:26 AM	65.5333	18.49	24.714	16.2	2.823	-199	7.48	-0.05	-0.6421	613.59
2/16/2011	10:32:29 AM	67.5833	18.47	24.713	14.9	2.852	-201	7.48	-0.05	-0.6637	614.44
2/16/2011	10:34:32 AM	69.6333	18.41	24.714	15.6	2.852	-202	7.49	-0.05	-0.6738	612.49
2/16/2011	10:36:35 AM	71.6833	18.45	24.714	13.9	2.852	-203	7.49	-0.05	-0.6743	612.22
2/16/2011	10:38:37 AM	73.7167	18.43	24.713	13.6	2.852	-205	7.48	-0.05	-0.6959	619.5
2/16/2011	10:40:40 AM	75.7667	18.55	24.715	13.1	2.823	-206	7.48	-0.05	-0.6975	619.31
2/16/2011	10:42:43 AM	77.8167	18.55	24.713	13	2.823	-206	7.5	-0.06	-0.7194	614.25
2/16/2011	10:44:45 AM	79.85	18.54	24.712	12.7	2.852	-206	7.51	-0.06	-0.8394	615.57

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Well ID No.: KAFB 10611
Site / SWMU No.: KAFB - 106
Date: 1-31-11
Weather: Partly Cloudy - mid 40s
Time: 1050
Field Crew: RB, DR
Crew Signature: [signature]
Review Signature: Mark Logan
Date Review: 1/31/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: Yes No
Well ID Mark: Yes - No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	518.99 ft
(B) Pre-Purge Depth to Water	497.05 ft
(C) Water Column Height (A-B)	21.94 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	14.26 gal
(F) Depth to Top of Screen	488.99 ft
(G) Depth to Bottom of Screen	518.99 ft
(H) Saturated Filter Pack Length (G –F, or B)	21.94 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	26.32 gal
(K) Min Purge Volume (E + J)	40.5 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter 451 Pro	2431
Turbidity Meter Hach 2100P	2821
Pump Bennett Pump (Ded)	
Field Alkalinity Lamotte DR-A	3467

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (µmS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1112	0	497.19	16.8	8.22	406.8	10.52	149.4	4.14	1.3 gpm
1115	4	497.19	18.6	7.94	335.1	8.99	148.9	1.50	
1120	8	497.20	18.8	7.93	334.5	9.33	141.4	1.04	
1125	16	497.20	18.8	7.93	332.6	6.68	129.4	1.04	
1131	24	497.20	18.8	7.94	331.0	6.14	126.0	.55	
1137	32	497.19	18.8	7.94	329.1	6.17	126.5	.45	Adjusting to
1142	40	497.06	18.3	7.94	334.6	5.12	124.8	.30	1 lpm
1152	41	497.06	17.9	7.94	333.9	4.92	121.7	~~.54~~	.9 lpm

140705

Shaw Shaw Environmental, Inc.

KAFB-1061 1
01/31/2011

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
	41	497.06	17.9	7.94	333.9	4.92	121.7	0.30*	

Field Alkalinity Result 135 mg/l as $CaCO_3$

* 1147 hr, 40 gal reading, last read not recorded MES 1/31/11

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/31/2011 11:13	431.8	10.65	152.4	8.02	17.7	Start Purge 11:12	11	1Q11	07J101514
1/31/2011 11:15	335.1	8.04	149.7	7.94	18.6		11	1Q11	07J101514
1/31/2011 11:17	335.3	9.08	147	7.94	18.9		11	1Q11	07J101514
1/31/2011 11:19	334.7	7.99	142.8	7.94	18.8		11	1Q11	07J101514
1/31/2011 11:21	334.4	6.6	137.4	7.92	18.8		11	1Q11	07J101514
1/31/2011 11:23	332.5	8.31	133.7	7.94	18.8		11	1Q11	07J101514
1/31/2011 11:25	331.9	7	130.7	7.93	18.8		11	1Q11	07J101514
1/31/2011 11:27	332.5	6.76	128.9	7.93	18.8		11	1Q11	07J101514
1/31/2011 11:29	331.2	6.85	127.4	7.94	18.8		11	1Q11	07J101514
1/31/2011 11:31	330.9	6.02	126.2	7.94	18.8		11	1Q11	07J101514
1/31/2011 11:33	330.2	6.24	125.5	7.94	18.8		11	1Q11	07J101514
1/31/2011 11:35	329.1	5.82	125.6	7.94	18.8		11	1Q11	07J101514
1/31/2011 11:37	329.6	5.85	126.3	7.93	18.8		11	1Q11	07J101514
1/31/2011 11:39	329	5.62	126.8	7.94	18.8		11	1Q11	07J101514
1/31/2011 11:41	329.6	4.72	126	7.94	18.6		11	1Q11	07J101514
1/31/2011 11:43	335.6	5.14	126.1	7.94	18.5		11	1Q11	07J101514
1/31/2011 11:45	334.6	4.95	126.2	7.94	18.1		11	1Q11	07J101514
1/31/2011 11:47	334.6	5.17	125.3	7.94	18.4		11	1Q11	07J101514
1/31/2011 11:49	334.7	4.96	124	7.94	18.1		11	1Q11	07J101514
1/31/2011 11:51	334.6	4.87	122.2	7.94	18.1		11	1Q11	07J101514
1/31/2011 11:53	334.2	4.85	122	7.95	17.7	Sample at 11:52	11	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** KAFB 10612

Site / SWMU No.: KAFB-106 **Date:** 1-31-11

Weather: Sunny; low 50s some clouds **Time:** 1330

Field Crew: RB + DR **Crew Signature:** [signature]

Review Signature: _____ **Date Review:** _____

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged - **Locked:** (Yes) - No **Well ID Mark:** (Yes) - No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	513.57 ft
(B) Pre-Purge Depth to Water	489.61 ft
(C) Water Column Height (A-B)	23.96 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	15.57 gal
(F) Depth to Top of Screen	483.57 ft
(G) Depth to Bottom of Screen	513.57 ft
(H) Saturated Filter Pack Length (G –F, or B)	23.96 ~~30.00~~ ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	28.75 gal
(K) Min Purge Volume (E + J)	44.7 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI Pro	2431
Turbidity Meter Hach 2100P	2821
Pump Bennett Ded.	
Field Alkalinity Lamotte	

PURGING INFORMATION

Description first water purged: Clear

Units were bumped

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/31/11 1342	0	489.61	18.1	7.5	.981	34.53	120.2	3.18	1.3 gpm
1347	4	489.67	18.8	7.47	.967	16.61	59.4	2.43	
1350	8	489.67	18.7	7.47	.942	15.40	43.6	1.56	
1357	16	489.67	18.7	7.49	.91	~~8.00~~	37.6	.93	
1405	24	489.67	18.7	7.49	.87	7.65	36.8	.84	
1412	32	489.67	18.7	7.50	.87	7.32	38.0	1.24	
1426	40	489.67	18.3	7.52	.84	2.55	39.2	.54	Adjusting flow
1435	43	489.61	18.0	7.51	.84	2.59	42.7	.60	rate to 1.1 lpm
1440	45	489.61	17.9	7.50	.86	2.51	38.6	1.24	1.1 lpm
Values prior to Sampling		489.61	17.9	7.50	.86	2.51	38.6	1.24	1.1 lpm

140705

Shaw Environmental, Inc.

KAFB-10612
01-~~11~~ 31 2011

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
	45	489.61	17.9	7.50	0.86	2.51	38.6	1.24	

Field Alkalinity Result 154 mg/L @ $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/31/2011 13:43	32.1	7.51	238	8.21	14.6	Start Purge 13:42	12	1Q11	07J101514
1/31/2011 13:45	982	48.42	105.2	7.47	18.8		12	1Q11	07J101514
1/31/2011 13:47	974	23.83	64.7	7.47	18.8		12	1Q11	07J101514
1/31/2011 13:49	963	19.59	52.9	7.47	18.7		12	1Q11	07J101514
1/31/2011 13:51	946	12.35	44.9	7.47	18.7		12	1Q11	07J101514
1/31/2011 14:26	840	6.75	36.5	7.56	18.3		12	1Q11	07J101514
1/31/2011 14:28	832	2.52	40	7.52	18.2		12	1Q11	07J101514
1/31/2011 14:30	848	2.57	41.9	7.51	18.1		12	1Q11	07J101514
1/31/2011 14:32	852	2.55	42.7	7.51	18		12	1Q11	07J101514
1/31/2011 14:34	849	2.58	44.2	7.51	18		12	1Q11	07J101514
1/31/2011 14:36	841	2.58	42.1	7.51	18		12	1Q11	07J101514
1/31/2011 14:38	843	2.58	40.2	7.51	18		12	1Q11	07J101514
1/31/2011 14:40	851	2.65	40.3	7.51	17.9	Sample at 14:40	12	1Q11	07J101514

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB 10613
Site / SWMU No.: KAFB - 106
Date: 2/7/11
Weather: Sunny, mid 20s, lt brz
Time: 0900
Field Crew: R. Bailey, A. Trujillo, M. Lyon
Crew Signature: [signature]
Review Signature: Mark Lyon
Date Review: Mark Lyon 2/7/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No

Notes: Set pump @ 502.5 (appx) - Could not get water level meter down to water. Indicator on Bennet real appx water level. Used monthly water level for the purge calculation.

CALCULATIONS

(A) Depth to Well Bottom	516.5 ft
(B) Pre-Purge Depth to Water	494.52 ft
(C) Water Column Height (A-B)	21.98 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	14.28 gal
(F) Depth to Top of Screen	486.5 ft
(G) Depth to Bottom of Screen	511.5 ft
(H) Saturated Filter Pack Length (G –F, or B)	16.98 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	20.37 gal
(K) Min Purge Volume (E + J)	34.65 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter	2431
Turbidity Meter	2821
Pump Portable Bennett Pump	
Field Alkalinity LaMotte DR-A	3467

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1034	0	N/m	15.2	7.31	.453	5.28	138.8	11.8	.5gal/min
1045	5	N/m	18.1	7.51	.457	2.72	-6.3	8.36	
1055	10	N/m	18.2	7.56	.472	2.68	-19.4	4.97	
1105	~~20~~ 15	N/m	18.2	7.58	.461	2.76	-23.8	2.81	
1116	~~30~~ 20	n/m	18.2	7.61	.460	2.77	-22.2	1.73	
1126	~~+1 26~~ ~~35~~ 30 25	n/m	18.1	7.65	.451	3.28	-12.1	1.49	
1137	~~35~~ 30	n/m	18.4	7.67	.442	3.58	-11.9	.88	
1148	~~36~~ 35	n/m	18.3	7.68	.439	3.59	-12.6	.87	
1150	36	n/m	18.3	7.68	.441	3.57	-14.4	.80	

 Alkalinity = 160 mg/L as $CaCO_3$

140705

Shaw Environmental, Inc.

KAFB-1061B
2/7/2011

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1150	36	N/M	18.3	7.68	0.447	3.57	-14.4	0.80	

Field Alkalinity Result 160 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/7/2011 10:36	452.9	3.89	83	7.45	17.9	Start Purge 10:34	13	1Q11	07J101514
2/7/2011 10:38	449.9	3.25	56	7.5	18.2		13	1Q11	07J101514
2/7/2011 10:40	451.4	3.24	44.1	7.51	18.1		13	1Q11	07J101514
2/7/2011 10:42	454.3	3.02	21.1	7.51	18.1		13	1Q11	07J101514
2/7/2011 10:44	455.8	2.99	4.1	7.51	18.1		13	1Q11	07J101514
2/7/2011 10:46	457.6	2.74	-7	7.52	18.2		13	1Q11	07J101514
2/7/2011 10:48	461	2.86	-14.4	7.53	18.1		13	1Q11	07J101514
2/7/2011 10:50	462.9	2.55	-16.5	7.54	18.2		13	1Q11	07J101514
2/7/2011 10:52	460	2.57	-14.8	7.54	18.2		13	1Q11	07J101514
2/7/2011 10:54	466.7	2.76	-20.4	7.55	18.1		13	1Q11	07J101514
2/7/2011 10:56	472.1	2.55	-19.5	7.56	18.2		13	1Q11	07J101514
2/7/2011 10:58	463.6	2.54	-19.6	7.56	18.2		13	1Q11	07J101514
2/7/2011 11:00	466.5	2.53	-23.2	7.57	18.2		13	1Q11	07J101514
2/7/2011 11:02	464.6	2.57	-22.4	7.57	18.2		13	1Q11	07J101514
2/7/2011 11:04	464	2.72	-24.2	7.58	18.2		13	1Q11	07J101514
2/7/2011 11:06	462.6	2.64	-23.7	7.58	18.2		13	1Q11	07J101514
2/7/2011 11:08	466.8	2.71	-26.9	7.6	18.3		13	1Q11	07J101514
2/7/2011 11:10	460.6	2.61	-22.4	7.6	18.3		13	1Q11	07J101514
2/7/2011 11:12	457.9	2.83	-24.2	7.61	18.3		13	1Q11	07J101514
2/7/2011 11:14	462.2	2.7	-20.4	7.61	18.2		13	1Q11	07J101514
2/7/2011 11:16	459.8	2.71	-22.7	7.63	18.3		13	1Q11	07J101514
2/7/2011 11:18	455.7	2.91	-19.5	7.62	18.3		13	1Q11	07J101514
2/7/2011 11:20	455.1	3.06	-18.7	7.62	18.2		13	1Q11	07J101514
2/7/2011 11:22	446.7	2.99	-16.7	7.64	18.3		13	1Q11	07J101514
2/7/2011 11:24	448.1	3.17	-16.6	7.65	18.3		13	1Q11	07J101514
2/7/2011 11:26	452.3	2.94	-14.9	7.65	18.2		13	1Q11	07J101514
2/7/2011 11:28	439.4	3.33	-11.7	7.68	18.3		13	1Q11	07J101514
2/7/2011 11:30	446.1	3.19	-10.9	8.06	18.4		13	1Q11	07J101514
2/7/2011 11:32	455.9	3.19	-9.8	7.65	18.4		13	1Q11	07J101514
2/7/2011 11:34	449.6	3.24	-8.4	7.66	18.3		13	1Q11	07J101514
2/7/2011 11:36	458.4	3.22	-10.9	7.67	18.3		13	1Q11	07J101514
2/7/2011 11:38	442.1	3.58	-11.9	7.67	18.4		13	1Q11	07J101514
2/7/2011 11:40	448.8	3.39	-10.2	7.66	18.4		13	1Q11	07J101514
2/7/2011 11:42	447.5	3.47	-11.9	7.67	18.4		13	1Q11	07J101514
2/7/2011 11:44	446.3	3.77	-15.1	7.67	18.4		13	1Q11	07J101514
2/7/2011 11:46	461.5	3.44	-14.5	7.66	18.4		13	1Q11	07J101514
2/7/2011 11:48	444.8	3.6	-15.5	7.67	18.4		13	1Q11	07J101514
2/7/2011 11:50	446	3.53	-15.2	7.68	18.4	Sample at 11:50	13	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Site / SWMU No.: 106
Weather: Cloudy, warm
Field Crew: AT, RB
Review Signature: Mark Ryan

Well ID No.: KAFB 1064
Date: 2/17/11
Time: 0856
Crew Signature: [illegible]
Date Review: 2/17/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged - **Locked:** Yes - No **Well ID Mark:** Yes - No

Notes: VOC's - 225 ppm, - O_2 19.8%, LEL-0, breathing zone 0ppm,

CALCULATIONS

(A) Depth to Well Bottom	516	ft
(B) Pre-Purge Depth to Water	493.35	ft
(C) Water Column Height (A-B)	22.65	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	14.72	gal
(F) Depth to Top of Screen	486	ft
(G) Depth to Bottom of Screen	511	ft
(H) Saturated Filter Pack Length (G –F, or B)	17.65	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	21.18	gal
(K) Min Purge Volume (E + J)	35.9	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In-situ 9500		
Turbidity Meter: Hach 2100	2821	
Pump: Portable Bennett pump		
Field Alkalinity: LaMotte model DRA	3467	

PURGING INFORMATION

Description first water purged: cloudy grey water, ≈10gal - sheen presented during water level readings. ≈2 1/8"

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0950	0	493.35	18.07	7.03	429.7	0.13	-46	7.82	1.7 L/g
1002	5	493.43	18.15	7.17	431.3	0.05	-54	6.17	
1013	10	493.43	18.20	7.26	434.7	0.01	-82	4.89	
1023	15	493.43	18.20	7.37	434.8	-.02	-107	3.95	
1033	20	493.43	18.26	7.55	433.4	-.03	-121	3.47	
1052	30	493.43	18.34	7.38	437.5	-.05	-140	2.00	
1101	33	493.43	18.27	7.38	435.8	-.05	-147	3.90	1.0 L/g
1110	36	493.43	17.97	7.39	432.3	-.03	-149	2.09	

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Shaw Environmental, Inc.

KAPB 10614
2/17/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1110	36	493.43	17.97	7.39	432.3	.08	-149	2.09	

Field Alkalinity Result [illegible] 185 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB10614-2-17-2011.flo

Operator Name:	RB					
Company Name:	SHAW					
Project Name:	KAFB					
Site Name:						
Well ID:	KAFB10614					
pH Sensor:	Installed	Target Value	0 [pH]	Target Percent	0 [%]	
ORP Sensor:	Installed	Target Value	0 [mV]	Target Percent	0 [%]	
RDO Sensor:	Installed	Target Value	0 [mg/L]	Target Percent	0 [%]	
Cond Sensor:	Installed	Target Value	0 [µS/cm @25C]	Target Percent	0 [%]	
Turb Sensor:	Installed	Target Value	0 [NTU]	Target Percent	0 [%]	
Pump Model/Type:	BENNETT					
Tubing Type:						
Tubing Diam:	0 [in]					
Tubing Length:	0 [ft]					
Well Depth:	516 [ft]					
Well Diam:	4 [in]					
Screen Len:	300 [in]					
Screen Depth:	486 [ft]					
Pump Inlet Depth:	0 [in]					
Depth to Water:	493.35 [ft]					
Pump Level (TOC):	497 [ft]					
Final Pumping Rate:	0 [mL/min]					
Stable Draw Down:	0 [in]					
Total Volume Formula:	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)					
Calculated Total Volume:	600 [mL]					
Actual Total Volume:	600 [mL]					
Calculated Measurement Interval:	18000 [sec]					
Actual Measurement Interval:	120 [sec]					
Start date/time:	2/17/2011	9:55:18 AM				
End date/time:	2/17/2011	11:10:44 AM				
Total Time:	1:15:26					

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L]	Variance	Cond [µS/cm @	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	7.38	0.01	-147.21	-7.01	-0.05	0	435.8	-1.7	14.42	-5.75	18.27	-0.07	11:01:23
3	7.39	0.01	-149.35	-2.14	-0.05	0	432.23	-3.57	31.34	16.92	18.14	-0.13	11:03:25
2	7.39	0	-152.94	-3.59	-0.04	0.01	435.54	3.3	2.98	-28.35	18.01	-0.13	11:05:28
1	7.39	0	-148.62	4.32	-0.03	0.01	432.28	-3.25	4.63	1.64	17.97	-0.04	11:07:30
0	7.4	0	-143.74	4.88	-0.03	0.01	433.78	1.5	3.71	-0.92	17.98	0.01	11:09:33

pH Min:	7.38
pH Max:	7.4
ORP Min:	-152.94
ORP Max:	-143.74
RDO Min:	-0.05
RDO Max:	-0.03
Cond Min:	432.23
Cond Max:	435.8
Turb Min:	2.98
Turb Max:	31.34
Temp Min:	17.97
Temp Max:	18.27

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP
Report generated:	2/22/2011 6:54:56 AM
Report from file:	...\KAFB--KAFB10614-2-17-2011.flo.bin
Win-Situ® Version	4.58.16.0
Serial number:	48808
Firmware Version	2.13
Unit name:	Troll 9000 mw-1
Test name:	LowFlow
Test defined on:	2/17/2011 9:55:18 AM
Test started on:	2/17/2011 9:55:18 AM
Test stopped on:	N/A N/A

Data gathered using Event testing

Time between data points:	0.0000 Minutes.
Time between default storages:	0.! Minutes.
Monitoring data on channel [1]	
Data stored if delta value exceeds:	0 Celsius
Number of data samples:	38

TOTAL DATA SAMPLES 38

Channel number [1]

Measurement type:	Temperature
Channel name:	

Channel number [3]

Measurement type:	Barometric Pressure
Channel name:	

Channel number [4]

Measurement type:	Turbidity
Channel name:	

Channel number [5]

Measurement type:	Battery Voltage
Channel name:	

Channel number [11]

Measurement type:	ORP
Channel name:	

Channel number [12]

Measurement type:	pH
Channel name:	

Channel number [37]

Measurement type:	Rugged Dissolved Oxygen
Channel name:	
Fixed Salinity(psu):	0.00 psu

Channel number [37]

