Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 2819-R-CRT
Site / SWMU No.: 106
Date: 7/6/11
Weather: Sunny 90's
Time: 1158
Field Crew: DA ML
Crew Signature: [signature]
Review Signature: Mark Lyons
Date Review: 7/6/11

WELL OBSERVATIONS

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

Notes: Residential production well sampled @ spout (irrigation)

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)	N/A	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In-situ 9500	R22831	
Turbidity Meter: HACH 2100P	02821	
Pump: N/A	N/A	
Field Alkalinity: La Motte	3467#4	

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
7-6-11 1130	NA	NA	21.47	7.83	322.5	6.62	162	0.14	
Values Prior to Sampling									
7-6-11 1130	N/A	N/A	21.47	7.83	322.5	6.62	162	0.14	

Field Alkalinity Result 94 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** KAFB-003

Site / SWMU No.: 106 **Date:** 7/6/11

Weather: Sunny 90s **Time:** 1017

Field Crew: DA, ML **Crew Signature:** DA Aubrey

Review Signature: Mark Lyon **Date Review:** 7/6/11

WELL OBSERVATIONS

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

Notes: Production 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)	N/A	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter Ysi 9500	R22831	
Turbidity Meter HACH 2100P	02821	
Pump N/A	N/A	
Field Alkalinity La Motte	3467#4	

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
7-6-11 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	DA
1040	N/A	NA	20.73	7.76	343.8	5.78	160	0.28	

Values Prior to Sampling

7-6-11 1040	N/A	N/A	20.73	7.76	343.8	5.78	160	0.28	

Field Alkalinity Result 84 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
Site / SWMU No.: 106
Weather: Sunny 80s
Field Crew: DA/DM
Review Signature: [signature]

Well ID No.: KAFB-003
Date: ~~8-1-11~~ 8-2-11
Time: 0822
Crew Signature: [signature]
Date Review: 8/3/11

WELL OBSERVATIONS

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

Notes: Sampled from spigot on well head

CALCULATIONS

(A) Depth to Well Bottom	NA	ft
(B) Pre-Purge Depth to Water	NA	ft
(C) Water Column Height (A-B)	NA	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)	NA	gal
(K) Min Purge Volume (E + J)	NA	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Horiba U-22	R22831	
Turbidity Meter: HACH 2100P	02818	
Pump: production well	NA	
Field Alkalinity: La Motte	3467#4	

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
8-2-11 0855	NA	NA	20.64	7.60	376.0	5.84 DR	211	0.23	NA

Values Prior to Sampling

0855	NA	NA	20.64	7.60	376.0	5.84	211	0.23	NA

Field Alkalinity Result 120 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-0165
Site / SWMU No.: 106
Date: 7-6-11
Weather: Sunny 90's
Time: 11 14
Field Crew: DA, ML
Crew Signature: [signature]
Review Signature: Mark Lyon
Date Review: 7-6-11

WELL OBSERVATIONS

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

Notes: Production well sampled from 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)	N/A	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter Hon-Site 9500	RZ2831	
Turbidity Meter HACH 2100P	07821	
Pump N/A	N/A	
Field Alkalinity La Motte	3467#4	

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
7-6-11 1130	NA	NA	28.43	7.88	430.7	0.79	101	0.33	
Values Prior to Sampling									
7-6-11 1130	NA	NA	28.43	7.88	430.7	0.79	101	0.33	

Field Alkalinity Result 82 mg/L as $CaCO_3$

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

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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: 8-2-11
Weather: Sunny 90°
Time: 1036
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/2/11

WELL OBSERVATIONS

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

Notes: Sampled from spigot outside pump house

CALCULATIONS

(A) Depth to Well Bottom	NA	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)	NA	gal
(K) Min Purge Volume (E + J)	NA	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ 9500	In Situ R22831	
Turbidity Meter: HACH2100R	02818	
Pump: production well	NA	
Field Alkalinity: La Motte	3467#4	

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
8-2-11 1047	NA	NA	28.16	7.70	403.1	0.65	163	0.22	NA
Values Prior to Sampling									
1047	NA	NA	28.16	7.70	403.1	0.65	163	0.22	NA

Field Alkalinity Result 80 mg/L as $CaCO_3$

GW0123

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-016
Site / SWMU No.: 106
Date: 7-6-11
Weather: sunny 90's
Time: 1053
Field Crew: DA, ML
Crew Signature: [signature]
Review Signature: Mark Lyon
Date Review: 7-6-11

WELL OBSERVATIONS

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

Notes: Production well sampled from 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)	N/A	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In-situ 9500	R22831	
Turbidity Meter: HACH 2100P	02821	
Pump: N/A	N/A	
Field Alkalinity: La Motte	3467#4	

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
7-6-11 1100	NA	NA	28.54	7.67	466.6	2.79	103	0.34	
Values Prior to Sampling									
7-6-11 1100	NA	NA	28.54	7.67	466.6	2.79	103	0.34	

Field Alkalinity Result 86 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-016
Site / SWMU No.: 106
Date: 8-2-11
Weather: Sunny 90s
Time: 0945
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 8/2/11

WELL OBSERVATIONS

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

Notes: Sampled from spigot outside pump house

CALCULATIONS

(A) Depth to Well Bottom	NA	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)	NA	gal
(K) Min Purge Volume (E + J)	NA	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI Sonde 9500	R27831	
Turbidity Meter: HACH 2100P	07818	
Pump: production well	NA	
Field Alkalinity: La Motte	3467 #4	

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
8-2-11 0958	NA	NA	28.43	7.56	437.6	0.47	100	0.30	NA
Values Prior to Sampling									
0958	NA	NA	28.43	7.56	437.6	0.47	100	0.30	NA

Field Alkalinity Result 100 Mg/L as $CaCO_3$ GW0126

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 KAFB-

Project Name: KAFB-BFF **Well ID No.:** ~~KAF~~ 03411

Site / SWMU No.: 106 **Date:** 7-13-11

Weather: Sunny 90's **Time:** 1311

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

Review Signature: Daniel Medina **Date Review:** 7/13/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in borehole

CALCULATIONS

(A) Depth to Well Bottom	503 ft
(B) Pre-Purge Depth to Water	486.27 ft
(C) Water Column Height (A-B)	16.73 ft
(D) Casing Factor 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	10.88 gal
(F) Depth to Top of Screen	477 ft
(G) Depth to Bottom of Screen	502 ft
(H) Saturated Filter Pack Length (G –F, or B)	15.73 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	18.88 gal
(K) Min Purge Volume (E + J)	30 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Ion Sites 9500	R22831
Turbidity Meter: HACH2100P	02818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	3467 #4

PURGING INFORMATION

Description first water purged: Clear, 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
7-13-11 1357	0	486.27	20.73	7.84	480.1	7.37	-1	0.65	4.3L/min
1406	10	486.37	19.86	7.29	620.3	1.98	45	0.35	
1411	15	486.37	19.69	7.31	591.2	1.39	49	0.17	
1428	20	486.28	20.48	7.37	557.1	1.33	37	0.41	0.96L/min
1448	25	486.28	20.55	7.39	530.1	1.10	38	0.25	
1507	30	486.28	20.49	7.38	531.5	0.93	39	0.37	

Values Prior to Sampling

1507	30	486.28	20.49	7.38	531.5	0.93	39	0.37	

Field Alkalinity Result 188 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106001
Site / SWMU No.: 106
Date: 7/20/11
Weather: Sunny
Time: 0815
Field Crew: AS TW
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 7/20/11

WELL OBSERVATIONS

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

Notes: VOC's 43.4 LEL 5 in well Sure

CALCULATIONS

(A) Depth to Well Bottom	508.5	ft
(B) Pre-Purge Depth to Water	488.10	ft
(C) Water Column Height (A-B)	19.9	ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~12.9~~ at .65	
(E) One Well Casing Volume (C x D):	12.9	gal
(F) Depth to Top of Screen	483	ft
(G) Depth to Bottom of Screen	508	ft
(H) Saturated Filter Pack Length (G –F, or B)	19.9	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	~~23~~. 1.2 at	

(J) Filter Pack Volume (H x I)	23.8	gal
(K) Min Purge Volume (E + J)	37	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
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
7/20/11 0905	~~0905~~ at 0	488.10	20.39	7.47	385.5	7.32	215	7.46	2.16 L/m
0923	10	488.16	19.73	7.30	406.2	2.05	1	3.73	
0941	20	488.16	19.79	7.33	393.0	1.73	-4	2.86	
0950 ~~0950~~	at ~~30~~ 25	488.15	19.77	7.33	392.7	1.86	5	2.73	
959	at ~~35~~ 30	488.13	20.44	7.41	384.7	2.54	3	2.70	~~[illegible]~~ .98 L/min
1018	at ~~37~~ 35	488.15	19.88	7.34	379.3	1.21	14	2.47	
1026	37	488.13	19.92	7.33	378.5	1.20	14	2.11	
Values Prior to Sampling									
1026	37	488.13	19.92	7.33	378.5	1.20	14	2.11	0.98 L/m

Field Alkalinity Result 148 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
Well ID No.: 106002
Site / SWMU No.: 106
Date: 9-12-11
Weather: Cloudy
Time: 1030
Field Crew: AT DM
Crew Signature:
Review Signature:
Date Review: 9/12/11

WELL OBSERVATIONS

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

Notes: VOCs D in GB

CALCULATIONS

(A) Depth to Well Bottom	505 ft
(B) Pre-Purge Depth to Water	485.82 ft
(C) Water Column Height (A-B)	19.18 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	12.467 gal
(F) Depth to Top of Screen	483.47 ft
(G) Depth to Bottom of Screen	504 ft
(H) Saturated Filter Pack Length (G –F, or B)	18.18 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	21.81 gal
(K) Min Purge Volume (E + J)	34 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI 556	R206661
Turbidity Meter: Hach	2828
Pump: dedicated Bennett	on feb
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
9-12-11 1059	0	485.92	19.78	9.08	324.0	7.37	195	0.38	3.84 L/m
1109	10	485.93	19.07	7.61	393.3	3.73	200	7.50	
1119	20	486.01	19.07	7.62	372.0	3.93	189	3.16	
1138	25	485.95	19.08	7.65	359.7	4.23	191	1.74	1.0 L/m
1157	30	485.94	19.03	7.64	364.0	4.43	193	1.30	
1212	34	485.93	21.76	7.64	359.0	4.44	193	0.85	
Values Prior to Sampling									
1212	34	485.93	21.76	7.64	359.0	4.44	193	0.85	1.0 L/m

Field Alkalinity Result 118 Mg/L as CaCO3

GW 0133

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.:** 106003

Site / SWMU No.: 106 **Date:** 7-21-11

Weather: Sunny 90's **Time:** 1241

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

Review Signature: **Date Review:** 7/21/11

WELL OBSERVATIONS

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

Notes: VOCs, 6in borehole

CALCULATIONS

(A) Depth to Well Bottom	503 ft	(J) Filter Pack Volume (H x I)	18.14 gal
(B) Pre-Purge Depth to Water	482.89 ft	(K) Min Purge Volume (E + J)	32 gal
(C) Water Column Height (A-B)	20.11 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):	13.08 gal	Turbidity Meter HACH 2100P	02818
(F) Depth to Top of Screen	476 ft	Pump dedicated Bennette	on file
(G) Depth to Bottom of Screen	501 ft	Field Alkalinity La Motte	4367-04
(H) Saturated Filter Pack Length (G –F, or B)	15.11 ft		
~~(I) Casing~~/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2		

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
7-21-11 1316	0	482.89	21.01	8.10	840.5	6.93	148	0.59	3.2 L/min
1328	10	482.99	19.54	7.67	849.1	8.06	80	0.71	
1337	17	482.99	19.33	7.68	856.6	7.99	82	0.63	
1353	22	482.95	19.94	7.67	855.1	7.67	106	0.29	1.0 L/min
1411	27	482.93	19.97	7.67	849.1	7.52	102	0.38	
1428	32	482.92	19.96	7.67	849.0	7.52	103	0.33	
Values Prior to Sampling									
1428	32	482.92	19.96	7.67	849.0	7.52	103	0.33	1.0 L/min

Field Alkalinity Result 90 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.:** 106004

