Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 28B9-R-CRT

Site / SWMU No.: 106 **Date:** 11/15/11

Weather: Sunny **Time:** 0900

Field Crew: AT, GP **Crew Signature:**

Review Signature: **Date Review:** 11/15/11

WELL OBSERVATIONS

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

Notes: Sampled from purge well

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: 9500 Insitu	R 2060	
Turbidity Meter: Hach	2821	
Pump: Geo Pump	on file	
Field Alkalinity: La Motte	3467 #8	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/15/11 0941	Ø	n/m	18.62	7.30	327.5	4.69	205	1.01	
Values Prior to Sampling									
0941	Ø	N/m	18.62	7.30	327.5	4.67	205	1.01	

Field Alkalinity Result 121 mg/L as $CaCO_3$ **Sample ID:** GW0250

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

Well ID No.: ~~106~~ KAFB-003
Date: 10/4/11
Time: 0980
Crew Signature:
Date Review: 10/4/11

WELL OBSERVATIONS

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

Notes: Collected sample from exterior spigot

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: In Situ 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: n/a	n/a	
Field Alkalinity: La Motte	3967	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/4/11 1000	~~ENA~~	n/a	19.80	7.99	373.1	4.92	203	.57	

Values Prior to Sampling

1000	~~ENA~~	n/a	19.80	7.99	373.1	4.92	203	0.57	

Field Alkalinity Result 107 mg/L as $CaCO_3$ **Sample ID:** GW0251

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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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-015
Site / SWMU No.: 106
Date: 10/4/11
Weather: Sunny
Time: 0830
Field Crew: AT, RB
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 10/4/11

WELL OBSERVATIONS

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

Notes: collected sample from exterior spigot

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: 9500 Insitu	R20661	
Turbidity Meter: Hach	2821	
Pump: n/A	n/A	
Field Alkalinity: Ca Mottle	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/4/11 0900	~~5~~ NA	Ø	27.21	7.20	401.0	1.87	186	0.56	
Values Prior to Sampling									
0900	~~5~~ NA	Ø	27.21	7.20	401.0	1.87	186	0.56	

Field Alkalinity Result 103 mg/L as $CaCO_3$ **Sample ID:** GW0252

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 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, BB
Review Signature:

Well ID No.: 106 016
Date: 1030 10/4/11
Time: 1030
Crew Signature:
Date Review: 10/4/11

WELL OBSERVATIONS

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

Notes: Collected sample for extra parameter

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)	1	gal

EQUIPMENT / MODEL	ID NUMBER
Parameter Meter: Ins/Ia 5500	R20661
Turbidity Meter: Hach	2821
Pump: n/a	n/a
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1105	SNA	~~27.99~~	27.77	7.57	433.2	1.79	185	0.49	

Values Prior to Sampling

1105	SNA	n/a	27.77	7.57	433.2	1.79	185	0.49	

Field Alkalinity Result 100 mg/L as $CaCO_3$ **Sample ID:** GW0253

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

Well ID No.: ST 106-VA2
Date: 10/4/14
Time: 1339
Crew Signature:
Date Review: 10/6/14

WELL OBSERVATIONS

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

Notes: Collect sample from exhaust spigot

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: Insitu 600	R20661	
Turbidity Meter: Hach	2821	
Pump: Pump house	-	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/4/14 1358	5 N/A	n/a	20.67	8.07	330.0	3.76	206	0.80	
Values Prior to Sampling									
1358	5 N/A	n/a	20.67	8.07	330.0	3.76	206	0.80	

Field Alkalinity Result 120 mg/L as CaCO3 **Sample ID:** GW0254

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy 30s
Field Crew: DA, DM
Review Signature:

Well ID No.: 3411
Date: 12-13-11
Time: 0823
Crew Signature:
Date Review: 12-13-11

WELL OBSERVATIONS

Protective Casing / Vault: Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No
Notes: VOCs 0.8 in BH

CALCULATIONS

(A) Depth to Well Bottom	503 ft
(B) Pre-Purge Depth to Water	486.34 ft
(C) Water Column Height (A-B)	16.66 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	10.83 gal
(F) Depth to Top of Screen	477 ft
(G) Depth to Bottom of Screen	502 ft
(H) Saturated Filter Pack Length (G - A or B)	15.66 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	18.80 gal
(K) Min Purge Volume (E + J)	30 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Clean Site 9500	RZ0661
Turbidity Meter: HACH 2100P	08818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#8

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-13-11 0908	0	486.34	16.07	7.39	408.5	5.34	177	0.99	2.1 L/min
0935	15	486.38	18.76	7.28	463.2	1.20	176	0.57	1.0 L/min
0954	20	486.37	18.25	7.28	438.8	0.99	169	0.31	
1012	25	486.36	18.71	7.31	425.3	0.95	163	0.27	
1040 31	30	486.36	18.79	7.33	415.4	0.92	158	0.30	

Values Prior to Sampling									
1040 31	30	486.36	18.79	7.33	415.4	0.92	158	0.30	1.0 L/min

Field Alkalinity Result: 146 mg/L as CaCO3 Sample ID: GW0255

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: 106
Weather: Partly Cloudy, Windy 70's
Field Crew: DM, DA
Review Signature:

Well ID No.: 106001
Date: 10-6-11
Time: 1255
Crew Signature: Daniel Medina
Date Review: 10/6/11

WELL OBSERVATIONS

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

Notes: VOC's 1763 in BH

CALCULATIONS

(A) Depth to Well Bottom	508.5 ft
(B) Pre-Purge Depth to Water	488.52 ft
(C) Water Column Height (A-B)	19.99 ft
(D) Casing Factor (4"=0.65, 5"=1.02)	0.65
(E) One Well Casing Volume (C x D):	12.99 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)	19.48 ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, _____)	1.2

(J) Filter Pack Volume (H x I)	23.38 gal
(K) Min Purge Volume (E + J)	27 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: IN SITU 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: Dedicated Bennette	ON FILE
Field Alkalinity: LA MOTTE	3467 #5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-6-11/1320	0	488.52	21.75	7.68	378.0	6.88	99	0.32	1.2 L/min
1336	5	488.56	19.97	7.11	412.1	3.50	35	1.54	
1359	12	488.55	19.97	7.37	390.8	0.84	-74	1.16	
1417	17	488.55	19.96	7.40	378.6	0.88	-82	1.02	1.0 L/min
1436	22	488.55	19.99	7.42	370.6	1.00	-78	0.91	
1454	27	488.55	19.99	7.44	368.9	1.05	-80	0.99	
Values Prior to Sampling									
1454	27	488.55	19.99	7.44	368.9	1.05	-80	0.99	1.0 L/min

Field Alkalinity Result 140 Mg/L as CaCO3 **Sample ID:** GW02560

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 40's
Field Crew: DM, MR
Review Signature:

Well ID No.: KAFB-106002
Date: 11-10-11
Time: 0808
Crew Signature: Daniel Medina
Date Review: 11/10/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	505 ft
(B) Pre-Purge Depth to Water	486.12 ft
(C) Water Column Height (A-B)	18.88 ft
(D) Casing Factor (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	12.27 gal
(F) Depth to Top of Screen	479 ft
(G) Depth to Bottom of Screen	504 ft
(H) Saturated Filter Pack Length (G –F, or B)	17.88 ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	21.46 gal
(K) Min Purge Volume (E + J)	34 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: Hach 2100P	02818
Pump: Dedicated Bennette	On File
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-10-11/0856	0	486.12	16.44	7.76	379.8	8.20	244	1.35	3.7 L/min
0903	6	486.14	18.87	7.74	385.4	4.42	304	6.69	
0910	12	486.14	18.81	7.68	384.1	4.30	299	4.30	DM
0918	19	486.15	18.83	7.70	375.9	4.45	299	2.36	~~1.0 L/min~~
0936	24	486.10	18.07	7.72	371.8	4.64	307	1.68	1.0 L/min
0955	29	486.09	18.00	7.71	376.6	4.59	313	1.50	
1013	34	486.09	18.08	7.71	373.3	4.55	314	1.15	
Values Prior to Sampling									
~~0955~~ DM 1013	34	486.09	18.08	7.71	373.3	4.55	314	1.15	1.0 L/min

Field Alkalinity Result 156 Mg/L as $CaCO_3$ **Sample ID:** GW0258

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-106005
Site / SWMU No.: 106
Date: 12-12-11
Weather: Cloudy 30's
Time: 1426
Field Crew: DM, DA
Crew Signature: Daniel Medina
Review Signature:
Date Review: 12-13-11

WELL OBSERVATIONS

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

Notes: VOC's 2132 ppm in Bh

CALCULATIONS

(A) Depth to Well Bottom	507 ft	(J) Filter Pack Volume (H x I)	18.89 gal
(B) Pre-Purge Depth to Water	490.26 ft	(K) Min Purge Volume (E + J)	30 gal
(C) Water Column Height (A-B)	16.74 ft	EQUIPMENT / MODEL	ID NUMBER
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65	Parameter Meter In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	10.88 gal	Turbidity Meter Hach 2100P	02818
(F) Depth to Top of Screen	479 ft	Pump Portable Bennette	On File
(G) Depth to Bottom of Screen	506 ft	Field Alkalinity La Motte	34678
(H) Saturated Filter Pack Length (G –F, or B)?	15.74 ft		
(I) Casing/Borehole Factor (4/10 = 1.2) 5/10 = 1.07, ____	1.2		

PURGING INFORMATION

Description first water purged: Clear with odor

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-12-11/1246	0	490.26	12.38	6.83	847.0	3.57	-98	0.55	1.5 L/min
1315	10	490.28	20.81	6.53	1116	-0.00	-212	7.40	
1330	15	490.27	20.46	6.56	1105	-0.03	-224	96.2	
1349	20	490.25	19.86	6.58	1078	-0.06	-229	106.0	1.0 L/min
1408	25	490.25	20.10	6.60	1050	-0.06	-233	129.0	
1427	30	490.26	19.62	6.61	1029	-0.07	-239	114.0	
Values Prior to Sampling									
1427	30	490.26	19.62	6.61	1029.0	-0.07	-239	114.0	1.0 L/min

Field Alkalinity Result 320 Mg/L as $CaCO_3$ Sample ID: GW0259

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy 30°s
Field Crew: DM, DA
Review Signature: [signature]

Well ID No.: KAFB-106006
Date: 12-~~8~~ 12 DM 11
Time: 0812
Crew Signature: Daniel Medina
Date Review: 12-13-11

WELL OBSERVATIONS

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

Notes: VOC's 2,137 ppm in BH

CALCULATIONS

(A) Depth to Well Bottom	511	ft
(B) Pre-Purge Depth to Water	494.76	ft
(C) Water Column Height (A-B)	16.24	ft
(D) Casing Factor 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	10.56	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)	13.74	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	16.49	gal
(K) Min Purge Volume (E + J)	28	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter In Situ 9500	R22831	
Turbidity Meter Hach 2100P	02818	
Pump Portable Bennette	On File	
Field Alkalinity La Motte	3467#8	

PURGING INFORMATION

Description first water purged: Clear with odor.

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-8-11 12 DM/0900	0	494.76	13.50	7.10	354.3	4.78	-21	1.14	1.32 L/min
0923	8	494.74	18.52	7.43	349.1	0.16	-136	0.48	
0938	13	494.74	18.63	7.48	350.4	0.37	-154	0.53	
0956	18	494.75	18.59	7.55	351.5	0.55	-164	0.61	1.0 L/min
1015	23	494.75	18.56	7.58	351.1	0.58	-167	0.56	
1034	28	494.73	18.67	7.60	350.9	0.57	-171	0.55	

Values Prior to Sampling

1034	28	494.73	18.67	7.60	350.9	0.57	-171	0.55	1.0 L/min

Field Alkalinity Result 160 Mg/L as $CaCO_3$ **Sample ID:** GW0260

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DM, DA
Review Signature:

Well ID No.: 106007
Date: 10-13-11
Time: 0914
Crew Signature: Daniel P Medina
Date Review: 10/13/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0ppm in BH.

CALCULATIONS

(A) Depth to Well Bottom	511 ft
(B) Pre-Purge Depth to Water	493.17 ft
(C) Water Column Height (A-B)	17.83 ft
(D) Casing Factor (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	11.59 gal
(F) Depth to Top of Screen	484 ft
(G) Depth to Bottom of Screen	509 ft
(H) Saturated Filter Pack Length (G –F, or B)	15.83 ft
(I) Casing/Borehole Factor (4/10 = 1.2) 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	19.00 gal
(K) Min Purge Volume (E + J)	31 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: Dedicated Bennette	ON FILE
Field Alkalinity: LA MOTTE	3467 #5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-13-11/0942	0	493.17	18.12	7.21	420.4	7.48	219	1.32	2.6 L/min
0954	8	493.21	19.07	7.19	551.7	0.98	38	1.38	
1006	16	493.22	19.04	7.20	545.9	0.45	13	1.25	
1024	21	493.18	18.88	7.22	537.9	0.75	5	1.26	1.0 L/min
1043	26	493.19	18.79	7.22	534.9	0.76	3	1.12	
1101	31	493.18	18.91	7.23	524.6	0.82	0	1.06	

Values Prior to Sampling

1101	31	493.18	18.91	7.23	524.6	0.82	0	1.06	1.0 L/min

Field Alkalinity Result 180 Mg/L as $CaCO_3$ **Sample ID:** GW0261

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF

Site / SWMU No.: 106

Weather: Sunny 60°

Field Crew: DA, DM

Review Signature: [signature]

Well ID No.: 106007-R

Date: 10-18-11

Time: 0959

Crew Signature: [signature]

Date Review: 10/19/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: VOCs Ø in BH

CALCULATIONS

(A) Depth to Well Bottom	511.0 ft
(B) Pre-Purge Depth to Water	493.25 ft
(C) Water Column Height (A-B)	17.75 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	11.54 gal
(F) Depth to Top of Screen	484.0 ft
(G) Depth to Bottom of Screen	509.0 ft
(H) Saturated Filter Pack Length (G –F, or B)	15.75 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	18.9 gal
(K) Min Purge Volume (E + J)	31 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R72831
Turbidity Meter: HACH2100P	02818
Pump: dedicated bennett on file	
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-18-11 1026	Ø	493.25	17.35	7.06	513.7	8.21	225	1.06	4.2L/min
1035	10	493.32	19.08	7.16	552.5	1.10	58	1.20	
1041	16	493.33	19.07	7.18	549.9	0.83	16	1.13	
1059	21	493.30	18.48	7.20	539.5	0.90	-18	1.11	1.0L/min
1118	26	493.28	18.52	7.21	532.8	0.87	-13	0.89	
1136	31	493.26	18.63	7.22	531.1	0.85	-12	1.03	
Values Prior to Sampling									
1136	31	493.26	18.63	7.22	531.1	0.85	-12	1.03	1.0L/min

Field Alkalinity Result 218 mg/L as $CaCO_3$ Sample ID: GW0261

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 30s
Field Crew: DA, DM
Review Signature:

Well ID No.: 106808
Date: 12-8-11
Time: ~~1219pm~~ 0805
Crew Signature:
Date Review: 12/8/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) No
Notes: VOCs pump set to 498.5 ft

CALCULATIONS

(A) Depth to Well Bottom	513.5 ft	(J) Filter Pack Volume (H x I)	18.68 gal
(B) Pre-Purge Depth to Water	495.44 ft	(K) Min Purge Volume (E + J)	37 gal
(C) Water Column Height (A-B)	18.06 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	Parameter Meter: YSI 9500	R77831
(E) One Well Casing Volume (C x D):	11.74 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	486 ft	Pump: portable bennett	on file
(G) Depth to Bottom of Screen	511 ft	Field Alkalinity: La Motte	3467#9
(H) Saturated Filter Pack Length (G-F, or B)	15.56 ft		
(I) Casing/Borehole Factor 4/10 = 1.2 5/10 = 1.07, ____	1.2		

PURGING INFORMATION

Description first water purged: Gray with heavy odor

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-8-11 0914	0	495.44	14.84	7.23	419.0	3.66	-119	5.94	0.79 L/min
1158 ~~1018pm~~	12	496.40	18.46	7.84	427.0	0.33	-187	92.4	1.4 L/min
1225 ~~1048pm~~	22	495.42	18.52	7.43	424.1	0.05	-225	14.7	
1244 ~~1107pm~~	27	495.41	18.44	7.45	406.9	0.04	-241	10.6	1.04 L/min
1303 ~~1126pm~~	32	495.40	18.52	7.45	398.0	0.03	-250	9.44	
1322 ~~1212pm~~	37	495.40	18.49	7.46	391.8	0.02	-255	7.99	
Values Prior to Sampling									
1322 ~~1212pm~~	37	495.40	18.49	7.46	391.8	0.02	-255	7.99	1.0 L/min

Field Alkalinity Result 192 mg/L as $CaCO_3$ **Sample ID:** GW0762

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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* Time difference due to pump failure. Pump replaced new. Purge restarted at 1152 w/ 10 gallons previously removed

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 50's
Field Crew: DM, MR
Review Signature:

Well ID No.: KAFB-106009
Date: 11-22-11
Time: 0856
Crew Signature: Daniel Medina
Date Review: 11/22/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOC's 02 in BH

CALCULATIONS

(A) Depth to Well Bottom	507.5 ft
(B) Pre-Purge Depth to Water	489.13 ft
(C) Water Column Height (A-B)	18.37 ft
(D) Casing Factor (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	11.94 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)	15.87 ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, ____	1.2

(J) Filter Pack Volume (H x I)	19.04 gal
(K) Min Purge Volume (E + J)	31 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: Hach 2100P	02818
Pump: Dedicated Bennette	On File
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear with odor.

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-22-11/1025	0	489.13	17.61	6.70	831.2	2.62	-69	6.93	1.9 gal/min
1037	6	489.14	21.83	6.71	888.3	0.17	-126	5.82	
1047	11	489.14	21.78	6.72	908.8	0.08	-135	6.01	
1057	16	489.13	21.89	6.73	906.7	0.05	-140	5.40	
1115	21	489.10	20.07	6.75	907.5	0.09	-141	6.42	1.04 gal/min
1134	26	489.10	20.01	6.75	918.5	0.08	-143	5.44	
1152	31	489.10	20.00	6.75	922.6	0.06	-147	4.83	
Values Prior to Sampling									
1152	31	489.10	20.00	6.75	922.6	0.06	-147	4.83	1.04 gal/min

Field Alkalinity Result 356 Mg/L as CaCO3 **Sample ID:** GW0263

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Partly Cloudy 30°s
Field Crew: DM, DA
Review Signature:

Well ID No.: KAFB-106010
Date: 12-15-11
Time: 1342
Crew Signature: Daniel Medina
Date Review:

WELL OBSERVATIONS

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

Notes: VOC's 0.0 ppm in BH

CALCULATIONS

(A) Depth to Well Bottom	510.5 ft
(B) Pre-Purge Depth to Water	487.75 ft
(C) Water Column Height (A-B)	22.75 ft
(D) Casing Factor (4"=0.65 6"=1.02	0.65
(E) One Well Casing Volume (C x D):	14.79 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)	20.25 ft
(I) Casing/Borehole Factor 4/10 = 1.3, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	24.3 gal
(K) Min Purge Volume (E + J)	40 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter In Situ 9500	R20661
Turbidity Meter Hach 2100P	02818
Pump Portable Bennette	On File
Field Alkalinity La Motte	3467#8

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-15-11/1430	0	487.75	14.20	7.39	517.2	2.27	-4	12.5	1.92 L/min
1458/1500	15	487.76	18.17	7.31	630.1	0.11	-225	4.36	
1518	25	487.76	18.20	7.33	607.1	0.09	-224	3.45	
1537	30	487.78	17.51	7.34	615.2	0.11	-250	2.60	1.04/min
1555	35	487.77	17.57	7.34	625.9	0.11	-262	2.25	
1613	40	487.76	17.57	7.35	621.2	0.10	-269	4.95	
Values Prior to Sampling									
1613	40	487.76	17.57	7.35	621.2	0.10	-269	4.95	1.04/min

Field Alkalinity Result 205 Mg/L as $CaCO_3$ Sample ID: GW0264

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 60s
Field Crew: DA, DM
Review Signature:

Well ID No.: 106011
Date: 10-19-11
Time: 1143
Crew Signature:
Date Review: 10/19/11

WELL OBSERVATIONS

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

Notes: VOCs 2.7 in BH

CALCULATIONS

(A) Depth to Well Bottom	516 ft
(B) Pre-Purge Depth to Water	497.93 ft
(C) Water Column Height (A-B)	18.07 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	11.75 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)	13.07 ft
(I) ~~Casing~~/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	15.69 gal
(K) Min Purge Volume (E + J)	28 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	K72831
Turbidity Meter: HACH 2100P	07818
Pump: Dedicated Bennett	on file
Field Alkalinity: La Motte	3467 #5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-19-11 1207	0	497.93	18.58	7.65	356.7	7.89	204	1.58	3.6 L/min
1215	7	497.98	18.78	7.63	431.1	2.02	119	0.48	
1227	13	497.98	18.95	7.63	427.8	0.52	66	0.86	
1240	18	497.95	18.68	7.64	429.8	0.86	35	0.92	1.0 L/min
1259	23	497.94	18.66	7.63	433.8	0.88	-8	0.68	
1317	28	497.94	18.69	7.63	432.8	0.80	-20	0.66	
Values Prior to Sampling									
1317	28	497.94	18.69	7.63	432.8	0.80	-20	0.66	1.0 L/min

Field Alkalinity Result 198 mg/L as $CaCO_3$ **Sample ID:** GW0766

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 50s
Field Crew: DA, DM
Review Signature:

Well ID No.: 106017
Date: 11-2-11
Time: 1311
Crew Signature:
Date Review: 11/3/11

WELL OBSERVATIONS

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

Notes: VOCs @

CALCULATIONS

(A) Depth to Well Bottom	515.5	ft
(B) Pre-Purge Depth to Water	490.57	ft
(C) Water Column Height (A-B)	24.93	ft
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	16.21	gal
(F) Depth to Top of Screen	480.5	ft
(G) Depth to Bottom of Screen	505.5	ft
(H) Saturated Filter Pack Length (G –F, or B)	14.93	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	17.92	gal
(K) Min Purge Volume (E + J)	35	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI 9500	R27831	
Turbidity Meter: HACH 2100P	02818	
Pump: dedicated	on file	
Field Alkalinity: La Motte	346775	

PURGING INFORMATION

Description first water purged: Clear * at apx 3gal turned dark red brown @ 15gal water cleared.