Measurement type: RDO %Saturation
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [45]
Measurement type: Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperature Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/L	Chan[37] Rugged DO S %Saturation	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/17/2011	9:55:18 AM	0	18.05	24.669	127.4	2.794	-30	7.01	0.15	1.9606	429.44	
2/17/2011	9:55:55 AM	0.6167	18.07	24.67	205.6	2.852	-34	7.03	0.13	1.6687	429.67	
2/17/2011	9:57:58 AM	2.6667	18.15	24.67	127.6	2.852	-46	7.09	0.09	1.1295	430.44	
2/17/2011	10:00:00 AM	4.7	18.15	24.672	46.3	2.794	-51	7.13	0.07	0.9233	431.64	
2/17/2011	10:02:04 AM	6.7667	18.18	24.672	38.6	2.794	-54	7.17	0.05	0.6092	431.28	
2/17/2011	10:04:07 AM	8.8167	18.09	24.673	150	2.823	-63	7.19	0.04	0.4781	431.37	
2/17/2011	10:06:10 AM	10.8667	18.16	24.674	42	2.794	-68	7.21	0.03	0.3485	432.27	
2/17/2011	10:08:13 AM	12.9167	18.16	24.675	60.9	2.794	-72	7.23	0.02	0.2617	433.27	
2/17/2011	10:10:15 AM	14.95	18.18	24.676	39.6	2.823	-77	7.25	0.01	0.175	432.42	
2/17/2011	10:12:20 AM	17.0333	18.2	24.675	61	2.794	-82	7.26	0.01	0.0775	434.68	
2/17/2011	10:14:22 AM	19.0667	18.24	24.676	28.9	2.852	-88	7.27	0	0.0015	436.4	
2/17/2011	10:16:24 AM	21.1	18.18	24.675	14.3	2.823	-90	7.29	-0.01	-0.0853	432.92	
2/17/2011	10:18:25 AM	23.1167	18.22	24.676	8.5	2.852	-91	7.3	-0.01	-0.1071	437.36	
2/17/2011	10:20:29 AM	25.1833	18.22	24.676	23.8	2.823	-98	7.3	-0.01	-0.1831	436.66	
2/17/2011	10:22:30 AM	27.2	18.2	24.678	18	2.794	-107	7.31	-0.02	-0.2156	434.77	
2/17/2011	10:24:34 AM	29.2667	18.23	24.678	18.9	2.852	-114	7.32	-0.02	-0.2592	434.23	
2/17/2011	10:26:37 AM	31.3167	18.25	24.679	15.9	2.823	-116	7.33	-0.02	-0.3136	432.54	
2/17/2011	10:28:39 AM	33.35	18.26	24.679	118.8	2.794	-117	7.33	-0.03	-0.3462	437.22	
2/17/2011	10:30:42 AM	35.4	18.31	24.68	26.2	2.823	-119	7.34	-0.03	-0.3793	433.19	
2/17/2011	10:32:45 AM	37.45	18.28	24.68	33	2.823	-121	7.35	-0.03	-0.4116	430.31	
2/17/2011	10:34:48 AM	39.5	18.28	24.679	12.8	2.794	-121	7.35	-0.03	-0.4333	433.36	
2/17/2011	10:36:50 AM	41.5333	18.29	24.679	20.1	2.823	-125	7.35	-0.04	-0.4661	431.94	
2/17/2011	10:38:53 AM	43.5833	18.3	24.677	17.4	2.852	-126	7.37	-0.04	-0.4879	430.83	
2/17/2011	10:40:55 AM	45.6167	18.37	24.676	14.4	2.794	-128	7.36	-0.04	-0.5104	433.57	
2/17/2011	10:42:59 AM	47.6833	18.36	24.677	13.9	2.852	-129	7.36	-0.04	-0.5321	436.06	
2/17/2011	10:45:02 AM	49.7333	18.27	24.676	23.9	2.823	-129	7.36	-0.04	-0.542	435.49	
2/17/2011	10:47:05 AM	51.7833	18.33	24.676	18.2	2.823	-132	7.37	-0.04	-0.5644	432.77	
2/17/2011	10:49:07 AM	53.8167	18.28	24.676	18.6	2.852	-134	7.36	-0.05	-0.5856	436.34	
2/17/2011	10:51:10 AM	55.8667	18.27	24.677	10.9	2.794	-135	7.37	-0.05	-0.5963	435.02	
2/17/2011	10:53:13 AM	57.9167	18.29	24.676	9.2	2.823	-136	7.37	-0.05	-0.5966	433.45	
2/17/2011	10:55:15 AM	59.95	18.32	24.676	22.3	2.823	-136	7.37	-0.05	-0.6188	434.35	
2/17/2011	10:57:18 AM	62	18.34	24.674	12	2.852	-137	7.39	-0.05	-0.6517	429.93	
2/17/2011	10:59:20 AM	64.0333	18.34	24.675	20.2	2.852	-140	7.38	-0.05	-0.6517	437.5	
2/17/2011	11:01:23 AM	66.0833	18.27	24.674	14.4	2.794	-147	7.38	-0.05	-0.6507	435.8	
2/17/2011	11:03:25 AM	68.1167	18.14	24.673	31.3	2.823	-149	7.39	-0.05	-0.5948	432.24	
2/17/2011	11:05:28 AM	70.1667	18.01	24.671	3	2.794	-153	7.39	-0.04	-0.5068	435.54	
2/17/2011	11:07:30 AM	72.2	17.97	24.672	4.6	2.823	-149	7.39	-0.03	-0.4415	432.29	
2/17/2011	11:09:33 AM	74.25	17.98	24.672	3.7	2.823	-144	7.4	-0.03	-0.3659	433.78	

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 10615
Site / SWMU No.: 106
Date: 3/8/11
Weather: Cloudy
Time: 0900
Field Crew: AP, RB
Crew Signature: [illegible]
Review Signature: Mark [illegible]
Date Review: 3/8/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	517.00 ft
(B) Pre-Purge Depth to Water	488.19 ft
(C) Water Column Height (A-B)	28.81 ft
(D) Casing Factor (4"=0.65 5"=1.02)	.65
(E) One Well Casing Volume (C x D):	18.72 gal
(F) Depth to Top of Screen	~~510~~ 488 ft
(G) Depth to Bottom of Screen	~~486~~ 510 ft
(H) Saturated Filter Pack Length (G –F, or B)	21.81 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	26.17 gal
(K) Min Purge Volume (E + J)	44.89 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI 9500	
Turbidity Meter HACH 2100	2818
Pump Dedicated Bennett	
Field Alkalinity DeMotta	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0954 ~~0945~~	0	488.19	63.46	7.60	291.2	7.45	-0.01	4.57	1 gpm
1000	5	488.24	64.62	7.60	296.6	8.29	-0.01	3.43	
1008	10	488.24	64.80	7.64	297.1	8.43	-.01	3.55	
1019	15	488.25	64.85	7.64	297.5	8.35	-.01	2.52	
1026	20	488.25	64.92	7.64	298.5	8.42	-.01	2.16	
1040	30	488.26	64.87	7.64	297.7	8.32	-.01	1.86	
1054	40	488.26	64.94	7.67	297.7	8.27	.01	1.47	
1105	~~45~~ 50	488.27	64.95	7.66	298.3	8.27	0	1.09	1 L/m
	~~45~~								

Alkalinity = 130 mg/l $CaCO_3$

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Shaw Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (~~mS~~ µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1105	45	488.27	64.95	7.66	298.3	8.27	0	1.09	

Field Alkalinity Result 130 mg/L $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB 10616
Site / SWMU No.: KAFB BFF 106
Date: 1/26/11
Weather: Sunny, high 40s
Time: 1231
Field Crew: RB, ML, DR, GP
Crew Signature:
Review Signature: Mark Jones
Date Review: 1/26/2011

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	508.21	ft
(B) Pre-Purge Depth to Water	485.21	ft
(C) Water Column Height (A-B)	23.00	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	14.95	gal
(F) Depth to Top of Screen	478.21	ft
(G) Depth to Bottom of Screen	503.21	ft
(H) Saturated Filter Pack Length (G –F, or B)	25.00	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	30	gal
(K) Min Purge Volume (E + J)	→ 44.95	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI Pro	2431	
Turbidity Meter Hach	2821	
Pump Bennett Dedicated	—	
Field Alkalinity LaMotte	3467	

PURGING INFORMATION

Description first water purged: Water is greyish

Date and/or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/26/11 1231	0	485.21	62.8	7.73	305.1	9.93	178.3	19.8	1.3 gpm
1239	10	485.31	65.9	7.81	288.4	6.50	107.1	10.1	
1247	20	485.31	65.9	7.80	251.2	4.21	79.4	5.29	
1251	25	485.32	65.9	7.75	244.3	3.94	54.7	2.47	
1256	30	485.32	65.9	7.72	242.8	4.33	53.9	1.59	
1259	35	485.32	66.0	7.70	237.5	3.84	54.3	1.35	
1305	40	485.32	65.9	7.73	221.6	4.88	60.9	1.29	
1308	45	485.32	66.0	7.74	228.6	3.81	53.7	.97	1.4 lpm
1311	48	485.26	65.2	7.75	234.2	3.61	68.3	1.20	

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Shaw Environmental, Inc.

KAFB-10616
1/26/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1316	50	485.25	64.9	7.66	243.9	3.70	79.5	1.05	
1321	51	485.25	64.7	7.74	226.7	3.77	89.8	.90	
Values Prior to Sampling									
1325	51	485.25	64.7	7.74	226.7	3.77	89.8	0.90	

Field Alkalinity Result 105

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/26/2011 12:31	307.5	10.91	195.1	7.8	17.1		KAFB-10616	1Q11	07J101514
1/26/2011 12:33	304.5	9.28	166.1	7.62	17.5		KAFB-10616	1Q11	07J101514
1/26/2011 12:35	303.1	7.38	144.6	7.75	18.5		KAFB-10616	1Q11	07J101514
1/26/2011 12:37	295.6	5.28	127.7	7.77	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:39	287.6	4.33	114.6	7.8	18.9		KAFB-10616	1Q11	07J101514
1/26/2011 12:41	278.9	4.31	102.2	7.78	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:43	267.1	4.24	75.1	7.8	18.9		KAFB-10616	1Q11	07J101514
1/26/2011 12:45	253.7	3.79	70.5	7.79	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:47	248.6	3.91	79	7.8	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:49	243.6	4.25	67.6	7.76	18.9		KAFB-10616	1Q11	07J101514
1/26/2011 12:51	238.5	4.56	55.2	7.75	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:53	247	4.43	54.2	7.74	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:55	238.8	4.1	50.3	7.72	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:57	242	4.23	53.7	7.73	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 12:59	245.5	4.96	54.6	7.75	18.9		KAFB-10616	1Q11	07J101514
1/26/2011 13:01	231.6	4.49	56	7.72	18.9		KAFB-10616	1Q11	07J101514
1/26/2011 13:03	230.3	4.49	57.9	7.75	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 13:05	224.5	4.58	59.9	7.74	18.8		KAFB-10616	1Q11	07J101514
1/26/2011 13:07	231.7	4.05	53.2	7.75	18.9		KAFB-10616	1Q11	07J101514
1/26/2011 13:09	216	3.8	53.2	7.73	18.9		KAFB-10616	1Q11	07J101514
1/26/2011 13:11	242.8	3.85	58.9	7.74	18.5		KAFB-10616	1Q11	07J101514
1/26/2011 13:13	233.8	3.65	69.5	7.75	18.3		KAFB-10616	1Q11	07J101514
1/26/2011 13:15	244.4	3.68	77.3	7.74	18.4		KAFB-10616	1Q11	07J101514
1/26/2011 13:17	242.8	3.74	79.4	7.73	18.2		KAFB-10616	1Q11	07J101514
1/26/2011 13:19	236.1	3.76	84.2	7.75	18.2		KAFB-10616	1Q11	07J101514
1/26/2011 13:21	229.6	3.79	88.9	7.75	18.1	Collect Sample	KAFB-10616	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB - 10617
Site / SWMU No.: 106
Date: 3/9/11
Weather: Sunny / 11 brz 40s
Time: 0830
Field Crew: RB, AT, DR
Crew Signature: [illegible]
Review Signature: [illegible]
Date Review: 3/9/2011

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No
Notes:

CALCULATIONS

(A) Depth to Well Bottom	512 ft
(B) Pre-Purge Depth to Water	487.08 ft
(C) Water Column Height (A-B)	24.92 ft
(D) Casing Factor: 4"=0.65 5"=1.02	
(E) One Well Casing Volume (C x D):	16.19 gal
(F) Depth to Top of Screen	482 ft
(G) Depth to Bottom of Screen	507 ft
(H) Saturated Filter Pack Length (G –F, or B)	19.92 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	

(J) Filter Pack Volume (H x I)	23.90 gal
(K) Min Purge Volume (E + J)	40.09 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Hach 2100	
Turbidity Meter: In Situ Troll 9500	
Pump: Bonnett Portable	
Field Alkalinity: LaMotte	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0913	0	487.08	56.54	6.60	.2749	6.60	.14	1.68	
0927	5	487.06	63.07	7.56	.2964	1.80	.05	.0061	change units on PDA
0943	10	487.05	17.56	7.61	.29	1.82	8	30.97	.4gpm
0957	15	487.05	17.57	7.63	.2987	1.85	-31	.93	
1009	20	487.06	17.58	7.63	.3004	1.86	-67	.39	
1032	30	487.05	17.76	7.64	.2997	1.80	-92	.35	
1046	35	487.06	17.76	7.64	.3003	1.78	-97	.40	
1100	40	487.06	17.80	7.66	.3007	1.83	-101	.60	

Alkalinity = 121 mg/L as $CaCO_3$

140705

Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1100	40	487.06	17.80	7.66	.3007	1.83	-101	.60	

Field Alkalinity Result 121 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB10617-3-9-2011.flo

Operator Name:	RB						
Company Name:	SHAW						
Project Name:	KAFB						
Site Name:							
Well ID:	KAFB10617						
pH Sensor:	Installed	Target Value	0	[pH]	Target Perc	0	[%]
ORP Sensor:	Installed	Target Value	0	[V]	Target Perc	0	[%]
RDO Sensor:	Installed	Target Value	0	[mg/L]	Target Perc	0	[%]
Cond Sensor:	Installed	Target Value	0	[µS/cm]	Target Perc	0	[%]
Turb Sensor:	Installed	Target Value	0	[FNU]	Target Perc	0	[%]
Pump Model/Type:	BENNETT						
Tubing Type:							
Tubing Diam:	0	[in]					
Tubing Length:	0	[ft]					
Well Depth:	512	[ft]					
Well Diam:	4	[in]					
Screen Len:	300	[in]					
Screen Depth:	482	[ft]					
Pump Inlet Depth:	0	[in]					
Depth to Water:	487.08	[ft]					
Pump Level (TOC):	497	[ft]					
Final Pumping Rate:	0	[mL/min]					
Stable Draw Down:	0	[in]					
Total Volume Formula:	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)						
Calculated Total Volume:	600	[mL]					
Actual Total Volume:	600	[mL]					
Calculated Measurement Interval:	18000	[sec]					
Actual Measurement Interval:	120	[sec]					
Start date/time:	3/9/2011	9:07:06 AM					
End date/time:	3/9/2011	9:30:05 AM					
Total Time:	0:22:59						

Reading #	pH [pH]	Variance	ORP [V]	Variance	RDO [mg/L	Variance	Cond [µS/c	Variance	Turb [FNU]	Variance	Temp [F]	Variance	Time
4	7.49	0.06	0.07	-0.01	1.94	-0.06	296.82	-0.34	-0.11	-0.94	63.2	-0.08	9:21:41
3	7.53	0.03	0.06	-0.01	1.89	-0.06	296.88	0.06	-0.4	-0.29	63.19	-0.01	9:23:43
2	7.56	0.03	0.05	-0.01	1.82	-0.06	298.11	1.24	-0.44	-0.04	63.49	0.3	9:25:46
1	7.56	0	0.05	-0.01	1.8	-0.03	296.38	-1.74	-0.01	0.43	63.07	-0.42	9:27:48
0	7.58	0.02	0.04	-0.01	1.81	0.01	297.69	1.32	-0.3	-0.29	63.39	0.32	9:29:50

pH Min:	7.49
pH Max:	7.58
ORP Min:	0.04
ORP Max:	0.07

RDO Min:	1.8
RDO Max:	1.94
Cond Min:	296.38
Cond Max:	298.11
Turb Min:	-0.44
Turb Max:	-0.01
Temp Min:	63.07
Temp Max:	63.49

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP	
Report generated:	3/9/2011	3:29:55 PM
Report from file:	...\KAFB--KAFB10617-3-9-2011.flo.bin	
Win-Situ® Version	4.58.16.0	
Serial number:	48808	
Firmware Version	2.13	
Unit name:	Troll 9000 mw-1	
Test name:	LowFlow	
Test defined on:	3/9/2011	9:07:06 AM
Test started on:	3/9/2011	9:07:06 AM
Test stopped on:	N/A	N/A

Data gathered using Event testing

Time between data points:	0.0000	Minutes.
Time between default storages:	0.0(	Minutes.
Monitoring data on channel [1]		
Data stored if delta value exceeds:	0	Celsius
Number of data samples:	12	

TOTAL DATA SAMPLES 12

Channel number [1]

Measurement type:	Temperature
Channel name:	

Channel number [3]

Measurement type:	Barometric Pressure
Channel name:	

Channel number [4]
Measurement type: Turbidity
Channel name:

Channel number [5]
Measurement type: Battery Voltage
Channel name:

Channel number [11]
Measurement type: ORP
Channel name:

Channel number [12]
Measurement type: pH
Channel name:

Channel number [37]
Measurement type: Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [37]
Measurement type: RDO %Saturation
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [45]
Measurement type: Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm Specific Conductivity
3/9/2011	9:07:06 AM	0	14.67	24.976	-1.3	3.441	148	6.61	7.34	86.8338	2.31
3/9/2011	9:09:08 AM	2.0333	14.32	24.978	-1.4	3.441	145	6.62	7.42	87.0798	2.23
3/9/2011	9:11:10 AM	4.0667	14.17	24.981	-1.2	3.411	143	6.61	6.51	76.2214	2.12
3/9/2011	9:13:14 AM	6.1333	13.63	24.981	11.9	3.411	139	6.6	6.6	76.3703	351.18
3/9/2011	9:15:33 AM	8.45	17.12	24.982	8.2	3.441	108	7.16	2.26	28.2144	347.86
3/9/2011	9:17:35 AM	10.4833	17.33	24.983	8.1	3.382	91	7.34	2.06	25.8024	347.78
3/9/2011	9:19:38 AM	12.5333	17.38	24.983	0.8	3.441	78	7.44	2	25.1526	347.79
3/9/2011	9:21:41 AM	14.5833	17.33	24.985	-0.1	3.441	68	7.49	1.94	24.3792	347.76
3/9/2011	9:23:43 AM	16.6167	17.33	24.985	-0.4	3.411	60	7.53	1.89	23.6613	347.87
3/9/2011	9:25:46 AM	18.6667	17.49	24.986	-0.4	3.411	53	7.56	1.82	22.9314	348
3/9/2011	9:27:48 AM	20.7	17.26	24.987	0	3.382	47	7.56	1.8	22.493	347.77
3/9/2011	9:29:50 AM	22.7333	17.44	24.986	-0.3	3.411	41	7.58	1.81	22.7153	347.93

INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB10617b-3-9-2011.flo

Operator Name:	RB					
Company Name:	SHAW					
Project Name:	KAFB					
Site Name:						
Well ID:	KAFB10617b					
pH Sensor:	Installed	Target Value	0 [pH]	Target Perc	0 [%]	
ORP Sensor:	Installed	Target Value	0 [mV]	Target Perc	0 [%]	
RDO Sensor:	Installed	Target Value	0 [mg/L]	Target Perc	0 [%]	
Cond Sensor:	Installed	Target Value	0 [mS/cm]	Target Perc	0 [%]	
Turb Sensor:	Installed	Target Value	0 [NTU]	Target Perc	0 [%]	
Pump Model/Type:	BENNETT					
Tubing Type:						
Tubing Diam:	0 [in]					
Tubing Length:	0 [ft]					
Well Depth:	512 [ft]					
Well Diam:	4 [in]					
Screen Len:	300 [in]					
Screen Depth:	482 [ft]					
Pump Inlet Depth:	0 [in]					
Depth to Water:	487.08 [ft]					
Pump Level (TOC):	497 [ft]					
Final Pumping Rate:	0 [mL/min]					
Stable Draw Down:	0 [in]					
Total Volume Formula:	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)					
Calculated Total Volume:	600 [mL]					
Actual Total Volume:	600 [mL]					
Calculated Measurement Interval:	18000 [sec]					
Actual Measurement Interval:	120 [sec]					
Start date/time:	3/9/2011	9:33:31 AM				
End date/time:	3/9/2011	11:27:34 AM				
Total Time:	1:54:03					

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L	Variance	Cond [mS/	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	7.67	0	-101.34	-0.51	1.73	0	0.3	0	5.45	-0.41	17.18	-0.15	11:17:34
3	7.67	0	-101.89	-0.56	1.73	0	0.3	0	5.29	-0.16	17.06	-0.12	11:19:35
2	7.67	0	-102.49	-0.6	1.74	0.01	0.3	0	5.48	0.19	16.95	-0.11	11:21:38
1	7.67	0	-103	-0.51	1.74	0	0.3	0	6.62	1.14	16.84	-0.11	11:23:40
0	7.65	-0.02	-99.5	3.51	1.72	-0.02	0.29	0	2629.07	2622.45	16.65	-0.19	11:25:43

pH Min:	7.65
pH Max:	7.67
ORP Min:	-103
ORP Max:	-99.5

RDO Min:	1.72
RDO Max:	1.74
Cond Min:	0.29
Cond Max:	0.3
Turb Min:	5.29
Turb Max:	2629.07
Temp Min:	16.65
Temp Max:	17.18

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP	
Report generated:	3/9/2011	3:32:13 PM
Report from file:	...\KAFB--KAFB10617b-3-9-2011.flo.bin	
Win-Situ® Version	4.58.16.0	
Serial number:	48808	
Firmware Version	2.13	
Unit name:	Troll 9000 mw-1	
Test name:	LowFlow	
Test defined on:	3/9/2011	9:33:31 AM
Test started on:	3/9/2011	9:33:31 AM
Test stopped on:	N/A	N/A

Data gathered using Event testing

Time between data points:	0.0000	Minutes.
Time between default storages:	0.(	Minutes.
Monitoring data on channel [1]		
Data stored if delta value exceeds:	0	Celsius
Number of data samples:	56	

TOTAL DATA SAMPLES 56

Channel number [1]

Measurement type:	Temperature
Channel name:	

Channel number [3]

Measurement type:	Barometric Pressure
Channel name:	

Channel number [4]
Measurement type: Turbidity
Channel name:

Channel number [5]
Measurement type: Battery Voltage
Channel name:

Channel number [11]
Measurement type: ORP
Channel name:

Channel number [12]
Measurement type: pH
Channel name:

Channel number [37]
Measurement type: Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [37]
Measurement type: RDO %Saturation
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [45]
Measurement type: Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm Specific Conductivity
3/9/2011	9:33:31 AM	0	17.39	24.988	157.1	3.441	32	7.59	1.79	22.4588	347.81
3/9/2011	9:35:33 AM	2.0333	17.16	24.988	164	3.411	25	7.6	1.76	21.9529	347.82
3/9/2011	9:37:35 AM	4.0667	17.51	24.989	55.2	3.411	20	7.6	1.74	21.921	348.3
3/9/2011	9:39:39 AM	6.1333	17.51	24.988	41.6	3.411	14	7.61	1.77	22.3054	348.47
3/9/2011	9:41:40 AM	8.15	17.56	24.987	31	3.411	8	7.61	1.82	22.9823	348.3
3/9/2011	9:43:43 AM	10.2	17.57	24.985	29.3	3.411	2	7.61	1.83	23.0537	348.26
3/9/2011	9:45:45 AM	12.2333	17.55	24.985	28.7	3.411	-4	7.62	1.83	23.0741	347.98
3/9/2011	9:47:48 AM	14.2833	17.48	24.985	22.7	3.411	-10	7.62	1.84	23.1448	347.91
3/9/2011	9:49:50 AM	16.3167	17.55	24.985	21.2	3.441	-15	7.62	1.86	23.3712	348
3/9/2011	9:51:52 AM	18.35	17.66	24.985	20.9	3.411	-20	7.62	1.89	23.8671	348.14
3/9/2011	9:53:54 AM	20.3833	17.61	24.984	20.7	3.411	-26	7.62	1.89	23.8775	347.86
3/9/2011	9:55:57 AM	22.4333	17.57	24.984	17.6	3.441	-31	7.63	1.85	23.3285	348.08
3/9/2011	9:57:59 AM	24.4667	17.63	24.984	13.8	3.411	-36	7.62	1.82	22.9673	348.39

3/9/2011	10:00:00 AM	26.4833	17.61	24.981	16.1	3.441	-43	7.63	1.81	22.7699	348.48
3/9/2011	10:02:04 AM	28.55	17.64	24.984	16.1	3.411	-49	7.63	1.79	22.6195	348.8
3/9/2011	10:04:05 AM	30.5667	17.58	24.983	15.8	3.441	-54	7.62	1.81	22.8158	348.73
3/9/2011	10:06:08 AM	32.6167	17.66	24.983	15.7	3.411	-59	7.62	1.87	23.5526	348.76
3/9/2011	10:08:09 AM	34.6333	17.71	24.98	14.9	3.411	-62	7.63	1.84	23.254	348.92
3/9/2011	10:10:13 AM	36.7	17.58	24.98	13.3	3.441	-67	7.63	1.86	23.4133	347.81
3/9/2011	10:12:14 AM	38.7167	17.56	24.983	14.4	3.411	-71	7.63	1.85	23.3444	347.75
3/9/2011	10:14:18 AM	40.7833	17.56	24.983	13.7	3.441	-74	7.63	1.86	23.4087	347.64
3/9/2011	10:16:21 AM	42.8333	17.6	24.982	12.9	3.441	-77	7.63	1.86	23.5148	347.91
3/9/2011	10:18:23 AM	44.8667	17.64	24.98	16	3.411	-79	7.63	1.86	23.4954	347.51
3/9/2011	10:20:26 AM	46.9167	17.67	24.982	16.3	3.441	-81	7.63	1.89	23.8239	347.61
3/9/2011	10:22:28 AM	48.95	17.71	24.981	16.1	3.441	-83	7.63	1.82	23.0611	347.59
3/9/2011	10:24:31 AM	51	17.77	24.981	27.1	3.411	-85	7.63	1.83	23.1736	348
3/9/2011	10:26:33 AM	53.0333	17.71	24.98	21.7	3.411	-87	7.63	1.85	23.389	347.85
3/9/2011	10:28:36 AM	55.0833	17.87	24.982	18.6	3.411	-89	7.64	1.82	23.075	347.82
3/9/2011	10:30:37 AM	57.1	17.7	24.978	18.6	3.441	-90	7.65	1.81	22.9097	347.84
3/9/2011	10:32:40 AM	59.15	17.76	24.979	11.1	3.441	-92	7.64	1.8	22.7793	347.82
3/9/2011	10:34:42 AM	61.1833	17.84	24.978	17.1	3.441	-93	7.64	1.77	22.4234	347.75
3/9/2011	10:36:45 AM	63.2333	17.73	24.977	37	3.411	-93	7.64	1.78	22.5455	347.96
3/9/2011	10:38:47 AM	65.2667	17.91	24.979	3.3	3.411	-94	7.65	1.79	22.6817	348.14
3/9/2011	10:40:50 AM	67.3167	17.71	24.981	2.7	3.441	-95	7.64	1.77	22.3715	348.29
3/9/2011	10:42:52 AM	69.35	17.76	24.979	0.3	3.382	-97	7.64	1.78	22.5661	348.5
3/9/2011	10:44:55 AM	71.4	17.83	24.976	0.5	3.382	-97	7.64	1.82	23.0692	348.76
3/9/2011	10:46:57 AM	73.4333	17.74	24.979	1.6	3.441	-98	7.65	1.8	22.7907	349.15
3/9/2011	10:48:59 AM	75.4667	17.68	24.979	3.8	3.441	-98	7.66	1.81	22.8269	348.99
3/9/2011	10:51:01 AM	77.5	17.81	24.979	3.6	3.441	-99	7.65	1.83	23.1214	348.48
3/9/2011	10:53:04 AM	79.55	17.79	24.977	5.1	3.441	-100	7.65	1.82	23.0269	348.59
3/9/2011	10:55:06 AM	81.5833	17.88	24.977	5.1	3.411	-100	7.66	1.84	23.3181	348.64
3/9/2011	10:57:09 AM	83.6333	17.8	24.977	2.8	3.411	-101	7.66	1.83	23.1386	348.66
3/9/2011	10:59:11 AM	85.6667	17.73	24.977	4.7	3.441	-101	7.64	1.83	23.0856	349.04

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB- BFF
Site / SWMU No.: KAFB - 106
Weather: Sunny, Lt Bre, 50-60
Field Crew: RB, AT, ML
Review Signature: Mark Fryer

Well ID No.: KAFB - 106 18
Date: 2-14-11
Time: 1220
Crew Signature: [illegible]
Date Review: 2-14-11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No

Notes: Pumpset @ 490'

CALCULATIONS

(A) Depth to Well Bottom	506 ft
(B) Pre-Purge Depth to Water	480.5 ft
(C) Water Column Height (A-B)	25.5 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.165
(E) One Well Casing Volume (C x D):	16.87 gal
(F) Depth to Top of Screen	476 ft
(G) Depth to Bottom of Screen	501 ft
(H) Saturated Filter Pack Length (G –F, or B)	20.5 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	24.6 gal
(K) Min Purge Volume (E + J)	41.17 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Pro	2431
Turbidity Meter: Hach Turbidity	2821
Pump: Bennett Portable	
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged: Clear - odor

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/14/11 1422	0	480.44	19.3	8.0	.438	2.86	-123.8	3.45	1.16 lpm
1443	5	480.45	19.0	8.03	.438	1.75	-134.5	3.05	
1502	10	480.44	19.0	8.03	.437	1.95	-123.6	3.48	
1536	20	480.44	18.9	8.04	.434	2.27	-112.9	3.56	
1607	30	480.43	18.8	8.03	.437	2.35	-110.2	2.46	
1625	35	480.43	18.7	8.01	.435	1.80	-120.6	1.22	
1633	38	480.43	18.7	8.01	.434	1.73	-125	1.44	
1639	40	480.43	18.7	8.01	.436	1.70	-125	1.31	
1645	42	480.43	18.7	8.01	.437	1.71	-124.7	1.33	

Alkalinity = 132 mg/l as $CaCO_3$

140705

Shaw Environmental, Inc.

KAFB-10618

2-14-11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1645	42	480.43	18.7	8.0	.437	1.71	-124.7	1.33	

Field Alkalinity Result 132 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductanc	Dissolved Oxyg	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/14/2011 14:22	438.3	2.7	-122.4	8	19.3	Start Purge 14:22	18	1Q11	07J101514
2/14/2011 14:24	438.4	2.05	-125.4	8	18.7		18	1Q11	07J101514
2/14/2011 14:26	212.7	3.86	-85.1	8.06	18.8		18	1Q11	07J101514
2/14/2011 14:28	439	3.29	-126.8	8.01	19		18	1Q11	07J101514
2/14/2011 14:30	438.8	2.05	-134.7	8.01	19.1		18	1Q11	07J101514
2/14/2011 14:32	438.2	1.59	-137.3	8.01	19.1		18	1Q11	07J101514
2/14/2011 14:34	437.9	2	-138.9	8.02	19.1		18	1Q11	07J101514
2/14/2011 14:36	439.2	1.79	-137.4	8.02	19.1		18	1Q11	07J101514
2/14/2011 14:38	438.6	1.53	-136.8	8.02	19		18	1Q11	07J101514
2/14/2011 14:40	437.8	1.35	-137.2	8.03	19.1		18	1Q11	07J101514
2/14/2011 14:42	438.3	1.66	-135.5	8.02	19.1		18	1Q11	07J101514
2/14/2011 14:44	439	1.88	-133.7	8.03	19		18	1Q11	07J101514
2/14/2011 14:46	440.5	1.7	-131.1	8.03	19		18	1Q11	07J101514
2/14/2011 14:48	438.6	1.68	-131.5	8.03	19		18	1Q11	07J101514
2/14/2011 14:50	437.2	1.62	-132.2	8.02	19		18	1Q11	07J101514
2/14/2011 14:52	433.3	2.26	-132.5	8.01	19.1		18	1Q11	07J101514
2/14/2011 14:54	439.9	1.86	-127.4	8.03	19		18	1Q11	07J101514
2/14/2011 14:56	438	1.98	-127.7	8.03	19		18	1Q11	07J101514
2/14/2011 14:58	437.7	1.95	-126.4	8.03	19		18	1Q11	07J101514
2/14/2011 15:00	437.8	2.38	-120.4	8.03	19		18	1Q11	07J101514
2/14/2011 15:02	436.1	2.1	-123.8	8.03	19		18	1Q11	07J101514
2/14/2011 15:04	436.6	2.14	-120.1	8.04	19		18	1Q11	07J101514
2/14/2011 15:06	436.3	2.08	-123.3	8.03	19		18	1Q11	07J101514
2/14/2011 15:08	436	2.54	-122.5	8.05	19		18	1Q11	07J101514
2/14/2011 15:10	431.7	2.13	-124.4	8.03	19		18	1Q11	07J101514
2/14/2011 15:12	432.2	1.91	-125.4	8.03	19		18	1Q11	07J101514
2/14/2011 15:14	432.1	1.93	-124.9	8.03	19		18	1Q11	07J101514
2/14/2011 15:16	430.2	1.88	-126.3	8.03	19		18	1Q11	07J101514
2/14/2011 15:18	431.3	2.13	-122.5	8.03	19		18	1Q11	07J101514
2/14/2011 15:20	432.9	2.5	-117.4	8.03	19		18	1Q11	07J101514
2/14/2011 15:22	431.5	2.22	-120.6	8.03	18.9		18	1Q11	07J101514
2/14/2011 15:24	433.5	2.25	-117.1	8.03	19		18	1Q11	07J101514
2/14/2011 15:26	432.1	2.29	-117.1	8.04	19		18	1Q11	07J101514
2/14/2011 15:28	433.6	2.36	-113.5	8.04	18.9		18	1Q11	07J101514
2/14/2011 15:30	431	2.31	-112.1	8.04	18.9		18	1Q11	07J101514
2/14/2011 15:32	432.9	2.27	-111.5	8.04	18.9		18	1Q11	07J101514
2/14/2011 15:34	430.1	2.28	-113.3	8.04	18.9		18	1Q11	07J101514
2/14/2011 15:36	431.9	2.45	-114.4	8.02	18.9		18	1Q11	07J101514
2/14/2011 15:38	435.5	2.42	-110.6	8.03	18.8		18	1Q11	07J101514
2/14/2011 15:40	433.1	2.37	-113.3	8.03	18.9		18	1Q11	07J101514
2/14/2011 15:42	433.8	2.31	-114.6	8.03	18.9		18	1Q11	07J101514
2/14/2011 15:44	434.9	2.2	-113.5	8.03	18.9		18	1Q11	07J101514
2/14/2011 15:46	435.2	2.2	-114.5	8.03	18.9		18	1Q11	07J101514
2/14/2011 15:48	436.2	2.29	-111.5	8.03	18.9		18	1Q11	07J101514

Timestamp	Specific Conductanc	Dissolved Oxyg	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/14/2011 15:50	435.8	2.67	-111.4	8.04	18.9		18	1Q11	07J101514
2/14/2011 15:52	435.2	2.17	-113	8.03	18.8		18	1Q11	07J101514
2/14/2011 15:54	434.5	2.17	-114.4	8.03	18.8		18	1Q11	07J101514
2/14/2011 15:56	434.2	2.14	-114	8.03	18.9		18	1Q11	07J101514
2/14/2011 15:58	436	2.42	-112.6	8.04	18.8		18	1Q11	07J101514
2/14/2011 16:00	439.2	2.36	-107.9	8.03	18.8		18	1Q11	07J101514
2/14/2011 16:02	436.7	2.46	-113.6	8.02	18.8		18	1Q11	07J101514
2/14/2011 16:04	436.3	2.23	-114.3	8.03	18.8		18	1Q11	07J101514
2/14/2011 16:06	436.5	2.21	-111.9	8.03	18.8		18	1Q11	07J101514
2/14/2011 16:08	435.5	2.18	-109.4	8.03	18.8		18	1Q11	07J101514
2/14/2011 16:10	436	2.22	-115.3	8.03	18.8		18	1Q11	07J101514
2/14/2011 16:12	435.5	2.2	-113.2	8.03	18.8		18	1Q11	07J101514
2/14/2011 16:14	436	2.05	-118.4	8.02	18.8		18	1Q11	07J101514
2/14/2011 16:16	436.1	1.88	-120.7	8.02	18.7		18	1Q11	07J101514
2/14/2011 16:18	434.6	1.82	-122.5	8.01	18.7		18	1Q11	07J101514
2/14/2011 16:20	434	1.88	-117.7	8.02	18.7		18	1Q11	07J101514
2/14/2011 16:22	434.1	1.85	-119.4	8.02	18.7		18	1Q11	07J101514
2/14/2011 16:24	433.5	2.07	-122.9	8.02	18.7		18	1Q11	07J101514
2/14/2011 16:26	438	1.98	-116.5	8.02	18.7		18	1Q11	07J101514
2/14/2011 16:28	439.2	2.06	-115.2	8.02	18.7		18	1Q11	07J101514
2/14/2011 16:30	436.5	1.72	-120.1	8.01	18.7		18	1Q11	07J101514
2/14/2011 16:32	435.4	1.55	-123	8.01	18.7		18	1Q11	07J101514
2/14/2011 16:34	435.8	1.89	-117.4	8.01	18.7		18	1Q11	07J101514
2/14/2011 16:36	435.1	1.72	-123.1	8.01	18.7		18	1Q11	07J101514
2/14/2011 16:38	435.8	1.68	-124.3	8	18.7		18	1Q11	07J101514
2/14/2011 16:40	437.1	1.62	-121.9	8.01	18.7		18	1Q11	07J101514
2/14/2011 16:42	439	1.53	-121.8	8.01	18.7	Sample 16:45	18	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Site / SWMU No.: KAFB 106
Weather: Sunny - lt brz 30s-40s
Field Crew: RB, AT, ML
Review Signature: Mark Ryan

Well ID No.: KAFB 10619
Date: 2-14-11
Time: 0910
Crew Signature: [illegible]
Date Review: 2-14-11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes: Pump Set @ 509

CALCULATIONS

(A) Depth to Well Bottom	523	ft
(B) Pre-Purge Depth to Water	499.23	ft
(C) Water Column Height (A-B)	23.77	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	15.45	gal
(F) Depth to Top of Screen	493	ft
(G) Depth to Bottom of Screen	518	ft
(H) Saturated Filter Pack Length (G -F, or B)	18.77	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	22.5	gal
(K) Min Purge Volume (E + J)	37.97	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI PRO	2431	
Turbidity Meter: Hach Turbidity	2821	
Pump: Bennett Portable		
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/14 0910	0	499.23	15.3	7.95	.380	6.09	150.5	5.91	.4 gpm
0925	5	499.23	17.9	8.02	.381	3.93	103.6	2.96	
0942	10	499.23	18.2	8.04	.382	4.25	66.2	1.86	
0958	15	499.22	18.3	8.04	.384	4.30	62.7	1.86	
1014	20	499.22	18.1	8.05	.386	4.35	66.7	.95	
1047	30	499.19	18.3	8.05	.389	4.44	65.6	.53	
1106	35	499.19	18.3	8.04	.392	4.52	69.9	.28	
1115	37	499.19	18.3	8.06	.391	4.53	66.0	.64	1.08 lpm
1117	38	499.19	18.5	8.05	.393	4.54	63.6	.43	

Alkalinity = 124 mg/l as $CaCO_3$

140705

KAFB-10619
2/14/11

Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1117	38	499.19	18.5	8.05	0.393	4.54	63.6	0.43	

Field Alkalinity Result 124 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/14/2011 9:11	381.2	4.93	140.8	8.01	17.5	Start Purge 9:10	19	1Q11	07J101514
2/14/2011 9:13	376.8	4.31	134.1	8.02	17.8		19	1Q11	07J101514
2/14/2011 9:15	380.8	4.01	129.6	8.02	18		19	1Q11	07J101514
2/14/2011 9:17	380.5	4.03	125.4	8.04	17.9		19	1Q11	07J101514
2/14/2011 9:19	380.8	4	121.8	8.02	17.8		19	1Q11	07J101514
2/14/2011 9:21	380.9	3.93	117.4	8.03	17.9		19	1Q11	07J101514
2/14/2011 9:23	379.3	3.88	111.3	8.02	18		19	1Q11	07J101514
2/14/2011 9:25	380.9	3.91	106.8	8.02	17.9		19	1Q11	07J101514
2/14/2011 9:27	380.7	3.96	100.3	8.04	18		19	1Q11	07J101514
2/14/2011 9:29	380.6	4	95.8	8.04	18		19	1Q11	07J101514
2/14/2011 9:31	380.7	4.03	89.7	8.03	18		19	1Q11	07J101514
2/14/2011 9:33	380.7	4.06	86.2	8.03	18.1		19	1Q11	07J101514
2/14/2011 9:35	380.5	3.99	79.9	8.02	18.2		19	1Q11	07J101514
2/14/2011 9:37	380.9	3.97	75.4	8.04	18.1		19	1Q11	07J101514
2/14/2011 9:39	381	4.07	73.1	8.02	18.2		19	1Q11	07J101514
2/14/2011 9:41	381.2	3.98	68.9	8.03	18.1		19	1Q11	07J101514
2/14/2011 9:43	381.6	4.13	64.2	8.04	18.2		19	1Q11	07J101514
2/14/2011 9:45	382.3	4.22	62.4	8.03	18.2		19	1Q11	07J101514
2/14/2011 9:47	380.5	4.34	63.1	8.05	18.2		19	1Q11	07J101514
2/14/2011 9:49	381.6	4.27	61.4	8.05	18.3		19	1Q11	07J101514
2/14/2011 9:51	382.4	4.29	61.7	8.04	18.4		19	1Q11	07J101514
2/14/2011 9:53	382.5	4.29	59.1	8.05	18.4		19	1Q11	07J101514
2/14/2011 9:55	382.9	4.27	59.6	8.05	18.4		19	1Q11	07J101514
2/14/2011 9:57	383.1	4.47	59.9	8.04	18.3		19	1Q11	07J101514
2/14/2011 9:59	383.9	4.43	60.9	8.04	18.3		19	1Q11	07J101514
2/14/2011 10:01	384.2	4.2	63.1	8.04	18.4		19	1Q11	07J101514
2/14/2011 10:03	383.5	4.34	62.6	8.03	18.4		19	1Q11	07J101514
2/14/2011 10:05	384.5	4.36	62.7	8.05	18.4		19	1Q11	07J101514
2/14/2011 10:07	384.1	4.58	65.4	8.05	18.3		19	1Q11	07J101514
2/14/2011 10:09	384.1	4.39	66.5	8.05	18.3		19	1Q11	07J101514
2/14/2011 10:11	385.1	4.27	67.3	8.05	18.2		19	1Q11	07J101514
2/14/2011 10:13	385.5	4.49	66.9	8.04	18.3		19	1Q11	07J101514
2/14/2011 10:15	385.1	4.31	65.4	8.05	18.2		19	1Q11	07J101514
2/14/2011 10:17	385.8	4.36	66.9	8.05	18.2		19	1Q11	07J101514
2/14/2011 10:19	385.1	4.34	68.6	8.04	18.3		19	1Q11	07J101514
2/14/2011 10:21	385.3	4.51	68.1	8.04	18.3		19	1Q11	07J101514
2/14/2011 10:23	385.4	4.38	66	8.05	18.4		19	1Q11	07J101514
2/14/2011 10:25	385.4	4.36	66	8.06	18.5		19	1Q11	07J101514
2/14/2011 10:27	386.5	4.24	66.1	8.06	18.4		19	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/14/2011 10:29	386.9	4.29	66	8.06	18.2		19	1Q11	07J101514
2/14/2011 10:31	388.8	4.4	66.7	8.04	18.3		19	1Q11	07J101514
2/14/2011 10:33	388.1	4.36	66.6	8.05	18.3		19	1Q11	07J101514
2/14/2011 10:35	388.6	4.3	66	8.05	18.4		19	1Q11	07J101514
2/14/2011 10:37	387.3	4.39	63.7	8.06	18.4		19	1Q11	07J101514
2/14/2011 10:39	388.2	4.41	64.3	8.06	18.2		19	1Q11	07J101514
2/14/2011 10:41	388.4	4.41	65	8.06	18.3		19	1Q11	07J101514
2/14/2011 10:43	388.2	4.61	66.4	8.05	18.2		19	1Q11	07J101514
2/14/2011 10:45	388.5	4.36	66	8.05	18.5		19	1Q11	07J101514
2/14/2011 10:47	389.1	4.58	65.7	8.06	18.3		19	1Q11	07J101514
2/14/2011 10:49	390.6	4.29	63.9	8.05	18.4		19	1Q11	07J101514
2/14/2011 10:51	389.9	4.33	64	8.06	18.4		19	1Q11	07J101514
2/14/2011 10:53	389.5	4.46	66.1	8.05	18.3		19	1Q11	07J101514
2/14/2011 10:55	390.9	4.28	66	8.05	18.4		19	1Q11	07J101514
2/14/2011 10:57	389.9	4.37	65.6	8.05	18.4		19	1Q11	07J101514
2/14/2011 10:59	390.9	4.37	66	8.07	18.3		19	1Q11	07J101514
2/14/2011 11:01	392	4.39	67.2	8.05	18.2		19	1Q11	07J101514
2/14/2011 11:03	389.6	4.67	69	8.05	18.1		19	1Q11	07J101514
2/14/2011 11:05	390.7	4.49	70.5	8.05	18.2		19	1Q11	07J101514
2/14/2011 11:07	392.9	4.47	69.1	8.05	18.3		19	1Q11	07J101514
2/14/2011 11:09	392.8	4.57	69	8.05	18.2		19	1Q11	07J101514
2/14/2011 11:11	392.1	4.55	69.3	8.04	18.3		19	1Q11	07J101514
2/14/2011 11:13	394	4.46	66	8.05	18.3		19	1Q11	07J101514
2/14/2011 11:15	391.5	4.59	66	8.06	18.4		19	1Q11	07J101514
2/14/2011 11:17	393.2	4.5	64.9	8.05	18.4	Sample 11:17	19	1Q11	07J101514

Shaw - Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Well ID No.: 10620
Site / SWMU No.: 106
Date: 2/15/2011
Weather: Sunny
Time: 0900
Field Crew: ML, AT, RB
Crew Signature: [signature]
Review Signature: Mark Fagan
Date Review: 2/15/2011

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: Yes - (No)

Notes: O_2 - 20.8, VOC - 0.0 ppm, Pump set @ 495. Lost air pressure ≈ 1120.