Site / SWMU No.: 106 **Date:** 7/15/11

Weather: Sunny **Time:** 09:00

Field Crew: AT, TN **Crew Signature:**

Review Signature: **Date Review:** 7/15/11

WELL OBSERVATIONS

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

Notes: VOC's 1.9 in well bore

CALCULATIONS

(A) Depth to Well Bottom	510	ft
(B) Pre-Purge Depth to Water	488.93	ft
(C) Water Column Height (A-B)	21.07	ft
(D) Casing Factor 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	13.69	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)	20.07	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	24.08	gal
(K) Min Purge Volume (E + J)	38	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insitu	R22885	
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
7/15/11 0950	0	488.98	19.68	8.22	521.3	7.47	202	0.51	2.4 L/m
1014	10	489.04	19.08	7.65	514.9	9.25	242	0.40	
1030	20	489.03	19.04	7.65	488.7	9.58	259	0.28	
1046	30	489.02	19.92	7.65	478.0	8.91	269	0.30	1.2 L/m
1106	35	489.00	19.69	7.66	514.4	8.57	270	0.29	9.4 L/min
1121	38	489.00	19.99	7.68	515.9	7.75	271	0.27	
Values Prior to Sampling									
1121	38	489.00	19.99	7.68	515.9	7.75	271	0.27	9.4 L/m

Field Alkalinity Result 100 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106005

Site / SWMU No.: 106 **Date:** 9-20-11

Weather: Sunny 80's **Time:** 0949

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

Review Signature: **Date Review:** 9/20/11

WELL OBSERVATIONS

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

Notes: VOCs 0 Set pump to 4 w/ 5 foot stinger
LNAPL encountered from CALCULATIONS 490.93 - 491.01

(A) Depth to Well Bottom	507 ft	(J) Filter Pack Volume (H x I)	17.99 gal
(B) Pre-Purge Depth to Water	~~490.49~~ 491.01 ft	(K) Min Purge Volume (E + J)	34 gal
(C) Water Column Height (A-B)	15.99 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	Parameter Meter	
(E) One Well Casing Volume (C x D):	10.40 gal	YSI Sonde 9500	R 20661
(F) Depth to Top of Screen	479 ft	Turbidity Meter	
(G) Depth to Bottom of Screen	506 ft	Hach 2100P	02815
(H) Saturated Filter Pack Length (G –F, or B)	14.99 ft	Pump	
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	Field Alkalinity	
		La Motte	3467#4

PURGING INFORMATION

Description first water purged: Brown, 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
9-20-11 1100	0	491.01	21.68	6.81	24,000	3.13	-60	174	1.1 L/min
1133	10	491.07	22.25	6.67	21530	0.13	-82	130	
1203	19	491.07	22.23	6.67	19.69	0.14	-86	146	
1222	24	491.05	22.17	6.67	19.68	0.15	-97	140	1.0 L/min
1240	29	491.04	22.15	6.67	19.66	0.17	-106	131	
1259	34	491.03	22.03	6.68	19.66	0.20	-114	125	

Values Prior to Sampling

1259	34	491.03	22.03	6.68	19.66	0.20	-114	125	1.0 L/min

Field Alkalinity Result 316 mg/L as CaCO3 **Sample ID:** GW0134 & GW0135

*Restart & Recalibrate Spec Cond. @ 11:35. Conductivity reading normalized @ 19.68

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.: 106006
Site / SWMU No.: 106
Date: 9/15/11
Weather: Sunny
Time: 1000
Field Crew: AT DM
Crew Signature:
Review Signature:
Date Review: 9/15/11

WELL OBSERVATIONS

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

Notes: VOCs @ MWB, Set pump @ @ 501'

CALCULATIONS

(A) Depth to Well Bottom	511	ft
(B) Pre-Purge Depth to Water	495.67	ft
(C) Water Column Height (A-B)	15.33	ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	9.96	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~~)	12.83	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	15.3	

(J) Filter Pack Volume (H x I)	15.3	gal
(K) Min Purge Volume (E + J)	25	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 4500	K20661	
Turbidity Meter: Hach	2821	
Pump: Redable 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
9/15/11 ~~0934~~ 1036	Ø	495.67	19.37	7.26	406.1	4.40	-117	3.27	1.38 L/m
1104	10	n/m	19.41	7.39	418.0	2.50	-141	1.55	
1125	15	n/m	19.43	7.39	399.7	2.95	-134	1.62	1.0 L/m
1154	20	n/m	19.46	7.43	385.9	3.50	-129	1.76	
1213	25	n/m	19.43	7.43	381.4	3.73	-126	1.73	
Values Prior to Sampling									
1213	25	n/m	19.43	7.43	381.4	3.73	-126	1.73	~~1.38 L/m~~ at 1.0 L/m

Field Alkalinity Result 163 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.: 106007
Site / SWMU No.: 106
Date: 7-15-11
Weather: Sunny 90s
Time: 0957
Field Crew: EA, DM
Crew Signature:
Review Signature:
Date Review: 7/15/11

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	511.0 ft
(B) Pre-Purge Depth to Water	492.10 ft
(C) Water Column Height (A-B)	18.90 ft
(D) Casing Factor (4"=0.65, 6"=1.02)	0.65
(E) One Well Casing Volume (C x D):	12.29 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)	16.90 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.7

(J) Filter Pack Volume (H x I)	20.28 gal
(K) Min Purge Volume (E + J)	35 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI-Sonde 9500	RZ2831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennette	on file
Field Alkalinity: LaMotte	0347-#4

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
7-15-11 1027	0	492.10	19.72	7.98	409.1	6.90	9	0.94	3.88L/min
1039	10	492.18	19.49	7.20	559.4	1.81	17	0.85	
1046	20	492.18	19.42	7.21	547.2	1.60	32	0.45	
1105	25	492.13	19.86	7.22	539.2	1.22	45	0.41	1.0L/min
1125	30	493.12	19.81	7.22	538.7	1.08	49	0.39	
1145	35	493.12	19.98	7.23	535.9	1.05	50	0.46	
Values Prior to Sampling									
1145	35	493.12	19.98	7.23	535.9	1.05	50	0.46	

Field Alkalinity Result 156 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
Well ID No.: 1060108
Site / SWMU No.: 106
Date: 9-19-11
Weather: Sunny 90's
Time: 0806
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 9/20/11

WELL OBSERVATIONS

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

Notes: VOCs 0.3 in borehole LNAPL from 495.59 - 495.99 ft pump set @ 494 ft. w/ 5 ft extension

CALCULATIONS

(A) Depth to Well Bottom	513.5 ft	(J) Filter Pack Volume (H x I)	18.1 gal
(B) Pre-Purge Depth to Water	495.99 ft	(K) Min Purge Volume (E + J)	30 gal
(C) Water Column Height (A-B)	17.51 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor 4"=0.65 6"=1.02	0.65	Parameter Meter	
(E) One Well Casing Volume (C x D):	11.39 gal	In Situ 9500	R20661
(F) Depth to Top of Screen	486 ft	Turbidity Meter	
(G) Depth to Bottom of Screen	511 ft	HACH 2100P	02818
(H) Saturated Filter Pack Length (G –F, or B)	15.10 ft	Pump	
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	portable bennette	on file
		Field Alkalinity	
		La Motte	3467 #4

PURGING INFORMATION

Description first water purged: Clear brown. 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
9-19-11 0955	0	495.99	19.91	7.30	467.5	2.61	-116	0. 17.9	1.3 L/min
1025	10	496.04	19.20	7.31	457.4	1.19	-167	1.37	
1040	15	496.05	19.23	7.31	466.9	1.09	-171	1.60	
1059	20	496.03	19.33	7.31	447.6	1.42	-172	2.23	1.0 L/min
1118	25	496.02	19.36	7.31	457.7	1.57	-176	1.76	
1137	30	496.01	19.36	7.30	438.1	1.43	-180	1.02	
Values Prior to Sampling									
1137	30	496.01	19.36	7.30	438.1	1.43	-180	1.02	1.0 L/min

Field Alkalinity Result 194 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.: 106009
Site / SWMU No.: 106
Date: 9-28-11
Weather: Sunny 80's
Time: 1225
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 9/28/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in BH LNAPL from 489.02 - 489.49
Pump set to 488.5 w/5 foot stinger

CALCULATIONS

(A) Depth to Well Bottom	507.5 ft
(B) Pre-Purge Depth to Water	489.49 ft
(C) Water Column Height (A-B)	18.01 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	11.71 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)	15.51 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	18.62 gal
(K) Min Purge Volume (E + J)	32 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter In-Situ 9500	R20661
Turbidity Meter HACH2100P	02818
Pump portable bennett	on file
Field Alkalinity La Motte	3467#4

PURGING INFORMATION

Description first water purged: Clear brown. 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
9-28-11 1337	Ø	489.49	20.41	6.89	832.8	4.42	-126	49.4	1.5L/min
1403	10	489.55	23.33	6.81	958.1	1.44	-196	3.35	
1431	17	489.56	23.20	6.81	946.2	1.03	-204	3.03	
1450	22	489.53	22.25	6.82	931.6	0.96	-204	3.14	1.0L/min
1509	27	489.52	22.34	6.82	919.2	0.90	-205	2.65	
1528	32	489.52	22.29	6.82	871.5	0.86	-207	2.88	
Values Prior to Sampling									
1528	32	489.52	22.29	6.82	871.5	0.86	-207	2.88	L/min

Field Alkalinity Result 300 mg/L as $CaCO_3$ **Sample ID:** GW0193

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.:** 106010

Site / SWMU No.: 106 **Date:** 7-13-11

Weather: Sunny 90s **Time:** 0930

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

Review Signature: Daniel O Medina **Date Review:** 7/13/11

WELL OBSERVATIONS

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

Notes: VOCs 0 in wellbore

CALCULATIONS

(A) Depth to Well Bottom	510.5 ft	(J) Filter Pack Volume (H x I)	25.1 gal
(B) Pre-Purge Depth to Water	487.11 ft	(K) Min Purge Volume (E + J)	41 gal
(C) Water Column Height (A-B)	23.39 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor (4"=0.65, 5"=1.02)	0.65	Parameter Meter: YSI 9500	R27831
(E) One Well Casing Volume (C x D):	15.21 gal	Turbidity Meter: HACH 2100P	02818
(F) Depth to Top of Screen	483 ft	Pump: dedicated Bennette	on fill
(G) Depth to Bottom of Screen	508 ft	Field Alkalinity: LaMotte	3467#4
(H) Saturated Filter Pack Length (G –F, or B)	20.89 ft		
(I) Casing/Borehole Factor (4/10 = 1.2, 5/10 = 1.07, _____)	1.2		

PURGING INFORMATION

Description first water purged: clear gray, w/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
7-13-11 1003	0	487.11	19.37	7.51	624.2	0.68	-161	1.53	1.78L/min
1024	10	487.17	19.23	7.50	625.2	0.07	-272	1.28	
1046	20	487.17	19.29	7.46	624.5	0.03	-292	0.93	
1059	26	487.17	19.27	7.46	625.6	0.02	-298	0.80	
1117	31	487.12	19.45	7.46	625.8	0.03	-304	0.93	0.98L/min
1137	36	487.12	19.46	7.45	624.7	0.02	-310	0.89	
1155	41	487.12	19.46	7.46	624.0	0.01	-315	0.64	
Values Prior to Sampling									
1155	41	487.12	19.46	7.46	624	0.01	-315	0.64	

Field Alkalinity Result 138 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 **Well ID No.:** 106011

Site / SWMU No.: 106 **Date:** 7-21-11

Weather: Sunny 90's **Time:** 0938

Field Crew: DAOM **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 7/26/11

WELL OBSERVATIONS

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

Notes: VOCs 0 in well bore

CALCULATIONS

(A) Depth to Well Bottom	516 ft
(B) Pre-Purge Depth to Water	496.65 ft
(C) Water Column Height (A-B)	19.49 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	12.67 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)	14.49 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	17.39 gal
(K) Min Purge Volume (E + J)	37 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	B22831
Turbidity Meter: HACH 2100P	02818
Pump: ~~La Motte~~ dedicated Jennette on file	
Field Alkalinity: La Motte	3467 #4

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
7-21-11 1006	0	496.65	18.35	8.22	316.0	7.68	47	0.51	2.68 L/min
1020	10	496.72	19.28	7.54	428.4	0.62	29	0.56	
1037	22	496.72	19.21	7.56	423.3	0.70	53	0.41	
1056	27	496.68	19.63	7.56	421.4	0.93	78	0.34	1.0 L/min
1114	32	496.68	19.76	7.56	422.6	0.96	88	0.24	
1132	37	496.68	19.79	7.57	423.8	0.91	91	0.38	
Values Prior to Sampling									
1132	37	496.68	19.79	7.57	423.8	0.91	91	0.38	1.0 L/min