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-2-11 1329	0	490.57	17.06	7.28	1012	8.08	219	0.90	2.36 l/min
1345	10	490.60	18.60	7.14	993.5	2.94	33	27.0	
1401	20	490.62	18.62	7.20	922.7	2.31	20	9.55	
1420	25	490.61	18.14	7.24	872.5	2.26	20	9.36	1.04 l/min
1438	30	490.59	18.10	7.24	843.3	2.23	21	3.40	
1457	~~35~~	490.58	18.19	7.25	820.0	2.17	21	2.64	
				~~7.25~~					

Values Prior to Sampling

1457	35	490.58	18.19	7.25	820.0	2.17	21	2.64	1.04 l/min

Field Alkalinity Result 194 mg/L as CaCO3 **Sample ID:** GW0767

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 60°s
Field Crew: DM, MR
Review Signature:

Well ID No.: KAFB-106014
Date: 11-21-11
Time: 1026
Crew Signature: Daniel Medina
Date Review:

WELL OBSERVATIONS

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

Notes: VOC's 00 in BH.

CALCULATIONS

(A) Depth to Well Bottom	516	ft
(B) Pre-Purge Depth to Water	494.70	ft
(C) Water Column Height (A-B)	21.3	ft
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	13.85	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)	16.3	ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, ____	1.2	

(J) Filter Pack Volume (H x I)	19.56	gal
(K) Min Purge Volume (E + J)	34	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ 9500	R22831	
Turbidity Meter: Hach 2100P	02818	
Pump: Dedicated Bennette	On File	
Field Alkalinity: La Motte	3467#5	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-21-11/1107	0	494.70	16.55	7.33	463.5	7.53	143	2.29	2.14 ~~1.07~~ 1/min DM
1132	DM ~~7~~ 14	494.74	18.90	7.32	450.4	0.02	0	1.60	
1154	DM ~~13~~ 26	494.74	19.07	7.39	434.7	-0.01	0	1.15	
1216	DM ~~19~~ 38	494.74	19.06	7.42	434.8	-0.02	-180	1.20	
1234	DM 24 43	494.73	19.01	7.43	441.0	-0.02	-183	1.05	1.04/min
1253	DM ~~29~~ 48	494.72	18.99	7.44	442.4	-0.03	-185	1.08	
1311	DM ~~34~~ 53	494.73	19.05	7.43	447.3	-0.03	-185	1.34	
Values Prior to Sampling								1.34	
1311	~~34~~ 53 DM	494.73	19.05	7.43	447.3	-0.03	-185	~~1.08~~	1.04/min

Field Alkalinity Result 180 Mg/L as CaCO3 **Sample ID:** GW0268

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: 106
Weather: Partly Cloudy 40°s
Field Crew: DM, MR
Review Signature:

Well ID No.: 106015
Date: 11-8-11
Time: 1139
Crew Signature: Daniel T Medina
Date Review: 11/9/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	515	ft
(B) Pre-Purge Depth to Water	490.85	ft
(C) Water Column Height (A-B)	24.15	ft
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	15.70	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)	20.15	ft
(I) Casing/Borehole Factor (4/10 = 1.2) 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	24.18	gal
(K) Min Purge Volume (E + J)	40	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ 9500	R22831	
Turbidity Meter: HACH 2100P	02818	
Pump: Dedicated Bennette	On File	
Field Alkalinity: LA Motte	3467#5	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-8-11/1251	0	490.85	16.28	8.28	335.8	8.09	201	1.24	2.5 L/min
1304	8	490.91	18.64	7.83	336.1	8.38	165	14.0	
1317	16	490.90	18.66	7.81	337.0	8.61	66	4.34	
1331	25	490.89	18.72	7.82	336.2	8.54	51	2.25	
1349	30	490.89	18.20	7.86	337.3	8.83	68	1.77	1.0 L/min
1406	35	490.90	18.27	7.85	337.7	7.80	86	1.82	
1426	40	490.87	18.17	7.85	335.2	7.81	94	1.96	
Values Prior to Sampling									
1426	40	490.87	18.17	7.85	335.2	7.81	94	1.96	1.0 L/min

Field Alkalinity Result 118 Mg/L as $CaCO_3$ **Sample ID:** GW0269

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106016

Site / SWMU No.: 106 **Date:** 10-17-11

Weather: Sunny 70s **Time:** 1003

Field Crew: DA, MR **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 10/17/11

WELL OBSERVATIONS

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

Notes: VOCs ∅ in BH

CALCULATIONS

(A) Depth to Well Bottom	505 ft		(J) Filter Pack Volume (H x I)	17.21 gal
(B) Pre-Purge Depth to Water	485.66 ft		(K) Min Purge Volume (E + J)	30 gal
(C) Water Column Height (A-B)	19.34 ft		**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 6"=1.02	0.65		Parameter Meter Horiba U-22 9500	RZ7831
(E) One Well Casing Volume (C x D):	12.58 gal		Turbidity Meter HACH 2100P	02818
(F) Depth to Top of Screen	475 ft		Pump dedicated	on file
(G) Depth to Bottom of Screen	500 ft		Field Alkalinity La Motte	346775
(H) Saturated Filter Pack Length (G –F, or B)	14.34 ft			
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2			

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-17-11 1019	∅	485.66	18.17	7.76	316.6	8.05	196	1.96	2.44L/min
1043	15	485.72	19.25	7.60	301.6	2.97	117	1.57	
1101	20	485.70	19.09	7.63	308.4	3.33	72	1.82	1.0L/min
1120	25	485.69	19.11	7.65	311.9	3.58	54	1.44	
1138	30	485.68	19.17	7.68	310.3	3.66	58	1.52	
Values Prior to Sampling									
1138	30	485.68	19.17	7.68	310.3	3.66	58	1.52	1.0L/min

Field Alkalinity Result 130 mg/L as $CaCO_3$ **Sample ID:** GW0270

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106017

Site / SWMU No.: 106 **Date:** 10-3-11

Weather: Sunny 70s **Time:** 0822

Field Crew: DA, DM **Crew Signature:**

Review Signature: **Date Review:** 10/8/11

WELL OBSERVATIONS

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

Notes: VOCs @

CALCULATIONS

(A) Depth to Well Bottom	517 ft
(B) Pre-Purge Depth to Water	488.29 ft
(C) Water Column Height (A-B)	23.71 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	15.42 gal
(F) Depth to Top of Screen	487 ft
(G) Depth to Bottom of Screen	507 ft
(H) Saturated Filter Pack Length (G –F, or B)	18.71 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	22.45 gal
(K) Min Purge Volume (E + J)	38 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R27831
Turbidity Meter: HACH 2100R	07818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: clear Brown

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-2-11 0853	0	488.29	17.22	6.28	381.9	5.09	72	20.3	1.79L/min
0921	13	488.34	18.94	7.73	352.4	1.40	-46	2.99	
0943	23	488.33	19.07	7.76	353.0	1.33	-61	1.05	1.0L/min
1001	28	488.31	18.89	7.97	352.7	1.36	-57	0.78	
1020	33	488.31	18.94	7.77	352.9	1.34	-56	0.62	
1038	38	488.31	18.94	7.78	353.1	1.35	-54	0.60	
Values Prior to Sampling*									
1038	38	488.31	18.94	7.78	353.1	1.35	-54	0.60	1.0L/min

Field Alkalinity Result 128 mg/L as CaCO3 Sample# GW0773

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106018
Site / SWMU No.: 106
Date: 10-3-11
Weather: Sunny 70s
Time: 1117
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 10-3-11

WELL OBSERVATIONS

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

Notes: VOCs

CALCULATIONS

(A) Depth to Well Bottom	506 ft
(B) Pre-Purge Depth to Water	482.93 ft
(C) Water Column Height (A-B)	23.07 ft
(D) Casing Factor 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	15.0 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)	18.07 ft
(I) ~~Casing~~/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	21.69 gal
(K) Min Purge Volume (E + J)	37 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Hon Site 9500	KR22831
Turbidity Meter: HACH 2100P	07818
Pump: dedicated bennett	on file
Field Alkalinity: Lia Matte	346775

PURGING INFORMATION

Description first water purged: clear brown

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-2-11 1132	0	482.93	19.76	7.46	467.1	0.76	-81	11.3	1.8L/min
1153	10	482.98	19.19	7.60	436.1	0.05	-136	1.41	
1218	22	482.97	19.23	7.63	421.1	0.02	-151	1.16	
1236	27	482.95	19.25	7.63	422.1	0.05	-153	1.20	1.0L/min
1255	32	481.94	19.13	7.64	415.7	0.04	-155	~~1.43~~ 1.43	
1313	37	481.9	19.08	7.65	414.9	0.03	-156	1.25	
Values Prior to Sampling									
1313	37	481.9	19.08	7.65	414.9	0.03	-156	1.25	1.0L/min

Field Alkalinity Result 130 mg/L as $CaCO_3$ Sample # GW0272

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy 30s
Field Crew: DA, DM
Review Signature:

Well ID No.: 106019
Date: 12-13-11
Time: ~~12-13-11~~ 1122
Crew Signature:
Date Review: 12/13-11

WELL OBSERVATIONS

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

Notes: VOCs @

CALCULATIONS

(A) Depth to Well Bottom	523 ft
(B) Pre-Purge Depth to Water	499.64 ft
(C) Water Column Height (A-B)	23.36 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	15.19 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)	18.36 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, ____	1.2

(J) Filter Pack Volume (H x I)	22.04 gal
(K) Min Purge Volume (E + J)	38 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 500	R20661
Turbidity Meter: HACH 2100P	07815
Pump: dedicated bennette	on file
Field Alkalinity: La Motte	3467#8

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-13-11 1150	0	499.64	15.65	7.57	327.8	3.84	170	9.20	1.4 L/min
1225	13	499.67	18.26	7.57	327.3	1.46	-3	1.34	
1252	23	499.68	18.35	7.56	321.6	1.24	-11	0.41	
1311	28	499.66	18.17	7.57	323.3	1.14	-23	0.53	1.0 L/min
1329	33	499.65	18.12	7.58	323.7	1.34	-22	0.32	
1348	38	499.65	17.97	7.58	325.8	1.28	-18	0.33	
Values Prior to Sampling									
1348	38	499.65	17.97	7.58	325.8	1.28	-18	0.33	1.0 L/min

Field Alkalinity Result 128 mg/L as CaCO3 Sample ID: GW0773

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106020
Site / SWMU No.: 106
Date: 11/17/11
Weather: Sunny
Time: 0800
Field Crew: AT, GP
Crew Signature: [signature]
Review Signature:
Date Review:

WELL OBSERVATIONS

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

Notes: VOC's Ø in WB Set pump @ 494'

CALCULATIONS

(A) Depth to Well Bottom	512	ft
(B) Pre-Purge Depth to Water	486.12	ft
(C) Water Column Height (A-B)	25.88	ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	~~26.39~~ 16.8	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	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____		

(J) Filter Pack Volume (H x I)	25.2	gal
(K) Min Purge Volume (E + J)	42	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insitu	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: LaMotte	3467 #8	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/17/11 0920	Ø	486.10	14.83	7.26	377.4	4.22	222	1.37	1.76 L/m
1003	20	486.08	18.11	7.52	369.7	3.38	123	5.88	
1025	30	486.08	18.17	7.53	374.1	3.33	122	3.48	
1044	35	486.05	17.83	7.52	371.1	3.36	132	2.05	1.0 L/m
1103	40	486.04	17.88	7.52	370.8	3.40	138	1.41	
1101	42	486.04	17.86	7.52	375.9	3.34	141	1.33	
Values Prior to Sampling									
1111	42	486.04	17.86	7.52	375.9	3.34	141	1.33	1.0 L/m

Field Alkalinity Result 142 Mg/L as CaCO3 **Sample ID:** GW0274 GW0275

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106071
Site / SWMU No.: 106
Date: 12-16-11
Weather: Sunny 30s
Time: 1112
Field Crew: DA, DN
Crew Signature:
Review Signature:
Date Review: 12/16/11

WELL OBSERVATIONS

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

Notes: VOCs Set pump to 470 ft.

CALCULATIONS

(A) Depth to Well Bottom	488 ft
(B) Pre-Purge Depth to Water	459.92 ft
(C) Water Column Height (A-B)	28.08 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	18.26 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)	23.08 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, 1.2	~~27.70~~

(J) Filter Pack Volume (H x I)	27.70 gal
(K) Min Purge Volume (E + J)	46 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R20661
Turbidity Meter: HACH 2100P	02818
Pump: portable bennett	on file
Field Alkalinity: La Motte	34677#8

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-16-11 1204	0	459.92	14.91	6.96	619.1	2.67	207	14.9	1.9 L/min
1234	15	459.95	18.17	7.31	619.1	0.44	1.0	9.18	
1306	31	459.96	18.09	7.35	612.5	0.46	-8.5	1.30	
1325	36	459.94	17.59	7.37	611.9	0.45	-81	1.29	1.0 L/min
1343	41	459.93	17.60	7.37	612.8	0.46	-89	1.26	
1402	46	459.93	17.63	7.37	608.6	0.47	-88	1.39	

Values Prior to Sampling

1402	46	459.93	17.63	7.37	608.6	0.47	-88	1.39	1.0 L/min

Field Alkalinity Result 116 mg/L as CaCO3 **Sample ID:** GW0776

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy 20s
Field Crew: DA, DM
Review Signature:

Well ID No.: 106077
Date: 12-21-11
Time: 0827
Crew Signature:
Date Review: 12/21/11

WELL OBSERVATIONS

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

Notes: VOCs Pump set to 474 ft

CALCULATIONS

(A) Depth to Well Bottom	497 ft
(B) Pre-Purge Depth to Water	463.23 ft
(C) Water Column Height (A-B)	28.77 ft
(D) Casing Factor: 4"=0.65, 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	18.71 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)	23.77 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.7

(J) Filter Pack Volume (H x I)	28.53 gal
(K) Min Purge Volume (E + J)	48 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Sonde 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: portable pump	on file
Field Alkalinity: La Motte	3467#8

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-21-11 0936	0	463.23	12.24	6.79	457.8	6.16	210	5.28	1.99 L/min
1011	18	463.26	18.52	7.67	455.3	0.35	29	0.71	
1040	33	463.28	18.59	7.72	455.6	0.34	0	1.34	
1059	38	463.26	18.13	7.73	455.7	0.36	0	0.60	1.04 L/min
1117	43	463.25	18.12	7.73	455.0	0.36	0	0.47	
1136	48	463.25	18.20	7.73	455.3	0.39	0	0.57	
Values Prior to Sampling									
1136	48	463.25	18.20	7.73	455.3	0.39	0	0.57	1.04 L/min

Field Alkalinity Result 132 mg/L as $CaCO_3$ **Sample ID:** GW0277

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106024
Site / SWMU No.: 106
Date: 10-11-11
Weather: Sunny 70's
Time: 1132
Field Crew: DM, DA
Crew Signature: Daniel Medina
Review Signature: 10/11/11
Date Review: 10/11/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOC's OO in BH.

CALCULATIONS

(A) Depth to Well Bottom	511 ft
(B) Pre-Purge Depth to Water	486.70 ft
(C) Water Column Height (A-B)	24.3 ft
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	15.80 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)	19.3 ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	23.16 gal
(K) Min Purge Volume (E + J)	39 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: IN SITU 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: Dedicated Bennette	ON FILE
Field Alkalinity: LA MOTTE	3467 #5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-11-11/1158	0	486.70	19.90	7.01	564.3	6.95	268	1.38	1.3 L/min
1228	10	486.72	19.49	7.19	656.4	0.50	73	0.78	
1309	24	486.73	19.49	7.23	612.8	0.81	34	0.90	
1327	29	486.71	19.49	7.24	605.5	0.88	32	0.76	1.0 L/min
1346	34	486.72	19.50	7.25	600.6	0.89	28	0.75	
1404	39	486.72	19.47	7.26	595.5	0.86	26	0.77	
Values Prior to Sampling									
1404	39	486.72	19.47	7.26	595.5	0.86	26	0.77	1.0 L/min

Field Alkalinity Result 208 Mg/L as CaCO3 **Sample ID:** GW0278

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF **Well ID No.:** 106025

Site / SWMU No.: 106 **Date:** 10-4-11

Weather: Cloudy 70's **Time:** 1110

Field Crew: DH, DM **Crew Signature:** Daniel Medina

Review Signature: **Date Review:** 10/4/11

WELL OBSERVATIONS

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

Notes: VOC's O.O. in BH.

CALCULATIONS

(A) Depth to Well Bottom	495 ft
(B) Pre-Purge Depth to Water	464.39 ft
(C) Water Column Height (A-B)	30.61 ft
(D) Casing Factor (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	19.90 gal
(F) Depth to Top of Screen	465 ft
(G) Depth to Bottom of Screen	490 ft
(H) Saturated Filter Pack Length (C-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)	50 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter IN SITU 9500	R22831
Turbidity Meter HACH 2100P	02818
Pump DEDICATED BENNETTE	ON FILE
Field Alkalinity LA MOTTE	3467 #5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-4-11/1138	0	464.39	19.24	6.84	453.3	6.27	116	12.0	1.5 L/min
/1226	20	464.42	18.74	7.89	426.8	6.92	85	2.14	
1302	30	464.42	18.45	7.80	414.2	7.39	92	1.18	
1320	40	464.42	18.70	7.81	411.6	7.22	101	0.33	1.0 L/min
1339	45	464.43	18.77	7.82	413.1	7.16	106	0.89	
1357	50	464.40	18.84	7.81	407.0	7.50	109	1.46	
Values Prior to Sampling									
1357	50	464.40	18.84	7.81	407.0	7.50	109	1.46	1.0 L/min

Field Alkalinity Result 112 Mg/L as CaCO3 GW0279

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: KAFB-BFF
Well ID No.: 106026
Site / SWMU No.: 106
Date: 10-4-11
Weather: PARTLY CLOUDY 70°'s
Time: 0802
Field Crew: DA, DM
Crew Signature: Daniel Mechem
Review Signature:
Date Review: 10/4/11

WELL OBSERVATIONS

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

Notes: VOC 7.9 in BH

CALCULATIONS

(A) Depth to Well Bottom	491 ft
(B) Pre-Purge Depth to Water	471.44 ft
(C) Water Column Height (A-B)	19.56 ft
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	12.72 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)	14.56 ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	17.47 gal
(K) Min Purge Volume (E + J)	31 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: INSITU 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: DEDICATED BENNETTE	ON FILE
Field Alkalinity: LA MOTTE	3467#5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-4-11/0836	0	471.44	20.72	6.64	589.4	7.40	172	0.99	1.2 gal/L min
/0908	10	471.48	18.78	7.90	522.8	8.83	70	2.31	
0936	16	471.47	18.80	7.71	548.7	8.46	83	1.25	
0954	21	471.47	18.80	7.72	555.0	8.52	90	1.34	1.0 L/min
1013	26	471.46	18.89	7.73	560.9	8.55	96	1.12	
1031	31	471.45	18.84	7.73	568.8	8.56	100	0.87	
Values Prior to Sampling*									
1031	31	471.45	18.84	7.73	568.8	8.56	100	0.87	1.0 L/min

Field Alkalinity Result 99 Mg/L as $CaCO_3$ GW0280

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106029

Site / SWMU No.: 106 **Date:** 11/1/11

Weather: Sunny **Time:** 1300

Field Crew: AE, TN **Crew Signature:**

Review Signature: **Date Review:** 11/2/11

WELL OBSERVATIONS

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

Notes: VOCs @ on WB, set pump @ 461'

CALCULATIONS

(A) Depth to Well Bottom	475.77	ft
(B) Pre-Purge Depth to Water	457.34	ft
(C) Water Column Height (A-B)	18.42	ft
(D) Casing Factor: 4"=0.65 5"=(1.02)	1.02	
(E) One Well Casing Volume (C x D):	18.8	gal
(F) Depth to Top of Screen	450.77	ft
(G) Depth to Bottom of Screen	470.33	ft
(H) Saturated Filter Pack Length (G –F, or B)	12.56	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07), _____	1.07	

(J) Filter Pack Volume (H x I)	13.4	gal
(K) Min Purge Volume (E + J)	32	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/1/11 1408	0	457.34	26.12	7.83	589.6	5.12	143	2.44	1.74 gal/m
1430	10	457.41	18.94	7.65	621.0	6.05	138	1.68	
1452	20	457.39	18.81	7.64	608.9	6.07	131	1.69	
1511	25	457.35	19.04	7.61	608.9	6.26	132	1.38	1.0 gal/m
1530	30	457.34	19.07	7.63	604.9	6.19	133	1.32	
1538	32	457.34	19.09	7.60	605.7	6.23	133	1.00	
Values Prior to Sampling									
1538	32	457.34	19.09	7.60	605.7	6.23	133	1.00	1.0 gal/m

Field Alkalinity Result 92 mg/L as CaCO3 **Sample ID:** GW0281

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFI — **Well ID No.:** 106030

Site / SWMU No.: 106 — **Date:** 10/31/11

Weather: Cloudy — **Time:** 08:45

Field Crew: AT, JW — **Crew Signature:**

Review Signature: — **Date Review:** 10/31/11

WELL OBSERVATIONS

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

Notes: VOCs ∅ in AB, set pump @ 477'

CALCULATIONS

(A) Depth to Well Bottom	489.9 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	457.77 ft	(K) Min Purge Volume (E + J)	49 gal
(C) Water Column Height (A-B)	32.13 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 6"=1.02	1.02	Parameter Meter: Ins/Hn 450	R20661
(E) One Well Casing Volume (C x D):	33 gal	Turbidity Meter: Hach	2821
(F) Depth to Top of Screen	469.5 ft	Pump: Portable Bennett	on fb
(G) Depth to Bottom of Screen	484.5 ft	Field Alkalinity: La Motte	3467
(H) Saturated Filter Pack Length (G – F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07		