CALCULATIONS

(A) Depth to Well Bottom	512	ft
(B) Pre-Purge Depth to Water	485.5	ft
(C) Water Column Height (A-B)	26.46	ft
(D) Casing Factor: (4"=0.65) 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	17.19	gal
(F) Depth to Top of Screen	482	ft
(G) Depth to Bottom of Screen	507	ft
(H) Saturated Filter Pack Length (G –F, or (B))	21.46	ft
(I) Casing/Borehole Factor 4/10 = (1.2), 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	25.75	gal
(K) Min Purge Volume (E + J)	42.9	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI, In Situ 5200	2431	
Turbidity Meter: Hach 2100P	2821	
Pump: Portable Bennett pump		
Field Alkalinity: LaMotte Model Dec	2467	

PURGING INFORMATION

Description first water purged: Clear, with floaters "Particulates"

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/15/11 0935	0	485.54	14.3	6.65	.419	4.69	130	3.04	YSI
0956	5	485.43	17.42	7.43	.394	3.67	32	3.27	IN SITU
1033	~~10~~ 15	485.46	18.3	7.88	.420	4.06	-15	1.33	1.75 L/min
1115	at ~~25~~ 18	Air Flow stopped, pulled pump to Replace.							
1328 Resume	Flow ~~25~~ 25	Resumed Pumping w/ Spare Bennett Pump							
1330	at ~~26~~ 30	not measured	~~28.1~~ 18.1 at	7.57	.394	4.81	-51	2.02	
1344	at ~~25~~ 35	not measured	18.2	7.57	.390	4.16	-51	.88	IN SITU
1352	at ~~36~~ 40	not measured	18.2	7.57	.397	3.81	-53	.72	
1355	~~35~~ 41 ~~40~~ at	not measured	18.2	7.57	.397	3.72	-53	.43	

140705

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KAFB-10620
2/15/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1357	~~46~~ 42	n/m	18.2	7.57	.401	3.72	-53	.46	1L/m
1359	43	n/m	18.1	7.57	.402	3.76	-54	.44	
Values Prior to Sampling									
1359	43	NM	18.1	7.57	0.402	3.76	-54	0.44	

Field Alkalinity Result 122 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conduct	Dissolved Oxygen (ı	ORP_1 (mV)	pH_1 (Units)	Temperature	Comment	Site	Folder	Unit ID
2/15/2011 9:36	418	5.7	110.5	7.73	14.3	Start Purge 9:35	20	1Q11	07J101514
2/15/2011 9:38	419.8	3.56	98.3	7.84	17		20	1Q11	07J101514
2/15/2011 9:40	421.3	2.87	100.3	7.83	17.4		20	1Q11	07J101514
2/15/2011 9:42	424.6	2.49	99.9	7.84	17.5		20	1Q11	07J101514
2/15/2011 9:44	424.3	2.43	98.8	7.85	17.5		20	1Q11	07J101514
2/15/2011 9:46	424.5	2.32	96.7	7.84	17.7		20	1Q11	07J101514
2/15/2011 9:48	425.1	3.83	94.8	7.86	17.7		20	1Q11	07J101514
2/15/2011 9:50	425.1	3.72	92.8	7.86	17.8		20	1Q11	07J101514
2/15/2011 9:52	424.7	4.19	90.6	7.85	17.9		20	1Q11	07J101514
2/15/2011 9:54	424	3.46	88.2	7.86	17.8		20	1Q11	07J101514
2/15/2011 9:56	419.4	3.39	86.5	7.84	17.9		20	1Q11	07J101514
2/15/2011 9:58	425	3.64	84.1	7.86	18		20	1Q11	07J101514
2/15/2011 10:00	427.1	3.41	81	7.87	17.9		20	1Q11	07J101514
2/15/2011 10:02	429.9	3.72	77.5	7.87	17.9		20	1Q11	07J101514
2/15/2011 10:04	424.5	3.5	75	7.87	17.9		20	1Q11	07J101514
2/15/2011 10:06	417.6	3.58	72.3	7.89	17.9		20	1Q11	07J101514
2/15/2011 10:08	422	3.48	71.4	7.87	18.2		20	1Q11	07J101514
2/15/2011 10:10	419	3.61	67.6	7.87	18.1		20	1Q11	07J101514
2/15/2011 10:12	424.4	3.54	64.3	7.87	18.1		20	1Q11	07J101514
2/15/2011 10:14	423.1	4.23	61.7	7.87	18.2		20	1Q11	07J101514
2/15/2011 10:16	420.6	3.33	59.2	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:18	418.2	3.71	57.5	7.87	18.2		20	1Q11	07J101514
2/15/2011 10:20	423.3	3.53	55.3	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:22	416.6	3.52	54.2	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:24	417.1	3.77	54.2	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:26	419	3.61	54.2	7.88	18.3		20	1Q11	07J101514
2/15/2011 10:28	416.3	3.58	54.4	7.89	18.2		20	1Q11	07J101514
2/15/2011 10:30	408.9	3.66	55.6	7.89	18.3		20	1Q11	07J101514
2/15/2011 10:32	415.4	4.26	55	7.88	18.3		20	1Q11	07J101514
2/15/2011 10:34	419.9	3.99	55.8	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:36	415.6	4.02	56.4	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:38	416.1	3.54	56.2	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:40	420	3.51	56.5	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:42	415.8	3.53	58.6	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:44	427.9	3.52	59.3	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:46	420.8	3.86	58.6	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:48	419.5	3.32	59	7.88	18.2		20	1Q11	07J101514
2/15/2011 10:50	410.2	3.68	59.9	7.89	18.3		20	1Q11	07J101514
2/15/2011 10:52	418.5	3.22	59.8	7.89	18.2		20	1Q11	07J101514
2/15/2011 10:54	406.4	3.52	58	7.89	18.2		20	1Q11	07J101514
2/15/2011 10:56	422.2	3.72	59.2	7.89	18.3		20	1Q11	07J101514
2/15/2011 10:58	424.1	2.92	59.3	7.89	18.2		20	1Q11	07J101514
2/15/2011 11:00	424.7	3	61.7	7.89	18		20	1Q11	07J101514
2/15/2011 11:02	425.1	3.11	63.1	7.89	17.9		20	1Q11	07J101514
2/15/2011 11:04	425.3	3.26	64.2	7.89	17.8		20	1Q11	07J101514

Timestamp	Specific Conduct	Dissolved Oxygen (ı	ORP_1 (mV)	pH_1 (Units)	Temperature	Comment	Site	Folder	Unit ID	
2/15/2011 11:06	425.4	3.39	65.4	7.89	17.7		20	1Q11	07J101514	
2/15/2011 11:08	425.4	3.48	65.3	7.9	17.6		20	1Q11	07J101514	
2/15/2011 11:10	425.4	3.54	65.4	7.9	17.5		20	1Q11	07J101514	
2/15/2011 11:12	425.4	3.59	66	7.9	17.4		20	1Q11	07J101514	
2/15/2011 11:14	425.5	3.6	66.1	7.9	17.3	Flow Stopped 11:15	20	1Q11	07J101514	Pump died, changed pumps
2/15/2011 13:28	429.1	5.01	94.1	7.88	17.5	Flow Resume 13:28	20	1Q11	07J101514	
2/15/2011 13:30	423.5	3.59	99.3	7.88	18.4		20	1Q11	07J101514	
2/15/2011 13:32	423.8	3.47	102.9	7.89	18.4		20	1Q11	07J101514	
2/15/2011 13:34	422.4	3.34	105.8	7.89	18.4		20	1Q11	07J101514	
2/15/2011 13:36	419.1	3.37	106.5	7.89	18.4		20	1Q11	07J101514	
2/15/2011 13:38	425.5	3.12	106.5	7.89	18.4		20	1Q11	07J101514	
2/15/2011 13:40	415.8	3.19	103.5	7.9	18.4		20	1Q11	07J101514	
2/15/2011 13:42	420.6	3.2	99.1	7.89	18.4		20	1Q11	07J101514	
2/15/2011 13:44	420	3.33	95.5	7.9	18.4		20	1Q11	07J101514	
2/15/2011 13:46	422.6	3.19	93.3	7.89	18.4		20	1Q11	07J101514	
2/15/2011 13:48	430.1	3.23	87.9	7.88	18.4	Sample 13:59	20	1Q11	07J101514	

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Well ID No.: KAFB-10621
Site / SWMU No.: 106
Date: 2/10/11
Weather: Sunny, warm
Time: 1239
Field Crew: AT, RB, MC
Crew Signature: [illegible]
Review Signature: Mark [illegible]
Date Review: 2/10/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: Yes (No)

Notes:
pump set at 470 ft

CALCULATIONS

(A) Depth to Well Bottom	487.9	ft
(B) Pre-Purge Depth to Water	459.33	ft
(C) Water Column Height (A-B)	28.57	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	18.57	gal
(F) Depth to Top of Screen	458	ft
(G) Depth to Bottom of Screen	483	ft
(H) Saturated Filter Pack Length (G -F, or B)	23.67	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	28.4	gal
(K) Min Purge Volume (E + J)	46.97	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI	2431	
Turbidity Meter: Hach 2000	2821	
Pump: portable Bennett pump		
Field Alkalinity: LaMotte PR-A	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1319	0	459.33	16.7	7.86	.70	2.30	2.9	3.36	.5 g/m
1329	5	459.35	17.8	7.90	.71	.76	-64.6	1.43	
1340	10	459.35	18.0	7.90	.70	.67	-81.1	1.03	
1358	20	459.35	17.9	7.92	.68	.62	-120.8	1.13	
1414	30	459.35	18.0	7.93	.68	.64	-119.1	.54	
1433	40	459.35	18.1	7.92	.68	.84	-117.1	.42	
1443	45	459.35	18.0	7.89	.67	.77	-118.2	.30	
1445	46	459.35	17.9	7.93	.67	.71	-118.8	.32	
1448	47	459.35	17.9	7.93	.67	.71	-120.5	.22	

Alkalinity: 115 mg/L as $CaCO_3$

140705

KAFB-10621
2/10/11

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Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1448	47	359.35	17.9	7.93	0.67	0.71	-120.5	0.22	

Field Alkalinity Result 115 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/10/2011 13:20	705	1.77	-19.2	7.87	17.9	Purge start 13:19	21	1Q11	07J101514
2/10/2011 13:22	706	1.5	-46.6	7.89	18		21	1Q11	07J101514
2/10/2011 13:24	706	1.17	-52.4	7.89	17.9		21	1Q11	07J101514
2/10/2011 13:26	707	0.92	-56	7.9	17.9		21	1Q11	07J101514
2/10/2011 13:28	708	0.82	-61.6	7.9	17.8		21	1Q11	07J101514
2/10/2011 13:30	709	0.76	-68.1	7.89	17.8		21	1Q11	07J101514
2/10/2011 13:32	705	0.64	-73.2	7.89	17.9		21	1Q11	07J101514
2/10/2011 13:34	708	0.7	-71.4	7.9	18		21	1Q11	07J101514
2/10/2011 13:36	704	0.74	-70.4	7.9	17.9		21	1Q11	07J101514
2/10/2011 13:38	702	0.7	-72.2	7.9	17.8		21	1Q11	07J101514
2/10/2011 13:40	698	0.69	-79.1	7.9	17.9		21	1Q11	07J101514
2/10/2011 13:42	696	0.63	-83.4	7.91	17.9		21	1Q11	07J101514
2/10/2011 13:44	689	0.54	-88.5	7.92	17.8		21	1Q11	07J101514
2/10/2011 13:46	692	0.63	-93.3	7.92	18		21	1Q11	07J101514
2/10/2011 13:48	688	0.58	-109.8	7.92	17.9		21	1Q11	07J101514
2/10/2011 13:50	692	0.52	-110.5	7.92	17.9		21	1Q11	07J101514
2/10/2011 13:52	686	0.58	-112.5	7.92	17.8		21	1Q11	07J101514
2/10/2011 13:54	683	0.54	-117.9	7.93	18.1		21	1Q11	07J101514
2/10/2011 13:56	675	0.56	-119.1	7.94	17.8		21	1Q11	07J101514
2/10/2011 13:58	681	0.61	-119.1	7.93	18		21	1Q11	07J101514
2/10/2011 14:00	684	0.6	-117.5	7.92	18		21	1Q11	07J101514
2/10/2011 14:02	675	0.55	-121.4	7.93	18		21	1Q11	07J101514
2/10/2011 14:04	679	0.61	-119.3	7.93	17.9		21	1Q11	07J101514
2/10/2011 14:06	677	0.64	-117.7	7.93	18		21	1Q11	07J101514
2/10/2011 14:08	680	0.61	-117.5	7.93	17.9		21	1Q11	07J101514
2/10/2011 14:10	677	0.61	-119.4	7.93	17.9		21	1Q11	07J101514
2/10/2011 14:12	684	0.72	-117.5	7.92	18.2		21	1Q11	07J101514
2/10/2011 14:14	678	0.68	-119.8	7.93	18.1		21	1Q11	07J101514
2/10/2011 14:16	678	0.7	-118.8	7.93	18		21	1Q11	07J101514
2/10/2011 14:18	678	0.74	-118.2	7.93	17.9		21	1Q11	07J101514
2/10/2011 14:20	674	0.68	-118.6	7.93	17.8		21	1Q11	07J101514
2/10/2011 14:22	677	0.85	-116.9	7.93	18		21	1Q11	07J101514
2/10/2011 14:24	673	0.77	-118.6	7.93	18		21	1Q11	07J101514
2/10/2011 14:26	675	0.75	-118.9	7.92	17.9		21	1Q11	07J101514
2/10/2011 14:28	673	0.68	-120.4	7.93	18		21	1Q11	07J101514
2/10/2011 14:30	675	0.76	-118.3	7.93	17.9		21	1Q11	07J101514
2/10/2011 14:32	674	0.78	-119.1	7.94	18		21	1Q11	07J101514
2/10/2011 14:34	669	0.74	-119.4	7.9	18		21	1Q11	07J101514
2/10/2011 14:36	684	0.76	-115.7	7.92	18.2		21	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/10/2011 14:38	671	0.77	-117.7	7.93	18.1		21	1Q11	07J101514
2/10/2011 14:40	679	0.78	-116.2	7.92	18		21	1Q11	07J101514
2/10/2011 14:42	675	0.82	-118.2	7.93	18		21	1Q11	07J101514
2/10/2011 14:44	672	0.79	-116.9	7.93	18		21	1Q11	07J101514
2/10/2011 14:46	665	0.69	-121.4	7.93	18	Sample at 14:48	21	1Q11	07J101514

DO NOT USE - Data logged after flow through instrument stopped during sample collection

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: KAFB 106
Weather: Sunny, Breezy
Field Crew: AT, RB, ML
Review Signature: [signature]

Well ID No.: KAFB-10622
Date: 2/9/2011
Time: 0900
Crew Signature: [signature]
Date Review: 2/9/2011

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark (Yes) - No

Notes: Need modification for dedicated pump, was not able to get water level because probe was getting hung up. Measurements are from Jan 2011 monthly water level measurements.

CALCULATIONS

(A) Depth to Well Bottom	492	ft
(B) Pre-Purge Depth to Water	464.16	ft
(C) Water Column Height (A-B)	27.84	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	18.09	gal
(F) Depth to Top of Screen	462	ft
(G) Depth to Bottom of Screen	487	ft
(H) Saturated Filter Pack Length (G –F, or (B))	~~25~~ 28	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	~~80~~ 27.4	gal
(K) Min Purge Volume (E + J)	~~48.09~~ 45.5	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI	2431	
Turbidity Meter Hach 2100	2821	
Pump Portable Bennett pump		
Field Alkalinity LAMotte Model DR-4	3467	

PURGING INFORMATION

Description first water purged: NOT Measured - see note

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1023	0	464.16	17.4	7.73	.409	3.30	180.9	.50	.5 g/m
1032	5	464.16	17.6	7.78	.408	1.22	74.8	.500	
1043	15	464.16	17.7	7.80	.408	.92	-55.6	.34	
1052	20	464.16	17.7	7.82	.409	.90	-86.8	.33	
1113	30	464.16	17.9	7.82	.410	.92	-102.5	.52	
1133	40	464.16	17.9	7.83	.410	1.03	-102.8	.53	
1143	45	464.16	17.8	7.83	.410	.97	-104.2	.29	
1148	48	464.16	18.0	7.83	.410	1.03	-104.8	.24	

Alkalinity: 152 mg/l as $CaCO_3$

140705

Shaw Environmental, Inc.

KAFB-10622
2-9-2011

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1148	48	464.16	18.0	7.83	0.410	1.03	-104.8	0.24	

Field Alkalinity Result 152 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/9/2011 10:22	409.5	4.47	189.2	7.63	16.7	Start Purge 10:23	22	1Q11	07J101514
2/9/2011 10:24	408.9	2.83	178.1	7.76	17.4		22	1Q11	07J101514
2/9/2011 10:26	408.5	2.02	170.5	7.77	17.2		22	1Q11	07J101514
2/9/2011 10:28	408.3	1.51	156.2	7.78	17.4		22	1Q11	07J101514
2/9/2011 10:30	408.4	1.26	122.6	7.78	17.6		22	1Q11	07J101514
2/9/2011 10:32	408.1	1.28	72.8	7.78	17.4		22	1Q11	07J101514
2/9/2011 10:34	408.2	1.15	40.1	7.79	17.5		22	1Q11	07J101514
2/9/2011 10:36	408.2	1.06	14.4	7.8	17.6		22	1Q11	07J101514
2/9/2011 10:38	408.3	1.01	-11.4	7.8	17.5		22	1Q11	07J101514
2/9/2011 10:40	408.4	1	-34.1	7.8	17.7		22	1Q11	07J101514
2/9/2011 10:42	408.1	0.96	-47.7	7.81	17.6		22	1Q11	07J101514
2/9/2011 10:44	408.4	1.08	-57.8	7.81	17.7		22	1Q11	07J101514
2/9/2011 10:46	408.3	0.92	-70	7.81	17.7		22	1Q11	07J101514
2/9/2011 10:48	408.8	0.97	-76.9	7.81	17.7		22	1Q11	07J101514
2/9/2011 10:50	409.3	0.93	-79.5	7.81	17.6		22	1Q11	07J101514
2/9/2011 10:52	409.5	0.92	-86.3	7.82	17.8		22	1Q11	07J101514
2/9/2011 10:54	409.7	0.93	-86.7	7.82	17.8		22	1Q11	07J101514
2/9/2011 10:56	409.7	0.94	-89.7	7.82	17.7		22	1Q11	07J101514
2/9/2011 10:58	409.8	0.86	-95.5	7.82	17.9		22	1Q11	07J101514
2/9/2011 11:00	409.9	0.87	-94.1	7.82	17.9		22	1Q11	07J101514
2/9/2011 11:02	409.5	0.9	-97.4	7.83	18		22	1Q11	07J101514
2/9/2011 11:04	410	0.83	-100	7.83	17.8		22	1Q11	07J101514
2/9/2011 11:06	410	0.84	-100.2	7.83	17.9		22	1Q11	07J101514
2/9/2011 11:08	410.1	0.87	-98.7	7.83	17.9		22	1Q11	07J101514
2/9/2011 11:10	409.8	0.95	-101.1	7.83	17.9		22	1Q11	07J101514
2/9/2011 11:12	410.3	0.89	-102.8	7.83	17.9		22	1Q11	07J101514
2/9/2011 11:14	410	0.94	-103.5	7.83	17.8		22	1Q11	07J101514
2/9/2011 11:16	410	0.98	-100	7.82	17.8		22	1Q11	07J101514
2/9/2011 11:18	409.6	0.97	-101.2	7.83	17.8		22	1Q11	07J101514
2/9/2011 11:20	409.9	1.02	-101.2	7.83	17.9		22	1Q11	07J101514
2/9/2011 11:22	410.2	1.05	-102.1	7.83	18		22	1Q11	07J101514
2/9/2011 11:24	410	0.98	-104.7	7.84	18		22	1Q11	07J101514
2/9/2011 11:26	410.6	0.97	-103.7	7.83	17.9		22	1Q11	07J101514
2/9/2011 11:28	410.8	1.1	-100.7	7.82	18		22	1Q11	07J101514
2/9/2011 11:30	410.1	0.92	-104.3	7.84	17.9		22	1Q11	07J101514
2/9/2011 11:32	410.3	0.98	-103.4	7.83	17.8		22	1Q11	07J101514
2/9/2011 11:34	409.8	1.01	-102.8	7.83	17.9		22	1Q11	07J101514
2/9/2011 11:36	409.9	1.02	-106	7.84	17.9		22	1Q11	07J101514
2/9/2011 11:38	409.7	0.97	-102.9	7.84	17.9		22	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/9/2011 11:40	410	1.09	-100.3	7.82	17.6		22	1Q11	07J101514
2/9/2011 11:42	409.7	1.03	-102.2	7.83	17.8		22	1Q11	07J101514
2/9/2011 11:44	409.8	1.05	-104.2	7.84	17.8		22	1Q11	07J101514
2/9/2011 11:46	409.2	0.96	-105.2	7.84	17.9		22	1Q11	07J101514
2/9/2011 11:48	408.7	0.9	-104.9	7.83	17.8	Sample at 11:48	22	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Site / SWMU No.: 106
Weather: Sunny, partly cloudy
Field Crew: RB, DR, ML, AT
Review Signature: Mark Ryan

Well ID No.: 10623 KAFB
Date: 2/8/2011
Time: 0940
Crew Signature: [signature]
Date Review: 2/8/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes:
Well head needs modification for dedicated pump. Pump set @ appx 483' ≈ center of the screen.