Field Alkalinity Result 174 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.: 106012
Site / SWMU No.: 106
Date: 7-29-11
Weather: Cloudy 80°s
Time: 1211
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 7/29/11

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	510.5 ft
(B) Pre-Purge Depth to Water	489.54 ft
(C) Water Column Height (A-B)	21.33 ft
(D) Casing Factor 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	13.87 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)	16.33 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	19.60 gal
(K) Min Purge Volume (E + J)	34 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Cm Site 9500	R22831
Turbidity Meter: HACH2100P	02818
Pump: dedicated bennette	on file
Field Alkalinity: La Motte	3467#4

PURGING INFORMATION

Description first water purged: Clear brown. No odor. Muddy

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
7-29-11 1242	Ø	489.54	19.37	7.11	1148	4.11	93	406.0	3.5L/min
1253	10	489.61	19.23	7.16	1141	3.60	45	38.8	
1303	19	489.61	19.24	7.18	1111	3.29	55	8.43	
1321	24	489.57	19.59	7.18	1083	3.38	63	8.58	1.0L/min
1339	29	489.57	19.96	7.17	1095	3.45	63	2.98	
1358	34	489.56	19.66	7.18	1080	3.39	60	2.32	

Values Prior to Sampling

1358	34	489.56	19.66	7.18	1080	3.39	60	2.32	1.0L/min

Field Alkalinity Result 116 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106013

Site / SWMU No.: 106 **Date:** 0745 7/29/11

Weather: Cloudy **Time:** 0745

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

Review Signature: **Date Review:** 7/29/11

WELL OBSERVATIONS

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

Notes: VOCs @ on well box

CALCULATIONS

(A) Depth to Well Bottom	516.5 ft	(J) Filter Pack Volume (H x I)	19.9 gal
(B) Pre-Purge Depth to Water	494.84 ft	(K) Min Purge Volume (E + J)	34 gal
(C) Water Column Height (A-B)	21.66 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	Parameter Meter	
(E) One Well Casing Volume (C x D):	14.0 gal	Insitu 4500	R22885
(F) Depth to Top of Screen	486.5 ft	Turbidity Meter	
(G) Depth to Bottom of Screen	511.5 ft	Hach	2821
(H) Saturated Filter Pack Length (G –F, or B)	16.66 ft	Pump	
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	Portable Bennett	on file
		Field Alkalinity	
		Hach Model	3467

PURGING INFORMATION

Description first water purged: light 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
7/29/11 0856	0	494.84	20.47	7.60	478.2	5.60	235	9.59	1.64 L/m
0919	10	494.93	19.07	7.52	465.0	3.68	197	4.84	
0942	20	494.92	19.05	7.51	463.3	3.66	207	2.48	
1002	25	494.92	19.19	7.51	462.3	3.64	223	1.92	0.98 L/m
1022	30	494.92	19.13	7.50	460.9	3.72	224	1.64	
1037	34	494.91	19.15	7.51	458.4	3.76	231	2.03	
Values Prior to Sampling									
1037	34	494.91	19.15	7.51	458.4	3.76	231	2.03	0.98 L/m

Field Alkalinity Result 176 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
Well ID No.: 106014
Site / SWMU No.: 106
Date: 9-6-11
Weather: Sunny 80's
Time: 1234
Field Crew: DA, DM
Crew Signature: DMa
Review Signature:
Date Review: 9/14/11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No
Notes: VOCs 0

CALCULATIONS

(A) Depth to Well Bottom	516 ft
(B) Pre-Purge Depth to Water	494.34 ft
(C) Water Column Height (A-B)	21.66 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	14.1 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)	16.66 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	19.99 gal
(K) Min Purge Volume (E + J)	35 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Site 9500	R27831
Turbidity Meter: HACH 2100P	07818
Pump: dedicated	on file
Field Alkalinity: LaMotte	3467-4

PURGING INFORMATION

Description first water purged: Clear. Heavy 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
9-6-11 1248	0	494.34	21.89	7.93	462.8	4.94	203	2.08	1.38 L/min
1315	10	494.39	19.28	7.33	517.0	0.16	-16	1.68	
1343	20	494.40	19.34	7.36	496.8	0.01	-113	1.21	
1401	25	494.37	19.39	7.37	492.6	0.00	-175	0.67	1.0 L/min
1419	30	494.37	19.37	7.38	487.4	0.00	-179	0.66	
1437	35	494.36	19.34	7.39	481.7	0.00	-183	0.66	

Values Prior to Sampling

1437	35	494.36	19.34	7.39	481.7	0.00	-183	0.66	1.0 L/min

Field Alkalinity Result 182 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 **Well ID No.:** 106015

Site / SWMU No.: 106 **Date:** 7/28/11

Weather: Sunny **Time:** 1200

Field Crew: AT, TN **Crew Signature:**

Review Signature: **Date Review:**

WELL OBSERVATIONS

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

Notes: VOCs 0, O_2 18.8, CO 44 in well bore

CALCULATIONS

(A) Depth to Well Bottom	515 ft	(J) Filter Pack Volume (H x I)	25.5 gal
(B) Pre-Purge Depth to Water	488.73 ft	(K) Min Purge Volume (E + J)	43 gal
(C) Water Column Height (A-B)	26.27 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	Parameter Meter: In Situ 9500	R22885
(E) One Well Casing Volume (C x D):	17.07 gal	Turbidity Meter: Hach	2821
(F) Depth to Top of Screen	485 ft	Pump: portable Bennett	on file
(G) Depth to Bottom of Screen	510 ft	Field Alkalinity: La Motte	3467
(H) Saturated Filter Pack Length (G –F, or B)	21.27 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2		

PURGING INFORMATION

Description first water purged: light brown, 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
7/28/11 1228	0	488.72	18.48	7.92	568.9	6.37	238	9.99	3.0 L/min
1241	10	488.84	19.01	7.88	570.3	4.25	72	9.99	
1254	20	488.85	19.11	7.88	565.1	5.43	105	3.71	
1307	30	488.82	19.08	7.87	570.0	6.33	114	2.55	
1326	35	488.77	19.61	7.87	570.4	6.10	169	2.23	0.98 L/min
1345	40	488.76	19.07	7.87	557.3	6.32	184	2.04	
1356	43	488.75	19.68	7.86	572.5	6.33	188	2.02	
Values Prior to Sampling									
1356	43	488.75	19.68	7.86	572.5	6.33	188	2.02	0.98 L/min

Field Alkalinity Result 112 ml as $CaCO_3$

GW0145

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.:** 1060016

Site / SWMU No.: 106 **Date:** 7/19/11

Weather: Sunny **Time:** 8:00

Field Crew: AT, TN **Crew Signature:**

Review Signature: **Date Review:** 7/19/11

WELL OBSERVATIONS

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

Notes: VOC @ LEL 4 in Well bore

CALCULATIONS

(A) Depth to Well Bottom	505.00 ft
(B) Pre-Purge Depth to Water	484.90 ft
(C) Water Column Height (A-B)	20.10 ft
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	13.07 gal
(F) Depth to Top of Screen	475.00 ft
(G) Depth to Bottom of Screen	500.00 ft
(H) Saturated Filter Pack Length (G –F, or (B))	15.10 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	18.12 gal
(K) Min Purge Volume (E + J)	31 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ U-50	R22885
Turbidity Meter: Hach	2821
Pump: dedicated pump	on fel
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
7/19/11 0835	0	484.90	17.73	8.12	302.1	8.12	213	0.51	3.8 L/m
0840	5	484.98	18.94	7.57	311.4	3.98	230	42.2	
0845	10	484.98	19.32	7.57	313.3	3.08	172	10.7	
0850	15	484.99	19.31	7.57	312.8	3.17	116	5.63	
0909 ~~0855~~ at	20	484.95	19.59	7.59	309.6	2.78	126	5.83	1.0 L/m
0928 ~~0905~~ at 1000	25	484.93	20.13	7.61	307.4	2.70	120	14.3	
0951	31	484.93	20.12	7.74	318.6	4.03	151	21.3	
0957	35	484.94	19.56	7.85	318.2	4.82	152	16.9	
1002	39	484.	20.12	7.87	318.1	4.99	153	14.1	
Values Prior to Sampling									
~~0951~~	~~31~~	~~484.93~~	~~20.12~~	~~7.74~~	~~318.6~~	~~4.03~~	~~151~~		~~1.0 L/m~~ at
1002	39	484.93	20.13	7.87	318.1	4.99	153	14.1	1.0 L/m

Field Alkalinity Result 140 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-106017
Site / SWMU No.: 106
Date: 7-7-11
Weather: Sunny 90°S
Time: 0920
Field Crew: DA, DM
Crew Signature: [signature] Aubrey
Review Signature: [signature]
Date Review: 7/7/11

WELL OBSERVATIONS

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

Notes: VOC's Ø in well bore + BZ

CALCULATIONS

(A) Depth to Well Bottom	512 ft
(B) Pre-Purge Depth to Water	486.99 ft
(C) Water Column Height (A-B)	25.01 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	16.26 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)	20.01 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	24.1 gal
(K) Min Purge Volume (E + J)	41 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#4

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
7-7-11 1003	Ø	486.99	19.32	7.83	358.3	7.00	157	0.59	1.89L/min
1022	10	487.09	19.37	7.70	351.7	2.13	-25	0.71	
1042	20	487.09	19.34	7.70	351.6	1.93	-25	0.75	
1101	30	487.07	19.36	7.70	351.8	1.88	-27	0.40	
1119	35	487.07	19.62	7.71	352.2	1.71	-26	0.23	1.0L/min
1138	40	487.06	19.73	7.70	351.0	1.61	-19	0.30	
1145	41	487.66	19.81	7.71	351.3	1.66	-19	0.41	

Values Prior to Sampling

1145	41	487.66	19.81	7.71	351.3	1.66	-19	0.41	

Field Alkalinity Result 118 mg/L as $CaCO_3$

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

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Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-106018
Site / SWMU No.: 106
Date: 7-8-11
Weather: Sunny 90s
Time: 0837
Field Crew: DA, DM
Crew Signature: D M Aubrey
Review Signature: Mark Ryan
Date Review: 7-8-11

WELL OBSERVATIONS

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

Notes: VOCs 0 in well bore + BZ

CALCULATIONS

(A) Depth to Well Bottom	506 ft
(B) Pre-Purge Depth to Water	480.30 ft
(C) Water Column Height (A-B)	25.70 ft
(D) Casing Factor: (4"=0.65) 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	16.71 gal
(F) Depth to Top of Screen	476 ft
(G) Depth to Bottom of Screen	501 ft
(H) Saturated Filter Pack Length (G –F, or B)	20.70 ft
(I) Casing/Borehole Factor (4/10 = 1.2), 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	24.84 gal
(K) Min Purge Volume (E + J)	42.0 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Horiba U-22 9500	R22831
Turbidity Meter: HACH 2100P	
Pump: dedicated bennette	on file
Field Alkalinity: La Motte	3467#4

PURGING INFORMATION

Description first water purged: Clear. Product odor present

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
7-8-11 0905	0	480.68	22.74	7.73	395.6	6.53	145	0.50	1.94 L/min
0925	10	480.73	19.39	7.67	377.8	0.27	-142	0.78	
0944	20	480.74	19.34	7.70	367.7	0.16	-150	0.89	
1004	30	480.74	19.38	7.70	360.4	0.08	-154	0.49	0.98 Aa
1022	35	480.70	19.41	7.70	363.7	0.06	-158	0.59	1.0 L/min
1040	40	480.69	19.55	7.72	351.3	0.04	-163	0.83	
1049	42	480.69	19.52	7.71	343.0	0.04	-165	0.95	
Values Prior to Sampling									
1049	42	480.69	19.52	7.71	343.0	0.04	-165	0.95	

Field Alkalinity Result 124 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: KAFB-106019
Site / SWMU No.: 106
Date: 7-7-11
Weather: Sunny 90°s
Time: 1247
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 7/7/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in well bore + BZ

CALCULATIONS

(A) Depth to Well Bottom	523 ft
(B) Pre-Purge Depth to Water	498.66 ft
(C) Water Column Height (A-B)	24.34 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	15.82 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)	19.34 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	23.21 gal
(K) Min Purge Volume (E + J)	DM ~~39~~. 40 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Ion-Situ 9500	R22831
Turbidity Meter: HACH 2100P	028~~21~~18 EA
Pump: dedicated bennette	on fill
Field Alkalinity: La Motte	3467#4