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/31/11 1053	∅	457.77	18.53	7.36	497.1	6.53	164	8.15	1.38 L/m
1148	20	457.71	18.74	7.63	489.3	6.83	140	3.87	
1215	30	457.71	18.72	7.65	493.4	6.83	139	3.10	
1234	40	457.67	18.90	7.65	495.5	6.57	139	2.75	1.0 L/m
1253	45	457.66	18.92	7.66	498.1	6.47	139	2.78	
1308	49	457.30	18.92	7.67	502.3	6.51	139	3.00	
	49 tot								
Values Prior to Sampling									
1308	49	457.30	18.92	7.67	502.3	6.51	139	3.00	1.0 L/m

Field Alkalinity Result 121 mg/L as CaCO3 **Sample ID:** GW0282 GW0283

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: VAFB-BFF
Well ID No.: 106031
Site / SWMU No.: 106
Date: 11/1/11
Weather: Sunny
Time: 0900
Field Crew: AT, TN.
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 11/2/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in WB. set pump @ 502'

CALCULATIONS

(A) Depth to Well Bottom	514.94 ft
(B) Pre-Purge Depth to Water	457.71 ft
(C) Water Column Height (A-B)	57.24 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	58 gal
(F) Depth to Top of Screen	495.77 ft
(G) Depth to Bottom of Screen	509.94 ft
(H) Saturated Filter Pack Length (G – F, or B)	14.17 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07

(J) Filter Pack Volume (H x I)	15 gal
(K) Min Purge Volume (E + J)	72 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Insitu 9500	R20661
Turbidity Meter: Hach	2821
Pump: Portable Bennett	on file
Field Alkalinity: LaMotte	3467

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/1/11 0948	Ø	457.71	18.50	7.23	543.2	6.87	196	6.47	1.74 L/m
1053	30	457.75	18.78	7.56	537.8	7.50	151	3.64	
1115	40	457.75	18.82	7.54	541.8	7.42	148	2.77	
1127	50	457.75	18.83	7.53	551.7	7.66	146	2.14	
1150	60	457.74	18.83	7.53	558.1	7.49	145	1.96	1.0 L/m
1209	65	457.68	18.98	7.54	562.6	7.08	147	4.79	
1236	72	457.66	18.99	7.53	568.5	7.05	147	4.59	

Values Prior to Sampling

1236	72	457.66	18.99	7.53	568.5	7.05	147	4.59	1.0 L/m

Field Alkalinity Result 98 mg/L as $CaCO_3$ **Sample ID:** GW0284

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106032
Site / SWMU No.: 106
Date: 10/24/11
Weather: Sunny
Time: 0800
Field Crew: AT, TW
Crew Signature: [signature]
Review Signature:
Date Review:

WELL OBSERVATIONS

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

Notes: VOC'S Ø in WB, set proposal 467'

CALCULATIONS

(A) Depth to Well Bottom	480.5	ft
(B) Pre-Purge Depth to Water	463.14	ft
(C) Water Column Height (A-B)	17.36	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	17.70	gal
(F) Depth to Top of Screen	456	ft
(G) Depth to Bottom of Screen	475.75	ft
(H) Saturated Filter Pack Length (G –F, or B)	12.61	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07	

(J) Filter Pack Volume (H x I)	13.5	gal
(K) Min Purge Volume (E + J)	31	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9800	R206601	
Turbidity Meter: Hach	2821	
Pump: Pretubular Burnett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/24/11 0921 at 0901	Ø	463.14	17.82	7.52	395.8	5.54	167	5.18	1.20 L/m
0954	10	463.17	18.44	7.53	390.8	5.63	144	3.27	
1010	15	463.17	18.48	7.53	390.8	5.70	143	2.66	
1029	20	463.17	18.54	7.58	388.5	5.79	141	2.89	1.00 L/min
1048	25	463.18	18.57	7.58	388.4	5.76	140	1.42	
1110	31	463.18	18.61	7.58	387.8	5.80	139	1.61	

Values Prior to Sampling

1110	31	463.18	18.61	7.58	387.8	5.80	139	1.61	1.0 L/m

Field Alkalinity Result 122 Mg/L as $CaCO_3$ **Sample ID:** GW0285

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106033

Site / SWMU No.: 106 **Date:** 10/24/11

Weather: Sunny **Time:** 1230

Field Crew: AT, TW **Crew Signature:**

Review Signature: **Date Review:**

WELL OBSERVATIONS

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

Notes: VOCs @ on WB, set pump @ 4951

CALCULATIONS

(A) Depth to Well Bottom	496.6	ft
(B) Pre-Purge Depth to Water	463.30	ft
(C) Water Column Height (A-B)	33.3	ft
(D) Casing Factor: 4"=0.65 (8"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	34	gal
(F) Depth to Top of Screen	477	ft
(G) Depth to Bottom of Screen	492	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	50	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 4500	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/24/11 1301	0	463.30	21.08	7.49	716.4	6.86	153	3.26	1.40 L/m
1355	20	463.26	18.98	7.52	706.5	7.19	149	2.42	
1422 TW ~~1408~~	30	463.25	19.02	7.52	710.7	7.56	151	3.08	
1436 TW ~~1422~~	35	463.24	18.99	7.52	706.0	7.35	152	2.45	
1455	40	463.22	19.28	7.51	705.7	6.89	154	2.23	.98 L/min
1514	45	463.23	19.26	7.51	711.2	6.95	154	1.82	
1536	51	463.21	19.21	7.51	708.7	6.82	155	1.40	
Values Prior to Sampling									
1536	51	463.21	19.21	7.51	708.7	6.82	155	1.40	0.98 L/m

Field Alkalinity Result 112 mg/L as $CaCO_3$ **Sample ID:** GW0286

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: KAFB-BFF
Well ID No.: 106034
Site / SWMU No.: 106
Date: 10-25-11
Weather: Sunny 70°s
Time: 0825
Field Crew: DM, TW
Crew Signature: Daniel Medina
Review Signature:
Date Review: 10/25/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH. Pump set at 509.5

CALCULATIONS

(A) Depth to Well Bottom	522 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	464.07 ft	(K) Min Purge Volume (E + J)	76 gal
(C) Water Column Height (A-B)	57.93 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: IN SITU 9500	R20661
(E) One Well Casing Volume (C x D):	59.90 gal	Turbidity Meter: HACH 2100P	02621
(F) Depth to Top of Screen	502 ft	Pump: PORTABLE BENNETTE	ON FILE
(G) Depth to Bottom of Screen	517 ft	Field Alkalinity: LA MOTTE	3467#8
(H) Saturated Filter Pack Length (G – F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2 (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-25-11 ~~0938~~ 1019	0	464.07	20.35	7.41	652.5	6.94	197	~~26.52~~ 55.8	1.2 L/min
~~1121~~ ~~1122~~ 1122	20	464.12	19.02	7.55	689.6	7.67	189	20.0	
1223	40	464.11	19.26	7.53	700.7	7.68	181	14.2	
1328	61	464.08	18.95	7.82	707.0	7.82	180	4.10	
1346	66	464.09	19.03	7.54	689.0	7.24	180	2.22	1.0 L/min
1405	71	464.08	19.23	7.54	697.0	7.31	177	2.74	
1423	76	464.06	19.35	7.54	695.0	7.48	174	2.11	
Values Prior to Sampling									
1423	76	464.06	19.35	7.54	695.0	7.48	174	2.11	1.0 L/min

Field Alkalinity Result 88 mg/L as $CaCO_3$ **Sample ID:** GW0287

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** KAFB-106035

Site / SWMU No.: 106 **Date:** 11-15-11

Weather: Sunny 50's **Time:** 1409

Field Crew: DM, MB **Crew Signature:** Daniel Medina

Review Signature: [signature] **Date Review:** 11/16/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	487 ft	(J) Filter Pack Volume (H x I)	14.41 gal
(B) Pre-Purge Depth to Water	468.53 ft	(K) Min Purge Volume (E + J)	34 gal
(C) Water Column Height (A-B)	18.47 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	18.84 gal	Turbidity Meter: Hach 2100P	02818
(F) Depth to Top of Screen	452 ft	Pump: Dedicated Bennette	On File
(G) Depth to Bottom of Screen	482 ft	Field Alkalinity: La Motte	3467#5
(H) Saturated Filter Pack Length (G –F, or (B))	13.47 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-15-11/1428	0	468.53	18.52	7.88	302.4	7.73	209	1.85	3.3L/min
1436	7	468.95	19.08	7.82	423.0	9.18	215	2.14	
1443	13	468.76	18.97	7.77	430.2	9.61	208	1.83	
1449	19	468.76	18.98	7.75	437.8	9.95	204	1.35	
1507	24	468.65	18.71	7.74	444.0	9.20	206	0.99	1.0L/min
1526	29	468.65	18.71	7.74	438.2	9.28	209	0.84	
1544	34	468.65	18.68	7.74	439.6	9.28	214	0.75	
Values Prior to Sampling									
1544	34	468.65	18.68	7.74	439.6	9.28	214	0.75	1.0L/min

Field Alkalinity Result 123 Mg/L as $CaCO_3$ **Sample ID:** GW0288

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-106036
Site / SWMU No.: 106
Date: 11-15-11
Weather: Sunny 50's
Time: 1127
Field Crew: DM, MR
Crew Signature: Daniel Medina
Review Signature:
Date Review: 11/15/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	501.8 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	468.81 ft	(K) Min Purge Volume (E + J)	50 gal
(C) Water Column Height (A-B)	32.99 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	33.65 gal	Turbidity Meter: Hach 2100P	02818
(F) Depth to Top of Screen	481.8 ft	Pump: Dedicated Bennette	On File
(G) Depth to Bottom of Screen	496.8 ft	Field Alkalinity: La Motte	3467#5
(H) Saturated Filter Pack Length (G-F or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-15-11/1156	0	468.81	18.94	7.82	530.5	7.66	306	1.00	3.7 L/min
1212	15	468.82	18.98	7.73	534.5	12.77	190	2.97	
1223	25	468.81	18.99	7.73	532.3	12.85	189	2.39	
1234	35	468.96	19.02	7.73	532.6	12.74	190	2.10	
1252	40	468.80	18.78	7.72	532.0	10.33	199	1.89	1.04/min
1311	45	468.77	18.72	7.73	528.8	10.32	207	1.87	
1329	50	468.78	18.73	7.72	526.3	10.37	213		
Values Prior to Sampling									
1329	50	468.78	18.73	7.72	526.3	10.37	213	1.61	1.04/min

Field Alkalinity Result 24 Mg/L as CaCO3 **Sample ID:** GW0289

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Well ID No.: KAFB - 106037
Site / SWMU No.: 106
Date: 11-15-11
Weather: Sunny 50's
Time: 0818
Field Crew: DM, MR
Crew Signature: Daniel Medina
Review Signature:
Date Review: 11/15/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH,

CALCULATIONS

(A) Depth to Well Bottom	527.0 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	469.15 ft	(K) Min Purge Volume (E + J)	76 gal
(C) Water Column Height (A-B)	57.85 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	59.0 gal	Turbidity Meter: Hach 2100P	02818
(F) Depth to Top of Screen	507 ft	Pump: Dedicated Bennette	On File
(G) Depth to Bottom of Screen	522 ft	Field Alkalinity: LaMotte	3467#5
(H) Saturated Filter Pack Length (G –F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-15-11/0902	0	469.15	18.20	7.37	391.8	7.79	332	0.88	3.94/min
0922	20	469.15	19.02	7.76	366.1	17.63	454	4.50	
0942	40	469.14	19.03	7.76	368.1	17.76	391	2.65	
1003	61	469.11	19.05	7.78	367.8	17.61	354	1.69	
1021	66	469.08	18.58	7.78	367.6	11.65	349	2.03	1.04/min
1040	71	469.07	18.53	7.76	367.7	11.49	342	2.04	
1058	76	469.07	18.55	7.78	367.6	11.62	338	2.28	
Values Prior to Sampling									
1058	76	469.07	18.55	7.78	367.6	11.62	338	2.28	1.04/min

Field Alkalinity Result 120 Mg/as Ca Co3 **Sample ID:** GW0290

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106038
Site / SWMU No.: 106
Date: 11/7/11
Weather: Sunny
Time: 0800
Field Crew: AT MR
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 11/7/11

WELL OBSERVATIONS

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

Notes: Vocs Ø in WB

CALCULATIONS

(A) Depth to Well Bottom	513	ft
(B) Pre-Purge Depth to Water	497.23	ft
(C) Water Column Height (A-B)	15.77	ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	16.08	gal
(F) Depth to Top of Screen	478	ft
(G) Depth to Bottom of Screen	508	ft
(H) Saturated Filter Pack Length (G –F, or B)	10.77	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07 ~~10.77~~ at	

(J) Filter Pack Volume (H x I)	11.5	gal
(K) Min Purge Volume (E + J)	27	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: LaMotte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/7/11 0907	Ø	497.23	17.76	7.42	315.5	5.23	143	6.32	3.0 L/m
0913	5	497.31	18.76	7.83	314.6	5.50	176	6.14	
0916	10	497.31	18.71	7.87	314.2	5.49	176	5.13	
0919	15	497.31	18.71	7.84	314.7	5.58	177	3.77	
0938	20	497.31	18.47	7.82	315.0	5.54	172	2.47	0.98 L/m
0957	25	497.26	18.45	7.79	312.3	5.50	167	1.86	
1010	27	497.25	18.45	7.73	313.5	5.40	166	1.81	
Values Prior to Sampling									
1010	27	497.25	18.45	7.73	313.5	5.40	166	1.81	0.98 L/m

Field Alkalinity Result 140: mg/L as $CaCO_3$ **Sample ID:** GW0291

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF

Well ID No.: ~~106094~~ at 106039

Site / SWMU No.: 106

Date: 10/12/11

Weather: Sunny

Time: 1245

Field Crew: AT, RR

Crew Signature: [signature]

Review Signature: [signature]

Date Review: 10/13/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: VOCs Ø in WB, Set pump @ 5/6'

CALCULATIONS

(A) Depth to Well Bottom	528	ft
(B) Pre-Purge Depth to Water	497.20	ft
(C) Water Column Height (A-B)	30.8	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	31.4	gal
(F) Depth to Top of Screen	508.25	ft
(G) Depth to Bottom of Screen	523.25	ft
(H) Saturated Filter Pack Length (G –F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	47	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable Burnett	mfd	
Field Alkalinity: Lamotte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/12/11 1342	Ø	497.20	19.22	7.58	300.0	5.90	162	7.60	1.60 L/m
1405	10	497.28	18.92	7.61	313.9	5.73	165	3.12	
1428	20	497.28	18.89	7.62	308.7	5.74	162	1.47	
1451	30	497.27	18.82	7.62	306.3	5.59	159	1.33	
1503	35	497.27	18.86	7.62	305.8	5.57	158	1.30	
1522	40	497.22	18.74	7.63	307.5	5.26	158	1.34	0.92 L/m
1539	45	497.22	18.74	7.63	314.1	5.23	158	1.34	
1546	47	497.22	18.66	7.63	308.5	5.23	158	1.15	
Values Prior to Sampling									
1546	47	497.22	18.66	7.63	308.5	5.23	158	1.15	0.92 L/m

Field Alkalinity Result 118 Mg/L as $CaCO_3$

Sample ID: GW0292 GW0293

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106040

Site / SWMU No.: 106 **Date:** 10/19/11

Weather: Sunny **Time:** 0800

Field Crew: AT, RB **Crew Signature:**

Review Signature: **Date Review:** 10/19/11

WELL OBSERVATIONS

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

Notes: Vocs @ in WB, set pmp @ 538'

CALCULATIONS

(A) Depth to Well Bottom	550.55 ft
(B) Pre-Purge Depth to Water	496.34 ft
(C) Water Column Height (A-B)	54.21 ft
(D) Casing Factor: 4"=0.65 5"=(1.02)	1.02
(E) One Well Casing Volume (C x D):	55 gal
(F) Depth to Top of Screen	530.55 ft
(G) Depth to Bottom of Screen	545.55 ft
(H) Saturated Filter Pack Length (G-F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.0), _____	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	70.26 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Horiba U-22	R20661
Turbidity Meter: Hach	2821
Pump: Portable Bennett	on file
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/19/11 0939	0	496.34	15.14	7.22	265.8	5.79	155	5.42	1.60 L/m
1040	30	496.45	18.67	7.63	301.3	7.43	161	1.95	
1104	40	496.43	18.71	7.64	302.2	7.37	157	2.22	
1128	50	496.42	18.73	7.64	305.1	7.42	153	1.58	
1147	~~at 55~~ 60	496.32	18.42	7.64	305.9	6.98	156	2.09	1.0 L/m
1206	~~at 60~~ 65	496.34	18.55	7.63	299.6	6.99	155	1.84	
1225	~~at 65~~ 70	496.34	18.56	7.63	300.7	7.00	154	1.58	
	~~at 70~~								
Values Prior to Sampling									
1225	70	496.34	18.56	7.63	300.7	7.00	154	1.58	1.0 L/m

Field Alkalinity Result 96 Mg/L as CaCO3 **Sample ID:** GWO294

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF **Well ID No.:** 106042

Site / SWMU No.: 106 **Date:** 10-31-11

Weather: Sunny 70's **Time:** 0838

Field Crew: DM, **Crew Signature:** Daniel Medina

Review Signature: **Date Review:** 10/31/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	488.53 ft	(J) Filter Pack Volume (H x I)	11.75 gal
(B) Pre-Purge Depth to Water	472.55 ft	(K) Min Purge Volume (E + J)	29 gal
(C) Water Column Height (A-B)	15.98 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	16.30 gal	Turbidity Meter HACH 2100P	02818
(F) Depth to Top of Screen	469 ft	Pump Dedicated Bennette	On File
(G) Depth to Bottom of Screen	483.53 ft	Field Alkalinity LA Motte	3478#5
(H) Saturated Filter Pack Length (G –F, or (B))	10.98 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07) 1.07	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-31-11/0940	0	472.55	17.79	7.59	507.9	8.08	199	0.92	3.96 l/min
/0947	7	472.70	18.81	7.65	516.5	7.84	21	4.32	
0954	14	472.71	18.78	7.68	520.4	7.95	34	2.53	
1012	19	472.73	18.60	7.67	518.6	7.73	63	2.41	1.04 l/min
1031	24	472.72	18.71	7.65	521.4	7.53	79	1.47	
1049	29	472.72	18.68	7.65	513.9	7.51	88	1.13	
Values Prior to Sampling									
1049	29	472.72	18.68	7.65	513.9	7.51	88	1.13	1.04 l/min

Field Alkalinity Result 118 Mg/L as $CaCO_3$ **Sample ID:** GW02916

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DM, MR
Review Signature:

Well ID No.: 106043
Date: 10-31-11
Time: 1141
Crew Signature: Dequincy Medina
Date Review: 10/31/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH

CALCULATIONS

(A) Depth to Well Bottom	562.53 ft
(B) Pre-Purge Depth to Water	472.78 ft
(C) Water Column Height (A-B)	89.75 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	91.55 gal
(F) Depth to Top of Screen	543 ft
(G) Depth to Bottom of Screen	557.53 ft
(H) Saturated Filter Pack Length (G – F, or B)	14.53 ft
(I) Casing/Borehole Factor 4/10 = 1.2 (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	15.55 gal
(K) Min Purge Volume (E + J)	108 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: Dedicated Bennette	On File
Field Alkalinity: La Motte	3478#5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-31-11/1241	0	472.78	19.65	7.81	322.2	17.43	114	0.86	3.2 L/min
1317	30	472.80	19.07	7.82	329.0	17.36	117	0.95	
1353	60	472.88	19.11	7.82	330.0	17.86	122	1.04	
1433	93	472.86	19.10	7.83	331.5	17.81	125	1.01	
1451	98	472.86	18.96	7.83	330.0	12.98	137	0.77	1.0 L/min
1510	103	472.87	18.93	7.83	330.4	12.92	144	0.70	
1528	108	472.87	18.93	7.83	330.7	12.95	151	0.73	
Values Prior to Sampling									
1528	108	472.87	18.93	7.83	330.7	12.95	151	0.73	1.0 L/min

Field Alkalinity Result 128 Mg/L as CaCO3 **Sample ID:** GW0297

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106027

Site / SWMU No.: 106 **Date:** 10-17-11

Weather: Sunny 70°s **Time:** 1235

Field Crew: DA, MR **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 10/19/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in BH

CALCULATIONS

(A) Depth to Well Bottom	506	ft
(B) Pre-Purge Depth to Water	491.27	ft
(C) Water Column Height (A-B)	14.73	ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	13.99	gal
(F) Depth to Top of Screen	481	ft
(G) Depth to Bottom of Screen	501	ft
(H) Saturated Filter Pack Length (G –F, or B)	20	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	24	gal
(K) Min Purge Volume (E + J)	38	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Un Situ 9500	R22831	
Turbidity Meter: HACH 2100P	02818	
Pump: dedicated bennett	on file	
Field Alkalinity: La Motte	3467#5	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-17-11 1256	Ø	491.27	19.16	7.72	311.8	7.36	118	1.87	1.46 L/min
1322	10	491.33	19.30	7.88	328.6	7.39	115	0.89	
1356	~~20~~ 18 23	491.34	19.30	7.86	328.1	7.33	105	1.07	
1414	~~20~~ 23 28	491.31	19.30	7.85	333.7	7.31	113	1.13	1.0 L/min
1433	~~20~~ 23 33	491.29	19.28	7.86	324.9	7.43	118	0.77	
1451	38	491.28	19.27	7.84	330.4	7.41	122	0.96	