CALCULATIONS

(A) Depth to Well Bottom	503	ft
(B) Pre-Purge Depth to Water	473.61	ft
(C) Water Column Height (A-B)	29.39	ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	19.10	gal
(F) Depth to Top of Screen	473	ft
(G) Depth to Bottom of Screen	498	ft
(H) Saturated Filter Pack Length (G –F, or B)	25.0	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	30.0	gal
(K) Min Purge Volume (E + J)	49.1	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI	2431	
Turbidity Meter: HACH 2100P	2821	
Pump: Bennett portable		
Field Alkalinity: LAMOTTE Model DR-A	3467	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10:34	0	473.61	18.1	9.19	.354	6.47	173	.47	.5gpm
10 42	5	473.59	18.4	9.24	.356	5.73	166	.34	
10 54	10	473.59	18.4	9.26	.354	5.72	159	.61	
11 11	20	473.58	18.4	9.24	.353	5.87	146	.31	
11 30	30	473.58	18.5	9.24	.353	5.65	134	.39	
11 48	40	473.57	18.5	9.24	.353	5.66	131	.32	
11 58	45	473.56	18.4	9.24	.353	5.70	130	.57	
12 01	47	473.56	18.4	9.24	.352	5.63	130	.19	
12 04	49	473.56	18.4	9.23	.352	5.55	130	.56	
Totals	49	473.56	18.4	9.23	.352	5.55	130	.56	

Alkalinity = 120 mg/l as $CaCO_3$

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KAFB-10623
2/8/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1204	49	473.56	18.4	9.23	0.352	5.55	130	0.56	

Field Alkalinity Result 120 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/8/2011 10:35	356.3	6.81	172.9	9.23	18.2	Start Purge 10:34	23	1Q11	07J101514
2/8/2011 10:37	356.4	6.26	171.2	9.24	18.3		23	1Q11	07J101514
2/8/2011 10:39	356.1	6.11	169.7	9.25	18.4		23	1Q11	07J101514
2/8/2011 10:41	356.2	5.98	168.2	9.25	18.4		23	1Q11	07J101514
2/8/2011 10:43	355.8	6	166.3	9.26	18.4		23	1Q11	07J101514
2/8/2011 10:45	355.2	6.1	164.9	9.24	18.4		23	1Q11	07J101514
2/8/2011 10:47	355	5.84	165.2	9.24	18.3		23	1Q11	07J101514
2/8/2011 10:49	354.5	5.69	163.6	9.25	18.4		23	1Q11	07J101514
2/8/2011 10:51	353.7	5.88	162.1	9.25	18.4		23	1Q11	07J101514
2/8/2011 10:53	354.4	5.83	161.2	9.26	18.4		23	1Q11	07J101514
2/8/2011 10:55	354.3	5.61	159.9	9.28	18.3		23	1Q11	07J101514
2/8/2011 10:57	354	5.63	158.7	9.24	18.4		23	1Q11	07J101514
2/8/2011 10:59	353.4	5.77	157.7	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:01	352.7	5.59	155.5	9.25	18.4		23	1Q11	07J101514
2/8/2011 11:03	352.8	5.87	152.9	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:05	353.2	5.69	151.9	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:07	353.7	5.88	149.7	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:09	353.2	5.72	148.2	9.23	18.4		23	1Q11	07J101514
2/8/2011 11:11	353.6	5.71	147	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:13	352.8	5.77	145.4	9.24	18.5		23	1Q11	07J101514
2/8/2011 11:15	353.5	5.55	144.2	9.24	18.5		23	1Q11	07J101514
2/8/2011 11:17	353.7	5.78	143.2	9.24	18.5		23	1Q11	07J101514
2/8/2011 11:19	353.9	5.89	141.2	9.23	18.5		23	1Q11	07J101514
2/8/2011 11:21	353.4	5.82	139.5	9.24	18.5		23	1Q11	07J101514
2/8/2011 11:23	353.4	5.76	138.3	9.25	18.5		23	1Q11	07J101514
2/8/2011 11:25	353.3	5.86	137.5	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:27	353.2	5.53	136.7	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:29	352.6	5.74	136	9.24	18.5		23	1Q11	07J101514
2/8/2011 11:31	353.3	5.56	134.5	9.25	18.5		23	1Q11	07J101514
2/8/2011 11:33	352.7	5.55	134.2	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:35	353.2	5.8	134.1	9.23	18.4		23	1Q11	07J101514
2/8/2011 11:37	353.7	5.73	133.6	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:39	353.1	5.68	132.4	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:41	353	5.88	132.7	9.23	18.4		23	1Q11	07J101514
2/8/2011 11:43	352.9	5.5	132.5	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:45	352.8	5.96	132.1	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:47	352.7	5.46	131.3	9.23	18.5		23	1Q11	07J101514
2/8/2011 11:49	353.2	5.5	131.5	9.23	18.5		23	1Q11	07J101514
2/8/2011 11:51	352.4	5.85	130.8	9.23	18.4		23	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/8/2011 11:53	352.3	5.84	130.4	9.24	18.4		23	1Q11	07J101514
2/8/2011 11:55	353.1	5.83	130.2	9.24	18.5		23	1Q11	07J101514
2/8/2011 11:57	353.3	5.91	130.7	9.23	18.4		23	1Q11	07J101514
2/8/2011 11:59	351.7	5.58	130.8	9.24	18.4		23	1Q11	07J101514
2/8/2011 12:01	352.1	5.71	130.6	9.23	18.4		23	1Q11	07J101514
2/8/2011 12:03	352.1	5.6	130.4	9.23	18.4		23	1Q11	07J101514
2/8/2011 12:05	352.3	5.56	130.7	9.24	18.4	Sample at 12:04	23	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: 106
Weather: Sunny, Breezy
Field Crew: AT, RB, MC
Review Signature: Mark Jones

Well ID No.: KAFB - 10624
Date: 2/10/11
Time: 0820
Crew Signature: [signature]
Date Review: 2/10/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: Yes - (No)
Well ID Mark: Yes (No)

Notes: Needs to be modified for dedicated pump. pump set approx @ 496.61

CALCULATIONS

(A) Depth to Well Bottom	511.50	ft
(B) Pre-Purge Depth to Water	486.61	ft
(C) Water Column Height (A-B)	24.89	ft
(D) Casing Factor: 4"=(0.65) 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	16.17	gal
(F) Depth to Top of Screen	481	ft
(G) Depth to Bottom of Screen	506	ft
(H) Saturated Filter Pack Length (G –F, or (B))	19.39	ft
(I) Casing/Borehole Factor 4/10 = (1.2), 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	23.26	gal
(K) Min Purge Volume (E + J)	42.65	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI	2431	
Turbidity Meter Hach 2100P	2821	
Pump Portable Bennett pump		
Field Alkalinity LaMotte DEM	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0918	0	486.61	16.4	7.49	.82	4.25	235.4	1.89	.5 gl/m
0928	5	486.61	18.2	7.59	.82	2.48	179.1	1.24	
0939	10	486.61	18.3	7.59	.80	2.19	66.0	1.46	
0953	20	486.61	18.3	7.62	.76	2.14	-33.7	1.29	
1013	30	486.61	18.3	7.63	.73	2.03	-61.7	.69	
1023	35	486.62	18.4	7.67	.72	2.04	-67.3	.65	
10.33	40	486.62	18.4	7.66	.70	2.03	-74.5	.52	
10.34	41	486.62	18.4	7.64	.71	2.02	-74.5	.65	
10.35	42-43	486.62	18.5	7.66	.71	2.01	-75.3	.65	

Alkalinity : 185 mg/L as $CaCO_3$

140705

Shaw Environmental, Inc.

KAFB-10624
2/10/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
~~10:35~~									
Values Prior to Sampling									
10:35	43	486.62	18.5	7.66	0.71	2.01	-75.3	0.65	

Field Alkalinity Result 185 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/10/2011 9:20	823	3.37	225.1	7.57	17.9	Start Purge 9:18	24	1Q11	07J101514
2/10/2011 9:22	824	2.7	214.6	7.6	18.2		24	1Q11	07J101514
2/10/2011 9:24	823	2.56	203.8	7.6	18.3		24	1Q11	07J101514
2/10/2011 9:26	823	2.67	193.1	7.59	18.2		24	1Q11	07J101514
2/10/2011 9:28	821	2.45	180.5	7.6	18.2		24	1Q11	07J101514
2/10/2011 9:30	820	2.49	164.2	7.6	18.1		24	1Q11	07J101514
2/10/2011 9:32	818	2.5	149.4	7.61	18.3		24	1Q11	07J101514
2/10/2011 9:34	813	2.4	131	7.6	18.1		24	1Q11	07J101514
2/10/2011 9:36	808	2.26	107.5	7.62	18.3		24	1Q11	07J101514
2/10/2011 9:38	802	2.2	82.3	7.61	18.2		24	1Q11	07J101514
2/10/2011 9:40	797	2.1	50.2	7.6	18.2		24	1Q11	07J101514
2/10/2011 9:42	789	2.03	24.7	7.63	18.4		24	1Q11	07J101514
2/10/2011 9:44	784	2.1	6	7.64	18.4		24	1Q11	07J101514
2/10/2011 9:46	780	2.17	-2.9	7.62	18.2		24	1Q11	07J101514
2/10/2011 9:48	776	1.82	-11.7	7.61	18.3		24	1Q11	07J101514
2/10/2011 9:50	767	1.86	-21.4	7.62	18.3		24	1Q11	07J101514
2/10/2011 9:52	762	1.77	-27.8	7.62	18.3		24	1Q11	07J101514
2/10/2011 9:54	762	2.2	-34.2	7.61	18.3		24	1Q11	07J101514
2/10/2011 9:56	757	2.21	-39.4	7.62	18.4		24	1Q11	07J101514
2/10/2011 9:58	754	2.22	-43.1	7.62	18.3		24	1Q11	07J101514
2/10/2011 10:00	746	2.12	-46.3	7.63	18.3		24	1Q11	07J101514
2/10/2011 10:02	742	2.35	-49.3	7.64	18.4		24	1Q11	07J101514
2/10/2011 10:04	740	2.13	-52.2	7.64	18.4		24	1Q11	07J101514
2/10/2011 10:06	735	2.03	-56	7.64	18.3		24	1Q11	07J101514
2/10/2011 10:08	741	1.91	-55.8	7.64	18.4		24	1Q11	07J101514
2/10/2011 10:10	732	1.98	-59.6	7.65	18.3		24	1Q11	07J101514
2/10/2011 10:12	725	2.15	-61.1	7.64	18.3		24	1Q11	07J101514
2/10/2011 10:14	726	1.98	-62	7.64	18.3		24	1Q11	07J101514
2/10/2011 10:16	723	2.12	-64.2	7.62	18.4		24	1Q11	07J101514
2/10/2011 10:18	722	2.03	-65.3	7.63	18.3		24	1Q11	07J101514
2/10/2011 10:20	720	2.04	-66.6	7.64	18.5		24	1Q11	07J101514
2/10/2011 10:22	714	1.95	-67.2	7.63	18.4		24	1Q11	07J101514
2/10/2011 10:24	713	1.95	-69.3	7.62	18.4		24	1Q11	07J101514
2/10/2011 10:26	708	1.88	-70.7	7.64	18.4		24	1Q11	07J101514
2/10/2011 10:28	709	2.02	-71.5	7.64	18.4		24	1Q11	07J101514
2/10/2011 10:30	716	1.89	-71.6	7.65	18.4		24	1Q11	07J101514
2/10/2011 10:32	700	1.94	-73.8	7.68	18.4		24	1Q11	07J101514
2/10/2011 10:34	711	1.93	-74.4	7.63	18.4		24	1Q11	07J101514
2/10/2011 10:36	707	1.98	-75.9	7.66	18.5	Sample at 10:35	24	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: KAFB - 106
Weather: cloudy, windy
Field Crew: RB, AT, DR
Review Signature: Mark Ryan

Well ID No.: KAFB - 10625
Date: 2/8/2011
Time: ~~2/8/2011~~ AT 14:22
Crew Signature:
Date Review: 2/9/2011

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: Yes (No)

Notes: Well needs to be modified for dedicated sample pump

CALCULATIONS

(A) Depth to Well Bottom	495	ft
(B) Pre-Purge Depth to Water	463.25	ft
(C) Water Column Height (A-B)	31.75	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	20.63	gal
(F) Depth to Top of Screen	465	ft
(G) Depth to Bottom of Screen	490	ft
(H) Saturated Filter Pack Length (G -F, or B)	25.0	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	30.0	gal
(K) Min Purge Volume (E + J)	50.63	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI	2531	
Turbidity Meter HACH 2100P	2821	
Pump Portable Bennett pump		
Field Alkalinity LAMOTTE model DR-A	3467	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1425	0	463.25	17.8	9.16	.387	7.76	157.6	.28	.5 gpm
1437	5	463.31	17.9	9.18	.386	8.02	144.9	.38	
1447	10	463.31	17.9	9.17	.387	8.24	141.2	.43	
1505	20	463.31	17.9	9.17	.385	7.83	136.5	.62	
1526	30	463.32	17.9	9.17	.388	7.88	134.9	.29	
1546	40	463.35	17.7	9.18	.385	7.69	133.0	.44	
1554	45	463.35	17.8	9.17	.386	7.49	132.0	.66	
1606	50	463.36	17.7	9.17	.384	7.23	131.6	.62	
1608	51	463.36	17.7	9.16	.385	7.29	132.1	.51	

Alkalinity 125 mg/l as $CaCO_3$

140705

Shaw Environmental, Inc.

KAFB-10625
2/8/2011

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1608									
Values Prior to Sampling									
1608	51	463.36	17.7	9.18	.385	7.29	132.1	0.51	

Field Alkalinity Result 125 mg/L as CaCO3

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/8/2011 14:28	386.8	7.85	158.5	9.16	17.8	Start purge 14:25	25	1Q11	07J101514
2/8/2011 14:30	386.6	7.96	153.7	9.17	17.8		25	1Q11	07J101514
2/8/2011 14:32	386.2	8.01	151	9.17	17.6		25	1Q11	07J101514
2/8/2011 14:34	386.3	7.9	147	9.23	17.9		25	1Q11	07J101514
2/8/2011 14:36	386.4	7.92	146.3	9.17	17.9		25	1Q11	07J101514
2/8/2011 14:38	386.2	8.03	144.3	9.17	17.8		25	1Q11	07J101514
2/8/2011 14:40	386.5	8.11	143.8	9.17	17.8		25	1Q11	07J101514
2/8/2011 14:42	386.4	7.95	142.5	9.17	17.9		25	1Q11	07J101514
2/8/2011 14:44	386.3	7.82	141.6	9.17	17.9		25	1Q11	07J101514
2/8/2011 14:46	386.7	8.19	141.5	9.17	17.9		25	1Q11	07J101514
2/8/2011 14:48	387.6	8.2	141.4	9.17	17.8		25	1Q11	07J101514
2/8/2011 14:50	386	7.94	140.9	9.17	18		25	1Q11	07J101514
2/8/2011 14:52	386.6	8.16	140	9.17	18		25	1Q11	07J101514
2/8/2011 14:54	386.2	8.14	139.2	9.17	18		25	1Q11	07J101514
2/8/2011 14:56	386	8.14	138.8	9.17	17.8		25	1Q11	07J101514
2/8/2011 14:58	384.9	7.89	138.5	9.17	18		25	1Q11	07J101514
2/8/2011 15:00	382.8	8.06	137.8	9.18	17.9		25	1Q11	07J101514
2/8/2011 15:02	385.2	7.88	136.9	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:04	385	8	136.5	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:06	385.3	7.92	136.2	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:08	385.7	7.74	136	9.17	18		25	1Q11	07J101514
2/8/2011 15:10	386	7.67	134.9	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:12	385.8	7.7	134.2	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:14	387.7	7.64	134.1	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:16	387.6	8.09	134.3	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:18	387.4	8.08	134.5	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:20	386.5	7.85	135	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:22	387.3	7.97	134.8	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:24	387.7	7.71	135.2	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:26	388.6	7.9	135	9.16	17.8		25	1Q11	07J101514
2/8/2011 15:28	387.3	7.75	135.2	9.17	17.9		25	1Q11	07J101514
2/8/2011 15:30	386	7.74	134.8	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:32	386.8	7.92	134.1	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:34	386.7	7.98	134.2	9.17	17.6		25	1Q11	07J101514
2/8/2011 15:36	386.9	7.97	134.6	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:38	387.4	7.68	134	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:40	387.5	7.76	133.5	9.17	17.6		25	1Q11	07J101514
2/8/2011 15:42	387.1	7.66	133.1	9.17	17.7		25	1Q11	07J101514
2/8/2011 15:44	386.2	7.51	133.5	9.17	17.7		25	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/8/2011 15:46	384.6	7.73	132.9	9.18	17.7		25	1Q11	07J101514
2/8/2011 15:48	385.5	7.55	132.1	9.18	17.8		25	1Q11	07J101514
2/8/2011 15:50	385.4	7.31	130.5	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:52	385.3	7.45	128.6	9.19	17.9		25	1Q11	07J101514
2/8/2011 15:54	385.7	7.17	130	9.18	18		25	1Q11	07J101514
2/8/2011 15:56	385.7	7.21	130	9.17	17.8		25	1Q11	07J101514
2/8/2011 15:58	386.6	7.35	131.9	9.17	17.9		25	1Q11	07J101514
2/8/2011 16:00	386.8	7.01	130.9	9.17	17.8		25	1Q11	07J101514
2/8/2011 16:02	386.1	7	131.1	9.17	17.9		25	1Q11	07J101514
2/8/2011 16:04	386.7	7.25	130.5	9.18	17.5		25	1Q11	07J101514
2/8/2011 16:06	386.2	7.23	130.5	9.18	16.9		25	1Q11	07J101514
2/8/2011 16:08	383.5	7.3	131.9	9.17	17.7	Sample at 16:08	25	1Q11	07J101514

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB 10626
Site / SWMU No.: KAFB 106
Date: 2/7/11
Weather: Sunny lt brz, low 40s
Time: 1320
Field Crew: AT, RB, ML
Crew Signature:
Review Signature: Mark Lyon
Date Review: 2/7/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged - **Locked:** Yes - No **Well ID Mark:** Yes - No

Notes: Set pump @ 475'. Modifications to the well vault/T.O.C. required for dedicated pump.