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
7-7-11 1314	Ø	498.90	19.41	8.05	369.0	6.88	90	2.89	1.99 L/min
1332	10	498.93	19.59	7.67	650.6	0.20	-96	2.69	
1351	20	498.93	19.56	7.64	655.1	0.26	-67	0.88	
1400	25	498.93	19.49	7.66	655.9	0.29	-61	0.81	
1417	30	498.91	19.74	7.66	656.1	0.33	-49	0.37	1.0 L/min
1435	35	498.90	19.86	7.67	662.1	0.33	-45	0.65	
1453	40	498.90	19.95	7.67	661.7	0.35	-40	0.43	

Values Prior to Sampling

1453	40	498.90	19.95	7.67	661.7	0.35	-40	0.43	

Field Alkalinity Result 130 mg/L as $CaCO_3$

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

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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.: 104
Date: 7/29/11
Weather: Cloudy
Time: 1200
Field Crew: AT, TN
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 7/29/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in well bore, set pump @ 494'

CALCULATIONS

(A) Depth to Well Bottom	512	ft
(B) Pre-Purge Depth to Water	485.51	ft
(C) Water Column Height (A-B)	26.49	ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~17.21~~ .65	
(E) One Well Casing Volume (C x D):	17.21	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)	21.49	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	25.7	gal
(K) Min Purge Volume (E + J)	43	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
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
7/29/11 1240	Ø	485.51	24.68	7.97	482.1	5.95	5.95	8.64	1.65 L/m
1303	10	485.56	19.13	7.68	434.8	3.50	259	3.07	
1326	20	485.56	19.04	7.68	423.2	3.52	248	1.49	
1349	30	485.56	19.00	7.69	409.3	3.81	241	1.85	
1409	35	485.53	19.23	7.69	410.8	3.94	244	0.65	1.0 L/m
1429	40	485.51	19.12	7.69	408.1	3.99	247	0.93	
1440	43	485.51	19.15	7.70	404.4	4.18	248	0.86	
Values Prior to Sampling									
1440	43	485.51	19.15	7.70	404.4	4.18	248	0.86	1.0 L/m

Field Alkalinity Result 124 mg/L a CaCO3

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 105021
Site / SWMU No.: 106
Date: 7-12-11
Weather: Sunny 90s
Time: 0955
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: Mark Lyas
Date Review: 7/12/11

WELL OBSERVATIONS

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

Notes: VOCs 0 in well bore

CALCULATIONS

(A) Depth to Well Bottom	488 ft	(J) Filter Pack Volume (H x I)	28.82 gal
(B) Pre-Purge Depth to Water	458.99 ft	(K) Min Purge Volume (E + J)	48gal gal
(C) Water Column Height (A-B)	29.01 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor 4"=0.65 5"=1.02	0.65	Parameter Meter: YSI Sonde 9500	RZ2831
(E) One Well Casing Volume (C x D):	18.86 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	458 ft	Pump: dedicated bennette	on file
(G) Depth to Bottom of Screen	483 ft	Field Alkalinity: La Motte	3467 #4
(H) Saturated Filter Pack Length (G - E or B)	25 24.01 ft		
(I) ~~Casing~~/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2		

PURGING INFORMATION

Description first water purged: Clear Mild 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
7-12-11 1044	0	458.99	20.79	7.52	579.8	6.64	58	1.22	2.0 L/min
1112	15	459.05	19.23	7.62	577.9	0.12	-56	0.16	
1140	30	459.06	19.29	7.64	557.6	0.15	-49	0.28	
1151	35	459.06	19.31	7.66	576.1	0.17	-47	0.27	
1208	40	459.02	19.56	7.67	571.4	0.21	-39	0.55	1.9 L/min
1224	45	459.01	19.61	7.66	560.4	0.21	-36	0.49	
1234	48	459.01	19.46	7.67	546.5	0.24	-34	0.37	
Values Prior to Sampling									
1234	48	459.1	19.46	7.67	546.5	0.24	-34	0.37	

Field Alkalinity Result 85 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.:** 106022

Site / SWMU No.: 106 **Date:** 7/18/11

Weather: Sunny **Time:** 1320

Field Crew: AT / TW **Crew Signature:**

Review Signature: **Date Review:** 7/18/2011

WELL OBSERVATIONS

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

Notes: VOC's ppb in well bore

CALCULATIONS

(A) Depth to Well Bottom	492 ft	(J) Filter Pack Volume (H x I)	28.5 gal
(B) Pre-Purge Depth to Water	463.25 ft	(K) Min Purge Volume (E + J)	47.2 gal
(C) Water Column Height (A-B)	28.75 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	Parameter Meter	
(E) One Well Casing Volume (C x D):	18.68 gal	9500 Insitu	822885
(F) Depth to Top of Screen	462 ft	Turbidity Meter	
(G) Depth to Bottom of Screen	487 ft	Hach	2821
(H) Saturated Filter Pack Length (G –F, or B)	23.75 ft	Pump	
(I) ~~Casing~~/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	Field Alkalinity	
		La Motte	2467

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
7/18/11 1332	0	463.25	23.27	8.13	374.8	7.16	253	0.71	1.75
1354	10	463.30	19.24	7.84	363.8	0.31	-28	0.42	
1416	20	463.30	19.14	7.82	363.5	0.55	-32	0.56	
1438	30	463.30	19.36	7.82	363.6	0.78	-34	0.35	
1500	40	463.28	19.68	7.83	364.2	0.86	-32	0.44	1.0 L/m
1519	45	463.29	19.82	7.82	363.7	0.97	-12	0.35	
1526	47	463.28	19.79	7.82	363.3	0.95	-18	0.36	
Values Prior to Sampling									
1526	47	463.29	19.79	7.82	363.3	0.95	-18	0.36	1.0 L/m

Field Alkalinity Result 135 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106023
Site / SWMU No.: 106
Date: 7/18/11
Weather: Sunny
Time: 0945
Field Crew: AT, TN
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 7/18/11

WELL OBSERVATIONS

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

Notes: VOC's ∅ in well bore

CALCULATIONS

(A) Depth to Well Bottom	503	ft
(B) Pre-Purge Depth to Water	473.65	ft
(C) Water Column Height (A-B)	29.35	ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	19.07	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)	24.35	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	29.22	gal
(K) Min Purge Volume (E + J)	48	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 4500	R22885	
Turbidity Meter: Hach	2821	
Pump: Dedicated ~~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
7/18/11 1020	0	473.65	21.34	7.75	324.8	7.01	211	0.40	1.7L/min
1042	10	473.73	18.97	8.46	295.8	9.96	193	3.10	
1105	20	473.72	19.05	8.26	295.2	11.26	214	1.70	
1127	30	473.72	19.14	8.16	287.3	11.35	227	0.83	
1150	40	473.68	19.46	8.17	282.2	9.41	239	0.89	1.0L/min
1209	45	473.67	19.48	8.15	274	9.83	249	0.67	
1220	48	473.67	19.50	8.14	253	9.68	254	0.65	
Values Prior to Sampling									
1220	48	473.67	19.50	8.14	253	9.68	254	0.65	1.0L/m

Field Alkalinity Result 135 mg/L a $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-106024 **Well ID No.:** 106024

Site / SWMU No.: 106 **Date:** 7/20/11

Weather: Sunny **Time:** 1130

Field Crew: AT JN **Crew Signature:**

Review Signature: **Date Review:** 7/22/11

WELL OBSERVATIONS

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

Notes: VOCs 8260 8018 in bore 2626

CALCULATIONS

(A) Depth to Well Bottom	511 ft	(J) Filter Pack Volume (H x I)	23.68 gal
(B) Pre-Purge Depth to Water	486.26 ft	(K) Min Purge Volume (E + J)	40 gal
(C) Water Column Height (A-B)	24.72 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	Parameter Meter	
(E) One Well Casing Volume (C x D):	16.06 gal	9500 In situ	R22885
(F) Depth to Top of Screen	481 ft	Turbidity Meter	
(G) Depth to Bottom of Screen	504 ft	Hach	2821
(H) Saturated Filter Pack Length (G –F, or B)	19.74 ft	Pump	
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	dedicated bladder	on file
		Field Alkalinity	
		La Motte	3967

PURGING INFORMATION

Description first water purged: yellow

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
7/20/11 1152	0	486.26	20.62	8.00	599.5	7.22	176	0.73	1.84 L/m
1218	10	486.31	19.68	7.32	613.8	1.85	88	3.24	
1234	20	486.31	19.61	7.32	588.7	1.57	69	1.94	
1244	3025	486.31	19.66	7.33	580.5	1.42	55	1.08	0.96 L/m
1304	3530	486.30	20.18	7.33	573.1	1.28	71	1.38	0.96 L/m
1324	4035	486.25	20.18	7.33	568.7	1.21	65	1.29	
1344	40	486.28	20.53	7.34	566.5	1.19	64	1.11	
Values Prior to Sampling									
1344	1344 at 40	486.28	20.53	7.34	566.5	1.19	64	1.11	0.96 L/m

Field Alkalinity Result 181 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.: 106025
Site / SWMU No.: 106
Date: 7-11-11
Weather: Pt. Cloudy 80s
Time: 0801
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: Mark Lyon
Date Review: 7-11-11

WELL OBSERVATIONS

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

Notes: VOCs 0 in borehole

CALCULATIONS

(A) Depth to Well Bottom	495 ft
(B) Pre-Purge Depth to Water	462.96 ft
(C) Water Column Height (A-B)	31.04 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	20.176 gal
(F) Depth to Top of Screen	465 ft
(G) Depth to Bottom of Screen	490 ft
(H) Saturated Filter Pack Length (G-F or B)	25 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)	51 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Hm-site 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennette	on file
Field Alkalinity: La Motte	3467 #4

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
0840 7-11-11	0	462.96	19.37	7.36	343.0	7.12	202	1.07	1.0 L/min
0907	15	463.00	19.14	7.69	343.6	8.71	36	1.41	
0925	25	463.00	19.13	7.71	342.4	8.69	41	0.78	
0944	35	463.02	19.12	7.74	342.3	8.72	43	0.63	0.98 L/min
1002	40	462.97	19.32	7.74	363.7	8.35	63	0.49	
1021	45	462.96	19.36	7.75	358.1	8.18	74	0.45	
1044	51	462.95	19.44	7.75	347.9	8.64	77	0.48	

Values Prior to Sampling

1044	51	462.95	19.44	7.75	347.9	8.64	77	0.48	

Field Alkalinity Result 98 mg/L as $CaCO_3$

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

140705

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106025
Site / SWMU No.: 106
Date: 8/8/11
Weather: Sunny
Time: 0800
Field Crew: AT, TW
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/8/11

WELL OBSERVATIONS

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

Notes: VOC 1.6 in WB, set pump @ 477'

CALCULATIONS

(A) Depth to Well Bottom	495	ft
(B) Pre-Purge Depth to Water	463.25	ft
(C) Water Column Height (A-B)	31.75	ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~2~~ at 0.65	
(E) One Well Casing Volume (C x D):	20.6	gal
(F) Depth to Top of Screen	465	ft
(G) Depth to Bottom of Screen	490	ft
(H) Saturated Filter Pack Length (G –F, or B)	25 ~~26.75~~	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	~~32~~ at 30	gal
(K) Min Purge Volume (E + J)	50	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In situ 9500	1222885	
Turbidity Meter: Hach	2821	
Pump: Portable 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
8/8/11 0931	0	463.25	26.00	7.61	314.2	5.88	193	5.39	1.81 L/min
952	10	463.35	19.02	7.78	386.5	7.44	210	6.21	
1013	20	463.35	19.00	7.78	386.7	7.69	212	6.23	
1034	30	463.35	19.03	7.79	374.6	7.93	215	3.54	
1055	at ~~35~~ 40	463.35	18.97	7.81	374.8	8.24	215	3.05	1.0 L/m
DLO 1114 ~~1014~~	at ~~40~~ 45	463.33	19.32	7.81	372.7	7.66	217	1.81	
DLO ~~1033~~ 1133	at ~~45~~ 50	463.32	19.37	7.81	385.7	7.83	219	1.88	
	at ~~50~~								

Values Prior to Sampling

DLO ~~1033~~ 1133	50	463.32	19.37	7.81	385.7	7.83	219	1.88	1.0 L/m

Field Alkalinity Result 184 mg/L as $CaCO_3$

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

140705

Shaw 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: 7-11-11
Weather: Sunny 90s
Time: 11:51
Field Crew: DA, DM
Crew Signature: DM
Review Signature: Mark Lyon
Date Review: 7-11-11