Values Prior to Sampling

1451	38	491.28	19.27	7.84	330.4	7.41	122	0.96	1.0 L/min

Field Alkalinity Result 128 mg/L as $CaCO_3$ **Sample ID:** GW0298

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106044

Site / SWMU No.: 106 **Date:** 10-18-11

Weather: Sunny 70s **Time:**

Field Crew: DA, DM **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 10/19/11

WELL OBSERVATIONS

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

Notes: VOCs Ø

CALCULATIONS

(A) Depth to Well Bottom	523.9 ft
(B) Pre-Purge Depth to Water	491.26 ft
(C) Water Column Height (A-B)	32.64 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	33.30 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 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	~~49.99~~ 50 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-18-11 1338	Ø	491.26	19.55	7.57	276.3	7.40	198	1.34	3.36L/min
1401	20	491.33	19.32	7.88	276.3	9.91	76	1.33	
1418	35	491.35	19.34	7.89	274.8	9.80	65	1.14	
1436	40	491.32	19.31	7.91	275.5	6.94	83	0.92	L/min
1455	45	491.29	19.18	7.91	274.3	7.~~49~~14	100	1.75	
1513	50	491.27	19.19	7.91	276.7	7.24	112	1.19	

Values Prior to Sampling

1513	50	491.27	19.19	7.91	276.7	7.24	112	1.19	L/min

Field Alkalinity Result 114 mg/L as $CaCO_3$ **Sample ID:** GW0299

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106045

Site / SWMU No.: 106 **Date:** 10-19-11

Weather: Sunny 60s **Time:** 0804

Field Crew: AA, DM **Crew Signature:**

Review Signature: **Date Review:** 10/19/11

WELL OBSERVATIONS

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

Notes: VOCs@

CALCULATIONS

(A) Depth to Well Bottom	563 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	491.36 ft	(K) Min Purge Volume (E + J)	88 gal
(C) Water Column Height (A-B)	71.64 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: Hon Lota 9500	R27831
(E) One Well Casing Volume (C x D):	73.1 gal	Turbidity Meter: HACH 2100P	02818
(F) Depth to Top of Screen	528.3 ft	Pump: dedicated Bennett	on file
(G) Depth to Bottom of Screen	543.3 ft	Field Alkalinity: La Motte	3467#5
(H) Saturated Filter Pack Length (G –F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07), _____	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-19-11 0839	0	491.36	18.01	7.48	275.7	8.69	206	0.96	3.4 L/min
0915	33	491.43	19.05	7.90	275.5	10.06	127	1.43	
0937	53	491.45	19.05	7.90	278.2	10.45	88	0.77	
0958	73	491.45	19.09	7.89	277.4	10.68	66	0.55	
1016	78	491.42	18.61	7.91	274.8	7.12	82	0.73	1.0 L/min
1035	83	491.40	18.62	7.93	277.0	7.35	97	0.78	
1053	88	491.38	18.73	7.92	275.9	7.44	109	0.80	
Values Prior to Sampling									
1053	88	491.38	18.73	7.92	275.9	7.44	109	0.80	1.0 L/min

Field Alkalinity Result 104 mg/L as CaCO3 **Sample ID:** GW0300

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB 106046
Site / SWMU No.:
Date: 11/7/11
Weather: sunny 50's
Time: 905
Field Crew: TN, DR
Crew Signature: TN DR
Review Signature: TC
Date Review: 11/7/11

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

(A) Depth to Well Bottom	515 ft
(B) Pre-Purge Depth to Water	497.32 ft
(C) Water Column Height (A-B)	17.68 ft
(D) Casing Factor (4"=0.65, 5"=1.02)	
(E) One Well Casing Volume (C x D):	18.03 gal
(F) Depth to Top of Screen	490 ft
(G) Depth to Bottom of Screen	510 ft
(H) Saturated Filter Pack Length (G –F, or B)	12.68 ft
(I) Casing/~~Borehole~~ Factor 4/10 = 1.2, 5/10 = 1.07	

(J) Filter Pack Volume (H x I)	13.57 gal
(K) Min Purge Volume (E + J)	32.00 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ	R22831
Turbidity Meter: Hach	2818
Pump: Bennett (dedicated)	on file
Field Alkalinity: LaMotte	3467

PURGING INFORMATION

Description first water purged: clear, no odor

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/7/11 918	0	497.32	18.46	7.00	463.7	5.88	242	1.50	2.00 L/min
937	10	497.37	19.34	7.02	381.8	4.66	241	2.27	
956	20	497.38	19.30	7.39	389.9	4.41	188	1.29	
1015	25	497.37	19.40	7.58	395.4	3.92	188	1.14	1.00 L/min
1034	30	497.37	19.29	7.58	401.6	3.76	189	1.17	
1042	32	497.38	19.37	7.59	401.9	3.75	189	1.16	
Values Prior to Sampling									
1042	32	497.38	19.37	7.59	401.9	3.75	189	1.16	1.0 L/min

Field Alkalinity Result 164 mg/L $CaCO_3$ **Sample ID:** GW0301

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: KAFB-BFF
Well ID No.: KAFB 106047
Site / SWMU No.: 106
Date: 11/7/11
Weather: sunny 60's
Time: 1146
Field Crew: TN, DR, DM, FK
Crew Signature: Liz Nagel
Review Signature:
Date Review: 11/7/11

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	532.00 ft
(B) Pre-Purge Depth to Water	497.41 ft
(C) Water Column Height (A-B)	34.59 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	
(E) One Well Casing Volume (C x D):	35.28 gal
(F) Depth to Top of Screen	512 ft
(G) Depth to Bottom of Screen	527 ft
(H) Saturated Filter Pack Length (G –F, or B)	15 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)	52.00 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH 2100P	07618
Pump: Dedicated Bennette	On File
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1150	0	497.41	18.69	7.71	3536	7.51	194	1.47	4.0L/min
1209	20	497.64	19.41	7.59	330.5	4.79	-14	3.75	
1218	30	497.63	19.40	7.60	329.9	4.48	-18	6.94	
1227	40	497.43	19.40	7.56	331.0	3.12	-31	15.5	
1246	45	497.39	19.36	7.56	335.9	3.27	-22	13.5	1.0L/min
1305	50	497.37	19.56	7.56	334.1	3.21	-17	14.4	
1313	52	497.37	19.34	7.57	333.6	3.42	-12	15.9	
Values Prior to Sampling									
1313	52	497.37	19.34	7.57	333.6	3.42	-12	15.9	1.0L/min

Field Alkalinity Result 160 mg/L $CaCO_3$ Sample ID: GW0302

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy 40's
Field Crew: DM, MR
Review Signature:

Well ID No.: KAFB-106048
Date: 11-8-11
Time: 0755
Crew Signature: Dennis T Medina
Date Review: 11/8/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	555.5 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	497.25 ft	(K) Min Purge Volume (E + J)	76 gal
(C) Water Column Height (A-B)	58.25 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	59.42 gal	Turbidity Meter: Hach 2100P	02818
(F) Depth to Top of Screen	535.5 ft	Pump: Dedicated Bennette	On File
(G) Depth to Bottom of Screen	550.5 ft	Field Alkalinity: La Motte	3467#5
(H) Saturated Filter Pack Length (G-F or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-8-11/0842	0	497.25	20.29	7.43	290.8	7.79	204	1.99	4.0 L/min
0901	20	497.39	19.01	7.87	286.3	13.55	206	3.40	
0920	40	497.39	19.04	7.84	286.0	13.75	210	3.47	
0940	61	497.37	19.29	7.83	285.5	13.81	209	1.72	
0958	66	497.37	19.14	7.84	285.6	9.85	207	1.49	1.0 L/min
1017	71	497.29	14.83	7.85	286.2	10.49	206	2.08	
1035	76	497.29	19.01	7.86	286.2	10.22	206	1.65	
Values Prior to Sampling									
1035	76	497.29	19.01	7.86	286.2	10.22	206	1.65	1.0 L/min

Field Alkalinity Result 147 Mg/L as $CaCO_3$ **Sample ID:** GW0303

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106049

Site / SWMU No.: 106 **Date:** 10-10-11

Weather: Sunny 60s° **Time:** 1400

Field Crew: DA, DM **Crew Signature:**

Review Signature: **Date Review:**

WELL OBSERVATIONS

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

Notes: VOCs in BH

CALCULATIONS

(A) Depth to Well Bottom	480.68 ft
(B) Pre-Purge Depth to Water	463.27 ft
(C) Water Column Height (A-B)	17.41 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.07
(E) One Well Casing Volume (C x D):	17.76 gal
(F) Depth to Top of Screen	456.24 ft
(G) Depth to Bottom of Screen	476.80 ft
(H) Saturated Filter Pack Length (G –F, or B)	13.53 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	14.48 gal
(K) Min Purge Volume (E + J)	33 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI 9500	R72831
Turbidity Meter HACH 2100P	02818
Pump dedicated Bennett	on file
Field Alkalinity La Motte	3467#5

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-10-11 1421	0	463.27	18.73	7.51	1142	7.45	153	1.05	3.4 L/min
1433	10	463.33	18.64	7.67	1204	8.23	58	6.48	
1442	16	463.33	18.62	7.56	1195	8.20	79	5.99	
1500	23	463.31	18.62	7.65	1190	8.08	105	3.84	1.0 L/min
1519	28	463.30	18.54	7.64	1179	8.07	116	2.28	
1537	33	463.29	18.59	7.64	1159	8.18	100	1.28	
Values Prior to Sampling									
1537	33	463.29	18.59	7.64	1159	8.18	100	1.28	1.0 L/min

Field Alkalinity Result 88 mg/L as $CaCO_3$ **Sample ID:** GW0304

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106050
Site / SWMU No.: 106
Date: 10-10-11
Weather: Sunny 60's
Time: 11:30
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: _____
Date Review: _____

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs 1.3 in BH

CALCULATIONS

(A) Depth to Well Bottom	494.75 ft
(B) Pre-Purge Depth to Water	462.63 ft
(C) Water Column Height (A-B)	32.12 ft
(D) Casing Factor: 4"=0.65, (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	32.77 gal
(F) Depth to Top of Screen	475.58 ft
(G) Depth to Bottom of Screen	489.35 ft
(H) Saturated Filter Pack Length (G -F or B)	13.77 ft
(I) ~~Casing/Borehole Factor~~ 4/10 = 1.2, (6/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	14.74 gal
(K) Min Purge Volume (E + J)	48 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Horiba U-22	R27831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment 3.66
10-10-11 1150	0	462.63	20.99	7.66	485.2	6.85	157	2.67	~~1.8~~ L/min
1211	20	462.69	18.83	7.75	522.4	11.85	103	4.12	
1225	33	462.69	18.78	7.75	523.2	12.00	111	2.67	
1243	38	462.67	19.19	7.75	518.9	10.40	130	2.45	1.0 L/min
1302	43	462.65	19.31	7.74	512.7	10.24	141	2.74	
1320	48	462.64	19.20	7.74	510.8	10.23	148	2.70	
Values Prior to Sampling									
1320	48	462.64	19.20	7.74	510.8	10.23	148	2.70	1 L/min

Field Alkalinity Result 96 mg/L as $CaCO_3$ **Sample ID:** 0305A-0306

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 50s
Field Crew: DA/DM
Review Signature:

Well ID No.: 106051
Date: 10-10-11
Time: 0816
Crew Signature:
Date Review:

WELL OBSERVATIONS

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

Notes: VOCs Ø in BH

CALCULATIONS

(A) Depth to Well Bottom	521.22 ft
(B) Pre-Purge Depth to Water	462.91 ft
(C) Water Column Height (A-B)	58.31 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	59.48 gal
(F) Depth to Top of Screen	502.05 ft
(G) Depth to Bottom of Screen	515.82 ft
(H) Saturated Filter Pack Length (G –F, or B)	13.77 ft
(I) Casing/Borehole Factor 4/10 = 1.2 (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	14.75 gal
(K) Min Purge Volume (E + J)	75 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter Hon Site 900	RZ7831
Turbidity Meter HACH 2100P	07818
Pump dedicated bennett on file	
Field Alkalinity La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear.

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-10-11 0848	0	462.91	21.57	6.88	413.8	6.83	221	1.63	2.8 L/min
0928	30	462.97	18.70	7.81	394.6	12.88	140	0.91	
0948	45	462.97	18.63	7.81	399.5	12.84	138	1.14	
1008	60	462.97	18.71	7.81	396.3	12.65	136	0.63	
1026	65	462.94	18.64	7.81	401.0	9.61	149	0.36	1.0 L/min
1045	70	462.93	18.82	7.82	396.3	9.50	153	0.67	
1103	75	462.92	18.85	7.87	403.2	9.31	157	0.72	
Values Prior to Sampling									
1103	75	462.92	18.85	7.82	403.2	9.31	157	0.72	4 L/min

Field Alkalinity Result 98 mg/L as $CaCO_3$ **Sample ID:** GW0307

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

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, TN
Review Signature: Tim Nagle

Well ID No.: KAFB 106052
Date: 11/2/11
Time: 1330
Crew Signature: Tim Nagle
Date Review: 11/2/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in aB, set pmp @ 470'

CALCULATIONS

(A) Depth to Well Bottom	484.80 ft
(B) Pre-Purge Depth to Water	466.68 ft
(C) Water Column Height (A-B)	18.12 ft
(D) Casing Factor: 4"=0.65 5"=(1.02)	1.02
(E) One Well Casing Volume (C x D):	18.5 gal
(F) Depth to Top of Screen	450.35 ft
(G) Depth to Bottom of Screen	479.63 ft
(H) Saturated Filter Pack Length (G –F, or B)	12.95 ft
(I) Casing/~~Borehole~~ Factor 4/10 = 1.2, 5/10 = 1.07	1.07

(J) Filter Pack Volume (H x I)	13.85 gal
(K) Min Purge Volume (E + J)	32 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Insitu 9500	R20661
Turbidity Meter: Hach	2821
Pump: Portable Bennett	on file
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/2/11 1336	Ø	466.68	18.17	7.64	439.50	5.87	156	8.52	1.72L/min
1358	10	466.74	18.11	7.61	438.1	5.79	151	8.68	
1420	20	466.75	18.09	7.60	437.5	5.82	148	6.58	
1439	25	466.68	17.78	7.61	436.7	5.82	148	4.18	0924 Ca
1458	30	466.70	17.67	7.61	434.7	5.92	148	3.10	
1506	32	466.70	17.70	7.61	437.3	5.86	148	2.67	
Values Prior to Sampling									
1506	32	466.70	17.70	7.61	437.3	5.86	148	2.67	0924 Ca

Field Alkalinity Result 112 mg/L as CaCO3 **Sample ID:** 040308

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: sunny 40's
Field Crew: AT, TN
Review Signature:

Well ID No.: KAFB 106053
Date: 11/2/11
Time: 0830
Crew Signature:
Date Review: 11/2/11

WELL OBSERVATIONS

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

Notes: VOC's ND in WB, set pump @ 486'

CALCULATIONS

(A) Depth to Well Bottom	498.43 ft
(B) Pre-Purge Depth to Water	466.53 ft
(C) Water Column Height (A-B)	31.90 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	32.54 gal
(F) Depth to Top of Screen	479.26 ft
(G) Depth to Bottom of Screen	493.03 ft
(H) Saturated Filter Pack Length (G – F, or B)	13.77 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07), _____	1.07

(J) Filter Pack Volume (H x I)	14.7 gal
(K) Min Purge Volume (E + J)	47 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Instru 9500	R20661
Turbidity Meter: Hach	2821
Pump: Portable Bennett	on file
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/2/11 0930	10	466.53	16.99	7.33	409.1	6.63	209	4.31	1.76 L/m
1013	20	466.64	18.06	7.58	403.0	6.82	174	2.19	
1035 ~~1025~~ est	30	466.64	18.07	7.60	402.5	6.92	164	1.81	
1046 ~~1036~~ est	35	466.64	18.09	7.59	405.4	6.83	160	0.99	
1105	40	466.62	17.99	7.61	403.5	6.59	155	1.15	1.0 L/m
1124	45	466.62	17.98	7.61	409.6	6.37	153	1.19	
1132	47	466.63	18.03	7.60	401.3	6.54	153	1.64	
Values Prior to Sampling									
1132	47	466.63	18.03	7.60	401.3	6.54	153	1.64	2.0 L/m

Field Alkalinity Result 112 mg/L as CaCO3 **Sample ID:** GW0309

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

Shaw 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, TN
Review Signature:

Well ID No.: 106054
Date: 11/3/11
Time: 0830
Crew Signature:
Date Review: 11/30/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: Vocs @ in WB, Set pump @ 511'

CALCULATIONS

(A) Depth to Well Bottom	524 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	466.49 ft	(K) Min Purge Volume (E + J)	74.71 gal
(C) Water Column Height (A-B)	57.51 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)		Parameter Meter In Situ	R20661
(E) One Well Casing Volume (C x D):	58.66 gal	Turbidity Meter Hach	2821
(F) Depth to Top of Screen	504 ft	Pump Bennett portable	onfile
(G) Depth to Bottom of Screen	519 ft	Field Alkalinity La Motte	3467
(H) Saturated Filter Pack Length (G –F, or B)	15 ft		
(I) Casing/~~Borehole~~ Factor 4/10 = 1.2, (6/10 = 1.07)			

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/3/11 0945	0	466.49	18.20	7.55	364.2	6.96	203	4.88	1.60 L/m
1056	30	466.46	18.54	7.65	367.3	6.56	167	2.10	
1120	40	466.46	18.44	7.66	368.2	6.61	162	2.03	
1144	50	466.45	18.49	7.66	372.4	6.41	159	1.70	
1208	60	466.44	18.57	7.66	371.8	6.53	158	1.41	
1227	65	466.40	18.54	7.67	369.7	6.26	157	2.45	0.92 L/m
1256	70	466.39	18.53	7.63	375.9	6.09	159	1.89	
1315	75	466.38	18.53	7.63	378.0	6.16	160	1.40	
Values Prior to Sampling									
1315	75	466.38	18.53	7.63	378.0	6.16	160	1.40	0.92 L/m

Field Alkalinity Result 138 Mg/L as CaCO3 **Sample ID:** GW0310

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

Shaw™ Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106055
Site / SWMU No.: 106
Date: 0830
Weather: cloudy
Time: 10/6/11
Field Crew: AT, RB
Crew Signature: [signature]
Review Signature:
Date Review:

WELL OBSERVATIONS

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

Notes: VOCs Ø in WB, set pump @ 476'

CALCULATIONS

(A) Depth to Well Bottom	490.26	ft
(B) Pre-Purge Depth to Water	472.36	ft
(C) Water Column Height (A-B)	17.9	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	18.2	gal
(F) Depth to Top of Screen	468.82	ft
(G) Depth to Bottom of Screen	~~468.82~~	ft
(H) Saturated Filter Pack Length (G –F, or B)	12.46	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07	

(J) Filter Pack Volume (H x I)	13.4	gal
(K) Min Purge Volume (E + J)	32	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insitu	20661	
Turbidity Meter: Hach	2821	
Pump: Portable Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/6/11 1025	Ø	472.36	18.62	7.64	356.8	5.87	172	1.19	1.68 L/m
1047	10	472.44	18.80	7.68	356.1	5.95	164	1.07	
1110	20	472.44	18.76	7.67	355.7	5.85	159	0.83	1.0 L/m
1129	25	472.42	18.88	7.66	359.8	5.72	155	1.14	
1148	30	472.42	18.88	7.65	362.7	5.72	152	1.11	
1156	32	472.42	18.78	7.65	361.6	5.72	152	0.80	

Values Prior to Sampling

1156	32	472.42	18.78	7.65	361.6	5.72	152	0.80	1.0 L/m

Field Alkalinity Result 108 mg/L as $CaCO_3$ **Sample ID:** GW0311

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 100057

Site / SWMU No.: 100 **Date:** 10/6/11

Weather: Sunny **Time:** 1300

Field Crew: AT, RM **Crew Signature:**

Review Signature: **Date Review:** 10/6/11

WELL OBSERVATIONS

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

Notes: Voices @ in BH, set pump @ 492.00'

CALCULATIONS

(A) Depth to Well Bottom	505.34 ft	(J) Filter Pack Volume (H x I)	14.7 gal
(B) Pre-Purge Depth to Water	472.68 ft	(K) Min Purge Volume (E + J)	48 gal
(C) Water Column Height (A-B)	32.66 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65, (5"=1.02)	33 at 1.02	Parameter Meter: 9500 Insitu	R20661
(E) One Well Casing Volume (C x D):	33.68 gal	Turbidity Meter: Hach	2821
(F) Depth to Top of Screen	486.17 ft	Pump: Portable Bennet	on file
(G) Depth to Bottom of Screen	499.94 ft	Field Alkalinity: La Motte	3467
(H) Saturated Filter Pack Length (G-F, or B)	13.77 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/6/11 1327	0	472.68	20.57	7.43	337.5	6.23	161	3.28	1.82 Lbs
1358	10	472.84	19.21	7.65	343.2	6.35	140	1.60	
1419	20	472.84	19.13	7.65	332.3	6.40	136	1.49	
1440	30	472.77	19.13	7.64	342.1	6.46	135	1.71	
1501	at 35 40	472.74	19.13	7.64	332.1	6.55	133	0.87	0.92 Lbs
1520	at 40 45	472.74	19.08	7.64	334.1	6.32	137	1.14	
1532	at 45 48	472.74	19.05	7.63	339.8	6.33	139	0.86	
	at 48								
Values Prior to Sampling									
1532	48	472.74	19.05	7.63	339.8	6.33	139	0.86	0.92 Lbs

Field Alkalinity Result 122 mg/L as CaCO3 **Sample ID:** GW01332 312

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB 1BFF **Well ID No.:** KAFB-106058

Site / SWMU No.: 106 **Date:** 10-5-2011

Weather: Sunny, partly Cloudy, Breezy **Time:** 1318

Field Crew: DR, RB **Crew Signature:**

Review Signature: **Date Review:** 10/5/11

WELL OBSERVATIONS

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

Notes: Pump set @ 520'