CALCULATIONS

(A) Depth to Well Bottom	491.00 ft
(B) Pre-Purge Depth to Water	469.92 ft
(C) Water Column Height (A-B)	21.08 ft
(D) Casing Factor 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	13.70 gal
(F) Depth to Top of Screen	466. ft
(G) Depth to Bottom of Screen	486. ft
(H) Saturated Filter Pack Length (G –F, or B)	16.00 ~~20.00~~ ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2 ~~24.00~~

(J) Filter Pack Volume (H x I)	19.2 ~~24.00~~ gal
(K) Min Purge Volume (E + J)	32.9 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI	2431
Turbidity Meter HACH 2100P	2821
Pump Portable Bennett Pump	
Field Alkalinity LaMotte model DR-A	34467

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1405	0	469.92	16.7	7.88	.70	8.49	121.2	n/m	.48 gpm
1415	5	469.90	18.3	7.80	.70	8.56	101.0	.43	
1424	10	469.95	18.2	7.80	.70	8.23	85.4	.43	
1437	15	469.97	18.3	7.80	.69	8.29	69.8	.27	
1447	20	469.95	18.3	7.80	.70	7.86	57.7	.30	
1458	25	469.95	18.3	7.80	.70	8.32	72.7	.27	
1508	30	469.95	18.3	7.80	.70	8.05	67.3	.34	
1514	33	469.95	18.3	7.80	.70	8.37	67.0	.26	

Alkalinity - 100 mg/l as $CaCO_3$

140705

KAFB-10626
2/7/2011

Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1514	33	469.95	18.3	7.80	0.70	8.37	67.0	0.26	

Field Alkalinity Result 100 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/7/2011 14:06	700	8.69	117.8	7.81	17.9	Start Purge 14:05	26	1Q11	07J101514
2/7/2011 14:08	700	8.75	113.2	7.8	18.2		26	1Q11	07J101514
2/7/2011 14:10	699	8.82	110.3	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:12	699	8.41	106.4	7.8	18.4		26	1Q11	07J101514
2/7/2011 14:14	698	8.68	101.2	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:16	698	8.21	99.9	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:18	698	8.21	101	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:20	697	8.45	98.6	7.8	18.2		26	1Q11	07J101514
2/7/2011 14:22	696	8.61	97.4	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:24	696	8.47	97.4	7.8	18.1		26	1Q11	07J101514
2/7/2011 14:26	696	7.98	96.1	7.8	18.2		26	1Q11	07J101514
2/7/2011 14:28	696	8.29	94.9	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:30	696	8.27	92.2	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:32	695	7.97	84.5	7.8	18.4		26	1Q11	07J101514
2/7/2011 14:34	695	8.5	78.3	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:36	694	8.47	72.1	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:38	697	8.33	69.6	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:40	695	8.37	67	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:42	696	8.21	61.8	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:44	694	8.08	58.5	7.8	18.4		26	1Q11	07J101514
2/7/2011 14:46	696	8.39	56.4	7.8	18.4		26	1Q11	07J101514
2/7/2011 14:48	697	8.26	57.8	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:50	695	8	57.4	7.8	18.3		26	1Q11	07J101514
2/7/2011 14:52	695	8.21	53.5	7.79	18.2		26	1Q11	07J101514
2/7/2011 14:54	695	8.48	49.8	7.8	18.2		26	1Q11	07J101514
2/7/2011 14:56	695	8.19	62.9	7.79	18.3		26	1Q11	07J101514
2/7/2011 14:58	695	8.2	71.7	7.8	18.3		26	1Q11	07J101514
2/7/2011 15:00	696	7.69	76.2	7.8	18.4		26	1Q11	07J101514
2/7/2011 15:02	695	8.39	78.7	7.8	18.3		26	1Q11	07J101514
2/7/2011 15:04	695	7.85	80.5	7.8	18.4		26	1Q11	07J101514
2/7/2011 15:06	696	7.9	72.8	7.81	18.3		26	1Q11	07J101514
2/7/2011 15:08	695	7.84	50.9	7.89	18.3		26	1Q11	07J101514
2/7/2011 15:10	696	7.84	51.3	7.79	18.4		26	1Q11	07J101514
2/7/2011 15:12	696	7.83	64	7.85	18.3		26	1Q11	07J101514
2/7/2011 15:14	696	8.32	71.1	7.8	18.3	Sample at 15:14	26	1Q11	07J101514

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-10627
Site / SWMU No.: 106
Date: 2/9/11
Weather: Sunny
Time: 1318
Field Crew: AT, RB, DR, ML
Crew Signature: [signature]
Review Signature: Mark Ryan
Date Review: 2/9/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	506	ft
(B) Pre-Purge Depth to Water	490.58	ft
(C) Water Column Height (A-B)	15.42	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	10.02	gal
(F) Depth to Top of Screen	at ~~480~~ 481	ft
(G) Depth to Bottom of Screen	at ~~500~~ 490.58	ft
(H) Saturated Filter Pack Length (G –F, or B)	10.42 at ~~20.0~~	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	12.5	gal
(K) Min Purge Volume (E + J)	22.5	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI 2431	2431	
Turbidity Meter Hach 2100	2821	
Pump Portable Bennett pump		
Field Alkalinity CAMLOTTE Model DEA	3467	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1410	0	490.58	17.5	7.78	.379	6.52	137.3	.24	.5 gl/m
1420	5	490.60	17.8	7.87	.372	5.84	123.7	.39	
1441	~~10~~ 15	490.61	18.2	7.88	.367	5.49	108.0	.28	
1448	~~15~~ 20	490.61	18.0	7.88	.365	5.44	107.5	.38	
1450	21	490.61	18.1	7.88	.362	5.35	107.2	.32	
1452	22	490.61	18.1	7.89	.366	5.44	107.6	.65	

Alkalinity 138 mg/L as $CaCO_3$

140705

KAFB-10627

2/9/11

Shaw Environmental, Inc.

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1452	22	490.61	18.1	7.89	0.366	5.44	107.6	0.65	

Field Alkalinity Result 138 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/9/2011 14:12	378.5	6.22	134.5	7.83	17.9	Start Purge 14:10	27	1Q11	07J101514
2/9/2011 14:14	377.9	5.55	130.3	7.87	18.1		27	1Q11	07J101514
2/9/2011 14:16	373.4	5.5	127.7	7.87	18		27	1Q11	07J101514
2/9/2011 14:18	374.3	5.45	125.9	7.87	18		27	1Q11	07J101514
2/9/2011 14:20	372.9	5.52	124.4	7.86	17.9		27	1Q11	07J101514
2/9/2011 14:22	371.6	5.49	123.3	7.87	18		27	1Q11	07J101514
2/9/2011 14:24	368.3	5.44	121.8	7.88	18.1		27	1Q11	07J101514
2/9/2011 14:26	368.5	5.45	120.3	7.87	18		27	1Q11	07J101514
2/9/2011 14:28	371.7	5.33	118.6	7.88	18.1		27	1Q11	07J101514
2/9/2011 14:30	368.6	5.35	116.1	7.87	18.1		27	1Q11	07J101514
2/9/2011 14:32	363.8	5.54	114.1	7.88	18.1		27	1Q11	07J101514
2/9/2011 14:34	369.3	5.42	113.1	7.87	18.1		27	1Q11	07J101514
2/9/2011 14:36	369.4	5.39	111.6	7.88	18.1		27	1Q11	07J101514
2/9/2011 14:38	372.7	5.42	111	7.87	18.2		27	1Q11	07J101514
2/9/2011 14:40	367.4	5.37	109.7	7.88	18.2		27	1Q11	07J101514
2/9/2011 14:42	369.2	5.42	108.6	7.87	18.1		27	1Q11	07J101514
2/9/2011 14:44	366.3	5.25	108.1	7.88	18.2		27	1Q11	07J101514
2/9/2011 14:46	367.8	5.42	107.4	7.88	18		27	1Q11	07J101514
2/9/2011 14:48	368.9	5.35	107.6	7.88	18		27	1Q11	07J101514
2/9/2011 14:50	363.2	5.28	107.3	7.88	18		27	1Q11	07J101514
2/9/2011 14:52	367.6	5.3	107.5	7.87	18.1	Sample 14:52	27	1Q11	07J101514

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Site / SWMU No.: 106
Weather: Sunny, lt brz, 60s
Field Crew: RB, AT, DR
Review Signature: Mark Lyn

Well ID No.: KAFB 10628
Date: 2/16/11
Time: 1245
Crew Signature: [illegible]
Date Review: 2/16/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes: Pump set @ 503'

CALCULATIONS

(A) Depth to Well Bottom	516	ft
(B) Pre-Purge Depth to Water	492.51	ft
(C) Water Column Height (A-B)	23.49	ft
(D) Casing Factor: 4"=0.65 6"=1.02	.65	
(E) One Well Casing Volume (C x D):	15.26	gal
(F) Depth to Top of Screen	491	ft
(G) Depth to Bottom of Screen	511	ft
(H) Saturated Filter Pack Length (G –F, or (B))	18.49	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 6/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	22.18	gal
(K) Min Purge Volume (E + J)	37.44	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ Troll 9500	67992	
Turbidity Meter: Hach 2100P	2821	
Pump: Bennett Portable		
Field Alkalinity: LaMotte DRA	2467	

PURGING INFORMATION

Description first water purged: Clear - lt odor

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/15/11 1342	0	492.51	17.57	7.59	401.2	2.04	-44	5.10	
1354	5	492.55	18.28	7.57	399.1	.09	-70	7.31	
1405	10	492.58	18.26	7.56	397.0	.13	-79	6.95	
1414	15	492.56	18.22	7.56	393.9	.32	-87	4.83	
1435	25	492.56	18.26	7.56	394.5	.52	-93	3.14	
1455	35	492.56	18.23	7.55	394.7	.59	-97	2.27	
1505	37	492.56	18.27	7.56	392.1	.73	-95	2.02	

140705

KAFB-10628

Shaw Environmental, Inc.

2/16/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1505	37	492.56	18.27	7.56	392.1	0.73	-0.95	2.02	

Field Alkalinity Result 146 mg/l as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

INSTRUCTIONS: This is the raw data export format from the Win-Situ® Low Flow Cell data file:KAFB--KAFB10628-2-16-2011.flo

Operator Name:	RB						
Company Name:	SHAW						
Project Name:	KAFB						
Site Name:							
Well ID:	KAFB10628						
pH Sensor:	Installed	Target Value	0	[pH]	Target Perc	0	[%]
ORP Sensor:	Installed	Target Value	0	[mV]	Target Perc	0	[%]
RDO Sensor:	Installed	Target Value	0	[mg/L]	Target Perc	0	[%]
Cond Sensor:	Installed	Target Value	0	[µS/cm @2	Target Perc	0	[%]
Turb Sensor:	Installed	Target Value	0	[NTU]	Target Perc	0	[%]

Pump Model/Type:	BENNETT	
Tubing Type:		
Tubing Diam:	0	[in]
Tubing Length:	0	[ft]
Well Depth:	516	[ft]
Well Diam:	4	[in]
Screen Len:	240	[in]
Screen Depth:	491	[ft]
Pump Inlet Depth:	0	[in]
Depth to Water:	492.51	[ft]
Pump Level (TOC):	497	[ft]
Final Pumping Rate:	0	[mL/min]
Stable Draw Down:	0	[in]
Total Volume Formula:	Volume = cup (725 mL) + tubing (0 mL) - pH_ORP (16 mL) - RDO (56 mL) - Cond (13 mL) - Turb (40 mL)	
Calculated Total Volume:	600	[mL]
Actual Total Volume:	600	[mL]
Calculated Measurement Interval:	18000	[sec]
Actual Measurement Interval:	120	[sec]
Start date/time:	2/16/2011	1:33:53 PM
End date/time:	2/16/2011	3:08:07 PM
Total Time:	1:34:14	

Reading #	pH [pH]	Variance	ORP [mV]	Variance	RDO [mg/L	Variance	Cond [µS/c	Variance	Turb [NTU]	Variance	Temp [C]	Variance	Time
4	7.56	0	-95.89	0.98	0.72	0.13	391.5	-3.15	677.69	218.57	18.24	0.01	14:59:01
3	7.56	0	-95.42	0.47	0.73	0.01	392.07	0.57	321.74	-355.96	18.27	0.03	15:01:04
2	7.56	0	-96.36	-0.94	0.78	0.04	389.52	-2.55	296.46	-25.27	18.25	-0.02	15:03:07
1	7.59	0.04	-94.22	2.14	1.53	0.76	391.58	2.07	33.47	-262.99	18.32	0.07	15:05:09
0	7.61	0.01	-91.35	2.87	1.55	0.01	391.61	0.03	18.66	-14.81	18.33	0.01	15:07:12

pH Min:	7.56
pH Max:	7.61

ORP Min:	-96.36
ORP Max:	-91.35
RDO Min:	0.72
RDO Max:	1.55
Cond Min:	389.52
Cond Max:	392.07
Turb Min:	18.66
Turb Max:	677.69
Temp Min:	18.24
Temp Max:	18.33

Notes:

Device Record:

In-Situ Inc.	Troll 9000 Profiler XP
Report generated:	2/23/2011 4:15:16 PM
Report from file:	...\KAFB--KAFB10628-2-16-2011.flo.bin
Win-Situ® Version	4.58.16.0
Serial number:	48808
Firmware Version	2.13
Unit name:	Troll 9000 mw-1
Test name:	LowFlow
Test defined on:	2/16/2011 1:33:53 PM
Test started on:	2/16/2011 1:33:53 PM
Test stopped on:	N/A N/A

Data gathered using Event testing

Time between data points:	0.000 Minutes.
Time between default storages:	(Minutes.
Monitoring data on channel [1]	
Data stored if delta value exceeds:	0 Celsius
Number of data samples:	47

TOTAL DATA SAMPLES 47

Channel number [1]

Measurement type:	Temperature
Channel name:	

Channel number [3]
Measurement type: Barometric Pressure
Channel name:

Channel number [4]
Measurement type: Turbidity
Channel name:

Channel number [5]
Measurement type: Battery Voltage
Channel name:

Channel number [11]
Measurement type: ORP
Channel name:

Channel number [12]
Measurement type: pH
Channel name:

Channel number [37]
Measurement type: Rugged Dissolved Oxygen
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [37]
Measurement type: RDO %Saturation
Channel name:
Fixed Salinity(psu): 0.00 psu

Channel number [45]
Measurement type: Conductivity, Low Range
Channel name:

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/16/2011	1:43:27 PM	9.5667	17.57	24.576	73.1	2.882	-44	7.59	2.04	26.1165	401.22	
2/16/2011	1:45:29 PM	11.6	18.43	24.574	165.5	2.882	-58	7.56	0.27	3.5719	398.73	
2/16/2011	1:47:32 PM	13.65	18.42	24.573	260.8	2.882	-63	7.56	0.16	2.1257	397.64	
2/16/2011	1:49:34 PM	15.6833	18.37	24.573	591.3	2.882	-66	7.57	0.12	1.5328	397.31	
2/16/2011	1:51:37 PM	17.7333	18.33	24.57	564	2.852	-67	7.57	0.1	1.346	398.69	
2/16/2011	1:53:39 PM	19.7667	18.28	24.569	459.7	2.852	-70	7.57	0.09	1.1807	399.14	
2/16/2011	1:55:42 PM	21.8167	18.28	24.568	185.9	2.882	-71	7.57	0.08	1.017	398.1	

Date	Time	ET (min)	Chan[1] Temperatu Celsius	Chan[3] Barometric Inches Hg	Chan[4] Turbidity NTU	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[37] Rugged DO milligrams/	Chan[37] Rugged DO %Saturatio	Chan[45] Conductivity microSiemens/cm	Specific Conductivity
2/16/2011	1:57:44 PM	23.85	18.25	24.569	243.8	2.852	-73	7.57	0.09	1.1256	398.04	
2/16/2011	1:59:47 PM	25.9	18.24	24.569	63	2.852	-75	7.57	0.1	1.3435	398.59	
2/16/2011	2:01:49 PM	27.9333	18.24	24.569	77.7	2.882	-76	7.57	0.14	1.7798	395.64	
2/16/2011	2:03:51 PM	29.9667	18.26	24.567	191.4	2.852	-79	7.56	0.13	1.737	396.96	
2/16/2011	2:05:54 PM	32.0167	18.24	24.568	300.5	2.852	-80	7.57	0.18	2.2821	396.36	
2/16/2011	2:07:56 PM	34.05	18.26	24.567	170.9	2.882	-84	7.56	0.22	2.8613	395.35	
2/16/2011	2:09:58 PM	36.0833	18.26	24.567	234.9	2.882	-84	7.56	0.24	3.1343	394.93	
2/16/2011	2:12:01 PM	38.1333	18.25	24.564	456.4	2.882	-85	7.56	0.3	3.9637	394.45	
2/16/2011	2:14:03 PM	40.1667	18.22	24.564	1180.2	2.852	-87	7.56	0.32	4.1687	393.93	
2/16/2011	2:16:06 PM	42.2167	18.25	24.563	1330	2.882	-87	7.56	0.39	5.0549	393.56	
2/16/2011	2:18:08 PM	44.25	18.23	24.562	2090.7	2.852	-88	7.56	0.36	4.7043	393.99	
2/16/2011	2:20:11 PM	46.3	18.22	24.56	200.4	2.882	-89	7.56	0.36	4.616	393.91	
2/16/2011	2:22:14 PM	48.35	18.25	24.561	733.9	2.852	-89	7.56	0.47	6.0604	393.38	
2/16/2011	2:24:16 PM	50.3833	18.23	24.561	1869.3	2.852	-91	7.56	0.55	7.1157	391.74	
2/16/2011	2:26:19 PM	52.4333	18.24	24.559	129.2	2.852	-90	7.56	0.47	6.0925	394.31	
2/16/2011	2:28:22 PM	54.4833	18.23	24.558	588.3	2.882	-91	7.56	0.48	6.2988	394.01	
2/16/2011	2:30:25 PM	56.5333	18.25	24.557	605	2.852	-91	7.56	0.56	7.2296	393.35	
2/16/2011	2:32:27 PM	58.5667	18.26	24.556	2044	2.882	-93	7.56	0.52	6.7501	393.11	
2/16/2011	2:34:30 PM	60.6167	18.26	24.555	1250.9	2.852	-93	7.56	0.52	6.8266	394.5	
2/16/2011	2:36:32 PM	62.65	18.25	24.554	465.1	2.852	-95	7.56	0.59	7.623	393.64	
2/16/2011	2:38:35 PM	64.7	18.26	24.554	1269.2	2.852	-94	7.56	0.67	8.7828	391.7	
2/16/2011	2:40:37 PM	66.7333	18.26	24.554	185.3	2.852	-96	7.56	0.63	8.1811	392.5	
2/16/2011	2:42:40 PM	68.7833	18.25	24.555	159.2	2.852	-96	7.56	0.64	8.3548	392.19	
2/16/2011	2:44:42 PM	70.8167	18.24	24.553	372.2	2.882	-96	7.56	0.82	10.6792	386.33	
2/16/2011	2:46:45 PM	72.8667	18.26	24.551	2939.1	2.852	-95	7.56	0.65	8.5107	391.37	
2/16/2011	2:48:47 PM	74.9	18.25	24.549	499.1	2.882	-95	7.56	0.68	8.836	389.46	
2/16/2011	2:50:50 PM	76.95	18.24	24.548	418.8	2.882	-95	7.56	0.65	8.4745	392.42	
2/16/2011	2:52:52 PM	78.9833	18.23	24.547	167.4	2.852	-95	7.56	0.62	8.0044	394.13	
2/16/2011	2:54:55 PM	81.0333	18.24	24.544	821.4	2.882	-96	7.56	0.65	8.4868	393.83	
2/16/2011	2:56:57 PM	83.0667	18.23	24.545	459.1	2.852	-97	7.55	0.59	7.6772	394.65	
2/16/2011	2:59:01 PM	85.1333	18.24	24.542	677.7	2.852	-96	7.56	0.72	9.4169	391.5	
2/16/2011	3:01:04 PM	87.1833	18.27	24.541	321.7	2.852	-95	7.56	0.73	9.5217	392.07	
2/16/2011	3:03:07 PM	89.2333	18.25	24.542	296.5	2.852	-96	7.56	0.78	10.0968	389.52	
2/16/2011	3:05:09 PM	91.2667	18.32	24.541	33.5	2.882	-94	7.59	1.53	19.9793	391.58	

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB -10644
Site / SWMU No.: KAFB 106
Date: 2/4/11
Weather: Sunny - Cold - Breezy <200
Time: 09:30
Field Crew: RB, AT, ML
Crew Signature: [signature]
Review Signature:
Date Review:

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: Yes - (No)
Well ID Mark: (Yes) - No

Notes: Pump set approx top of screen 497-506 ft btoc - pump hung up would not go down further - measure w/ Bennett reel footage counter

CALCULATIONS

(A) Depth to Well Bottom	523.9	ft
(B) Pre-Purge Depth to Water	490.78	ft
(C) Water Column Height (A-B)	33.12	ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	33.78	gal
(F) Depth to Top of Screen	504.23	ft
(G) Depth to Bottom of Screen	519.23	ft
(H) Saturated Filter Pack Length (G –F, or B)	15.00	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,		

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	~~32~~ 49.83	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI PRO	2421	
Turbidity Meter HACH Turbidity	2821	
Pump Bennett Portable	1807-65	
Field Alkalinity La Motte DR-A	3467	

PURGING INFORMATION

Description first water purged: Cloudy - Clear @ 5gal

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/4/11 1110	0	490.78	16.9	7.68	.314	8.77	183.2	8.40	½gpm
1120	5	490.78	17.5	7.80	.310	9.23	180.2	6.42	
1131	10	490.78	17.4	7.80	.309	9.95	172.9	4.65	
1151	20	490.78	17.7	7.82	.304	10.73	158.5	2.63	
1212	30	490.78	17.3	7.84	.306	10.90	147.6	1.62	
1232	~~40~~ at 40	490.78	17.7	7.84	.304	11.66	137.1	1.39	
1255	50	490.78	17.2	7.85	.301	8.99	135.6	.92	

Values Prior to Sampling 50 490.78 17.2 7.85 .301 8.99 135.6 .92 .5/gal/min

Alkalinity - 105 mg/l as $CaCO_3$

140705

Shaw Environmental, Inc.