WELL OBSERVATIONS

Protective Casing / Vault: - Intact - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs 0 in well borehole

CALCULATIONS

(A) Depth to Well Bottom	491	~~500~~ 501 ft
(B) Pre-Purge Depth to Water	469.31	~~469.31~~ ft
(C) Water Column Height (A-B)	21.69	~~31.69~~ ft
(D) Casing Factor 4"=0.65 5"=1.02		.65
(E) One Well Casing Volume (C x D):		~~14.10~~ gal 14.1
(F) Depth to Top of Screen	466	~~466~~ ft
(G) Depth to Bottom of Screen	486	501 ft
(H) Saturated Filter Pack Length (G-F, or B)	16.69	~~20~~ ft
(I) Casing/Borehole Factor 4/10 = 1.2, 3/10 = 1.07, _____		1.2

(J) Filter Pack Volume (H x I)	~~20~~ 20.1 gal
(K) Min Purge Volume (E + J)	35 ~~47~~ ~~80~~ gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: IN SITU 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: Dedicated Bennett	ON FILE
Field Alkalinity: LA MATTE	3467 #4

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
7/11/11 1248	0	469.31	22.68	7.70	694.9	5.78	32	0.33	2 L/min
1300	10	469.40	19.39	7.59	619.8	7.85	60	0.65	
1318	20	469.40	19.38	7.61	629.8	7.94	68	1.03	1 gpm
1335	25	469.37	19.70	7.60	631.9	7.89	56	0.52	1.0 L/min
1350	30	469.37	19.74	7.62	635.0	7.93	72	0.56	
1406	35	469.37	19.68	7.61	638.2	8.09	76	0.59	
Values Prior to Sampling									
1406	35	469.37	19.68	7.61	638.2	8.09	76	0.59	

Field Alkalinity Result 60 mg/L as $CaCO_3$

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

140705

Shaw 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: 8-8-11
Weather: Sunny 90s
Time: 0807
Field Crew: DA DM
Crew Signature:
Review Signature:
Date Review: 8/8/11

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	491	ft
(B) Pre-Purge Depth to Water	470.17	ft
(C) Water Column Height (A-B)	20.88	ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	13.58	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)	~~20~~ 15.83	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	19.10	gal
(K) Min Purge Volume (E + J)	33.0	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ 9500	RZ7831	
Turbidity Meter: HACH 2100P	07818	
Pump: dedicated bennette	on file	
Field Alkalinity: LaMotte	3467#4	

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
8-8-11 0947	0	470.12	21.31	7.50	643.6	6.77	216	0.30	0.98L/min
1026	10	470.18	19.40	7.65	570.7	8.01	119	0.30	
1057	18	470.18	19.54	7.66	571.9	8.03	132	0.34	
1116	23	470.18	19.68	7.66	573.0	8.03	134	0.58	
1135	28	470.18	19.90	7.66	572.9	8.04	140	0.49	
1154	33	470.18	20.16	7.66	574.5	8.06	131	0.23	
Values Prior to Sampling									
1154	33	470.18	20.16	7.66	574.5	8.06	131	~~0.49~~ 0.23	0.98L/min

Field Alkalinity Result 86 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.: 106027
Site / SWMU No.: 106
Date: 7-14-11
Weather: Sunny 90s
Time: 1054
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: Daniel Medina
Date Review: 7/14/11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs 0 in well borehole

CALCULATIONS

(A) Depth to Well Bottom	506 ft
(B) Pre-Purge Depth to Water	490.37 ft
(C) Water Column Height (A-B)	15.63 ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65
(E) One Well Casing Volume (C x D):	10.2 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)	10.63 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	12.76 gal
(K) Min Purge Volume (E + J)	25 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 #4

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
7-14-11 1121	0	490.37	21.18	7.78	327.1	6.68	69	0.59	1.46 L/min
1147	10	490.46	19.39	7.84	313.4	7.59	132	0.62	0.80
1207	15	490.43	19.61	7.86	312.9	7.35	140	0.45	0.96 L/min
1209	20	490.43	19.56	7.89	309.6	7.22	144	0.40	
1227	25	490.42	19.72	7.87	313.5	7.27	148	0.51	
Values Prior to Sampling									
1227	25	490.42	19.72	7.87	313.5	7.27	148	0.51	

Field Alkalinity Result 98 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.: 106027
Site / SWMU No.: 106
Date: 8-15-11
Weather: Sunny 90s
Time: 0942
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/15/11

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	506	ft
(B) Pre-Purge Depth to Water	490.70	ft
(C) Water Column Height (A-B)	15.30	ft
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	
(E) One Well Casing Volume (C x D):	9.95	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 ~~3~~ 20	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	24 ~~12.36~~ 20	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#4	

PURGING INFORMATION

Description first water purged: Clear, 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
8-15-11 1011	Ø	490.70	20.73	7.52	320.8	6.63	214	0.62	1.5L/min
1036	10	490.77	19.41	7.90	312.2	7.61	168	0.08	
1059	19	490.77	19.41	7.86	317.9	7.61	161	0.26	
1117	24	490.74	19.58	7.87	320.1	7.54	173	0.76	0.98L/min
1135	29	490.73	19.76	7.87	318.1	7.46	178	0.44	
1153	34	490.73	19.66	7.85	322.3	7.43	183	0.40	

Values Prior to Sampling

1153	34	490.73	19.66	7.85	322.3	7.43	183	0.40	0.98L/min

Field Alkalinity Result 116 mg/L as $CaCO_3$

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

140705

Sample ID: GW0173R

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106028-510
Site / SWMU No.: 106
Date: 8-24-11
Weather: Sunny 90s
Time: 0821
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 8/24/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOC's & LNAPL encountered @ 492.91 ft

CALCULATIONS

(A) Depth to Well Bottom	516 ft	(J) Filter Pack Volume (H x I)	21.45 gal
(B) Pre-Purge Depth to Water	493.12 ft	(K) Min Purge Volume (E + J)	37 gal
(C) Water Column Height (A-B)	22.88 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	0.65	Parameter Meter: In Situ 9500	RZ2831
(E) One Well Casing Volume (C x D):	14.88 gal	Turbidity Meter: HACH 2100P	02818
(F) Depth to Top of Screen	491 ft	Pump: dedicated/bennette	on file
(G) Depth to Bottom of Screen	511 ft	Field Alkalinity: La Motte	3467#4
(H) Saturated Filter Pack Length (G –F, or B)	17.88 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 8/10 = 1.07, _____	1.2		

PURGING INFORMATION

Description first water purged: clear gray, 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
8-24-11 0850	0	493.12	18.73	7.16	444.9	4.09	21	16.0	1.40L/min
0923	12	493.20	18.94	7.50	433.0	0.08	-129	1.50	
0950	22	493.20	19.01	7.53	431.8	0.12	-131	0.83	
1008	27	493.18	18.97	7.53	432.7	0.18	-130	0.90	0.98L/min
1027	32	493.17	18.97	7.54	433.3	0.21	-131	1.09	
1045	37	493.	19.19	7.54	434.5	0.23	-131	0.93	
Values Prior to Sampling									
1045	37	493.17	19.19	7.54	434.5	0.23	-131	0.93	0.98L/min

Field Alkalinity Result 142 mg/L as CaCO3

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

140705

Sample ID:

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: 7-19-11
Weather: Sunny 90s
Time: 0826
Field Crew: D.A.D.M
Crew Signature:
Review Signature:
Date Review: 7/29/11

WELL OBSERVATIONS

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

Notes: VOCs in bore hole

CALCULATIONS

(A) Depth to Well Bottom	475.77 ft
(B) Pre-Purge Depth to Water	456.20 ft
(C) Water Column Height (A-B)	19.57 ft
(D) Casing Factor: 4"=0.65 6"=1.02	1.02
(E) One Well Casing Volume (C x D):	19.97 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)	~~20~~ 14.13 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	15.12 gal
(K) Min Purge Volume (E + J)	36 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Horiba U-22 9500	R22831
Turbidity Meter: HACH 2100P	07818
Pump: portable bennette	on file
Field Alkalinity: La Motte	3467 #4

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
7-19-11 0954	0	456.20	20.48	7.97	358.6	6.30	211	2.84	1.66L/min
1017	10	456.26	19.46	7.75	481.2	9.05	218	1.28	
1040	20	456.26	19.40	7.73	497.1	9.10	206	1.02	
1100	25	~~457.31~~	19.85	7.74	498.0	8.63	202	0.53	1.0L/min
1119	30	456.21	19.86	7.73	505.2	8.74	200	0.61	
1139	36	456.20	19.83	7.74	507.3	8.64	197	0.63	
Values Prior to Sampling									
1139	36	456.20	19.83	7.74	507.3	8.64	197	0.63	

Field Alkalinity Result 99 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.: 106030
Site / SWMU No.: 106
Date: 7-19-11
Weather: Sunny 90s
Time: 1230
Field Crew: DA, DM
Crew Signature: DM
Review Signature:
Date Review:

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	489.9 ft
(B) Pre-Purge Depth to Water	456.01 ft
(C) Water Column Height (A-B)	33.89 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	34.57 gal
(F) Depth to Top of Screen	469.5 ft
(G) Depth to Bottom of Screen	484.5 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)	51 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R27831
Turbidity Meter: HACH 2100P	
Pump: portable bennett	on file
Field Alkalinity: La Motte	3467 #4

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
7-19-11 1310	0	456.25	22.30	7.82	487.9	7.93	110	2.97	1.82 L/min
1341	15	456.32	19.56	7.66	541.0	9.61	167	1.32	
1402	25	456.32	19.48	7.68	499.3	9.54	167	0.94	
1423	35	456.32	19.54	7.68	482.1	9.69	166	0.83	
1442	40	456.25	19.28	7.68	453.2	9.15	170	0.57	0.96 L/min
1501	45	456.25	20.27	7.68	475.9	9.24	173	0.46	
1523	51	456.25	20.51	7.69	496.4	9.04	175	0.48	
Values Prior to Sampling									
1523	51	456.25	20.51	7.69	496.4	9.04	175	0.48	

Field Alkalinity Result 95 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: 140705 KAFB-BFF
Well ID No.: 106031
Site / SWMU No.: 106
Date: 7-20-11
Weather: Sunny 90°s
Time: 0844
Field Crew: DA/DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 7/22/11

WELL OBSERVATIONS

Protective Casing / Vault: Intact - Damaged
Locked: Yes - No
Well ID Mark: Yes - No
Notes: VOCs Ø in well bore Pump set to 503 ft.

CALCULATIONS

(A) Depth to Well Bottom	524.94 ft
(B) Pre-Purge Depth to Water	456.40 ft
(C) Water Column Height (A-B)	68.83 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	70.21 gal
(F) Depth to Top of Screen	495.77 ft
(G) Depth to Bottom of Screen	509.54 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)	~~88~~ 87 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Sn Site 9500	R22831
Turbidity Meter: HACH2100P	02818
Pump: portable bennette	on file
Field Alkalinity: La Motte	3467#4

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
7-20-11 0957	Ø	456.40	21.00	7.47	476.1	8.93	222	1.76	1.84 L/min
1059	30	456.46	19.48	7.59	488.0	9.80	214	1.26	
1201	60	456.46	19.51	7.60	490.3	9.66	206	0.65	
1226	72	456.46	19.58	7.63	505.3	10.23	204	0.70	
1245	77	456.40	19.93	7.62	486.7	9.91	208	0.78	1.0 L/min
1308	82	456.40	20.07	7.62	488.2	9.15	211	0.72	
1326	87	456.40	20.34	7.65	493.8	9.03	212	0.79	

Values Prior to Sampling

1326	87	456.40	20.34	7.65	493.8	9.03	212	0.79	1.0 L/min

Field Alkalinity Result 96 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.:** 106032

Site / SWMU No.: 106 **Date:** 8/10/11

Weather: Sunny **Time:** 0800

Field Crew: RT, AG **Crew Signature:**

Review Signature: **Date Review:** 8 / 10 / 2011

WELL OBSERVATIONS

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

Notes: VOC's 2.5 in W13, pull pump @ 466'