CALCULATIONS

(A) Depth to Well Bottom	530.3 ft	(J) Filter Pack Volume (H x I)	16.06 gal
(B) Pre-Purge Depth to Water	473.72 ft	(K) Min Purge Volume (E + J)	73.77 gal
(C) Water Column Height (A-B)	56.58 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)		Parameter Meter	In Situ Troll R20661
(E) One Well Casing Volume (C x D):	57.71 gal	Turbidity Meter	HACH 2100P
(F) Depth to Top of Screen	511.80 ft	Pump	Bennet portable
(G) Depth to Bottom of Screen	526.81 ft	Field Alkalinity	LeMott/DR.A Code 3467
(H) Saturated Filter Pack Length (G –F, or B)	15.01 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07)	~~10.~~		

PURGING INFORMATION

Description first water purged: Cloudy

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1318	0	473.72	19.06	7.55	325.3	7.61	167	61.9	1.84 L .48gpm
1343	12	473.77	18.88	7.65	312.9	7.90	161	6.60	
1412	24	473.74	18.88	7.66	317.4	7.84	158	3.11	
1437	36	473.74	18.90	7.65	310.1	7.81	157	3.96	
1502	48	473.74	18.87	7.63	309.8	8.21	156	3.69	
1527	60	473.73	18.89	7.65	318.2	8.21	155	3.12	
1552	72	473.72	18.89	7.65	316.8	7.92	155	5.24	Turn down to 1L/min
1600	74	473.73	18.85	7.67	313.6	7.60	154	5.12	.96L/min
~~1608~~	~~74~~								
Values Prior to Sampling									
1600	74	473.73	18.85	7.67	313.6	7.60	154	5.12	.96L/min

Field Alkalinity Result 110 **Sample ID:** GW0313

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106059
Site / SWMU No.: 106
Date: 12-20-11
Weather: Sunny 30s
Time: 1721
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 12/21/11

WELL OBSERVATIONS

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

Notes: VOCs 1448 Pump set to 494 ft. LNAPL @ 487.89
0 on BZ

CALCULATIONS

(A) Depth to Well Bottom	508.4 ft
(B) Pre-Purge Depth to Water	488.34 ft
(C) Water Column Height (A-B)	20.01 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	20.42 gal
(F) Depth to Top of Screen	483.4 ft
(G) Depth to Bottom of Screen	503.4 ft
(H) Saturated Filter Pack Length (G - A or B)	15.01 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07

(J) Filter Pack Volume (H x I)	16.07 gal
(K) Min Purge Volume (E + J)	37 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R70661
Turbidity Meter: Hach 2100P	07818
Pump: portable Bennett	on file
Field Alkalinity: La Motte	3467#8

PURGING INFORMATION

Description first water purged: Clear w/strong odor + sheen

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-20-11 1320	0	488.34	14.20	6.79	718.6	2.24	25	4.04	1.9 L/min
1349	12	488.36	18.46	6.93	620.3	0.15	0	2.06	
1404	22	488.38	18.46	6.97	600.8	0.55	0	1.95	
1423	27	488.37	17.84	7.00	580.2	0.80	0	1.45	1.0 L/min
1441	32	488.37	17.81	7.00	580.9	0.85	0	1.95	
1500	37	488.36	17.91	7.07	571.5	1.02	0	1.84	
Values Prior to Sampling									
1500	37	488.36	17.91	7.07	571.5	1.02	0	1.84	1.0 L/min

Field Alkalinity Result 206 mg/L as $CaCO_3$ Sample ID: GW0314

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DA MR
Review Signature:

Well ID No.: 106060
Date: 10-25-11
Time: 1201
Crew Signature:
Date Review: 10/25/11

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	527.0 ft
(B) Pre-Purge Depth to Water	489.46 ft
(C) Water Column Height (A-B)	37.54 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	38.30 gal
(F) Depth to Top of Screen	503 ft
(G) Depth to Bottom of Screen	518 ft
(H) Saturated Filter Pack Length (G-F or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	54 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH 2100P	07818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467 # 5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-25-11 1227	0	489.46	20.85	7.61	322.1	6.93	129	1.24	2.75 ~~2.5~~ L/min
1255	20	489.50	19.27	7.80	334.6	12.01	140	1.42	
1321	39	489.52	19.26	7.81	333.8	12.75	146	0.79	
1340	44	489.48	19.23	7.83	334.8	11.51	151	0.75	1.0 L/min
1358	49	489.47	19.41	7.82	335.5	11.21	156	0.66	
1417	54	489.47	19.36	7.83	334.5	11.38	160	0.77	
Values Prior to Sampling									
1417	54	489.47	19.36	7.83	334.5	11.38	160	0.77	L/min

Field Alkalinity Result 110 mg/L as $CaCO_3$ **Sample ID:** GW0315+0316

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Partly Cloudy 60s
Field Crew: DA, MR
Review Signature: _____

Well ID No.: 106061
Date: 10-25-11
Time: 0802
Crew Signature: [signature]
Date Review: _____

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs0

CALCULATIONS

(A) Depth to Well Bottom	593.2 ft
(B) Pre-Purge Depth to Water	489.31 ft
(C) Water Column Height (A-B)	103.85 ft
(D) Casing Factor: 4"=0.65 (8"=1.02)	1.02
(E) One Well Casing Volume (C x D):	105.97 gal
(F) Depth to Top of Screen	573.2 ft
(G) Depth to Bottom of Screen	588.2 ft
(H) Saturated Filter Pack Length (G-F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	123 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI 556	R27831
Turbidity Meter: HACH 2100P	0818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	34677#5

PURGING INFORMATION

Description first water purged: Clear.

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-25-11 0826	0	489.31	19.87	7.00	281.3	7.31	231	1.45	3.5 L/min
0909	40	489.36	19.37	7.84	279.1	3.71	67	1.14	
0952	80	489.38	19.37	7.85	278.5	4.36	89	1.25	
1027	108	489.37	19.38	7.86	277.8	4.56	101	1.13	
1040	113	489.34	19.22	7.87	278.2	3.72	110	1.09	10 L/min
1059	118	489.33	19.16	7.87	277.8	4.17	120	1.72	
1118	123	489.32	19.18	7.89	277.2	4.23	127	1.00	
Values Prior to Sampling									
1118	123	489.32	19.18	7.89	277	4.23	127	1.00	1.0 L/min

Field Alkalinity Result 102 mg/L as CaCO3 **Sample ID:** GW0317 & GW0317#

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 30's
Field Crew: DM, MR
Review Signature:

Well ID No.: 106062
Date: 11-9-11
Time: 0814
Crew Signature: Daniel Medina
Date Review: 11/9/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	595 ft	(J) Filter Pack Volume (H x I)	15.49 gal
(B) Pre-Purge Depth to Water	496.04 ft	(K) Min Purge Volume (E + J)	117 gal
(C) Water Column Height (A-B)	98.96 ft	EQUIPMENT / MODEL	ID NUMBER
(D) Casing Factor: 4"=0.65 (6"=1.02)	1.02	Parameter Meter: In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	100.94 gal	Turbidity Meter: Hach 2100P	02818
(F) Depth to Top of Screen	575.78 ft	Pump: Dedicated Bennette	On File
(G) Depth to Bottom of Screen	590.26 ft	Field Alkalinity: La Motte	3467#5
(H) Saturated Filter Pack Length (G-F or B)	14.48 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (6/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-9-11/0842	0	496.04	17.23	7.69	290.5	7.97	215	0.96	3.9 L/min
0915	34	496.05	19.15	7.76	289.9	6.28	231	1.30	
0948	68	496.05	19.25	7.77	290.1	8.78	231	1.29	
1021	102	496.05	19.25	7.78	289.6	8.88	230	1.17	
1039	107	496.04	18.39	7.80	289.1	5.61	230	1.08	1.04 L/min
1058	112	496.04	18.27	7.80	289.7	5.51	229	1.10	
1116	117	496.02	18.39	7.80	289.7	5.53	229	1.00	
Values Prior to Sampling									
1116	117	496.02	18.39	7.80	289.7	5.53	229	1.00	1.04 L/min

Field Alkalinity Result 116 Mg/L as $CaCO_3$ Sample ID: GW0318

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: 106
Weather: Sunny 40's
Field Crew: DM, MR
Review Signature:

Well ID No.: 106063
Date: 11-9-11
Time: 1200
Crew Signature: Daniel Medina
Date Review: 11/10/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH

CALCULATIONS

(A) Depth to Well Bottom	525 ft
(B) Pre-Purge Depth to Water	496.65 ft
(C) Water Column Height (A-B)	28.35 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	28.92 gal
(F) Depth to Top of Screen	505 ft
(G) Depth to Bottom of Screen	520 ft
(H) Saturated Filter Pack Length (G –F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	45 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: Hach 2100P	02818
Pump: Dedicated Bennette	On File
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-9-11/1222	0	496.65	18.22	8.01	352.3	7.79	193	1.03	3.26 L/min
1234	10	496.71	19.22	7.76	363.5	9.59	204	3.00	
1246	20	496.71	19.23	7.74	362.6	9.46	206	1.63	
1258	30	496.70	19.19	7.73	360.4	9.74	207	1.13	
1316	35	496.65	18.82	7.74	360.9	8.67	215	0.92	1.04 L/min
1335	40	496.64	18.77	7.73	361.1	8.51	582	0.94	
1353	45	496.65	18.88	7.73	361.3	8.54	635	0.78	
~~1353~~ pm									
Values Prior to Sampling									
1353	pm 45	496.65	18.88	7.73	361.3	8.54	635	0.78	1.04 L/min

Field Alkalinity Result 144 Mg/L as CaCO3 **Sample ID:** GW0319

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-106064
Site / SWMU No.: 106
Date: 12-15-11
Weather: Sunny 30's
Time: 0903
Field Crew: DM, DA
Crew Signature: Daniel Medina
Review Signature:
Date Review: 12/15/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 ppm in BH LNAPL at 494.92

CALCULATIONS

(A) Depth to Well Bottom	510 ft	(J) Filter Pack Volume (H x I)	10.76 gal
(B) Pre-Purge Depth to Water	494.94 ft	(K) Min Purge Volume (E + J)	27 gal
(C) Water Column Height (A-B)	15.06 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: In Situ 9500	R20661
(E) One Well Casing Volume (C x D):	15.36 gal	Turbidity Meter: Hach 2100P	02818
(F) Depth to Top of Screen	485 ft	Pump: Portable Bennette	On File
(G) Depth to Bottom of Screen	505 ft	Field Alkalinity: La Motte	3467#8
(H) Saturated Filter Pack Length (G –F, or B)	10.06 ft		
(I) Casing/Borehole Factor 4/10 = 1.2 (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-15-11/0945	0	494.94	12.90	7.14	442.3	3.20	192	21.7	1.8 L/min
0958	6	494.92	17.99	7.23	439.5	0.27	-125	0.94	
1011	12	494.92	18.12	7.28	440.1	0.58	-153	0.68	
1030	17	494.94	17.59	7.33	440.1	0.76	-144	0.68	1.0 L/min
1049	22	494.94	17.72	7.34	440.2	0.85	-135	0.72	
1108	27	494.93	17.73	7.35	441.1	0.89	-129	0.89	
Values Prior to Sampling									
1108	27	494.93	17.73	7.35	441.1	0.89	-129	0.89	1.0 L/min

Field Alkalinity Result 173 Mg/L as CaCO3 Sample ID: GW0320

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy 30s
Field Crew: DA, JM
Review Signature:

Well ID No.: 106078-510
Date: 12-21-11
Time: 1240
Crew Signature:
Date Review: 12Jan11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) Damaged
Locked: (Yes) No
Well ID Mark: (Yes) No
Notes: VOCs 1919.0 in BZ Pump set to 501ft

CALCULATIONS

(A) Depth to Well Bottom	516 ft	(J) Filter Pack Volume (H x I)	21.62 gal
(B) Pre-Purge Depth to Water	492.99 ft	(K) Min Purge Volume (E + J)	37 gal
(C) Water Column Height (A-B)	23.01 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor (4"=0.65) 5"=1.02	0.65	Parameter Meter: Horiba U-52	RZ7831
(E) One Well Casing Volume (C x D):	14.96 gal	Turbidity Meter: HACH 2100P	02818
(F) Depth to Top of Screen	491 ft	Pump: portable bennett	on file
(G) Depth to Bottom of Screen	511 ft	Field Alkalinity: La Motte	3467#8
(H) Saturated Filter Pack Length (G –F, or B)	~~18.01~~ 18.01 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2 ~~18.01~~		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-21-11 1331	0	492.99	14.05	7.49	603.6	3.17	0	1.38	1.6 L/min
1359	12	493.01	17.96	7.54	616.9	0.03	0	1.94	
1422	22	493.03	18.67	7.53	622.2	0	0	2.14	
1441	27	493.02	17.69	7.54	626.1	0.02	0	2.23	1.0 L/min
1459	32	493.01	17.51	7.54	628.2	0.01	0	2.37	
1518	37	493.01	17.29	7.55	617.5	0	0	2.14	
Values Prior to Sampling									
1518	37	493.01	17.29	7.55	617.5	0	0	2.14	1.0 L/min

Field Alkalinity Result 148 mg/L as CaCO3 **Sample ID:** GW0321

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DM, DA
Review Signature:

Well ID No.: 106066 DM5
Date: 11-1-11
Time: 0813
Crew Signature: Daniel Medina
Date Review: 11/1/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH

CALCULATIONS

(A) Depth to Well Bottom	595.80 ft
(B) Pre-Purge Depth to Water	493.72 ft
(C) Water Column Height (A-B)	102.08 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	104.12 gal
(F) Depth to Top of Screen	575.6 ft
(G) Depth to Bottom of Screen	590.6 ft
(H) Saturated Filter Pack Length (G –F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	121 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter In Situ 9500	R22831
Turbidity Meter Hach 2100P	02818
Pump Dedicated Bennette	On File
Field Alkalinity La Motte	347 DM5

PURGING INFORMATION

Description first water purged: Clear with strong odor.

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-1-11/0900	0	493.72	16.02	7.23	750.3	7.31	205	2.62	3.28l/min
0947	40	493.81	18.87	7.19	817.5	-0.01	-169	2.06	
1034	80	493.81	18.95	7.17	824.2	-0.03	-164	1.68	
1105	106	493.82	18.96	7.17	840.8	-0.03	-161	1.16	
1123	111	493.73	18.52	7.18	836.9	-0.01	-156	1.27	1.0l/min
1142	116	493.71	18.49	7.16	813.4	0.02	-152	1.29	
1200	121	493.71	18.45	7.17	830.3	0.01	-149	1.29	
Values Prior to Sampling									
1200	121	493.71	18.45	7.17	830.3	0.01	-149	1.29	1.0l/min

Field Alkalinity Result 202 mg/L as $CaCO_3$ **Sample ID:** GW0373

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DM, DA
Review Signature:

Well ID No.: 106066 DM
Date: 11-1-11
Time: 1320
Crew Signature: Daniel Medina
Date Review: 11/2/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH

CALCULATIONS

(A) Depth to Well Bottom	528	ft
(B) Pre-Purge Depth to Water	493.92	ft
(C) Water Column Height (A-B)	34.08	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	34.76	gal
(F) Depth to Top of Screen	508	ft
(G) Depth to Bottom of Screen	523	ft
(H) Saturated Filter Pack Length (G –F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07),	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	51	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter In Situ 9500	R22831	
Turbidity Meter Hach 2100P	02818	
Pump Dedicated Bennette	On File	
Field Alkalinity La Motte	3467#5	

PURGING INFORMATION

Description first water purged: Clear with some odor.

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-1-11/1340	0	493.92	16.42	7.66	310.2	7.55	-21	1.55	2.5 L/min
/1359	12	493.98	18.85	7.76	298.6	16.22	52	3.05	
1418 ~~1318~~ DM	24	493.98	19.49	7.55	296.9	16.06	72	2.99	
1437 ~~1337~~ DM	36	493.97	19.06	7.75	303.0	18.37	85	2.95	
1455 ~~1355~~ DM	41	493.87	18.56	7.77	297.7	11.56	84	2.32	1.0 L/min
1514 ~~1414~~ DM	46	493.88	18.54	7.77	297.4	11.53	88	2.87	
1532	51	493.88	18.49	7.77	299.2	11.49	93	2.85	

Values Prior to Sampling									
1532	51	493.88	18.49	7.77	299.2	11.49	93	2.85	1.0 L/min

Field Alkalinity Result 120 Mg/L as $CaCO_3$ **Sample ID:** GW0322

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 40's
Field Crew: DA, DM
Review Signature:

Well ID No.: 106067
Date: 11-3-11
Time: 0900
Crew Signature:
Date Review: 11/8/11

WELL OBSERVATIONS

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

Notes: VOCs 0.2

CALCULATIONS

(A) Depth to Well Bottom	510 ft	(J) Filter Pack Volume (H x I)	12.72 gal
(B) Pre-Purge Depth to Water	493.12 ft	(K) Min Purge Volume (E + J)	31 gal
(C) Water Column Height (A-B)	16.88 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65, (5"=1.02)	1.02	Parameter Meter: In Situ 9500	R72831
(E) One Well Casing Volume (C x D):	17.22 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	485 ft	Pump: Dedicated Bennett	on file
(G) Depth to Bottom of Screen	505 ft	Field Alkalinity: La Motte	3467#5
(H) Saturated Filter Pack Length (G-F or B)	11.88 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-3-11 0942	0	493.12	18.48	7.63	494.6	7.98	221	1.85	2.36 L/min
0955	8	493.15	18.73	7.35	520.4	0.33	~~80~~-51	4.37	~~1.93~~ 1.00
1008	16	493.16	18.69	7.37	517.0	0.46	-86	1.93	
1027	21	493.15	18.32	7.38	514.3	0.59	-86	1.72	1.0 L/min
1046	26	493.14	18.30	7.39	512.8	0.66	-83	1.53	
1105	31	493.13	18.48	7.38	512.4	0.64	-82	1.63	

Values Prior to Sampling

1105	31	493.13	18.48	7.38	512.4	0.64	-82	1.63	1.0 L/min

Field Alkalinity Result 248 mg/L as $CaCO_3$ **Sample ID:** GW0374

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.: 106068
Site / SWMU No.: 106
Date: 11-3-11
Weather: Sunny 50s
Time: 1128
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 11/5/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs 3.8 in BH

CALCULATIONS

(A) Depth to Well Bottom	600 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	493.71 ft	(K) Min Purge Volume (E + J)	125 gal
(C) Water Column Height (A-B)	106.79 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: Hon Site 9500	R22831
(E) One Well Casing Volume (C x D):	108.93 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	580 ft	Pump: dedicated Bennett	on file
(G) Depth to Bottom of Screen	595 ft	Field Alkalinity: La Motte	346775
(H) Saturated Filter Pack Length (G –F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07)	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-3-11 1138	0	493.71	18.74	7.72	295.3	7.24	-3	1.54	4.0 L/min
1215	40	493.25	19.34	7.87	299.9	21.36	92	3.33	
1253	80	493.27	19.33	7.83	299.7	22.35	120	2.80	
1321	110	493.28	19.33	7.82	299.7	22.47	136	1.79	
1340	115	493.26	18.97	7.83	298.9	18.06	146	1.63	1.0 L/min
1356	120	493.24	18.92	7.83	299.0	16.08	156	3.34	
1417	125	493.22	18.91	7.82	299.8	17.23	167	2.35	
Values Prior to Sampling									
1417	125	493.22	18.91	7.82	299.8	17.23	167	2.35	1.0 L/min

Field Alkalinity Result 122 mg/L as CaCO3 **Sample ID:** GW0325

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy 30s
Field Crew: DA, DM
Review Signature:

Well ID No.: 106069
Date: 12-14-11
Time: 0814
Crew Signature:
Date Review: 12-14-11

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	526 ft
(B) Pre-Purge Depth to Water	491.85 ft
(C) Water Column Height (A-B)	34.15 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	34.84 gal
(F) Depth to Top of Screen	506 ft
(G) Depth to Bottom of Screen	521 ft
(H) Saturated Filter Pack Length (G –F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	51 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R2661
Turbidity Meter: HACH 2100P	02818
Pump: portable bennett	on file
Field Alkalinity: La Motte	3467#8

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-14-11 0918	0	491.85	13.56	7.72	315.9	3.83	189	8.39	1.5L/min
1008	20	491.88	18.12	7.53	334.8	2.73	212	0.78	
1049	36	491.89	18.18	7.54	334.8	2.99	196	0.45	
1108	41	491.87	17.72	7.55	340.1	2.94	190	0.48	1.0L/min
1126	46	491.86	17.63	7.56	337.8	2.94	187	0.78	
1145	51	491.86	17.65	7.57	338.3	2.97	186	0.38	
Values Prior to Sampling									
1145	51	491.86	17.65	7.57	338.3	2.97	186	0.38	1.0L/min

Field Alkalinity Result 127 mg/L as $CaCO_3$ Sample ID: GW0376

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106070

Site / SWMU No.: 106 **Date:** 11/8/11

Weather: Snowy **Time:** 0800

Field Crew: AT, FL **Crew Signature:**

Review Signature: **Date Review:** 11/18/11

WELL OBSERVATIONS

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

Notes: VOC's @ nr WB

CALCULATIONS

(A) Depth to Well Bottom	485	ft
(B) Pre-Purge Depth to Water	464.94	ft
(C) Water Column Height (A-B)	20.06	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	20.46	gal
(F) Depth to Top of Screen	460	ft
(G) Depth to Bottom of Screen	480	ft
(H) Saturated Filter Pack Length (G –F, or B)	16	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07), _____	1.07	

(J) Filter Pack Volume (H x I)	17.12	gal
(K) Min Purge Volume (E + J)	37	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/8/11 0902	0	464.94	18.33	7.28	532.9	2.35	24	6.62	3.0 L/m
0914 0917 at	20	465.04	18.57	7.29	520.3	0.95	37	4.08	
0926 0931 at	20	465.05	18.60	7.31	509.7	1.32	5	3.11	
0945 0947 at	25	464.95	18.14	7.35	509.6	1.35	19	1.87	0.90 L/m
1004 1030 at	30	464.95	18.17	7.36	507.7	1.54	24	1.48	
1031 1057 at	37	464.95	18.18	7.36	511.0	1.60	26	1.28	
Values Prior to Sampling									
1031 1057 at	37	464.95	18.18	7.36	511.0	1.60	26	1.28	0.90 L/m