KAFB-106044
02-04-11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
	50								
Values Prior to Sampling									
1255	50	490.78	17.2	7.85	.301	8.99	135.6	0.92	

Field Alkalinity Result 105 mg/L as $CaCO_2$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/4/2011 11:11	313.3	9.11	184.5	7.74	17.5	Start purge 11:10	44	1Q11	07J101514
2/4/2011 11:13	312.1	9.04	184.6	7.78	17.5		44	1Q11	07J101514
2/4/2011 11:15	312	9.6	183.9	7.78	17.4		44	1Q11	07J101514
2/4/2011 11:17	310.1	9.81	182.5	7.78	17.6		44	1Q11	07J101514
2/4/2011 11:19	309.7	9.53	181.4	7.79	17.3		44	1Q11	07J101514
2/4/2011 11:21	309.2	9.36	180	7.81	17.5		44	1Q11	07J101514
2/4/2011 11:23	310.5	9.66	177.9	7.81	17.5		44	1Q11	07J101514
2/4/2011 11:25	309.7	9.98	176.8	7.81	17.5		44	1Q11	07J101514
2/4/2011 11:27	308.1	9.21	175.7	7.81	17.5		44	1Q11	07J101514
2/4/2011 11:29	310	9.83	173.9	7.81	17.5		44	1Q11	07J101514
2/4/2011 11:31	308.9	10.08	172.2	7.82	17.7		44	1Q11	07J101514
2/4/2011 11:33	307	10.03	170.3	7.82	17.7		44	1Q11	07J101514
2/4/2011 11:35	307.5	10.21	169.4	7.82	17.6		44	1Q11	07J101514
2/4/2011 11:37	306.2	9.99	167.7	7.84	17.7		44	1Q11	07J101514
2/4/2011 11:39	305.8	10.02	166.6	7.83	17.5		44	1Q11	07J101514
2/4/2011 11:41	304.8	10.49	165	7.83	17.5		44	1Q11	07J101514
2/4/2011 11:43	306.1	10.69	164.2	7.83	17.5		44	1Q11	07J101514
2/4/2011 11:45	306.4	10.21	162.7	7.83	17.8		44	1Q11	07J101514
2/4/2011 11:47	304.9	10.62	161.3	7.85	17.5		44	1Q11	07J101514
2/4/2011 11:49	304.9	10.38	159.9	7.83	17.7		44	1Q11	07J101514
2/4/2011 11:51	304.6	11.11	158.7	7.86	17.6		44	1Q11	07J101514
2/4/2011 11:53	305.5	10.44	157.4	7.82	17.6		44	1Q11	07J101514
2/4/2011 11:55	304.3	10.27	155.8	7.84	17.7		44	1Q11	07J101514
2/4/2011 11:57	304.5	10.67	155	7.84	17.3		44	1Q11	07J101514
2/4/2011 11:59	304.9	10.61	154.1	7.84	17.3		44	1Q11	07J101514
2/4/2011 12:01	304.2	10.98	152.9	7.84	17.4		44	1Q11	07J101514
2/4/2011 12:03	304.4	10.75	151.9	7.84	17.5		44	1Q11	07J101514
2/4/2011 12:05	303.6	10.53	151.1	7.83	17.5		44	1Q11	07J101514
2/4/2011 12:07	303.9	10.97	150	7.83	17.6		44	1Q11	07J101514
2/4/2011 12:09	305.4	10.66	149.2	7.83	17.5		44	1Q11	07J101514
2/4/2011 12:11	305.5	10.75	148.4	7.83	17.6		44	1Q11	07J101514
2/4/2011 12:13	305.9	11.01	146.9	7.85	17.3		44	1Q11	07J101514
2/4/2011 12:15	305.6	10.66	145.7	7.82	17.4		44	1Q11	07J101514
2/4/2011 12:17	304.5	10.44	143.9	7.85	17.4		44	1Q11	07J101514
2/4/2011 12:19	304.8	10.93	144.2	7.83	17.5		44	1Q11	07J101514
2/4/2011 12:21	305	10.67	143.4	7.84	17.4		44	1Q11	07J101514
2/4/2011 12:23	304.8	10.66	142.8	7.83	17.4		44	1Q11	07J101514
2/4/2011 12:25	304.1	10.85	141.8	7.84	17.5		44	1Q11	07J101514
2/4/2011 12:27	306	10.79	140.9	7.84	17.7		44	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
2/4/2011 12:29	305.3	11.24	140	7.83	17.5		44	1Q11	07J101514
2/4/2011 12:31	305.5	10.8	138.9	7.83	17.6		44	1Q11	07J101514
2/4/2011 12:33	304.4	10.91	138.3	7.84	17.5		44	1Q11	07J101514
2/4/2011 12:35	304.7	10.63	137.1	7.83	17.7		44	1Q11	07J101514
2/4/2011 12:37	305.4	10.99	136.1	7.82	17.6		44	1Q11	07J101514
2/4/2011 12:39	303.6	11.22	135.2	7.84	17.5		44	1Q11	07J101514
2/4/2011 12:41	304	10.72	134.1	7.85	17.7		44	1Q11	07J101514
2/4/2011 12:43	304.1	11.43	134.4	7.86	17.6		44	1Q11	07J101514
2/4/2011 12:45	303	10.6	132.4	7.84	17.6		44	1Q11	07J101514
2/4/2011 12:47	304.8	10.79	132.4	7.83	17.6		44	1Q11	07J101514
2/4/2011 12:49	305	10.81	132.1	7.84	17.6		44	1Q11	07J101514
2/4/2011 12:51	303.8	10.84	131.6	7.84	17.6		44	1Q11	07J101514
2/4/2011 12:53	304.1	10.79	130.8	7.84	17.8		44	1Q11	07J101514
2/4/2011 12:55	4.8	9.82	233	7.89	16.5	Sample at 12:55	44	1Q11	07J101514

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB - 10645
Site / SWMU No.: KAFB 106
Date: 01/28/11
Weather: Sunny 40s
Time: 1000
Field Crew: RB, ML, DR
Crew Signature:
Review Signature:
Date Review: 1/28/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged - **Locked:** (Yes) - No **Well ID Mark:** (Yes) - No

Notes: Pump set @ 542' BTOC

CALCULATIONS

(A) Depth to Well Bottom	546.6	ft
(B) Pre-Purge Depth to Water	490.55	ft
(C) Water Column Height (A-B)	56.05	ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~57.17 gal~~	
(E) One Well Casing Volume (C x D):	~~55.~~ 57.17	gal
(F) Depth to Top of Screen	531.6	ft
(G) Depth to Bottom of Screen	546.6	ft
(H) Saturated Filter Pack Length (G –F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 8/10 = 1.07,	16.05	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	73.22	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI Pro	2431	
Turbidity Meter Hach 2100	2821	
Pump Bennett Submersible (Portable)	/	
Field Alkalinity Lamotte	3467	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/28/11 1116	0	490.55	12.5	7.10	307.0	10.27	189.1	8.12	.5 gpm
1128	5	490.55	18.3	7.85	259.7	13.47	174.3	8.61	
1156	15	490.54	18.5	7.92	246.8	15.6	166.6	4.69	.5 gpm
1221	25	490.53	18.4	7.93	256.3	15.79	167.8	3.28	
1246	35	490.52	18.5	7.94	255.6	14.70	165.5	2.79	
1311	45	490.52	18.6	7.95	259.5	14.20	177.6	2.27	
1335	55	490.50	18.6	7.95	268.4	14.34	178.5	1.86	
1401	65	490.48	18.5	7.96	283.9	15.03	181.5	1.84	
1423	73	490.49	18.5	7.97	281.6	9.43	182.9	1.19	

Values Prior to Sampling 73 490.49 18.5 7.97 281.6 9.43 182.9 1.19

Alkalinity - 115 mg/l as $CaCO_3$

140705

Shaw Shaw Environmental, Inc.

KAFB-106045
1128111

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1423	73	490.49	18.5	7.97	281.6	15.03*	182.9	1.19	

Field Alkalinity Result 115 mg/L as CaCO3

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

DO from 1401 hrs, 65 gallon
last readings @ 1423, 73 gallons
were taken after sampling tubing
cut and there was no flow
through the flow cell therefore
1423 DO measurement is not accurate
Mayan 01/28/11

140705

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/28/2011 11:15	307.7	10.64	191.4	7.39	16.8	Start purge 0.5 gpm	45	1Q11	07J101514
1/28/2011 11:17	304.8	10.42	183.7	7.65	17.7		45	1Q11	07J101514
1/28/2011 11:19	298.5	11.09	179.6	7.78	18.2		45	1Q11	07J101514
1/28/2011 11:21	288.5	11.66	176.5	7.81	18.1		45	1Q11	07J101514
1/28/2011 11:23	286.2	11.54	176.1	7.84	18.3		45	1Q11	07J101514
1/28/2011 11:25	272.7	13.82	175.4	7.86	18.3		45	1Q11	07J101514
1/28/2011 11:27	267.4	13.72	174.9	7.85	18.5		45	1Q11	07J101514
1/28/2011 11:29	254	13.47	174.3	7.87	18.3		45	1Q11	07J101514
1/28/2011 11:31	256.9	14.62	174.2	7.88	18.4		45	1Q11	07J101514
1/28/2011 11:33	249.4	14.54	173.5	7.89	18.3		45	1Q11	07J101514
1/28/2011 11:35	240	14.07	173	7.9	18.4		45	1Q11	07J101514
1/28/2011 11:37	247.3	14.34	172.2	7.9	18.5		45	1Q11	07J101514
1/28/2011 11:39	242.2	14.68	171.2	7.9	18.5		45	1Q11	07J101514
1/28/2011 11:41	246.7	14.48	169	7.91	18.5		45	1Q11	07J101514
1/28/2011 11:43	246.3	14.6	167.8	7.9	18.5		45	1Q11	07J101514
1/28/2011 11:45	240.5	15.01	165.8	7.92	18.5		45	1Q11	07J101514
1/28/2011 11:47	251.9	14.77	166.6	7.91	18.6		45	1Q11	07J101514
1/28/2011 11:49	248.3	14.37	165.9	7.92	18.5		45	1Q11	07J101514
1/28/2011 11:51	249.8	14.7	165.1	7.91	18.5		45	1Q11	07J101514
1/28/2011 11:53	256.7	14.46	164.1	7.92	18.5		45	1Q11	07J101514
1/28/2011 11:55	247	14.87	165.1	7.92	18.5		45	1Q11	07J101514
1/28/2011 11:57	246.5	15.11	166.7	7.92	18.4		45	1Q11	07J101514
1/28/2011 11:59	242.7	14.67	167.7	7.92	18.5		45	1Q11	07J101514
1/28/2011 12:01	238.5	14.28	168.3	7.92	18.6		45	1Q11	07J101514
1/28/2011 12:03	240.4	15.86	167.8	7.94	18.4		45	1Q11	07J101514
1/28/2011 12:05	232	15.34	169.4	7.93	18.4		45	1Q11	07J101514
1/28/2011 12:07	249.1	15.1	170.4	7.93	18.4		45	1Q11	07J101514
1/28/2011 12:09	239.9	14.88	171	7.93	18.6		45	1Q11	07J101514
1/28/2011 12:11	247.4	14.16	170.4	7.94	18.5		45	1Q11	07J101514
1/28/2011 12:13	252.6	14.86	169.3	7.93	18.6		45	1Q11	07J101514
1/28/2011 12:15	245.2	15.57	168.6	7.93	18.6		45	1Q11	07J101514
1/28/2011 12:17	252.9	15.03	167.5	7.93	18.6		45	1Q11	07J101514
1/28/2011 12:19	252.1	15.41	167.3	7.93	18.5		45	1Q11	07J101514
1/28/2011 12:21	249.7	15.37	168	7.93	18.5		45	1Q11	07J101514
1/28/2011 12:23	246.1	15.35	168	7.94	18.4		45	1Q11	07J101514
1/28/2011 12:25	249.5	14.62	168.1	7.93	18.4		45	1Q11	07J101514
1/28/2011 12:27	251.1	15.14	167.9	7.93	18.6		45	1Q11	07J101514
1/28/2011 12:29	248	15.36	166.7	7.94	18.6		45	1Q11	07J101514
1/28/2011 12:31	254.1	15	166	7.94	18.4		45	1Q11	07J101514
1/28/2011 12:33	254.4	15.78	165.7	7.94	18.5		45	1Q11	07J101514
1/28/2011 12:35	252.7	16.35	165.6	7.95	18.5		45	1Q11	07J101514
1/28/2011 12:37	260.5	15.48	165.1	7.94	18.6		45	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/28/2011 12:39	254.4	15.28	164.3	7.95	18.6		45	1Q11	07J101514
1/28/2011 12:41	254.8	15.96	166.1	7.95	18.5		45	1Q11	07J101514
1/28/2011 12:43	258.3	14.95	167.5	7.93	18.6		45	1Q11	07J101514
1/28/2011 12:45	248	15.78	166.5	7.94	18.6		45	1Q11	07J101514
1/28/2011 12:47	256.4	15.34	165.3	7.95	18.6		45	1Q11	07J101514
1/28/2011 12:49	263.9	15.21	166	7.95	18.6		45	1Q11	07J101514
1/28/2011 12:51	260.7	15.3	166	7.95	18.5		45	1Q11	07J101514
1/28/2011 12:53	257.6	16.25	165.7	7.95	18.6		45	1Q11	07J101514
1/28/2011 12:55	261.2	16.22	165.2	7.96	18.5		45	1Q11	07J101514
1/28/2011 12:57	255.9	16.12	166.3	7.95	18.3		45	1Q11	07J101514
1/28/2011 12:59	261.7	15.9	167	7.95	18.4		45	1Q11	07J101514
1/28/2011 13:01	262.7	16.4	169.4	7.95	18.5		45	1Q11	07J101514
1/28/2011 13:03	256.7	15.73	170.8	7.94	18.6		45	1Q11	07J101514
1/28/2011 13:05	257.1	15.17	171.8	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:07	259.8	15.74	173.2	7.95	18.5		45	1Q11	07J101514
1/28/2011 13:09	266.8	15.54	175.7	7.95	18.5		45	1Q11	07J101514
1/28/2011 13:11	262.2	14.7	177.5	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:13	257.8	15.79	178.8	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:15	264.2	15.22	179.3	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:17	264.5	15.58	180.3	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:19	268.3	15.42	180.4	7.94	18.6		45	1Q11	07J101514
1/28/2011 13:21	261.9	16.16	180.7	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:23	268.2	15.83	180.9	7.96	18.6		45	1Q11	07J101514
1/28/2011 13:25	269.6	16.09	181.3	7.96	18.6		45	1Q11	07J101514
1/28/2011 13:27	269.2	16.09	180.5	7.95	18.5		45	1Q11	07J101514
1/28/2011 13:29	277.1	16.03	179.4	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:31	270.7	15.08	178.4	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:33	271.6	15.33	176.9	7.96	18.6		45	1Q11	07J101514
1/28/2011 13:35	266.5	14.88	178.3	7.96	18.5		45	1Q11	07J101514
1/28/2011 13:37	271.4	15.56	179.2	7.96	18.5		45	1Q11	07J101514
1/28/2011 13:39	277.2	16.12	180.6	7.95	18.5		45	1Q11	07J101514
1/28/2011 13:41	276.4	15.66	180.8	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:43	269.4	14.48	181	7.95	18.5		45	1Q11	07J101514
1/28/2011 13:45	274.3	16.01	180.4	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:47	270.3	16.07	180.3	7.95	18.5		45	1Q11	07J101514
1/28/2011 13:49	272.3	15.37	179.3	7.96	18.6		45	1Q11	07J101514
1/28/2011 13:51	280.2	15.46	177.6	7.96	18.6		45	1Q11	07J101514
1/28/2011 13:53	283.1	15.96	175.9	7.97	18.5		45	1Q11	07J101514
1/28/2011 13:55	283.3	16.23	175.6	7.96	18.5		45	1Q11	07J101514
1/28/2011 13:57	281.2	14.92	176.5	7.95	18.6		45	1Q11	07J101514
1/28/2011 13:59	275	15.27	176.3	7.96	18.6		45	1Q11	07J101514
1/28/2011 14:01	279.8	14.83	177.9	7.96	18.5		45	1Q11	07J101514

Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/28/2011 14:03	281.9	16.04	180.2	7.96	18.5		45	1Q11	07J101514
1/28/2011 14:05	284.3	16.32	181.6	7.96	18.6		45	1Q11	07J101514
1/28/2011 14:07	287.7	15.72	181.8	7.96	18.6		45	1Q11	07J101514
1/28/2011 14:09	284.6	15.92	181.2	7.96	18.5		45	1Q11	07J101514
1/28/2011 14:11	281.5	15.6	180.6	7.96	18.5		45	1Q11	07J101514
1/28/2011 14:13	276.9	15.55	180.2	7.97	18.4		45	1Q11	07J101514
1/28/2011 14:15	286.7	14.91	181.5	7.96	18.5		45	1Q11	07J101514
1/28/2011 14:17	288.5	16.26	182.4	7.95	18.5		45	1Q11	07J101514
1/28/2011 14:19	286	15.72	182.6	7.96	18.6		45	1Q11	07J101514
1/28/2011 14:21	286.8	15.19	183.3	7.96	18.5		45	1Q11	07J101514
1/28/2011 14:23	284.5	15.61	184.3	7.96	18.5	Collect Sample	45	1Q11	07J101514

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB-3411
Site / SWMU No.: KAFB BFF 106
Date: 1-26-2011
Weather: Sunny - 40s
Time: 0930
Field Crew: R. Bailey, M. Lyon, D. Rust, G. Peacock
Crew Signature:
Review Signature: Mark Lyon
Date Review: Mark Lyon 1/26/2011

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No

Notes:

CALCULATIONS

(A) Depth to Well Bottom	505.97	ft
(B) Pre-Purge Depth to Water	486.87	ft
(C) Water Column Height (A-B)	19.10	ft
(D) Casing Factor 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	12.41	gal
(F) Depth to Top of Screen	484.97	ft
(G) Depth to Bottom of Screen	509.97	ft
(H) Saturated Filter Pack Length (G –F, or B)	25	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	30	gal
(K) Min Purge Volume (E + J)	42.41	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI Pro -24	2431	
Turbidity Meter Hach	2821	
Pump Bennett Dedicated	—	
Field Alkalinity LaMotte	3467	

PURGING INFORMATION

Description first water purged: Clear - No odor

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/26/11 1030	0	486.94	65.6	7.81	407.0	10.40	184.6	8.74	1.09 gpm
1037	5	486.93	66.2	7.33	550.6	1.93	162.3	2.20	
1043	10	486.95	66.0	7.44	534.1	.90	121.9	2.20	
1048	15	486.94	66.0	7.47	497.6	.80	104.7	.68	
1052	20	486.92	66.1	7.52	472.6	.73	87.0	.66	
1057	25	486.92	66.0	7.51	470.0	.79	74.8	.41	
1103	30	486.93	66.1	7.51	458.0	.95	62.7	.35	
1107	35	486.92	66.1	7.54	448.2	.75	54.8	.24	
1113	40		66.1	7.52	456.9	.77	48.7	.29	

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KAFB-~~106~~ 3411 (MLO) 7/27/14

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1119	45	486.89	65.8	7.53	460.4	.58	46.2	.18	2 lpm
1123	47	486.88	65.0	7.54	459.1	.59	44.9	.17	.6 lpm
1125	49	486.88	65.7	7.54	455.2	.66	44.9	.27	.6 lpm
Values Prior to Sampling									
1129	49	486	65.7	7.54	455.2	.66	44.9	.27	.6 lpm

Field Alkalinity Result 180 mg/l as $CaCO_3$ (Likely biased high, operator error) MLO

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

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Timestamp	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	ORP_1 (mV)	pH_1 (Units)	Temperature (C)	Comment	Site	Folder	Unit ID
1/26/2011 10:31	28.2	11.01	431.1	8.18	10		KAFB-3411	1Q11	07J101514
1/26/2011 10:33	403.4	10.55	182.7	7.82	18.4		KAFB-3411	1Q11	07J101514
1/26/2011 10:35	394.7	10.07	180.3	7.78	18.5		KAFB-3411	1Q11	07J101514
1/26/2011 10:37	550	2.39	179.4	7.5	19		KAFB-3411	1Q11	07J101514
1/26/2011 10:39	539	1.35	150.6	7.42	19		KAFB-3411	1Q11	07J101514
1/26/2011 10:41	551	1.09	133	7.41	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:43	535	0.93	121.7	7.43	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:45	515	0.88	113.3	7.45	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:47	496.5	0.86	105.1	7.48	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:49	493.5	0.84	97	7.49	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:51	478.9	0.74	90.5	7.5	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:53	471	0.76	87.3	7.5	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:55	462.3	0.66	80.3	7.52	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:57	468.8	0.79	75.2	7.51	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 10:59	464.5	0.77	70.2	7.53	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:01	451.1	0.71	65.1	7.53	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:03	454.9	0.77	62.1	7.52	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:05	452.4	0.77	58.8	7.53	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:07	446	0.78	55.2	7.53	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:09	448.3	0.73	53.1	7.53	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:11	436.4	0.72	49.6	7.55	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:13	457.2	0.88	48.5	7.51	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:15	440.4	0.74	44.7	7.55	18.9		KAFB-3411	1Q11	07J101514
1/26/2011 11:17	452.2	0.65	44.6	7.56	18.6		KAFB-3411	1Q11	07J101514
1/26/2011 11:19	457.3	0.56	45.9	7.54	18.7		KAFB-3411	1Q11	07J101514
1/26/2011 11:21	457.1	0.6	44.7	7.54	18.7		KAFB-3411	1Q11	07J101514
1/26/2011 11:23	459.1	0.59	44.9	7.54	18.3		KAFB-3411	1Q11	07J101514
1/26/2011 11:25	455.7	0.64	44.8	7.55	18.7		KAFB-3411	1Q11	07J101514
1/26/2011 11:27	456	0.69	45.4	7.53	18.7		KAFB-3411	1Q11	07J101514
1/26/2011 11:29	457.3	0.55	43.4	7.55	18.5		KAFB-3411	1Q11	07J101514

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB- BFF
Site / SWMU No.: KAFB- 106
Weather: Cold, pty cloudy, 5°-10°
Field Crew: RB, ML, AT, DR
Review Signature: Mark Jan

Well ID No.: KAFB-0003
Date: 2-2-11
Time: 0945
Crew Signature: [illegible]
Date Review: 2/2/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged - **Locked:** Yes - No **Well ID Mark:** Yes - No

Notes: Hose Bib (Spigot) - Production well for KAFB

CALCULATIONS

(A) Depth to Well Bottom	n/a	ft
(B) Pre-Purge Depth to Water		ft
(C) Water Column Height (A-B)		ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):		gal
(F) Depth to Top of Screen		ft
(G) Depth to Bottom of Screen		ft
(H) Saturated Filter Pack Length (G –F, or B)		ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____		

(J) Filter Pack Volume (H x I)	n/A	gal
(K) Min Purge Volume (E + J)		gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI Pro	2431	
Turbidity Meter Hach 2100	2821	
Pump UNKNOWN		
Field Alkalinity Lamotte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0955	n/a	n/a	13.77	7.79	.367	55.3 (5.78)	161.5	6.60	n/a

Alkalinity - 50 mg/l as $CaCO_3$

Static Readings Water collected from Spigot

140705

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Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									

Field Alkalinity Result _____

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: Kirtland AFB
Site / SWMU No.: 106
Weather: Sunny - 50's, breezy
Field Crew: M. Ryan, D. Rust
Review Signature: [illegible]

Well ID No.: KAFB-15
Date: 2-17-11
Time: 0955
Crew Signature: Mark Ryan
Date Review: 2/17/11

WELL OBSERVATIONS

Protective Casing / Vault: NA - Intact - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No

Notes: collected outside hose bib at pump house - non-potable

CALCULATIONS

(A) Depth to Well Bottom		ft
(B) Pre-Purge Depth to Water		ft
(C) Water Column Height (A-B)		ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	NA	gal
(F) Depth to Top of Screen		ft
(G) Depth to Bottom of Screen		ft
(H) Saturated Filter Pack Length (G –F, or B)		ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____		

(J) Filter Pack Volume (H x I)		gal
(K) Min Purge Volume (E + J)		gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI	2431	
Turbidity Meter HACH	2818	
Pump unknown		
Field Alkalinity LaMotte DR-A	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1018	NM	NM	26.2	8.18	.424	2.56	88.2	2.31	