CALCULATIONS

(A) Depth to Well Bottom	480.5 ft
(B) Pre-Purge Depth to Water	462.38 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):	18.48 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)	13.37 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	14.3 gal
(K) Min Purge Volume (E + J)	33 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22885
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
8/10/11 0912	0	462.38	20.58	7.76	338.4	7.32	201	3.47	1.68 L/m
0935	10	461.97	19.13	7.70	320.2	8.31	232	1.62	
0957	20	462.91	19.13	7.70	320.3	8.56	234	1.68	
1016	25	462.48	19.44	7.68	323.6	8.21	235	1.30	1.0 L/m
1035	30	462.42	19.52	7.69	323.1	8.19	242	1.53	
1046	33	462.42	19.56	7.68	323.0	8.18	246	1.15	
Values Prior to Sampling									
1046	33	462.42	19.56	7.68	323.0	8.18	246	1.15	1.0 L/m

Field Alkalinity Result 110 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.:** 106033

Site / SWMU No.: 106 | **Date:** 1200 8/10/11

Weather: sunny | **Time:** 1200

Field Crew: AT, AB | **Crew Signature:** Antonio Trujillo

Review Signature: Amy Brenwald | **Date Review:** 8-10-2011

WELL OBSERVATIONS

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

Notes: VOCs 6 in WB | Set pump @ 482'

CALCULATIONS

(A) Depth to Well Bottom	496.6	ft
(B) Pre-Purge Depth to Water	462.51	ft
(C) Water Column Height (A-B)	34.09	ft
(D) Casing Factor: 4"=0.65 (8"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	34.8	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)	51	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
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
8/10/11 1234	0	462.51	20.96	7.67	534.4	9.73	296	5.01	1.66 l/m
1257	10	462.507	19.67	7.62	527.0	11.35	306	3.81	
1320	20	462.52	19.45	7.61	521.6	11.38	312	1.33	
1343	30	462.55	19.45	7.63	515.0	11.22	313	1.39	
1354	35	462.55	19.51	7.63	516.3	11.35	316	1.36	
1413	40	462.54	19.91	7.64	519.6	10.80	329	0.80	1.02 l/m
1432	46	462.52	19.84	7.63	515.0	10.45	331	0.72	
1455	51	462.52	19.78	7.64	523.2	10.78	329	0.69	
Values Prior to Sampling									
1455	51	462.52	19.78	7.64	523.2	10.78	329	0.69	1.04 l/m

Field Alkalinity Result 98 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.:** 106034

Site / SWMU No.: 106 **Date:** 08/10

Weather: Sunny **Time:** 8/9/11

Field Crew: AT, AR65 **Crew Signature:**

Review Signature: **Date Review:** 8/9/2011

WELL OBSERVATIONS

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

Notes: VOC's @ in WB, Set pump @ 509'

CALCULATIONS

(A) Depth to Well Bottom	522 ft
(B) Pre-Purge Depth to Water	463.34 ft
(C) Water Column Height (A-B)	58.66 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	59.8 gal
(F) Depth to Top of Screen	502 ft
(G) Depth to Bottom of Screen	517 ft
(H) Saturated Filter Pack Length (G –F, or B)	15 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.02)	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	76 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Insitu 9000	R22885
Turbidity Meter: Hach	2821
Pump: Portable Bennett on fuel	
Field Alkalinity: Lo Motte	3867

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
8kl 0947	0	463.34	19.78	7.54	571.6	13.11	219	3.72	1.80 Lm
1030	20	463.44	19.09	7.54	593.2	15.10	219	224	
1054	30	463.45	19.11	7.52	572.4	14.54	219	2.17	
1102	40	463.45	19.21	7.53	578.7	14.30	217	2.15	
1134	50	463.44	19.24	7.55	586.8	14.76	217	1.08	
1155 WB	60	463.41	19.15	7.54	581.7	14.47	216	1.54	
1219	70	463.41	19.54	7.55	576.6	13.30	223	0.87	1.0 Lm AT 0.96
1247	76	463.40	19.55	7.55	574.0	12.94	229	0.87	
	stat								
Values Prior to Sampling									
1247	76	463.40	19.55	7.55	574.0	12.94	225	0.87	0.96 Lm

Field Alkalinity Result 93 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-3FT **Well ID No.:** 106035

Site / SWMU No.: 106 **Date:** 9/13/11

Weather: Sunny **Time:** 1230

Field Crew: AT, DM **Crew Signature:**

Review Signature: **Date Review:** 9/13/11

WELL OBSERVATIONS

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

Notes: VOC's @ manifold, set pump @ 472'

CALCULATIONS

(A) Depth to Well Bottom	487	ft
(B) Pre-Purge Depth to Water	468.11	ft
(C) Water Column Height (A-B)	18.89	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	19.3	gal
(F) Depth to Top of Screen	452	ft
(G) Depth to Bottom of Screen	482	ft
(H) Saturated Filter Pack Length (G –F, or B)	13.89	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07)	1.07	

(J) Filter Pack Volume (H x I)	14.8	gal
(K) Min Purge Volume (E + J)	34	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 4500	R20661	
Turbidity Meter: Hach	2821	
Pump: Peristaltic 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
9/13/11 1310	0	468.11	23.85	7.68	302.4	7.06	190	2.05	1.40 L/m
1337	10	468.21	19.46	7.77	289.6	7.68	190	1.07	
1404	20	468.20	19.43	7.74	294.2	7.47	192	1.10	
1423	25	468.18	19.61	7.72	303.2	7.72	194	1.21	1.0 L/m
1443	30	468.17	19.66	7.71	310.4	7.23	196	0.94	
1503	34	468.17	19.63	7.70	315.7	7.15	196	1.07	
	34 gal								
Values Prior to Sampling									
1503	34	468.17	19.63	7.70	315.7	7.15	196	1.07	1.0 L/m

Field Alkalinity Result 109 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.: 106036
Site / SWMU No.: 106
Date: 9/13/11
Weather: cloudy
Time: 0830
Field Crew: AT, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 9/13/11

WELL OBSERVATIONS

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

Notes: VOC's ∅ in WB, Set pump @ 488'

CALCULATIONS

(A) Depth to Well Bottom	501.8	ft
(B) Pre-Purge Depth to Water	468.54	ft
(C) Water Column Height (A-B)	32.46	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	33.1	gal
(F) Depth to Top of Screen	481.8	ft
(G) Depth to Bottom of Screen	496.8	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: 9500 Instn	R20661	
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
09-13-11 0916	∅	468.54	18.83	7.47	484.8	9.89	216	3.69	1.67 Clm
0939	10	468.62	18.92	7.62	492.9	9.83	208	2.19	
1002	20	468.62	18.90	7.61	499.1	10.02	205	1.58	
1025	30	468.62	19.05	7.61	487.0	10.06	199	1.24	
1036	35	468.62	19.02	7.61	460.8	9.78	198	1.36	
1055	40	468.58	19.37	7.62	477.2	9.58	193	0.99	1.0 Clm
1114	45	468.57	19.61	7.62	464.3	9.68	190	1.06	
1129	49	468.57	19.70	7.62	485.2	9.45	188	1.23	
Values Prior to Sampling									
1129	49	468.57	19.70	7.62	485.2	9.45	188	1.23	1.0 Clm

Field Alkalinity Result 112 Mg/L on $CaCO_3$

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

140705

Shaw™ Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-3FF **Well ID No.:** 106037

Site / SWMU No.: 106 **Date:** 9/14/11

Weather: Sunny **Time:** 0900

Field Crew: [illegible] **Crew Signature:** [illegible]

Review Signature: [illegible] **Date Review:** 9/15/11

WELL OBSERVATIONS

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

Notes: VOCs @ in WB, set pump @ 514'

CALCULATIONS

(A) Depth to Well Bottom	527	ft
(B) Pre-Purge Depth to Water	468.68	ft
(C) Water Column Height (A-B)	58.32	ft
(D) Casing Factor: 4"=0.65 5"=1.03	1.02	
(E) One Well Casing Volume (C x D):	59.5	gal
(F) Depth to Top of Screen	507	ft
(G) Depth to Bottom of Screen	522	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)	76	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
1040 9/14/11	Ø	468.68	20.52	7.37	382.4	10.39	207	0.97	1.80 L/m
1122	20	468.12	19.26	7.68	372.2	12.01	192	1.64	
1143	30	468.11	19.34	7.68	377.2	11.70	185	1.43	
1204	40	468.11	19.35	7.67	380.4	12.61	181	1.15	
1225	50	468.11	19.47	7.68	365.6	12.86	178	1.26	
1246	60	468.12	19.13	7.68	381.1	11.95	179	1.48	1.00 L/m
1305	65	468.28	19.52	7.68	363.8	12.91	178	1.26	
1324	70	468.28	19.81	7.68	368.2	11.83	175	0.95	
1347	76	468.28	19.57	7.68	361.4	12.36	175	0.95	
Values Prior to Sampling									
1347	76	468.28	19.57	7.68	361.4	12.36	175	0.95	1.0 L/m

Field Alkalinity Result 102 mg/L as CaCO3

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

140705

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: 9-8-11
Weather: Sunny 80s
Time: 1259
Field Crew: NAGM
Crew Signature:
Review Signature:
Date Review: 9/8/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOCs0 set pump to ~~493 ft~~ 500 ft

CALCULATIONS

(A) Depth to Well Bottom	513 ft
(B) Pre-Purge Depth to Water	497.01 ft
(C) Water Column Height (A-B)	15.99 ft
(D) Casing Factor: 4"=0.65 (6"=1.02)	1.02
(E) One Well Casing Volume (C x D):	16.31 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)	10.99 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = (1.07),	1.07

(J) Filter Pack Volume (H x I)	11.76 gal
(K) Min Purge Volume (E + J)	28 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH 2100P	07818
Pump: portable bennett	on file
Field Alkalinity: La Motte	3467#4

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
9-8-11 1259	0	497.01	22.15	7.99	309.8	4.93	168	1.67	1.2L/min
1339	13	497.06	19.36	9.81	308.6	5.06	196	0.42	
1357	18	497.04	19.36	7.82	308.6	5.11	202	0.58	1L/min
1415	23	497.02	19.50	7.82	309.3	5.11	207	0.51	
1433	28	497.02	19.60	7.82	309.2	5.11	212	0.43	
Values Prior to Sampling									
1433	28	497.02	19.60	7.82	309.2	5.11	217	0.43	1.0 L/min

Field Alkalinity Result 98 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.:** 106039

Site / SWMU No.: 106 **Date:** 9-8-11

Weather: Sunny 70s **Time:** 0817

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

Review Signature: **Date Review:** 9/8/11

WELL OBSERVATIONS

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

Notes: VOCs Pump set @ 515 ft

CALCULATIONS

(A) Depth to Well Bottom	528.25 ft
(B) Pre-Purge Depth to Water	496.94 ft
(C) Water Column Height (A-B)	31.31 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	31.94 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)	48 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI 556 MPS	R22831
Turbidity Meter HACH 2100P	07818
Pump portable bennett	on file
Field Alkalinity La Motte	3467#4

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
9-8-11 0919	0	496.94	18.40	6.98	313.5	5.59	232	4.23	1.4 L/min
1013	20	497.01	19.04	7.63	306.8	5.64	228	1.47	
1048	33	497.01	19.17	7.66	307.8	5.40	230	1.37	
1106	38	496.98	19.14	7.68	296.9	5.42	232	1.59	1.0 L/min
1124	43	496.97	19.11	7.68	293.1	5.29	234	1.64	
1142	48	496.97	19.23	7.69	300.5	5.34	236	1.20	
Values Prior to Sampling									
1142	48	496.97	19.23	7.69	300.5	5.34	236	1.20	1.0 L/min

Field Alkalinity Result 107 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 **Well ID No.:** 106040

Site / SWMU No.: 106 **Date:** 9-9-11

Weather: Cloudy 60s-70s **Time:** 0837

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

Review Signature: **Date Review:** 9/9/11

WELL OBSERVATIONS

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

Notes: VOCs Pump set to 538 ft.

CALCULATIONS

(A) Depth to Well Bottom	550.55 ft
(B) Pre-Purge Depth to Water	495.74 ft
(C) Water Column Height (A-B)	54.26 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	55.35 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 (= 1.07)	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: Horiba U-22	R27831
Turbidity Meter: HACH 2100P	02818
Pump: portable bennett	on file
Field Alkalinity: La Motte	346744

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
9-9-11 0955	0	495.74	18.15	6.96	305.1	6.10	230	3.79	1.5 L/min
1045 ~~0945~~	20	495.80	19.04	7.66	299.3	7.54	224	2.02	
1135	40	495.81	19.09	7.68	300.9	7.51	227	1.43	
1217	57	495.81	19.10	7.70	299.3	7.62	230	0.85	
1235	62	495.78	19.02	7.71	301.2	7.40	233	0.85	1.0 L/min.
1253	67	495.77	19.09	7.71	298.9	7.54	235	0.97	
1311	72	495.76	19.29	7.72	298.6	7.52	237	0.96	
Values Prior to Sampling									
1311	72	495.76	19.29	7.72	298.6	7.52	237	0.96	1.0 L/min

Field Alkalinity Result 104 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.: 106041
Site / SWMU No.: 106
Date: 7/27/11
Weather: Sunny
Time: 0800
Field Crew: AT, AT TN
Crew Signature: [signature]
Review Signature:
Date Review:

WELL OBSERVATIONS

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

Notes: Bottom of well was @ 473.68 & GW 473.16, sent pump down to purge, was not able to purge any water, well is determined to be dry.