Field Alkalinity Result 188 mg/L as CaCO3 **Sample ID:** OW032-7

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF

Site / SWMU No.: 106

Weather: cloudy

Field Crew: AT, FK

Review Signature: [signature]

Well ID No.: 106071

Date: 11/8/11

Time: 1120

Crew Signature: [signature]

Date Review: 11/8/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: VOC's Ø in WB

CALCULATIONS

(A) Depth to Well Bottom	568	ft
(B) Pre-Purge Depth to Water	467.11	ft
(C) Water Column Height (A-B)	100.89	ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	102.9	gal
(F) Depth to Top of Screen	548	ft
(G) Depth to Bottom of Screen	563	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	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)	119	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/8/11 1153	Ø	467.11	17.82	7.35	314.7	4.93	141	1.15	4.2 L/m
1220	30	467.18	18.99	7.55	304.0	9.67	132	3.45	
1247	60	467.19	19.01	7.57	304.8	10.03	133	3.61	
1314	90	467.20	18.98	7.58	306.0	9.71	136	2.45	
1328	at ~~40~~ 105	467.20	19.01	7.58	306.5	9.15	137	1.77	
1347	at ~~45~~ 110	467.11	18.53	7.60	302.4	5.85	136	2.15	1.0 L/m
1416	115	467.10	18.36	7.59	304.6	6.10	138	2.13	
1431	119	467.10	18.33	7.60	304.5	6.07	139	1.79	

Values Prior to Sampling

1431	119	467.10	18.33	7.60	304.5	6.07	139	1.79	1.0 L/m

Field Alkalinity Result 104 mg/L as $CaCO_3$

Sample ID: GW0328 GW0329

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy
Field Crew: AT, MM
Review Signature:

Well ID No.: 106072
Date: 11/7/11
Time: 1215
Crew Signature:
Date Review: 11/8/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in wb

CALCULATIONS

(A) Depth to Well Bottom	500	ft
(B) Pre-Purge Depth to Water	465.15	ft
(C) Water Column Height (A-B)	34.85	ft
(D) Casing Factor: 4"=0.65 5"=(1.02)	1.02	
(E) One Well Casing Volume (C x D):	35.5	gal
(F) Depth to Top of Screen	475	ft
(G) Depth to Bottom of Screen	495	ft
(H) Saturated Filter Pack Length ((G-F), or B)	20	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.0), _____	1.07	

(J) Filter Pack Volume (H x I)	21.07	gal
(K) Min Purge Volume (E + J)	57	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/7/11 1254	Ø	465.15	18.74	7.66	504.1	4.89	189	1.12	3.62 clear
1315	20	465.32	18.80	7.46	440.5	1.38	-4	1.20	
1325	30	465.29	18.41	7.47	433.8	1.59	29	2.07	3.00 clear stopped purge Insitu issues
1400 ~~1335~~ af	40	465.30	18.66	7.45	438.4	1.96	15	1.27	
1406 ~~1340~~ af	45	465.31	18.66	7.46	439.9	1.90	12	1.72	
1425 ~~1354~~ af	50	465.23	18.54	7.48	432.8	2.00	16	1.66	1.0 clear
1444 ~~1418~~ af	55	465.21	18.57	7.48	435.2	1.94	18	1.67	
1452 ~~1426~~ af	57	465.21	18.57	7.49	437.9	20.8	20	1.60	
Values Prior to Sampling									
1452 ~~1426~~ af	57	465.21	18.51	7.49	437.9	20.5	20	1.60	1.0 clear

Field Alkalinity Result 138 mg/L as CaCO3 **Sample ID:** GW0330

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFBFF

Site / SWMU No.: 106

Weather: Sunny

Field Crew: AT GP

Review Signature: [signature]

Well ID No.: 106073

Date: 11/14/11

Time: 1415

Crew Signature: [signature]

Date Review: 11/15/11

WELL OBSERVATIONS

Protective Casing / Vault - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: VOCs Ø in WB

CALCULATIONS

(A) Depth to Well Bottom	519.5	ft
(B) Pre-Purge Depth to Water	484.51	ft
(C) Water Column Height (A-B)	34.99	ft
(D) Casing Factor: 4"=0.65, 5"=1.02		
(E) One Well Casing Volume (C x D):	35.7	gal
(F) Depth to Top of Screen	500	ft
(G) Depth to Bottom of Screen	515	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	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)	52	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2021	
Pump: Deckhard Benitt	on file	
Field Alkalinity: LaMotte		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/14/11 1439	Ø	484.50	17.51	7.54	2989	4.57	172	1.39	3.76 L/m
1459	20	484.62	18.81	7.61	323.8	8.48	111	5.15	
1509	30	484.62	18.84	7.61	324.1	8.54	120	3.27	
1514	35	484.52	18.83	7.61	323.9	7.44	122	2.52	
1533	40	484.55	18.68	7.62	322.2	6.83	132	2.02	0.92 L/m
1552	45	484.51	18.31	7.63	324.0	6.74	140	158	
1618	52	484.51	18.31	7.63	324.0	6.74	140	1.58	

Values Prior to Sampling

1618	52	484.51	18.31	7.63	324.0	6.74	140	1.58	0.92 L/m

Field Alkalinity Result 119 mg/L as CaCO3

Sample ID: GW0331

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-3FF **Well ID No.:** 106074

Site / SWMU No.: 106 **Date:** 11/14/11

Weather: partly cloudy **Time:** 1000

Field Crew: AT, CP **Crew Signature:**

Review Signature: **Date Review:** 11/15/2011

WELL OBSERVATIONS

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

Notes: VOC IS 6 in WB

CALCULATIONS

(A) Depth to Well Bottom	589.5	ft
(B) Pre-Purge Depth to Water	485.43	ft
(C) Water Column Height (A-B)	104.07	ft
(D) Casing Factor: 4"=0.65 (6")=1.02	1.02	
(E) One Well Casing Volume (C x D):	106	gal
(F) Depth to Top of Screen	570	ft
(G) Depth to Bottom of Screen	584.53	ft
(H) Saturated Filter Pack Length (G, F, or B)	14.53	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07), _____	1.07	

(J) Filter Pack Volume (H x I)	15.5	gal
(K) Min Purge Volume (E + J)	122	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Ins.ht 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: dedicated Bennett	on file	
Field Alkalinity: LaMotte	5467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/14/11 1040	0	485.45	18.13	7.03	278.3	5.11	211	2.77	3.2 L/m
1016	30	485.45	18.99	7.61	276.8	5.16	139	5.23	
1151	60	485.41	19.02	7.64	273.8	5.66	137	3.16	
1227	90	485.40	19.03	7.65	275.7	5.55	133	2.12	
1253	110	485.38	19.01	7.67	276.0	5.95	132	1.49	
1312	115	485.32	18.55	7.68	273.5	3.68	136	1.18	1.0 L/m
1331	120	485.30	18.30	7.68	276.3	3.60	141	1.87	
1339	122	485.31	18.25	7.68	274.8	3.51	142	1.85	
Values Prior to Sampling									
1339	122	485.31	18.25	7.68	274.8	3.51	142	1.85	1.0 L/m

Field Alkalinity Result 119 mg/L as CaCO3 **Sample ID:** GW0332

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106075
Site / SWMU No.: 106
Date: 11/10/11
Weather: Sunny
Time: 1115
Field Crew: AT, FK
Crew Signature:
Review Signature:
Date Review: 11/10/11

WELL OBSERVATIONS

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

Notes: VOCs ND in WB

CALCULATIONS

(A) Depth to Well Bottom	505 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	485.63 ft	(K) Min Purge Volume (E + J)	36 gal
(C) Water Column Height (A-B)	19.37 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)		Parameter Meter: In Situ U-50	R20661
(E) One Well Casing Volume (C x D):	19.75 gal	Turbidity Meter: Hach	2821
(F) Depth to Top of Screen	480 ft	Pump: Dedicated Bennett on file	
(G) Depth to Bottom of Screen	500 ft	Field Alkalinity: CaMotte	3467 #8
(H) Saturated Filter Pack Length (G –F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, ____			

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/10/11 1140	0	485.63	18.02	7.54	426.7	5.08	176	3.66	2.8 L/m
1207	20	485.75	18.58	7.35	421.2	1.14	84	8.10	
1226	25	485.68	18.01	7.37	424.0	1.13	95	4.35	1.0 L/m
1245	30	485.67	18.04	7.33	426.1	1.19	103	2.71	
1308	36	485.63	18.01	7.38	428.4	1.15	108	2.23	
Values Prior to Sampling									
1308	36	485.63	18.01	7.38	428.4	1.15	108	2.23	1.0 L/m

Field Alkalinity Result 140 mg/L as $CaCO_3$ **Sample ID:** GW0333

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106076
Site / SWMU No.: 106
Date: 12-14-11
Weather: Cloudy 30s
Time: 1327
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 12/15/11

WELL OBSERVATIONS

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

Notes: VOCs 2,498.0 in BZ

CALCULATIONS

(A) Depth to Well Bottom	505 ft	(J) Filter Pack Volume (H x I)	12.43 gal
(B) Pre-Purge Depth to Water	488.39 ft	(K) Min Purge Volume (E + J)	30 gal
(C) Water Column Height (A-B)	16.61 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: YSI 9500	R20661
(E) One Well Casing Volume (C x D):	16.95 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	480 ft	Pump: dedicated Bennett	on file
(G) Depth to Bottom of Screen	500 ft	Field Alkalinity: La Motte	3467#8
(H) Saturated Filter Pack Length (G –F, or B)	11.61 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07)	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-14-11 1432	0	488.39	18.05	6.75	594.2	4.65	177	12.4	3.0 L/min
1445	10	488.43	19.04	7.01	557.6	0	-7	6.50	4.05
1452	15	488.44	19.14	7.10	521.3	0	-48	4.86	
1511	20	488.42	18.19	7.14	498.7	0	-54	3.57	1.0 L/min
1529	25	488.40	18.69	7.13	518.6	0	-52	2.68	
1548	30	488.40	18.88	7.15	504.3	0	-52	2.94	
Values Prior to Sampling									
1548	30	488.40	18.88	7.15	504.3	0	-52	2.94	1.0 L/min

Field Alkalinity Result 198 mg/L as CaCO3 Sample ID: GW 0334

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106077
Site / SWMU No.: 106
Date: 12-20-11
Weather: Sunny 30s
Time:
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 12-20-11

WELL OBSERVATIONS

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

Notes: VOCs pump set to 511 ft.

CALCULATIONS

(A) Depth to Well Bottom	524	ft
(B) Pre-Purge Depth to Water	489.34	ft
(C) Water Column Height (A-B)	34.66	ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~35.36~~ 1.02	
(E) One Well Casing Volume (C x D):	35.36	gal
(F) Depth to Top of Screen	504	ft
(G) Depth to Bottom of Screen	519	ft
(H) Saturated Filter Pack Length (G –F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, ____	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	52	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ 9500	R20661	
Turbidity Meter: Hach 2100P	02818	
Pump: portable bennett	on file	
Field Alkalinity: La Motte	3467#8	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-20-11 0929	0	489.34	15.27	6.51	91.44	3.69	232	22.3	1.8 L/min
1003	17	489.36	18.68	7.16	263.3	5.17	153	2.37	
1034	37	489.38	18.76	7.33	290.3	5.75	136	1.05	
1053	42	489.37	18.37	7.35	292.9	5.77	134	0.89	1.0 L/min
1111	47	489.35	18.32	7.37	295.9	5.99	133	0.77	
1130	52	489.35	18.35	7.38	296.5	6.05	133	1.02	
Values Prior to Sampling									
1130	52	489.35	18.35	7.38	296.5	6.05	133	1.02	1.0 L/min

Field Alkalinity Result 128 mg/L as $CaCO_3$ Sample ID: GW0335

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106078
Site / SWMU No.: 106
Date: 12-19-11
Weather: Cloudy, Snowy 30s
Time: 0816
Field Crew: DA, RS, AT
Crew Signature:
Review Signature:
Date Review: 12-19-11

WELL OBSERVATIONS

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

Notes: VOCs Ø pump set to 580ft.

CALCULATIONS

(A) Depth to Well Bottom	593.5 ft
(B) Pre-Purge Depth to Water	488.04 ft
(C) Water Column Height (A-B)	105.46 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	107.57 gal
(F) Depth to Top of Screen	573.5 ft
(G) Depth to Bottom of Screen	588.5 ft
(H) Saturated Filter Pack Length (G –F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	124 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter Horiba U-22	R2066 1
Turbidity Meter HACH 2100P	02818
Pump portable	on file
Field Alkalinity La Motte	3467#8

PURGING INFORMATION

Description first water purged: clear gray no odor.

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
12-19-11 0908	Ø	488.04	14.63	7.94	71.45?	176.0	5.01	47.7	1.8L/min
1011	30	488.07	15.58	8.48	64.96	126.8	4.27	37.6	
1135	70	488.09	17.11	8.48	75.36	~~88.56~~	119	67.2	
1252	109	488.07	16.32	8.27	94.40	3.19	130	46.5	
1310	114	488.05	13.81	8.36	93.58	3.56	113	68.6	1.0L/min
1329	119	488.05	12.99	8.55	94.67	3.78	112	80.1	
1347	124	~~10.19~~ 488.05	~~8.69~~ 10.19	8.69	210.7	3.59	105	88.7	
Values Prior to Sampling		488.05	10.19						
1347	124	~~10.19~~	~~8.69~~	8.69	210.7	3.59	105	~~88.7~~	1.0L/min

Field Alkalinity Result 52 mg/L CaCO3 Sample ID: GW0336

Data appears squeed due to cold temp.

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106079

Site / SWMU No.: 106 **Date:** 10-24-11

Weather: Sunny 60° **Time:** 1218

Field Crew: DA, DM **Crew Signature:** D Mc

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

WELL OBSERVATIONS

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

Notes: VOCs 0

CALCULATIONS

(A) Depth to Well Bottom	509.46 ft
(B) Pre-Purge Depth to Water	494.40 ft
(C) Water Column Height (A-B)	15.06 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	15.37 gal
(F) Depth to Top of Screen	484.92 ft
(G) Depth to Bottom of Screen	503.92 ft
(H) Saturated Filter Pack Length (G-F or B)	9.52 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.0), _____	1.07

(J) Filter Pack Volume (H x I)	10.19 gal
(K) Min Purge Volume (E + J)	25.56/26 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Sonde 9500	R22831
Turbidity Meter: HACH 2100P	07818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: clear, some odor

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-24-11 1229	0	494.40	18.18	7.70	763.5	7.51	117	3.60	3.2 L/min
1242	11	494.46	19.16	7.17	705.0	0.07	-142	14.91	
1301	16	494.43	18.85	7.16	755.5	0.15	-146	6.72	1.0 L/min
1320	21	494.42	18.89	7.14	781.4	0.08	-147	5.14	
1339	26	494.41	18.90	7.14	794.0	0.05	-149	4.29	
Values Prior to Sampling									
1339	26	494.41	18.90	7.14	794.0	0.05	-149	4.29	1.0 L/min

Field Alkalinity Result 298 mg/L as $CaCO_3$ **Sample ID:** GW0337

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106080

Site / SWMU No.: 106 **Date:** 10-24-11

Weather: Sunny 70s **Time:** 1405

Field Crew: DA, BM **Crew Signature:**

Review Signature: **Date Review:**

WELL OBSERVATIONS

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

Notes: VOCs 0 in BH

CALCULATIONS

(A) Depth to Well Bottom	523.3 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	492.91 ft	(K) Min Purge Volume (E + J)	48.05/48 gal
(C) Water Column Height (A-B)	30.39 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter YSI 556 MPS	R22831
(E) One Well Casing Volume (C x D):	31.00 gal	Turbidity Meter HACH 2100P	~~2100P~~ 02818
(F) Depth to Top of Screen	504.4 ft	Pump Dedicated Bennett	on file
(G) Depth to Bottom of Screen	519.4 ft	Field Alkalinity La Motte	~~7467~~ 7467
(H) Saturated Filter Pack Length (G-F or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07		

PURGING INFORMATION

Description first water purged: Clear. minimal odor

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-24-11 1421	0	492.91	21.04	7.41	993.9	6.89	34	3.02	3.96 L/min
1440	20	492.98	19.34	6.93	987.5	0.04	-162	1.55	
1453	33	492.99	19.34	6.93	975.0	0.01	-167	2.05	
~~Da~~ 1512	38	492.95	19.29	6.94	969.2	0.12	-160	1.98	1.0 L/min
1531	43	492.93	19.24	6.93	978.8	0.10	-156	1.82	
1550	48	492.92	19.23	6.93	973.5	0.08	-155	1.77	
Values Prior to Sampling									
1550	48	492.92	19.23	6.93	973.5	0.08	-155	1.77	1.0 L/min

Field Alkalinity Result 332 mg/L as CaCO3 **Sample ID:** GW0338 & GW0339

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106081
Site / SWMU No.: 106
Date: 10-24-11
Weather: Sunny 60s
Time: 0631
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: _____
Date Review: _____

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	594.76 ft
(B) Pre-Purge Depth to Water	494.43 ft
(C) Water Column Height (A-B)	100.33 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	~~102.34 1.02~~ 100
(E) One Well Casing Volume (C x D):	102.34 gal
(F) Depth to Top of Screen	575.59 ft
(G) Depth to Bottom of Screen	589.36 ft
(H) Saturated Filter Pack Length (G –F, or B)	13.77 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	14.74 gal
(K) Min Purge Volume (E + J)	117.08/118 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Hn Site 9500	R27831
Turbidity Meter: HACH 2100P	07818
Pump: dedicated Bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-24-11 0859	0	494.43	17.93	7.47	298.5	7.86	190	0.70	3.5L/min
0942	~~30~~ 40	494.51	19.24	7.79	293.8	4.70	62	1.36	
1025	80	494.53	19.33	7.80	293.9	5.15	80	0.45	
1050	103	494.53	19.33	7.82	293.5	5.48	87	0.33	
1109	108	494.49	19.10	7.83	294.6	3.99	94	0.87	1.0L/min
1127	113	494.46	19.12	7.84	294.0	4.17	101	0.64	
1146	118	494.44	19.21	7.83	294.7	4.09	108	0.90	
Values Prior to Sampling									
1146	118	494.44	19.21	7.83	294.7	4.09	108	0.90	1.0L/min

Field Alkalinity Result 116 mg/L as $CaCO_3$ **Sample ID:** GW0340 & GW0340H

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106082
Site / SWMU No.: 106
Date: 10-12-11
Weather: Sunny 70's
Time: 1417
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 10/13/11

WELL OBSERVATIONS

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

Notes: VOC 2.5 in BH

CALCULATIONS

(A) Depth to Well Bottom	497.2 ft
(B) Pre-Purge Depth to Water	480.21 ft
(C) Water Column Height (A-B)	16.99 ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	17.33 gal
(F) Depth to Top of Screen	472 ft
(G) Depth to Bottom of Screen	492 ft
(H) Saturated Filter Pack Length (G - F or B)	11.79 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07

(J) Filter Pack Volume (H x I)	12.62 gal
(K) Min Purge Volume (E + J)	30 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear, some odor.