140705

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KAFB-15
2-17-11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1018	NM	NM	26.2	8.18	0.424	2.56	88.2	2.31	

Field Alkalinity Result 105 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: Kirtland AFB
Site / SWMU No.: 106
Weather: Sunny 50's breezy
Field Crew: M. Ryan, D. Rust
Review Signature:

Well ID No.: KAFB-16
Date: 2-17-11
Time: ~~1047~~ 1041
Crew Signature:
Date Review: 2/17/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged - NA
Locked: Yes - No
Well ID Mark: Yes - No

Notes: collected outside hose bib at Pump House

CALCULATIONS

(A) Depth to Well Bottom		ft
(B) Pre-Purge Depth to Water		ft
(C) Water Column Height (A-B)		ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):		gal
(F) Depth to Top of Screen		ft
(G) Depth to Bottom of Screen		ft
(H) Saturated Filter Pack Length (G –F, or B)		ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____		

(J) Filter Pack Volume (H x I)		gal
(K) Min Purge Volume (E + J)		gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter		
Turbidity Meter		
Pump		
Field Alkalinity		

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1050	NM	NM	27.0	8.12	.469	2.37	62.0	0.49	

140705

KAFB-16
2-17-4

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Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
~~1050~~	~~NM~~	~~NM~~							
		CMW 2/17/4							
Values Prior to Sampling									
1050	NM	NM	27.0	8.12	0.469	2.37	62.0	0.49	

Field Alkalinity Result 100 mg/L as $CaCO_3$

Note: For calculations, additional casing factors (D) and casing/borehole factors (I) can be found in the *Groundwater Investigation Work Plan, Part I: Field Investigation Activities.*

140705

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

ST106-

Project Name: KAFB - BFF

Site / SWMU No.: KAFB - 106

Weather: Cold ply Cdy 5-10°

Field Crew: RB, ML

Review Signature: Mark Lyon

Well ID No.: ~~KAFB~~ VA 2

Date: 2-2-11

Time: 1157

Crew Signature: [signature]

Date Review: 2/2/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: Hose Bib (Spigot) - production well for VA Hospital

CALCULATIONS

(A) Depth to Well Bottom	n/a	ft
(B) Pre-Purge Depth to Water		ft
(C) Water Column Height (A-B)		ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):		gal
(F) Depth to Top of Screen		ft
(G) Depth to Bottom of Screen		ft
(H) Saturated Filter Pack Length (G –F, or B)		ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____		

(J) Filter Pack Volume (H x I)	gal
(K) Min Purge Volume (E + J)	gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI Pro	2431
Turbidity Meter Hach 2100	2821
Pump Water Supply	unknown
Field Alkalinity Lamo	3467

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1205	n/a	n/a	19.0	8.01	.380	4.20	147.5	3.47	

Alkalinity 110 mg/l as $CaCO_3$

Static readings water collected from Spigot

040705

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WATER QUALITY METER FIELD CALIBRATION LOG

Project Name: Kirtland AFB Bulk Fuels Facility Spill **Sampling / Monitoring Activity:** Groundwater Sampling Q1 Page 1 of 5

Calibration Solutions Lot Numbers and Expiration Dates: pH 7, Geotech, lot OAK207, exp 11/12 / pH 10, Geotech lot AOJ350, 10/12 exp
Conductivity Geotech 1413 µS/cm lot OAK105, Exp 11/11, ORP Standard lot # OAJ098 exp 7/11

Date / Time	Instrument Model / Number	Parameter / Known Value	Initial Reading	Calibrated Reading	Initials	Comments
1/25/11 0845	ysi Pro 2431	pH 7.00	7.12	7.00	mc	ok
		pH 10.00	10.03	10.00	mc	ok
		Conductivity 1.413 mS/cm	1.41	1.41	mc	ok
		ORP Zobe 1 231mv @ 8°C	247	231	mc	ok
		DO 100% Sat	89.6% @ 624.5 mmHg	10.29 mg/L	mc	ok?
	HACH 2100 Turbidity	0.0, 20.0, 100, 800	0.0, 20, 100, 800	0.1, 20, 100, 800	mc	ok-cal?
1/26/11 0753	ysi Pro 2431	pH 7.00	7.12	7.00	mc	ok
		pH 10.00	10.00	10.00	mc	ok
		Conductivity 1.413 mS/cm	1.35	1.411	mc	ok
		ORP 231mv @ 54°F	223	231	mc	ok
		DO% @ 627 mmHg, 11.7c	~~58.2~~ 63.7	9.08 mg/L	mc	ok
	HACH 2100 Turbidity	0, 20.0, 100, 800	———	0.0, 20.0, 100, 800	mc	ok
1/27/11	YSI Pro 2431	pH 7.00	6.96	7.00	RSB	ok
		pH 10.00	9.94	~~10.00~~ 10.03	RSB	ok
		Conductivity	1.36	1.412	RSB	ok
		ORP	232.8	231	RSB	ok
		DO%	62	9.01 mg/L	RSB	ok
	Hach 2100 Turbid	0.0, 20.0, 100, 800	0.0, 20.0, 100, 800	.1, 20, 100, 800	GP	ok

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WATER QUALITY METER FIELD CALIBRATION LOG

Project Name: Kirtland AFB Bulk Fuels Facility Spill **Sampling / Monitoring Activity:** GW Sampling Q1 Page 2 of 5

Calibration Solutions Lot Numbers and Expiration Dates: pH 7, Geotech 10XOAK207, exp 11/12 / pH 10 Geotech lot 4OJ350, ex 10/12 Cond. Geotech 1413 uS/cm 10TOAK105, exp 11/11, ORP Standard lot # 0AJ088 ex 7/11

Date / Time	Instrument Model / Number	Parameter / Known Value	Initial Reading	Calibrated Reading	Initials	Comments
1/28/11	YSI Pro 2431	pH 7.0	7.33	7.06	RSB	ok
		pH 10.0	9.84	9.86	RSB	ok
		Cond. 1.413 ms/cm	1.43	1.42	RSB	ok
		ORP 231 mm @ 54°	230.9 @ 11.2C	231	RSB	ok
		DO%	92.7 @ 11.5C	8.89	RSB	ok
	Hach 2100	0.1, 20.0, 100, 800	.1, 20., 100, 800	.1, 20, 100, 800	RSB	ok
1/31/11	YSI Pro 2431	pH 7.0	7.14	7.11	RSB	ok
		pH 10.0	9.86	9.99	RSB	ok
		Cond. 1.413	.79	1.41	RSB	ok
		ORP 231 @ 12.9C - 228	228.2	227.9	RSB	ok
		DO%		76.6% @ 14.1C	RSB	ok
	Hach 2100	.1, 20., 100, 800	.1, 20, 100, 800	.1, 20, 100, 800	RSB	ok
2/2/11	YSI Pro 2431	pH 7.00	7.28	7.19	RSB	ok
		ph 10.00	10.04	10.07	at	ok
		Cond 1.413 ms/cm	1.37	1.41	at	ok
		ORP 237 @ 0°	249.6	249.1	at	ok
		DO%	76.5 DO% @ 0°	76.5 DO% @ 0°	at	ok
	Hach 2100	.1, 20.00, 100, 800	.1, 20, 100, 800	.1, 20, 100, 800	RSB	ok

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WATER QUALITY METER FIELD CALIBRATION LOG

Project Name: Kirtland AFB Bulk Fuels Facility Spill **Sampling / Monitoring Activity:** GW Sampling Q1 Page 3 of 5

Calibration Solutions Lot Numbers and Expiration Dates: PH 7, GeoTech 10x oak 207, exp 11/12 / PH 10 GeoTech Lot 1705 350, ex 10/12, Cond GeoTech 1.413 ms/cm lot 1611 R105, exp 11/11, ORP Standard lot # 04JC88 ex 7/11

Date / Time	Instrument Model / Number	Parameter / Known Value	Initial Reading	Calibrated Reading	Initials	Comments
2/3/11	YSI Pro 2431	PH 7.00	7.15	7.02	Cat	ok
		PH 10.00	9.81	9.89	Cat	ok
		Cond 1.413 ms/cm	~~.004~~ 1.48	1.48	Cat	ok
		ORP 237 @ 0°	247.8	248.0	at	ok
		DO%	100.0 @ 0°	100.0 @ 0°	at	Ice Forming on probe
		Hach 2100	.1, 20.0, 100.800	.1, 20, 100, 800	at	ok
2/4/11	YSI Pro 2431	PH 7.00	7.17	7.13	at	ok
		PH 10.00	9.85	9.90	at	ok
		Cond 1.413 ms/cm	1.39	1.40	at	ok
		ORP 224.3 @ 23.2	224.3	224.3	at	ok
		DO%	81.3 @ 4.6°	81.3 @ 4.6°	at	ok
		Hach 2100	.1, 20, 100, 800	.1, 20, 100, 800	at	ok
2/7/11	YSI Pro 2431	PH 7.00	7.03	7.02	at	ok
		PH 10.00	9.86	9.93	at	ok
		Cond 1.413 ms/cm	1.44	1.41	at	ok
		ORP 237 @ 2.5°	237. @ 2.5°	237 @ 2.5°	at	ok
		DO%	88.5 @ 2.5°	88.5 @ 2.5°	at	ok
		Hach 2100	.1, 20, 100, 800	.1, 20, 100, 800	at	ok

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WATER QUALITY METER FIELD CALIBRATION LOG

Project Name: Kirtland AFB Bulk Fuels Facility Spill **Sampling / Monitoring Activity:** GW Sampling Q1 Page 4 of 5

Calibration Solutions Lot Numbers and Expiration Dates: PH4, Geo Tech 10K0ack 207, exp 11/12 / PH 10 GeoTech Lot A05 350, ex 10/12, Cond GeoTech 1.413 ms/km lot A01 R105, exp 11/11 ORP standard lot # OAJ 088 ex 7/11

Date / Time	Instrument Model / Number	Parameter / Known Value	Initial Reading	Calibrated Reading	Initials	Comments
2/8/11	pH 7.00 →		7.18	7.11	at	ok
	pH 10.00 →		8.65	8.63	at	ok
	Cond 1.413 mslcm →		1.30	1.41	at	ok
	ORP →		227 @ 17.0°C	227 @ 17.0	at	ok
	DO% →		73.9 @ 14.40	73.9 @ 14.40	at	ok
	Hach 2100	.1, 20, 100, 800	.1, 20, 100, 800	.1, 20, 100, 800	at	ok
	YSI 2431		~~222 @ 17.0°C~~	~~227.1 @ 17.0°~~	at	ok
2/9	YSI Pro 2431	pH 7	8.49	7.05	[illegible]	ok
		pH 10	9.97	9.98	[illegible]	ok
		Cond 1.413	1.41	1.41	[illegible]	ok
		ORP 231 @ 6°C	241.6	231	[illegible]	ok
		DO%		87.6 @ 7.7°C	[illegible]	ok
	Hach 2100	Turbidity	.1, 20, 100, 800	.1, 20, 100, 800	[illegible]	ok
2/10	YSI Pro	pH 7	7.14	7.11	[illegible]	ok
		pH 10	9.90	9.93	[illegible]	ok
		Cond 1.43	1.38	1.41	[illegible]	ok
		ORP 230 10°C	224.7	230.0	[illegible]	ok
		DO%	68.3 @ 10°C		[illegible]	ok
	Hach 2100	Turb.	.1, 20, 100, 800 →		RAB	ok

140705

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WATER QUALITY METER FIELD CALIBRATION LOG

Project Name: Kirtland AFB Bulk Fuels Facility Spill **Sampling / Monitoring Activity:** _____ Page 5 of 5

Calibration Solutions Lot Numbers and Expiration Dates: _____

Date / Time	Instrument Model / Number	Parameter / Known Value	Initial Reading	Calibrated Reading	Initials	Comments
2/14/11	YSI PRO	pH 7	7.29	7.00	[illegible]	ok
		pH 10	9.82	10.03	[illegible]	ok
		Cond 1.413	1.41	1.42	[illegible]	ok
		ORP 222 @ 21°C	210.6 @ 21.9	222.1	[illegible]	ok
	~~Hach Turb. 2100~~	DO	89.6 @ 17.9°C	98.4/10.48	[illegible]	ok
	Hach Turb 2100P	.1, 20, 100, 800	.1, 20, 100, 800	.1, 20, 100, 800	[illegible]	ok
2/15/11	YSI Pro	pH 7.0	7.29	6.99	[illegible]	ok
		pH 10.0	9.82	10.00	[illegible]	ok
		Cond 1.413	1.55	1.42	[illegible]	ok
		ORP ~~223~~ 231	209.9 @ 21C	231.3 @ 21C	[illegible]	ok Test calib. out of range
		DO	52.8% @ 59.5			
	Hach Turb 2100	.1, 20, 100, 800	.1, 20, 100, 800	.1, 20, 100, 800	at	ok
2/17/11	YSI PRO	pH 7	7.19	7.01	at	ok
		pH 10	9.80	10.00	at	ok
		Cond 1.413	1.41	1.41	at	ok
		ORP 194.4	223 @ 23.0°	225 @ 23°	at	ok
		DO	76.7% @ 18.2°	81.30 18.1	at	ok
		~~Hach 2100~~ #2821	.1 20, 100, 800	.1, 20, 100, 800	at	ok
		Hach 2100 2818	.1, 20, 100, 800	.1, 20, 100, 800	at	ok

140705

PH Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-15
Time 072832
Last Cal: 2/15/2011
Cal Points: 1
Point 1:

-
- Stimulus = 7.00 pH
- Response = -39.7405 mV
- Final Reading = 7.00 pH
- Temperature = 18.5059 C
- Slope = -57.8714 mV/pH
- Offset = 365.359 mV

ORP Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 USER SET: NOMINAL
Date 2011-02-15
Time 072832
Last Cal: 2/15/2011
Cal Points: 1
Cal Type: Quick Cal Solution pH7
Point 1:

- Quick Cal Solution pH7
- Stimulus = 233.828 mV
- Response = 177.64 mV
- Final Reading = 233.828 mV
- Temperature = 18.5059 C
- Offset = -56.1887 mV

Cond Calibration Report

Device Serial Number 48808
Sensor Serial Number LC06067
Sensor Type Conductivity, Low Range
Sensor Mfg Date 5/4/2010
Method Quick Cal
Action COMPLETED

Status Point 1 STABLE
Date 2011-02-15
Time 072832
Last Cal: 2/15/2011
Cal Points:

- 1
- Custom Cal Solution
- Stimulus = 7980 µS/cm
- Response = 44.868 ohms
- Final Reading = 7980 µS/cm
- Temperature = 18.5059 C
- Kcell = 0.311265

---

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PH Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-16
Time 074124
Last Cal: 2/16/2011
Cal Points: 1
Point 1:

-
- Stimulus = 7.00 pH
- Response = -37.9624 mV
- Final Reading = 7.00 pH
- Temperature = 8.64636 C
- Slope = -55.915 mV/pH
- Offset = 353.443 mV

ORP Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-16
Time 074124
Last Cal: 2/16/2011
Cal Points: 1
Cal Type: Quick Cal Solution pH7
Point 1:

- Quick Cal Solution pH7
- Stimulus = 249.019 mV
- Response = 199.591 mV
- Final Reading = 249.019 mV
- Temperature = 8.64636 C
- Offset = -49.4281 mV

Cond Calibration Report

Device Serial Number 48808
Sensor Serial Number LC06067
Sensor Type Conductivity, Low Range
Sensor Mfg Date 5/4/2010
Method Quick Cal
Action COMPLETED

Status Point 1 STABLE
Date 2011-02-16
Time 074124
Last Cal: 2/16/2011
Cal Points:

- 1
- Custom Cal Solution
- Stimulus = 7980 µS/cm
- Response = 57.9922 ohms
- Final Reading = 7980 µS/cm
- Temperature = 8.64636 C
- Kcell = 0.317029

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PH Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-17
Time 082445
Last Cal: 2/17/2011
Cal Points: 1
Point 1:

-
- Stimulus = 7.00 pH
- Response = -39.3622 mV
- Final Reading = 7.00 pH
- Temperature = 17.2164 C
- Slope = -57.6156 mV/pH
- Offset = 363.947 mV

ORP Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-17
Time 082445
Last Cal: 2/17/2011
Cal Points: 1
Cal Type: Quick Cal Solution pH7
Point 1:

- Quick Cal Solution pH7
- Stimulus = 235.815 mV
- Response = 180.565 mV
- Final Reading = 235.815 mV
- Temperature = 17.2164 C
- Offset = -55.25 mV

Cond Calibration Report

Device Serial Number 48808
Sensor Serial Number LC06067
Sensor Type Conductivity, Low Range
Sensor Mfg Date 5/4/2010
Method Quick Cal
Action COMPLETED

Status Point 1 STABLE
Date 2011-02-17
Time 082445
Last Cal: 2/17/2011
Cal Points:

- 1
- Custom Cal Solution
- Stimulus = 7980 µS/cm
- Response = 46.4219 ohms
- Final Reading = 7980 µS/cm
- Temperature = 17.2164 C
- Kcell = 0.312714

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PH Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-18
Time 081048
Last Cal: 2/18/2011
Cal Points: 1
Point 1:

-
- Stimulus = 7.00 pH
- Response = -40.2534 mV
- Final Reading = 7.00 pH
- Temperature = 15.5911 C
- Slope = -57.2931 mV/pH
- Offset = 360.798 mV

ORP Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-18
Time 081048
Last Cal: 2/18/2011
Cal Points: 1
Cal Type: Quick Cal Solution pH7
Point 1:

- Quick Cal Solution pH7
- Stimulus = 238.319 mV
- Response = 176.504 mV
- Final Reading = 238.319 mV
- Temperature = 15.5911 C
- Offset = -61.8149 mV

Cond Calibration Report

Device Serial Number 48808
Sensor Serial Number LC06067
Sensor Type Conductivity, Low Range
Sensor Mfg Date 5/4/2010
Method Quick Cal
Action COMPLETED

Status Point 1 STABLE
Date 2011-02-18
Time 081048
Last Cal: 2/18/2011
Cal Points:

- 1
- Custom Cal Solution
- Stimulus = 7980 µS/cm
- Response = 48.1425 ohms
- Final Reading = 7980 µS/cm
- Temperature = 15.5911 C
- Kcell = 0.312269

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PH Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-02-21
Time 074016
Last Cal: 2/21/2011
Cal Points: 1
Point 1:

-
- Stimulus = 7.00 pH
- Response = -37.7536 mV
- Final Reading = 7.00 pH
- Temperature = 16.7061 C
- Slope = -57.5143 mV/pH
- Offset = 364.846 mV

ORP Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 USER SET: NOMINAL
Date 2011-02-21
Time 074016
Last Cal: 2/21/2011
Cal Points: 1
Cal Type: Quick Cal Solution pH7
Point 1:

- Quick Cal Solution pH7
- Stimulus = 236.601 mV
- Response = 176.571 mV
- Final Reading = 236.601 mV
- Temperature = 16.7061 C
- Offset = -60.0306 mV

Cond Calibration Report

Device Serial Number 48808
Sensor Serial Number LC06067
Sensor Type Conductivity, Low Range
Sensor Mfg Date 5/4/2010
Method Quick Cal
Action COMPLETED

Status Point 1 STABLE
Date 2011-02-21
Time 074016
Last Cal: 2/21/2011
Cal Points:

- 1
- Custom Cal Solution
- Stimulus = 7980 µS/cm
- Response = 46.7151 ohms
- Final Reading = 7980 µS/cm
- Temperature = 16.7061 C
- Kcell = 0.311003

PH Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-03-08
Time 082931
Last Cal: 3/8/2011
Cal Points: 1
Point 1:

-
- Stimulus = 7.00 pH
- Response = -35.3019 mV
- Final Reading = 7.00 pH
- Temperature = 15.3929 C
- Slope = -57.2537 mV/pH
- Offset = 365.474 mV

ORP Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-03-08
Time 082932
Last Cal: 3/8/2011
Cal Points: 1
Cal Type: Quick Cal Solution pH7
Point 1:

- Quick Cal Solution pH7
- Stimulus = 238.625 mV
- Response = 185.884 mV
- Final Reading = 238.625 mV
- Temperature = 15.3929 C
- Offset = -52.7405 mV

Cond Calibration Report

Device Serial Number 48808
Sensor Serial Number LC06067
Sensor Type Conductivity, Low Range
Sensor Mfg Date 5/4/2010
Method Quick Cal
Action COMPLETED

Status Point 1 STABLE
Date 2011-03-08
Time 082932
Last Cal: 3/8/2011
Cal Points:

- 1
- Custom Cal Solution
- Stimulus = 7980 µS/cm
- Response = 48.0272 ohms
- Final Reading = 7980 µS/cm
- Temperature = 15.3929 C
- Kcell = 0.310069

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PH Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-03-09
Time 073900
Last Cal: 3/9/2011
Cal Points: 1
Point 1:

-
- Stimulus = 7.00 pH
- Response = -36.4056 mV
- Final Reading = 7.00 pH
- Temperature = 16.6551 C
- Slope = -57.5042 mV/pH
- Offset = 366.124 mV

ORP Calibration Report

Device Serial Number 48808
Sensor Serial Number PP12163
Sensor Mfg Date 5/21/2010
Method Quick Cal
Action COMPLETED
Status Point 1 STABLE
Date 2011-03-09
Time 073900
Last Cal: 3/9/2011
Cal Points: 1
Cal Type: Quick Cal Solution pH7
Point 1:

- Quick Cal Solution pH7
- Stimulus = 236.68 mV
- Response = 180.356 mV
- Final Reading = 236.68 mV
- Temperature = 16.6551 C
- Offset = -56.3235 mV

Cond Calibration Report

Device Serial Number 48808
Sensor Serial Number LC06067
Sensor Type Conductivity, Low Range
Sensor Mfg Date 5/4/2010
Method Quick Cal
Action COMPLETED

Status Point 1 STABLE
Date 2011-03-09
Time 073900
Last Cal: 3/9/2011
Cal Points:

- 1
- Custom Cal Solution
- Stimulus = 7980 µS/cm
- Response = 46.3738 ohms
- Final Reading = 7980 µS/cm
- Temperature = 16.6551 C
- Kcell = 0.308366

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