CALCULATIONS

(A) Depth to Well Bottom	473.78 ft
(B) Pre-Purge Depth to Water	473.16 ft
(C) Water Column Height (A-B)	0.62 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	0.63 gal
(F) Depth to Top of Screen	449 ft
(G) Depth to Bottom of Screen	468.78 ft
(H) Saturated Filter Pack Length (G – F, or B)	19.78 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07

(J) Filter Pack Volume (H x I)	Ø gal
(K) Min Purge Volume (E + J)	0.63 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: 9500 Insta	R22885
Turbidity Meter: Hach	2821
Pump: Portable Bennett	on file
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged: N/A

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
		473.16							
Values Prior to Sampling									

Field Alkalinity Result _____

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

140705

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:** 7/27/11

Weather: Sunny **Time:** 0900

Field Crew: AT, TN **Crew Signature:** [signature]

Review Signature: **Date Review:**

WELL OBSERVATIONS

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

Notes: VOC Ø in well bore, set pump @ 476'

CALCULATIONS

(A) Depth to Well Bottom	488.5	ft
(B) Pre-Purge Depth to Water	470.27	ft
(C) Water Column Height (A-B)	18.23	ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	18.59	gal
(F) Depth to Top of Screen	469	ft
(G) Depth to Bottom of Screen	483.5	ft
(H) Saturated Filter Pack Length (G –F, or B)	1323	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07	

(J) Filter Pack Volume (H x I)	14.15	gal
(K) Min Purge Volume (E + J)	33	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insitu	R22885	
Turbidity Meter: Hach	2881	
Pump: Bennett, Portable	on file	
Field Alkalinity: La Motte	3467	

PURGING INFORMATION

Description first water purged: Brown, silty

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
1105 7/27/11	Ø	470.27	21.71	7.62	394.3	5.89	198	9.99	1.42 L/m
1118	5	470.36	19.31	7.58	499.3	7.85	204	9.99	
1131	10	470.37	19.12	7.58	491.6	7.58	205	9.75	
1144	15	470.36	19.05	7.57	492.7	7.35	207	7.75	
1157	20	470.36	19.14	7.57	493.7	7.29	207	3.58	
1216	25	470.33	19.22	7.57	488.3	7.08	212	1.40	1.0 L/min
1235	30	470.31	19.45	7.57	485.7	6.96	212	0.86	
1246	33	470.31	19.41	7.57	483.4	6.91	212	0.99	
Values Prior to Sampling									
1246	33	470.31	19.41	7.57	483.4	6.91	212	0.99	1.0 L/m

Field Alkalinity Result 128 mg/L @ $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: 140705 **Well ID No.:** 106043

Site / SWMU No.: 106 **Date:** 7-18-11

Weather: Sunny 90's **Time:** 0917

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

Review Signature: [signature] **Date Review:** 7/19/11

WELL OBSERVATIONS

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

Notes: VOCs 18.6 in well bore @ in BZ

CALCULATIONS

(A) Depth to Well Bottom	582 ft
(B) Pre-Purge Depth to Water	470.69 ft
(C) Water Column Height (A-B)	111.31 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	113.54 gal
(F) Depth to Top of Screen 543	~~559.53~~ ft
(G) Depth to Bottom of Screen 557	~~582~~.53 ft
(H) Saturated Filter Pack Length (G - F, or B) 15	~~25~~ 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)	130 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	RZ7831
Turbidity Meter: HACH 2100P	02818
Pump: portable bennett	on file
Field Alkalinity: La Motte	4367+4

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
7-18-11 1036	~~470.78~~	470.70	20.72	7.71	332.1	10.39	205	1.24	1.78 L/min
1140	30	470.79	19.65	7.76	316.7	12.41	185	0.52	
1243	60	470.79	19.81	7.77	312.3	12.58	185	0.58	
1347	90	470.78	19.75	7.78	313.1	12.73	183	0.42	
1440	115	470.78	19.81	7.79	334.6	12.35	183	0.46	
1502	120	470.73	19.88	7.80	323.3	12.10	189	0.29	0.96 L/min
1521	125	470.71	20.16	7.80	326.6	12.21	193	0.24	
1539	130	470.71	20.13	7.80	328.6	12.46	196	0.42	
Values Prior to Sampling									
1539	130	470.71	20.13	7.80	328.6	12.46	196	0.42	

Field Alkalinity Result 114 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.:** 106044

Site / SWMU No.: 106 **Date:** 7-26-11

Weather: Sunny 90's **Time:** 1119

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

Review Signature: Daniel Medina **Date Review:** 7-26-11

WELL OBSERVATIONS

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

Notes: VOCs in well bore & small leak on water line on well head.

CALCULATIONS

(A) Depth to Well Bottom	523.90 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	490.67 ft	(K) Min Purge Volume (E + J)	50 gal
(C) Water Column Height (A-B)	33.2 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: In Situ 9500	RZ2831
(E) One Well Casing Volume (C x D):	33.87 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	504.23 ft	Pump: DGM dedicated	
(G) Depth to Bottom of Screen	519.23 ft	Field Alkalinity: La Motte	3467#4
(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
7-26-11 1139	0	490.67	19.09	7.66	285.9	6.90	205	0.81	4.5 OL/min
1154	20	490.78	19.49	7.85	281.6	12.95	133	0.99	
1207	30	490.78	19.48	7.87	283.4	12.79	133	0.87	
1223	40	490.68	19.88	7.85	277.3	11.00	159	0.92	1.0 L/min
1238	45	490.68	19.93	7.85	283.5	11.12	170	1.02	
1256	50	490.68	19.78	7.86	286.9	11.10	176	0.96	
Values Prior to Sampling									
1256	50	490.68	19.78	7.86	286.9	11.10	176	0.96	

Field Alkalinity Result 81 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.: 106045
Site / SWMU No.: 106
Date: 7-26-11
Weather: Sunny 90's
Time: 0744
Field Crew: DA DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 7/26/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in bore hole

CALCULATIONS

(A) Depth to Well Bottom	548 ft
(B) Pre-Purge Depth to Water	490.36 ft
(C) Water Column Height (A-B)	57.6 ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	58.76 gal
(F) Depth to Top of Screen	528.3 ft
(G) Depth to Bottom of Screen	543.3 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)	75 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH2100P	02818
Pump: Dedicated bennette	on file
Field Alkalinity: La Motte	3467#4

PURGING INFORMATION

Description first water purged: Clear, 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
7-26-11 0834	Ø	490.36	20.21	7.47	277.4	6.97	227	1.87	4.05L/min
0853	20	490.52	19.36	7.78	275.8	15.10	191	1.10	
0912	40	490.52	19.42	7.76	264.7	14.96	176	1.11	
0921	50	490.52	19.38	7.79	274.3	15.06	170	0.66	
0931	60	490.52	19.43	7.81	275.1	15.27	167	0.58	
0948	65	490.42	19.49	7.82	274.6	11.57	189	0.89	1.0L/min
1007	70	490.41	19.43	7.83	278.7	11.51	198	0.81	
1027	75	490.40	19.42	7.85	281.3	11.58	203	0.58	
Values Prior to Sampling									
1027	75	490.40	19.42	7.85	281.3	11.58	203	0.58	1.0L/min

Field Alkalinity Result 92 mg/L as $CaCO_3$

GW0175

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
Well ID No.: 106046
Site / SWMU No.: 106
Date: 8-8-11
Weather: Sunny 90s
Time: 1857
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 8/8/11

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	515 ft
(B) Pre-Purge Depth to Water	496.39 ft
(C) Water Column Height (A-B)	18.61 ft
(D) Casing Factor: 4"=0.65 (6"=1.02	1.02
(E) One Well Casing Volume (C x D):	18.99 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)	13.61 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	14.57 gal
(K) Min Purge Volume (E + J)	34.0 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI 9500	R27831
Turbidity Meter: HACH 2100P	07818
Pump: Dedicated, Geotech on file	
Field Alkalinity: La Motte	3467-04

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
8-8-11 1324	0	496.39	23.11	7.67	446.7	6.29	196	0.35	2.4 L/min
1340	10	496.48	19.72	7.50	450.8	5.83	121	0.61	
1354	19	496.48	19.76	7.47	456.7	5.42	128	0.36	
1413	24	496.43	20.18	7.42	469.2	5.10	147	0.16	1.0 L/min
1432	29	496.42	20.25	7.41	470.5	5.10	148	0.28	
1451	34	496.42	20.33	7.43	464.9	5.22	149	0.52	
Values Prior to Sampling									
1451	34	496.42	20.33	7.43	464.9	5.22	149	0.52	1.0 L/min

Field Alkalinity Result 168 mg/L as $CaCO_3$ GW017

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.: 106047
Site / SWMU No.: 106
Date: 8-11-11
Weather: Sunny 90's
Time: 1214
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 8/11/11

WELL OBSERVATIONS

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

Notes: VOC's & m, BH

CALCULATIONS

(A) Depth to Well Bottom	532 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	496.61 ft	(K) Min Purge Volume (E + J)	53 gal
(C) Water Column Height (A-B)	35.39 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):	36.10 gal	Turbidity Meter: HACH 2100P	07818
(F) Depth to Top of Screen	512 ft	Pump: dedicated Grennette	on file
(G) Depth to Bottom of Screen	527 ft	Field Alkalinity: La Motte	3467#4
(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
8-11-11 1233	0	496.61	24.12	7.34	299.5	5.56	212	0.84	2.7 L/min.
1301	20	496.73	19.95	7.48	375.0	3.86	16	1.68	
1326	38	496.73	19.77	7.47	367.4	3.38	-41	3.97	
1344	43	496.68	20.19	7.47	352.4	2.98	-76	3.76	1.0 L/min
1402	48	496.65	20.59	7.48	368.2	2.86	-18	3.80	
1420	53	496.65	20.62	7.48	365.4	2.91	-3	3.35	
Values Prior to Sampling									
1420	53	496.65	20.62	7.48	365.4	2.91	-3	3.35	1.0 L/min

Field Alkalinity Result 112 mg/L as $CaCO_3$

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

140705

Sample ID:

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106048
Site / SWMU No.: 106
Date: 8-11-11
Weather: Sunny 80s
Time: 0827
Field Crew: DK, DM
Crew Signature:
Review Signature:
Date Review: 8/11/11

WELL OBSERVATIONS

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

CALCULATIONS

(A) Depth to Well Bottom	555.5 ft
(B) Pre-Purge Depth to Water	496.19 ft
(C) Water Column Height (A-B)	59.31 ft
(D) Casing Factor: 4"=0.65 (6"=1.02)	1.02
(E) One Well Casing Volume (C x D):	60.50 gal
(F) Depth to Top of Screen	535.5 ft
(G) Depth to Bottom of Screen	550.5 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)	77 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Sonde 9500	R22831
Turbidity Meter: HACH 2100P	B2818
Pump: dedicated bennett	on file
Field Alkalinity: Lar Matte	3467#4

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
8-11-11 0900	0	496.19	22.31	7.44	294.3	7.01	222	1.03	2.36 L/min
0935	22	496.30	19.50	7.71	289.7	12.18	211	1.38	
1007	42	496.30	19.64	7.73	288.1	12.86	211	0.81	
1039	62	496.30	19.65	7.76	279.3	12.60	213	0.61	
1058	67	496.24	20.00	7.78	284.8	10.73	221	0.65	1.04/min
1117	72	496.24	19.92	7.79	287.5	10.67	225	0.66	
1136	77	496.24	19.96	7.80	283.5	10.71	228	0.69	
Values Prior to Sampling									
1136	77	496.24	19.96	7.80	283.5	10.71	228	0.69	1.04/min

Field Alkalinity Result 112 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.:** KAFB 106049