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-12-11 1439	0	480.21	18.68	7.59	521.1	2.71	-94	2.40	3.4 L/min
1448	8	480.26	19.15	7.61	503.7	0.09	-140	70.7	
1456	15	480.27	19.03	7.63	493.9	0.17	-144	31.3	
1514	20	480.24	18.81	7.62	483.5	0.32	-139	14.8	1.0 L/min
1533	25	480.23	18.88	7.60	485.1	0.26	-137	5.37	
1551	30	480.22	18.89	7.60	486.6	0.24	-136	2.78	

Values Prior to Sampling

1551	30	480.22	18.89	7.60	486.6	0.24	-136	2.78	1.0 L/min

Field Alkalinity Result 149 mg/Las $CaCO_3$ **Sample ID:** GW0341

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106083

Site / SWMU No.: ~~SWMU~~ 106 **Date:** 10-12-11

Weather: Sunny 70's **Time:** 1143

Field Crew: D.A. DM **Crew Signature:**

Review Signature: **Date Review:** 10/13/11

WELL OBSERVATIONS

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

Notes: VOCs ND in BH

CALCULATIONS

(A) Depth to Well Bottom	515.65 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	480.13 ft	(K) Min Purge Volume (E + J)	53 gal
(C) Water Column Height (A-B)	35.52 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.07	Parameter Meter: In Situ 9500	527831
(E) One Well Casing Volume (C x D):	36.24 gal	Turbidity Meter: HACH 2100P	078 18
(F) Depth to Top of Screen 495.45	~~495.45~~ ft ND	Pump: dedicated bennett	on file
(G) Depth to Bottom of Screen 510.45	~~510.45~~ ft ND	Field Alkalinity: LaMotte	3467#5
(H) Saturated Filter Pack Length (G –F, or B) 15	~~510.45~~ ft ND		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07),	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-12-11 1155	0	480.13	18.99	7.73	377.5	~~7.54~~ ~~7.52~~	162	0.52	3.8L/min
1215	20	480.18	19.13	7.69	436.8	8.66	117	1.22	
1233	38	480.20	19.17	7.66	455.6	8.59	114	1.07	
1251	43	480.15	19.34	7.65	464.7	7.43	131	1.23	1.0L/min
1310	48	480.14	19.29	7.64	472.4	7.16	143	1.34	
1328	53	480.14	19.26	7.64	467.3	7.13	155	0.93	
Values Prior to Sampling									
1328	53	480.14	19.26	7.64	467.3	7.13	155	0.93	1.0L/min

Field Alkalinity Result 108mg/L as $CaCO_3$ **Sample ID:** GW0347

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™ Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106084

Site / SWMU No.: 106 **Date:** 10-12-11

Weather: Sunny 60s **Time:** 0757

Field Crew: DK, DM **Crew Signature:**

Review Signature: **Date Review:** 10/13/11

WELL OBSERVATIONS

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

Notes: VOCs 0.7 in BH

CALCULATIONS

(A) Depth to Well Bottom	585.25 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	479.45 ft	(K) Min Purge Volume (E + J)	125 gal
(C) Water Column Height (A-B)	106.3 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: Aqua Setu 9500	RZ7831
(E) One Well Casing Volume (C x D):	108.43 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	566 ft	Pump: dedicated bennett	on file
(G) Depth to Bottom of Screen	581 ft	Field Alkalinity: La Motte	
(H) Saturated Filter Pack Length (G –F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07,)	1.07 16.05		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-12-11 0871	0	479.45	17.55	6.98	291.3	7.76	260	1.83	4.1 gal/min
0857	40	479.53	19.27	7.00	286.0	14.97	254	2.00	
0933	80	479.53	19.31	7.84	283.3	14.13	205	1.92	
1000	110	479.55	19.37	7.85	284.5	14.45	191	1.59	
1018	115	479.51	19.21	7.85	283.5	10.73	188	1.59	1.0 L/min
1037	120	479.49	19.18	7.85	285.0	12.45	187	2.21	
1055	125	479.47	19.20	7.84	282.7	11.58	187	1.74	
Values Prior to Sampling									
1055	125	479.47	19.20	7.84	282.7	11.58	187	1.74	1.0 L/min

Field Alkalinity Result 112 mg/L as $CaCO_3$ **Sample ID:** GW0343

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 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: DM, MR
Review Signature:

Well ID No.: KAFB-106085
Date: 11-16-11
Time: 0836
Crew Signature: Daniel Medina
Date Review: 11/16/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH

CALCULATIONS

(A) Depth to Well Bottom	481.5 ft	(J) Filter Pack Volume (H x I)	14.10 gal
(B) Pre-Purge Depth to Water	463.32 ft	(K) Min Purge Volume (E + J)	33 gal
(C) Water Column Height (A-B)	18.18 ft	EQUIPMENT / MODEL	ID NUMBER
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: In Situ 9500	R22831
(E) One Well Casing Volume (C x D):	18.54 gal	Turbidity Meter: Hach 2100P	02818
(F) Depth to Top of Screen	446.5 ft	Pump: Dedicated Bennette	On File
(G) Depth to Bottom of Screen	476.5 ft	Field Alkalinity: La Motte	3467#5
(H) Saturated Filter Pack Length (G –F, or (B))	13.18 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-16-11/0905	0	463.32	18.54	7.13	540.8	7.27	208	1.07	3.44/min
0912	6	463.43	19.00	7.39	540.6	7.0.17	94	2.18	
0919	12	463.44	18.91	7.41	541.5	0.13	75	1.28	
0926	18	463.44	18.87	7.40	539.2	0.15	58	1.02	
0944	23	463.33	18.62	7.43	541.5	0.29	54	1.01	1.04/min
1003	28	463.32	18.63	7.43	446.9	0.26	52	1.18	
1021	33	463.34	18.68	7.43	549.1	0.25	52	1.14	
Values Prior to Sampling									
1021	33	463.34	18.68	7.43	549.1	0.25	52	1.14	1.04/min

Field Alkalinity Result 150 Mg/L as $CaCO_3$ Sample ID: GW0344

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 50's
Field Crew: DM, MR
Review Signature:

Well ID No.: KAFB-106086
Date: 11-16-11
Time: 1113
Crew Signature: Daniel Medina
Date Review: 11/16/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	496	ft
(B) Pre-Purge Depth to Water	463.77	ft
(C) Water Column Height (A-B)	32.23	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	32.87	gal
(F) Depth to Top of Screen	476	ft
(G) Depth to Bottom of Screen	491	ft
(H) Saturated Filter Pack Length (G –F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2 (5/10 = 1.07)	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	49	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter In Situ 9500	R22831	
Turbidity Meter Hach 2100P	02818	
Pump Dedicated Bennette	On File	
Field Alkalinity La Motte	3467#5	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-16-11/1135	0	463.77	18.65	8.13	428.9	7.43	120	0.77	3.4L/min
1151	14	463.88	19.02	7.92	409.9	7.46	91	0.96	
1202	24	463.90	18.97	7.54	404.9	8.01	104	0.89	
1213	34	463.89	19.02	7.55	405.8	8.37	111	0.89	
1231	39	463.91	18.85	7.56	409.2	6.94	122	1.13	1.0L/min
1250	44	463.87	18.74	7.55	413.9	6.86	130	1.06	
1308	49	463.76	18.81	7.55	414.1	6.92	137	1.10	
Values Prior to Sampling									
1308	49	463.76	18.81	7.55	414.1	6.92	137	1.10	1.0L/min

Field Alkalinity Result 138 Mg/L as CaCO3 Sample ID: GW0345

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: 106
Weather: Sunny 40's
Field Crew: DM, MR
Review Signature:

Well ID No.: KAFB-106087
Date: 11-17-11
Time: 0824
Crew Signature: Daniel Medina
Date Review:

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	565.5 ft
(B) Pre-Purge Depth to Water	463.15 ft
(C) Water Column Height (A-B)	102.35 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	104.40 gal
(F) Depth to Top of Screen	546.0 ft
(G) Depth to Bottom of Screen	561.0 ft
(H) Saturated Filter Pack Length (G –F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	121 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: Hach 2100P	02818
Pump: Dedicated Bennette	On File
Field Alkalinity: La Motte	3467 #

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11-17-11/0905	0	463.15	19.27	7.36	286.6	6.45	183	1.56	4.0 L/min
0940	36	463.21	19.26	7.75	282.8	23.42	342	1.56	
1014	71	463.18	19.28	7.78	283.4	23.58	457	1.72	
1048	106	463.16	19.31	7.80	283.5	23.33	405	1.44	
1106	111	463.05	18.94	7.81	283.6	14.78	377	1.35	1.0 L/min
1125	116	463.06	18.92	7.81	283.5	14.98	361	1.30	
1143	121	463.06	18.98	7.81	283.2	14.85	348	1.33	
Values Prior to Sampling									
1143	121	463.06	18.98	7.81	283.2	14.85	348	1.33	1.0 L/min

Field Alkalinity Result 128 Mg/L as $CaCO_3$ **Sample ID:** GW0346

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

Shaw™ 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: ATRB
Review Signature:

Well ID No.: 106088
Date: 10/10/11
Time: 1315
Crew Signature: [signature]
Date Review:

WELL OBSERVATIONS

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

Notes: Vocs Ø in UB, set pump @ 473'

CALCULATIONS

(A) Depth to Well Bottom	485	ft
(B) Pre-Purge Depth to Water	470.54	ft
(C) Water Column Height (A-B)	14.46	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	14.7	gal
(F) Depth to Top of Screen	460	ft
(G) Depth to Bottom of Screen	480	ft
(H) Saturated Filter Pack Length (G –F, or B)	9.46	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	10.0	

(J) Filter Pack Volume (H x I)	10.1	gal
(K) Min Purge Volume (E + J)	25	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	281821	
Pump: Portable Bennett	on file	
Field Alkalinity: Ca Mott	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/10/11 1417	Ø	470.54	18.20	7.41	413.5	5.44	193	3.13	1.46 L/m
1443	10	470.58	18.80	7.70	424.5	4.59	154	1.71	
1502	15	470.57	18.74	7.71	426.9	4.55	148	2.10	1.0 L/m
1521	20	470.58	18.74	7.71	430.4	4.61	145	1.42	
1540	25	470.58	18.66	7.71	426.6	4.64	143	1.00	

Values Prior to Sampling

1540	25	470.58	18.66	7.71	426.6	4.64	143	1.00	1.0 L/m

Field Alkalinity Result 140 mg/L as $CaCO_3$ **Sample ID:** GW0347

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 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

Review Signature: [signature]

Well ID No.: 106089

Date: 10/12/11

Time: 0800

Crew Signature: [signature]

Date Review: 10/13/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: VOCs Ø in WB, set pump @ 487'

CALCULATIONS

(A) Depth to Well Bottom	501.5	ft
(B) Pre-Purge Depth to Water	470.40	ft
(C) Water Column Height (A-B)	31.1	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	32	gal
(F) Depth to Top of Screen	481.5	ft
(G) Depth to Bottom of Screen	496.5	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	48	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/12/11 0902	Ø	470.40	17.90	7.52	370.1	5.69	212	3.84	1.70 L/m
0924	10	470.51	18.73	7.70	374.0	5.12	194	3.83	
0946	20	470.50	18.74	7.70	374.7	5.14	188	1.99	
1008	30	470.50	18.81	7.69	356.9	5.12	182	2.23	Light Effer
1019	35	470.57	18.82	7.69	372.0	5.08	180	2.21	
1039	40	470.55	18.83	7.71	359.3	4.97	175	1.18	0.97 L/m
1059	45	470.47	18.87	7.71	363.7	4.93	173	1.39	
1119	48	470.47	18.73	7.71	368.7	4.95	170	1.31	
Values Prior to Sampling									
1119	48	470.47	18.73	7.71	368.7	4.95	170	1.31	0.97 L/m

Field Alkalinity Result 123 mg/L as $CaCO_3$

Sample ID: GW0348 GW0349

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106090
Site / SWMU No.: 106
Date: 10/11/11
Weather: Sunny
Time: 0800
Field Crew: AT, PB
Crew Signature: [signature]
Review Signature: 10/11/11
Date Review: [signature]

WELL OBSERVATIONS

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

Notes: VOCs 6 in WB, Set pump @ 562'

CALCULATIONS

(A) Depth to Well Bottom	575	ft
(B) Pre-Purge Depth to Water	469.11	ft
(C) Water Column Height (A-B)	105.9	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	108	gal
(F) Depth to Top of Screen	555	ft
(G) Depth to Bottom of Screen	570	ft
(H) Saturated Filter Pack Length (G-F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	124	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Clear, High effervescence

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/11/11 0909	Ø	469.11	16.37	7.25	301.4	7.03	216	2.75	1.60 L/m
1020	30	469.17	19.07	7.64	301.4	8.77	184	1.24	
1131	60	469.18	19.16	7.66	300.7	8.76	174	1.56	
1242	90	469.12	19.38	7.65	296.2	8.77	162	2.25	lt efferv.
1337	110	469.11	19.47	7.64	293.0	8.76	159	1.38	"
1358	115	469.08	19.59	7.68	298.0	8.57	157	1.26	1.0 L/m
1417	120	469.07	19.62	7.67	297.4	8.26	156	1.15	
1432	124	469.07	19.68	7.67	303.6	8.35	155	1.09	
Values Prior to Sampling									
1432	124	469.07	19.68	7.67	303.6	8.35	155	1.09	1.0 L/m

Field Alkalinity Result 114 ~~Hg~~ at mg/L as $CaCO_3$ **Sample ID:** GW0350

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

Shaw 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 GP
Review Signature: [signature]

Well ID No.: 106091
Date: 11/16/11
Time: 0815
Crew Signature: [signature]
Date Review: 11/16/11

WELL OBSERVATIONS

Protective Casing / Vault: Intact - Damaged -
Locked: Yes No
Well ID Mark: Yes - No
Notes: VOCs Ø in WB

CALCULATIONS

(A) Depth to Well Bottom	479	ft
(B) Pre-Purge Depth to Water	461.01	ft
(C) Water Column Height (A-B)	17.99	ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	18.34	gal
(F) Depth to Top of Screen	454	ft
(G) Depth to Bottom of Screen	474	ft
(H) Saturated Filter Pack Length (G –F, or B)	12.99	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,		

(J) Filter Pack Volume (H x I)	13.89	gal
(K) Min Purge Volume (E + J)	32	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated	on file	
Field Alkalinity: CaMotte	3467 #8	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/16/11 0902	Ø	461.03	20.81	7.31	481.0	4.75	212	0.90	2.18 L/m
0937	20	461.03	18.68	7.47	431.3	4.66	186	0.63	
0956	25	461.01	18.75	7.50	431.3	4.66	151	0.50	1.15 L/m
1015	30	461.01	18.79	7.50	435.6	4.54	154	0.64	
1023	32	461.01	18.80	7.51	435.0	4.56	154	0.71	
Values Prior to Sampling									
1023	32	461.01	18.80	7.51	435.0	4.56	154	0.71	1.15 L/m

Field Alkalinity Result 132 mg/L as $CaCO_3$ Sample ID: GW 0351

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

Shaw 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: ATGP
Review Signature:

Well ID No.: KAFB-106092
Date: 11/15/11
Time: 1100
Crew Signature:
Date Review: 11/15/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in WB

CALCULATIONS

(A) Depth to Well Bottom	493.60	ft
(B) Pre-Purge Depth to Water	461.19	ft
(C) Water Column Height (A-B)	32.41	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)		
(E) One Well Casing Volume (C x D):	33.05	gal
(F) Depth to Top of Screen	474	ft
(G) Depth to Bottom of Screen	487	ft
(H) Saturated Filter Pack Length (G – F, or B)	13	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____		

(J) Filter Pack Volume (H x I)	13.91	gal
(K) Min Purge Volume (E + J)	47	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI, Inc 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: LaMotte	3467 #8	

PURGING INFORMATION

Description first water purged: clear / slight odor

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/15/11 1137	Ø	461.15	19.02	7.65	435.8	6.47	155	1.62	3.0 L/m
1203	20	461.17	18.94	7.62	435.5	6.99	154	1.02	
1216	30	461.14	18.81	7.59	435.4	7.03	156	1.15	
1235	35	461.07	18.96	7.58	440.2	5.71	161	1.38	0.90 L/m
1254	40	461.05	18.79	7.56	438.9	5.55	164	1.07	
1331	47	461.05	18.75	7.54	442.7	5.56	167	1.25	
Values Prior to Sampling									
1331	47	461.05	18.75	7.54	442.7	5.56	167	1.25	0.90 L/m

Field Alkalinity Result 126 mg/L as CaCO3 **Sample ID:** GW0352

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

Shaw 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: MS, BP
Review Signature:

Well ID No.: 106093
Date: 11/16/11
Time: 1125
Crew Signature:
Date Review: 11/16/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs ND in WB

CALCULATIONS

(A) Depth to Well Bottom	563.23	ft
(B) Pre-Purge Depth to Water	461.21	ft
(C) Water Column Height (A-B)	102.02	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)		
(E) One Well Casing Volume (C x D):	104	gal
(F) Depth to Top of Screen	544	ft
(G) Depth to Bottom of Screen	557	ft
(H) Saturated Filter Pack Length (G –F, or B)	13	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07)		

(J) Filter Pack Volume (H x I)	13.91	gal
(K) Min Purge Volume (E + J)	116	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 600	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	3467	
Field Alkalinity: La Motte	3467 #8	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/16/11 1147	0	461.33	22.05	7.20	281.44	4.71	170	1.17	3.0 L/m
1225	30	461.25	19.02	7.61	282.3	13.04	156	1.48	
1303	60	461.35	19.02	7.57	282.1	13.39	158	1.37	
1341	90	461.34	19.01	7.58	281.0	13.40	160	1.08	
1354	100	461.34	19.02	7.57	281.6	13.34	161	1.28	
1413	105	461.24	18.45	7.57	280.0	8.43	164	0.98	1.0 L/m
1432	110	461.30	18.87	7.50	277.3	8.54	167	1.02	
1453	116	461.30	19.05	7.55	277.8	8.21	167	0.96	
Values Prior to Sampling									
1453	116	461.30	19.05	7.55	277.8	8.21	167	0.96	1.0 L/m

Field Alkalinity Result 121 mg/L as CaCO3 **Sample ID:** GW0353

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

Shaw™ 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

Review Signature: [signature]

Well ID No.: 106094

Date: 10/13/11

Time: 0815

Crew Signature: [signature]

Date Review: 10/13/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: Rocks Ø in WB, Set pump @ 494'

CALCULATIONS

(A) Depth to Well Bottom	504.2	ft
(B) Pre-Purge Depth to Water	490.06	ft
(C) Water Column Height (A-B)	15.14	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	15.4	gal
(F) Depth to Top of Screen	484.2	ft
(G) Depth to Bottom of Screen	504.2	ft
(H) Saturated Filter Pack Length (G – F, or B)	20	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07	

(J) Filter Pack Volume (H x I)	21.4	gal
(K) Min Purge Volume (E + J)	37	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insta	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable Burnett	on file	
Field Alkalinity: LaMotte	3467	

PURGING INFORMATION

Description first water purged: Clear, Odor, Light Foam, Effervescent

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/13/11 0933	0	490.06	18.95	7.14	560.6	4.62	-8	1.20	1.44
0959	10	490.12	18.81	7.36	549.3	.23	-126	1.50	
1025	20	490.15	18.86	7.39	554.3	0.29	-117	3.36	
1044	30	490.11	18.86	7.41	554.4	0.43	-111	5.69	1.2 L/m
1103	35	490.10	18.90	7.41	543.1	0.39	-115	3.31	
1115	37	490.10	18.93	7.40	536.3	0.34	-120	3.03	
Values Prior to Sampling									
1115	37	490.10	18.93	7.40	536.3	0.34	-120	3.03	1.2 L/m

Field Alkalinity Result 133 Mg/L as $CaCO_3$ **Sample ID:** GW0354

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

Shaw 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
Review Signature: [signature]

Well ID No.: 106095
Date: 10/19/11
Time: 1300
Crew Signature: [signature]
Date Review: 10/20/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in WB, set pump @ 511'

CALCULATIONS

(A) Depth to Well Bottom	523.75 ft
(B) Pre-Purge Depth to Water	489.61 ft
(C) Water Column Height (A-B)	34 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	35 gal
(F) Depth to Top of Screen	503.75 ft
(G) Depth to Bottom of Screen	518.75 ft
(H) Saturated Filter Pack Length (G-F or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	51 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter Insitu 9500	R20661
Turbidity Meter Hach	2821
Pump Portable	Bennett
Field Alkalinity Lumotte	3467

PURGING INFORMATION

Description first water purged: Clear, slight odor

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/19/11 1357	Ø	489.61	20.09	7.30	423.9	4.89	159	2.04	1.62 L/m
1443	20	489.66	18.99	7.29	446.8	2.05	83	1.89	
1506	30	489.66	18.98	7.30	449.3	2.38	70	1.09	
1525	40	489.65	18.93	7.31	449.0	2.31	70	1.51	0.96 L/m
1544	45	489.62	18.96	7.28	455.3	2.20	72	1.81	
1603	51	489.62	19.00	7.31	459.0	2.23	70	1.36	
Values Prior to Sampling									
1603	51	489.62	19.00	7.31	459.0	2.23	70	1.36	0.96 L/m

Field Alkalinity Result 128 Mg/L as $CaCO_3$ **Sample ID:** GW0355 GW0356

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

Shaw 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
Review Signature:

Well ID No.: 106096
Date: 10/20/11
Time: 0830
Crew Signature:
Date Review: 10/20/11

WELL OBSERVATIONS

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

Notes: VOCs 6 in AB, set pump @ 584'

CALCULATIONS

(A) Depth to Well Bottom	591.3	ft
(B) Pre-Purge Depth to Water	489.91	ft
(C) Water Column Height (A-B)	101.39	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	103	gal
(F) Depth to Top of Screen	576.3	ft
(G) Depth to Bottom of Screen	591.3	ft
(H) Saturated Filter Pack Length (G – F or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07)	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	119	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Ins. Hu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Rochelle Bennett	On file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/21/11 0919	0	489.91	17.56	7.19	283.3	6.30	204	4.41	1.48 Clear
1025	30	489.97	19.04	7.63	283.8	5.28	180	2.71	
1139	60	489.97	19.08	7.66	284.8	5.74	164	1.93	
1255	90	489.94	19.15	7.60	284.6	5.65	156	1.70	
1332	105	489.93	19.18	7.60	285.5	5.74	153	1.86	
1351	110	489.91	19.17	7.68	287.0	5.20	152	2.04	1.04 Clear
1410	115	489.91	19.20	7.68	285.8	5.28	151	1.48	
1425	119	489.91	19.16	7.68	284.5	5.16	150	1.35	
Values Prior to Sampling									
1425	119	489.91	19.16	7.68	284.5	5.16	150	1.35	1.04 Clear

Field Alkalinity Result 152 mg/L as $CaCO_3$ **Sample ID:** GW0357

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB- BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DM, DA
Review Signature:

Well ID No.: 106013
Date: 10-5-11 and 10-6-11
Time: 1330
Crew Signature: Daniel Medina
Date Review: 10/6/11

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH. Purge held @ 18 gallons, resume purge on 5-6-11 @ 0812.

CALCULATIONS

(A) Depth to Well Bottom	516.5 ft
(B) Pre-Purge Depth to Water	495.55 ft
(C) Water Column Height (A-B)	20.95 ft
(D) Casing Factor (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	13.62 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)	~~15~~ 15.95 DM ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	~~DM 30~~ 19.14 gal
(K) Min Purge Volume (E + J)	DM ~~44~~ 33 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter IN SITU 9500	R22831
Turbidity Meter HACH 2100P	02818
Pump Dedicated Bennette	ON FILE
Field Alkalinity LA MOTTE	3467#5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-5-11/1357	0	495.55	23.14	8.01	502.1	7.00	134	1.85	0.40L/min
1530 DM ~~15~~	10	495.55	19.38	7.45	463.9	2.25	-5	4.98	
1645	18	495.55	19.22	7.49	447.1	3.00	-1	3.32	
10-6-11/0846	23	495.61	18.69	7.45	459.6	2.93	11	6.79	0.59L/min
0918	28	495.54	18.82	7.49	452.3	3.03	-3	3.09	
0950	33	495.54	19.10	7.51	443.6	3.27	-6	2.62	

Values Prior to Sampling

0950	33	495.54	19.10	7.51	443.6	3.27	-6	2.62	1.0L/min

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*

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DM, DA
Review Signature:

Well ID No.: 106097
Date: 10-5-11
Time: 1104
Crew Signature: Daniel Medina
Date Review:

WELL OBSERVATIONS

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

Notes: VOC's 0.7 in BH

CALCULATIONS

(A) Depth to Well Bottom	526 ft
(B) Pre-Purge Depth to Water	492.35 ft
(C) Water Column Height (A-B)	33.65 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	34.33 gal
(F) Depth to Top of Screen	506 ft
(G) Depth to Bottom of Screen	521 ft
(H) Saturated Filter Pack Length (G – F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07.)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	~~50~~ 51 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter INSITU 9500	R22831
Turbidity Meter HACH 2100P	02818
Pump Dedicated Bennette	ON FILE
Field Alkalinity LA MOTTE	3467#5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-5-11/1129	0	492.35	20.39	7.61	469.8	7.01	158	0.59	3.8 L/min
1149	20	492.42	19.19	7.72	439.6	12.03	57	2.51	
1209	36	492.42	19.20	7.73	430.8	12.00	73	2.43	
1223	41	492.40	19.32	7.75	425.5	10.35	91	1.23	
1242	46	492.41	19.38	7.72	440.0	10.13	102	1.81	1.0 L/min
1300	51	492.40	19.44	7.71	444.3	10.32	107	1.45	
Values Prior to Sampling					444.3				
1300	51	492.40	19.44	7.71	~~443~~ 444.3	10.32	107	1.45	1.0 L/min

Field Alkalinity Result 136 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*

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106098
Site / SWMU No.: 106
Date: 10-5-11
Weather: Cloudy 60°'s
Time: 0752
Field Crew: DM, DA
Crew Signature: Daniel Medina
Review Signature:
Date Review:

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH

CALCULATIONS

(A) Depth to Well Bottom	551.1 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	492.51 ft	(K) Min Purge Volume (E + J)	76 gal
(C) Water Column Height (A-B)	58.59 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter IN SITU 9500	R22831
(E) One Well Casing Volume (C x D):	59.76 gal	Turbidity Meter HACH 2100P	02818
(F) Depth to Top of Screen	531 ft	Pump Dedicated Bennette	ON FILE
(G) Depth to Bottom of Screen	546 ft	Field Alkalinity LA Motte	3467#5
(H) Saturated Filter Pack Length (G – F, or B)	15 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07),	1.07		

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-5-11 0833	0	492.51	20.05	6.84	298.5	7.37	202	2.22	3.4 L/min
0857	21	492.58	19.14	7.87	283.7	14.10	163	1.69	
0919	41	492.59	19.13	7.86	282.2	13.99	155	1.37	
0942	61	492.50	19.16	7.86	278.3	13.18	148	1.17	
1000	66	492.53	19.01	7.86	279.8	13.22	148	1.06	1.0 L/min
1019	71	492.53	19.11	7.88	278.2	10.38	147	1.06	
1037	76	492.53	19.04	7.88	280.3	10.37	148	0.95	
Values Prior to Sampling									
1037	76	492.53	19.04	7.88	280.3	10.37	148	0.95	1.0 L/min

Field Alkalinity Result 104 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*

Shaw 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, FK

Review Signature: [signature]

Well ID No.: 1064

Date: 11/10/11

Time: 0800

Crew Signature: [signature]

Date Review: 11/10/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: Voids Ø in WB

CALCULATIONS

(A) Depth to Well Bottom	510	ft
(B) Pre-Purge Depth to Water	489.6	ft
(C) Water Column Height (A-B)	20.4	ft
(D) Casing Factor 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	13	gal
(F) Depth to Top of Screen	484	ft
(G) Depth to Bottom of Screen	509	ft
(H) Saturated Filter Pack Length (G –F, or B)	19.4	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____		

(J) Filter Pack Volume (H x I)	23.28	gal
(K) Min Purge Volume (E + J)	36	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: La Motte	3467 #8	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/10/11 0859	Ø	489.68	18.39	7.68	503.8	5.11	203	1.57	360 L/m
0920	20	489.68	18.41	7.54	482.7	6.52	224	1.61	
0939	25	489.62	17.96	7.55	478.3	5.95	208	.80	1.0 L/m
0958	30	489.58	17.99	7.56	484.5	5.53	197	.78	
1020	36	489.61	18.35	7.55	484.9	5.99	197	.68	
Values Prior to Sampling									
1020	36	489.61	18.35	7.55	484.9	5.99	197	.68	1.0 L/m

Field Alkalinity Result 98 mg/L a CaCO3 Sample ID: GW0361

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

Shaw 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, FK
Review Signature:

Well ID No.: 1060099
Date: 0800
Time: 11/9/11
Crew Signature:
Date Review: 11/9/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOC's @ in WB

CALCULATIONS

(A) Depth to Well Bottom	521	ft
(B) Pre-Purge Depth to Water	486.91	ft
(C) Water Column Height (A-B)	34.09	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)		
(E) One Well Casing Volume (C x D):	34.77	gal
(F) Depth to Top of Screen	501	ft
(G) Depth to Bottom of Screen	516	ft
(H) Saturated Filter Pack Length (G-F, or B)	15.00	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (.07)		

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	51	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/8/11 0922	0	486.91	17.17	7.34	450.4	5.23	221	1.76	3.6 L/m
0943	20	486.97	18.10	7.53	410.3	6.56	220	3.11	
0954	30	486.97	18.75	7.55	407.6	6.89	213	3.17	
0959	35	486.98	18.74	7.55	412.4	6.87	211	3.07	
1018	40	486.88	18.16	7.58	410.3	6.02	201	2.81	1.0 L/m
1037	45	486.87	18.18	7.59	426.0	6.17	190	2.45	
1100	51	486.87	17.54	7.58	424.2	6.14	184	2.40	
Values Prior to Sampling									
1100	51	486.87	17.94	7.58	424.2	6.14	184	2.40	1.0 L/m

Field Alkalinity Result 88 mg/L as CaCO3 **Sample ID:** GW0362

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

Shaw 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, FK

Review Signature: [signature]

Well ID No.: 106100

Date: 11/9/11

Time: 1200

Crew Signature: [signature]

Date Review: 11/10/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -

Locked: Yes - No

Well ID Mark: Yes - No

Notes: VOCs Ø in WB

CALCULATIONS

(A) Depth to Well Bottom	546	ft
(B) Pre-Purge Depth to Water	486.81	ft
(C) Water Column Height (A-B)	59.19	ft
(D) Casing Factor: 4"=0.65 5"=1.02		
(E) One Well Casing Volume (C x D):	60.37	gal
(F) Depth to Top of Screen	526	ft
(G) Depth to Bottom of Screen	541	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	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)	76.42	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: HAch	2821	
Pump: Dedicated Bennett	on file	
Field Alkalinity: Ca Mott	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
11/9/11 1217	Ø	486.81	20.96	7.09	317.3	4.71	188	3.63	3.60 L/m
1238	20	486.91	18.93	7.64	321.4	9.67	162	5.42	
1259	40	486.91	18.98	7.63	318.9	10.15	163	4.36	
1310	50	486.90	19.01	7.63	319.3	10.03	164	3.28	
1310	~~55~~ 50	486.90	19.01	7.63	319.3	10.03	164	3.28	
1321	60	486.90	19.02	7.63	319.6	10.00	165	4.00	
1340	65	486.81	19.01	7.65	319.0	7.70	164	3.34	1.0 L/m
1359	70	486.79	18.73	7.65	317.1	7.51	164	3.30	
1422	76	486.79	18.75	7.65	318.6	7.57	164	2.61	
Values Prior to Sampling									
1422	76	486.79	18.75	7.65	318.6	7.57	164	2.61	1.0 L/m

Field Alkalinity Result 90 mg/L a CaCO3

Sample ID: GW0363 GW 0364.

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106003
Site / SWMU No.: 106
Date: 10-19-11
Weather: Sunny 70s
Time: 1357
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 10/20/11

WELL OBSERVATIONS

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

Notes: VOCs ∅ in BH

CALCULATIONS

(A) Depth to Well Bottom	503 ft
(B) Pre-Purge Depth to Water	483.79 ft
(C) Water Column Height (A-B)	19.21 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	12.49 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)	17.21 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	20.66 gal
(K) Min Purge Volume (E + J)	34 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI 556	R22831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-19-11 1418	∅	483.79	20.52	8.28	824.4	7.69	59	0.94	3.76 L/min
1428	10	483.84	19.04	7.74	847.9	7.95	61	1.27	
1437	19	483.86	19.04	7.72	853.4	7.92	64	1.13	
1455	24	483.83	19.06	7.73	852.8	7.91	85	1.41	1.0 L/min
1514	29	483.81	19.06	7.73	848.4	7.96	100	1.21	
1532	34	483.80	19.01	7.73	847.8	7.95	109	0.64	
Values Prior to Sampling									
1532	34	483.80	19.01	7.73	847.8	7.95	109	0.64	1.0 L/min

Field Alkalinity Result 90 mg/L as CaCO3 **Sample ID:** GW~~0358~~ 0365

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 60's
Field Crew: DA, DM
Review Signature:

Well ID No.: 106101
Date: 10-20-11
Time: 1041
Crew Signature:
Date Review: 10/20/2011

WELL OBSERVATIONS

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

Notes: VOCs

CALCULATIONS

(A) Depth to Well Bottom	515.06 ft
(B) Pre-Purge Depth to Water	484.00 ft
(C) Water Column Height (A-B)	31.06 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	31.68 gal
(F) Depth to Top of Screen	495.93 ft
(G) Depth to Bottom of Screen	511.21 ft
(H) Saturated Filter Pack Length (G –F, or B)	15.28 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07

(J) Filter Pack Volume (H x I)	16.35 gal
(K) Min Purge Volume (E + J)	49 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R72831
Turbidity Meter: HACH 2100 P	02818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-20-11 1051	0	484.00	19.89	7.71	815.5	7.54	187	0.38	2.88 L/min
1118	20	484.07	19.06	7.71	845.5	10.63	119	0.90	
1136	34	484.08	19.09	7.71	843.5	10.84	138	0.60	
1155	39	484.06	19.12	7.72	860.8	9.46	152	0.39	1.0 L/min
1213	44	484.03	19.12	7.72	846.7	9.59	162	0.70	
1232	49	484.01	19.24	7.72	847.2	9.39	175	0.82	
Values Prior to Sampling									
1232	49	484.01	19.24	7.72	847.2	9.39	175	0.82	1.0 L/min

Field Alkalinity Result 82 mg/L as $CaCO_3$ **Sample ID:** GW0366

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 50s
Field Crew: DA, DM
Review Signature:

Well ID No.: 106107
Date: 10-20-11
Time: 0757
Crew Signature:
Date Review: 10/20/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs 1.7 in BH1

CALCULATIONS

(A) Depth to Well Bottom	540.21 ft
(B) Pre-Purge Depth to Water	484.11 ft
(C) Water Column Height (A-B)	56.1 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	57.23 gal
(F) Depth to Top of Screen	521.08 ft
(G) Depth to Bottom of Screen	534.84 ft
(H) Saturated Filter Pack Length (G –F, or B)	13.76 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, ____	1.07

(J) Filter Pack Volume (H x I)	14.73 gal
(K) Min Purge Volume (E + J)	72 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R72831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467#5

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-20-11 0814	0	484.11	17.81	7.37	323.8	7.88	207	0.63	3.32 L/min
0837	20	484.18	19.05	7.84	321.6	~~7.20~~ 6.58	202	0.88	
0900	40	484.19	19.10	7.86	315.3	6.60	199	0.66	
0920	57	484.20	19.18	7.86	315.4	6.45	193	0.68	
0938	62	484.17	18.96	7.90	314.2	5.71	191	0.97	1.0 L/min
0957	67	484.14	18.89	7.90	314.5	5.69	192	0.66	
1016	72	484.12	18.96	7.89	314.5	5.71	193	0.44	
Values Prior to Sampling									
1016	72	484.12	18.96	7.89	314.5	5.71	193	0.44	1.0 L/min

Field Alkalinity Result 104 mg/L as $CaCO_3$ **Sample ID:** GW0367

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Sunny 70's
Field Crew: DM, DA
Review Signature:

Well ID No.: 106023
Date: 10-11-11
Time: 0805
Crew Signature: Daniel Medina
Date Review:

WELL OBSERVATIONS

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

Notes: VOC's 0.0 in BH.

CALCULATIONS

(A) Depth to Well Bottom	503 ft
(B) Pre-Purge Depth to Water	474.96 ft
(C) Water Column Height (A-B)	28.04 ft
(D) Casing Factor (4"=0.65 6"=1.02	0.65
(E) One Well Casing Volume (C x D):	18.23 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)	23.04 ft
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, ____	1.2

(J) Filter Pack Volume (H x I)	27.65 gal
(K) Min Purge Volume (E + J)	46 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: IN SITU 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: DEDICATED BENNETTE	ON FILE
Field Alkalinity: LA MOTTE	3467#5

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10-11-11/0834	0	474.96	17.90	7.02	303.8	7.51	223	1.04	1.4L/min
0907	15	475.10	18.92	7.99	311.2	10.18	132	1.28	
0942	31	475.10	18.98	7.95	315.1	10.74	142	0.95	
1000	36	475.10	18.82	7.96	309.2	10.51	147	1.07	1.0L/min
1019	41	475.10	18.86	7.95	313.5	10.45	153	0.75	
1037	46	475.10	18.82	7.94	311.6	10.66	156	0.68	
Values Prior to Sampling									
1037	46	475.10	18.82	7.94	311.6	10.66	156	0.68	1.0L/min

Field Alkalinity Result 124 Mg/L as $CaCO_3$ **Sample ID:** GW03681

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106103
Site / SWMU No.: 106
Date: 10/10/11
Weather: Sunny 50's
Time: 0830
Field Crew: AS, RB
Crew Signature: [signature]
Review Signature:
Date Review:

WELL OBSERVATIONS

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

Notes: VOCs, Ø in BH, set pump @ 493'

CALCULATIONS

(A) Depth to Well Bottom	505.2	ft
(B) Pre-Purge Depth to Water	475.40	ft
(C) Water Column Height (A-B)	29.8	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	30.4	gal
(F) Depth to Top of Screen	485	ft
(G) Depth to Bottom of Screen	500	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	46	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	28121	
Pump: Portable Bennett	on file	
Field Alkalinity: Ca Mottle	3467	

PURGING INFORMATION

Description first water purged: Clear. Having issue with RDO Sensor

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/10/11 943	Ø	475.40	17.84	7.52	310.1	-2.50	162	3.21	1.68 L/m
1006	10	475.46	18.64	7.74	318.4	-2.50	138	1.82	
1029	20	475.44	18.64	7.73	321.1	-2.50	137	1.09	
1052	30	475.45	18.66	7.75	297.2	-2.50	136	0.77	
1113	35	475.42	18.56	7.77	303.2	-2.50	135	0.88	0.92 L/m
1134	40	475.42	18.52	7.78	293.2	-2.50	136	0.82	
1159	46	475.42	18.53	7.77	305.8	-2.50	137	0.65	lt effervescent

Values Prior to Sampling

1159	46	475.42	18.53	7.77	305.8	~~-2.50~~ ODCO	137	0.65	0.92 L/m

Field Alkalinity Result 114 mg/L as $CaCO_3$ **Sample ID:** GW0369

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF

Site / SWMU No.: 106

Weather: Cloudy

Field Crew: AT RB

Review Signature: [signature]

Well ID No.: 106104

Date: 10/3/11

Time: 0900

Crew Signature: [signature]

Date Review: 10/3/11

WELL OBSERVATIONS

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

Notes: VOC's ∅ in BH Set pump @ 518'

CALCULATIONS

(A) Depth to Well Bottom	530	ft
(B) Pre-Purge Depth to Water	475.02	ft
(C) Water Column Height (A-B)	54.98	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	56	gal
(F) Depth to Top of Screen	510.2	ft
(G) Depth to Bottom of Screen	525	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	72	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insitu	20661	
Turbidity Meter: Hach	2821	
Pump: Portable Burnett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/3/11 1120	at ~~20~~ ∅	475.02	19.61	7.04	306.1	7.46	189	3.01	1.70 L/m
1205	at ~~30~~ 20	475.12	19.06	7.75	304.2	7.98	135	1.54	
1227	at ~~40~~ 30	475.11	19.10	7.76	298.9	7.94	132	1.18	
1249	40	475.10	19.09	7.76	308.7	7.85	129	1.76	
1311	50	475.10	19.07	7.76	300.4	7.82	128	0.88	
1333	60	475.09	19.06	7.75	259.4	7.74	128	1.33	Adjust flow rate - heavy effervesc. insitu
1352	65	475.05	19.06	7.76	296.4	7.76	127	1.28	1.0 L/m
1411	70	475.03	19.09	7.76	305.0	7.76	127	0.95	
1419	72	475.03	18.99	7.76	312.4	6.98	128	1.00	
Values Prior to Sampling									
1419	72	475.03	18.99	7.76	312.4	6.98	128	1.00	1.0 L/m

Field Alkalinity Result 110 mg/L as $CaCO_3$ Sample ID: GW0370

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106/05
Site / SWMU No.: 106
Date: 1300 10/17/11
Weather: Sunny
Time: 1300
Field Crew: AT/RB
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 10/19/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in wb, set pump @ 492'

CALCULATIONS

(A) Depth to Well Bottom	504	ft
(B) Pre-Purge Depth to Water	470.14	ft
(C) Water Column Height (A-B)	33.86	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	35	gal
(F) Depth to Top of Screen	484	ft
(G) Depth to Bottom of Screen	499	ft
(H) Saturated Filter Pack Length (G – F, or B)	15	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	51	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable	Bennett	
Field Alkalinity: LaMotte	3467	

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/17/11 1319	Ø	470.15	22.37	7.93	348.5	5.75	105	4.56	1.64 L/m
1342	10	470.17	19.10	7.87	355.7	6.96	123	2.19	
1405	20	470.21	19.04	7.83	350.7	6.92	123	1.79	
1428	30	470.21	19.04	7.81	346.8	7.05	124	2.02	
1447	35	470.19	19.26	7.79	347.8	6.77	124	1.61	1.0 L/m
1506	40	470.18	19.30	7.79	350.5	6.63	124	1.74	
1528	51	470.18	19.29	7.78	347.2	6.77	123	1.52	
Values Prior to Sampling									
1528	51	470.18	19.29	7.78	347.2	6.77	123	1.52	1.0 L/m

Field Alkalinity Result 120 Mg/L as $CaCO_3$ **Sample ID:** GW0371

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: 106 at KAFB-BFF **Well ID No.:** 106106

Site / SWMU No.: 106 **Date:** 10/18/11

Weather: Sunny **Time:** 0800

Field Crew: AF RB **Crew Signature:**

Review Signature: **Date Review:** 10/17/11

WELL OBSERVATIONS

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

Notes: VOC's @ in WB, set pump @ 474'

CALCULATIONS

(A) Depth to Well Bottom	488.6	ft
(B) Pre-Purge Depth to Water	470.15	ft
(C) Water Column Height (A-B)	18.45	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	19	gal
(F) Depth to Top of Screen	453.6	ft
(G) Depth to Bottom of Screen	483.6	ft
(H) Saturated Filter Pack Length (G –F, or B)	30	ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07),	1.07	

(J) Filter Pack Volume (H x I)	32	gal
(K) Min Purge Volume (E + J)	51	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 4500	R20661	
Turbidity Meter: Hach	2821	
Pump: Rotatable Bennett	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/17/11 0924	0	470.15	18.70	7.47	354.7	5.02	188	3.00	1.7 L/m
0946	10	470.20	18.61	7.63	354.5	5.07	137	2.55	
1008	20	470.20	18.59	7.63	354.5	5.15	93	2.11	
1030	30	470.18	18.65	7.64	354.4	5.30	73	1.57	
1049	35	470.16	18.72	7.63	354.7	5.17	83	1.77	1.0 L/m
1108	40	470.15	18.74	7.63	354.5	5.27	86	1.27	
(1130)	51	470.15	18.79	7.63	354.6	5.22	86	1.45	
Values Prior to Sampling									
1130	51	470.15	18.79	7.63	354.6	5.22	86	1.45	1.0 L/m

Field Alkalinity Result 91 mg/L as $CaCO_3$ GW0372 GW0373

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 Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF | **Well ID No.:** 106102

Site / SWMU No.: 106 | **Date:** 10/18/11

Weather: Sunny | **Time:** 0800

Field Crew: AT, RB | **Crew Signature:**

Review Signature: | **Date Review:** 10/19/11

WELL OBSERVATIONS

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

Notes: VOCs Q in WB, set pump @ 518'

CALCULATIONS

(A) Depth to Well Bottom	530.16 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	470.45 ft	(K) Min Purge Volume (E + J)	77.05 gal
(C) Water Column Height (A-B)	59.71 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	Parameter Meter	
(E) One Well Casing Volume (C x D):	61 gal	9500 Insitu	R2066(1
(F) Depth to Top of Screen	510.16 ft	Turbidity Meter	
(G) Depth to Bottom of Screen	525.16 ft	Hach	2821
(H) Saturated Filter Pack Length (G-F, or B)	15 ft	Pump	
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07	Field Alkalinity	
		La Motte	3467

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10/18/11 0937	0	470.45	16.62	7.44	313.2	6.95	183	3.01	1.12 L/m max @ 140 PSI
1128	30	470.49	18.64	7.62	307.8	7.51	161	3.32	
1152	40	470.47	18.72	7.60	311.2	7.39	160	2.48	
1224	50	470.47	18.89	7.61	309.7	7.42	150	2.12	
1259	60	470.47	18.98	7.62	308.9	7.23	154	1.45	
1318	65	470.48	19.11	7.61	314.0	7.15	153	1.41	0.98 L/m
1337	70	470.41	19.10	7.61	312.4	7.21	152	1.80	
1349	77	470.41	19.03	7.62	308.1	7.29	153	1.71	
Values Prior to Sampling									
1349	77	470.41	19.03	7.62	308.1	7.29	153	1.71	0.98 L/m

Field Alkalinity Result 118 mg/L as CaCO3 **Sample ID:** GW0374

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*