Site / SWMU No.: 106 **Date:** 8/12/11

Weather: Sunny **Time:** 0900

Field Crew: D. Medina, T. Nogen **Crew Signature:** T. Nogen

Review Signature: [signature] **Date Review:** 8/12/11

WELL OBSERVATIONS

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

Notes: _____

CALCULATIONS

(A) Depth to Well Bottom	480.68 ft
(B) Pre-Purge Depth to Water	462.29 ft
(C) Water Column Height (A-B)	18.39 ft
(D) Casing Factor: 4"=0.65 5"=1.02	
(E) One Well Casing Volume (C x D):	18.76 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)	14.51 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	15.53 gal
(K) Min Purge Volume (E + J)	34.29 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: InSitu 2500	R22831
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
8/12/11 0932	0	462.29	21.68	7.39	1172	8.20	222	3.38	1.6 L/min
0944	5	462.40	19.27	7.54	1166	8.14	215	1.82	
0956	10	462.40	19.15	7.54	1157	7.95	211	1.32	
1008	15	462.39	19.06	7.55	1147	7.93	201	1.10	
1020	20	462.41	19.08	7.55	1147	7.92	196	1.02	
1039	25	462.38	19.23	7.56	1143	7.88	191	0.90	1.0 L/min
1058	30	462.37	19.36	7.56	1140	7.87	186	0.52	
1117	35	462.37	19.25	7.56	1133	7.80	183	0.61	
Values Prior to Sampling									
1117	35	462.37	19.25	7.56	TN 1153	7.80	183	0.61	1.0 L/min

Field Alkalinity Result 73 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.: 106050
Site / SWMU No.: 106
Date: 8/11/11
Weather: cloudy, sprinkles
Time: 9:15
Field Crew: AG, TN
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8-11-2011

WELL OBSERVATIONS

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

Notes: DO meter not working contacted In Situ + hopefully fixed problem

CALCULATIONS

(A) Depth to Well Bottom	494.75 ft
(B) Pre-Purge Depth to Water	461.76 ft
(C) Water Column Height (A-B)	32.99 ft
(D) Casing Factor: 4"=0.65 5"=1.02	
(E) One Well Casing Volume (C x D):	33.6 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, 5/10 = 1.07	

(J) Filter Pack Volume (H x I)	14.73 gal
(K) Min Purge Volume (E + J)	48.33 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter In-Situ 2500	R-22885
Turbidity Meter Hach	2821
Pump portable Bennett	on file
Field Alkalinity LaMotte	3467

PURGING INFORMATION

Description first water purged: clear & 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
0936	0	461.76	19.29	7.73	430.3	NA	297	5.41	1.64 L/min
0957	10	461.84	18.84	7.72	429.5	NA	316	2.17	
1018	20	461.84	18.79	7.72	414.4	NA	324	1.97	
1039	30	461.84	18.83	7.74	421.3	NA	328	1.15	
1049	35	461.84	18.84	7.74	422.1	NA	329	1.09	
1108	40	461.81	19.09	7.75	425.6	NA	331	0.76	1.0 L/min
1127	45	461.81	19.15	7.75	420.7	NA	334	0.96	
1146	50	461.81	19.01	7.76	428.6	NA	335	1.01	
Values Prior to Sampling									
1146	50	461.81	19.01	7.76	428.6	NA	335	1.01	1.0 L/min

Field Alkalinity Result 112 mg/L $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: 106051
Site / SWMU No.: 106
Date: 8/25/11
Weather: Sunny
Time: 08:45
Field Crew: AT, DY
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/26/11

WELL OBSERVATIONS

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

Notes: VOC's 0.3 in WB

CALCULATIONS

(A) Depth to Well Bottom	521	ft
(B) Pre-Purge Depth to Water	462.49 at	ft
(C) Water Column Height (A-B)	58.8951	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	59.6	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)	14.7	gal
(K) Min Purge Volume (E + J)	74	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2128	
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
8/25/11 0916	0	462.49	17.66	7.46	361.1	9.16	196	3.16	4.2 L/m
0934	at 20	462.61	18.64	7.69	360.1	12.62	175	2.22	
0943	at 30	462.61	18.64	7.69	360.1	12.62	175	2.22	
0952	at 40	462.61	18.65	7.70	356.6	12.39	167	2.111	
1001	at 50	462.61	18.65	7.71	356.0	12.38	165	1.74	
1010	60	462.61	18.64	7.70	368.0	12.75	164	1.63	
1026	65	462.55	18.95	7.71	367.1	10.31	178	1.48	1.2 L/m
1042	70	462.54	18.92	7.70	351.5	10.35	178	1.61	
1054	74	462.53	18.94	7.70	358.9	10.29	178	1.75	
Values Prior to Sampling									
1054	74	462.53	18.94	7.70	358.9	10.29	178	1.75	1.2 L/m

Field Alkalinity Result 109 mg/L a $CaCO_3$

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

140705

Sample ID:

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106052

Site / SWMU No.: 106 **Date:** 9-7-11

Weather: Sunny 80°s **Time:** 1306

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

Review Signature: [signature] **Date Review:** 9/8/11

WELL OBSERVATIONS

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

Notes: VOCs Ø Pump set to 474 ft. DA

CALCULATIONS

(A) Depth to Well Bottom	484.80 ft
(B) Pre-Purge Depth to Water	465.96 ft
(C) Water Column Height (A-B)	18.84 ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	19.22 gal
(F) Depth to Top of Screen	450.36 ft
(G) Depth to Bottom of Screen	479.63 ft
(H) Saturated Filter Pack Length (G –F, or B)	13.67 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	14.63 gal
(K) Min Purge Volume (E + J)	34 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ 9500	R22831
Turbidity Meter: HACH2100P	02821
Pump: portable bennett	on file
Field Alkalinity: La Motte	3467#4

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
9-7-11 1335	Ø	465.96	21.54	7.19	460.8	5.19	138	4.88	1.6L/min
1359	10	466.02	19.44	7.68	446.9	5.18	215	4.00	
1427	19	466.03	19.32	7.69	443.6	5.25	223	2.75	
1440	24	465.99	19.40	7.68	443.0	5.25	226	2.21	1.0L/min
1458	29	465.99	19.31	7.68	442.0	5.23	229	1.71	
1516	34	465.99	19.31	7.68	440.8	5.22	231	1.60	

Values Prior to Sampling

1516	34	465.99	19.31	7.68	440.8	5.22	231	1.60	1.0L/min

Field Alkalinity Result 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*

not recorded forgot to write down

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106053

Site / SWMU No.: 106 **Date:** 9/12/11

Weather: Cloudy **Time:** 1330

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

Review Signature: [signature] **Date Review:** 9/13/11

WELL OBSERVATIONS

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

Notes: VOCs Ø in ab, set pump @ 486'

CALCULATIONS

(A) Depth to Well Bottom	~~521.00~~ 498.43 at	ft
(B) Pre-Purge Depth to Water	465.50	ft
(C) Water Column Height (A-B)	32.93	ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	33.5	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)	48	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 5500	R20661	
Turbidity Meter: Hach	~~3467~~ at 2821	
Pump: Portable 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
9/12/11 1409	Ø	465.50	23.48	7.52	368.5	8.83	221	1.89	1.82 Clear
1430	10	466.09	19.12	7.75	375.7	10.10	207	1.74	
1451	20	466.12	18.97	7.73	366.3	10.38	201	1.48	
1512	30	466.12	19.02	7.72	361.0	10.70	203	1.22	
1533	40	466.10	19.04	7.72	371.0	10.48	205	1.36	1.0 Clear
1552	45	466.09	19.08	7.71	362.3	10.33	207	0.81	
1604	48	466.09	19.08	7.71	355.0	10.91	208	0.99	
Values Prior to Sampling									
1604	48	466.09	19.08	7.71	355.0	10.91	208	0.99	1.0 Clear

Field Alkalinity Result 112 mg/L as $CaCO_3$

GW184

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.:** 106054

Site / SWMU No.: 106 **Date:** 6/1/11

Weather: Sunny 90's **Time:** 0900

Field Crew: [illegible] **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 6/16/11

WELL OBSERVATIONS

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

Notes: VOC's @ in aB, set pump @ 511'

CALCULATIONS

(A) Depth to Well Bottom	524 ft	(J) Filter Pack Volume (H x I)	~~16.05~~ 16.76 gal
(B) Pre-Purge Depth to Water	465.26 ft	(K) Min Purge Volume (E + J)	~~75~~ 76 gal
(C) Water Column Height (A-B)	58.74 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: Horiba U-22	R22661
(E) One Well Casing Volume (C x D):	59.9 gal	Turbidity Meter: Hach	2821
(F) Depth to Top of Screen	504 ft	Pump: Portable Bennett	on file
(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, 5/10 = 1.07, ____	1.07		

PURGING INFORMATION

Description first water purged: cloudy

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
6/1/11 1036	0	465.26	20.49	7.56	322.8	10.67	234	15.4	1.6 Ua
1145	30	465.51	19.17	7.73	342.4	11.87	185	5.77	
1208	40	465.55	19.26	7.73	342.3	11.86	176	3.75	
1231	50	465.55	19.23	7.74	321.8	12.00	177	3.16	
1254	60	465.54	19.23	7.74	334.1	12.06	178	2.75	
1313	65	465.52	19.56	7.74	329.6	11.53	179	3.25	1.0 Ua
1332	70	465.51	19.66	7.73	315.4	12.00	182	2.78	
1355	76	465.50	19.58	7.74	330.1	11.74	186	3.02	
Values Prior to Sampling									
1355	76	465.50	19.58	7.74	330.1	11.74	186	3.02	1.0 Ua

Field Alkalinity Result 109 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.: 106055
Site / SWMU No.: 106
Date: 8-25-11
Weather: Sunny 90s
Time: 1206
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 8 Sept 11

WELL OBSERVATIONS

Protective Casing / Vault: Intact - Damaged -
Locked: Yes - No
Well ID Mark: Yes - No
Notes: VOCs & Pump set @ 475 ft

CALCULATIONS

(A) Depth to Well Bottom	490.26 ft
(B) Pre-Purge Depth to Water	471.92 ft
(C) Water Column Height (A-B)	18.34 ft
(D) Casing Factor: 4"=0.65 6"=1.02	1.02
(E) One Well Casing Volume (C x D):	18.71 gal
(F) Depth to Top of Screen	465.82 ft
(G) Depth to Bottom of Screen	484.82 ft
(H) Saturated Filter Pack Length (G –F, or B)	13 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	13.91 gal
(K) Min Purge Volume (E + J)	33 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Horiba U-22	RZ7831
Turbidity Meter: HACH 2100P	07818
Pump: portable Bennett	on file
Field Alkalinity: La Motte	3467-#4

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
8-25-11 1249	0	471.92	21.30	7.67	355.5	6.48	117	2.67	1.40L/min
1316	10	471.99	20.06	7.75	351.0	6.51	133	1.69	
1338	18	471.99	19.95	7.76	350.6	6.42	139	1.11	
1357	23	471.97	19.94	7.76	348.4	6.36	149	0.83	1.0L/min
1415	28	471.96	20.07	7.75	346.2	6.29	152	0.60	
1433	33	471.96	19.69	7.75	347.7	6.37	155	0.61	
Values Prior to Sampling									
1433	33	471.96	19.69	7.75	347.7	6.37	155	0.61	1.0L/min

Field Alkalinity Result 100 mg/L as $CaCO_3$

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

140705

Sample ID:

Shaw™ Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106057
Site / SWMU No.: 106
Date: 8-23-11
Weather: Sunny 90's
Time: 0819
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/23/11

WELL OBSERVATIONS

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

Notes: VOCs Ø. Pump depth set to 493 ft

CALCULATIONS

(A) Depth to Well Bottom	510.0 ft
(B) Pre-Purge Depth to Water	472.26 ft
(C) Water Column Height (A-B)	37.74 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	38.50 gal
(F) Depth to Top of Screen	486.17 ft
(G) Depth to Bottom of Screen	499.94 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)	54 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In situ 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: portable ~~dedicated~~ bennette	on file
Field Alkalinity: La Motte	3467#4

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
8-23-11 1009	Ø	472.26	21.54	7.48	336.5	8.26	216	~~[illegible]~~ 0.88	1.44L/min.
1002	20	472.33	19.76	7.73	335.6	9.82	247	0.67	
1129	30	472.33	19.94	7.75	329.6	9.99	258	0.46	
1153	39	472.33	19.85	7.76	345.0	10.02	271	0.51	
1211	44	472.30	20.35	7.76	334.6	9.89	282	0.61	1.0L/min
1229	49	472.29	20.30	7.75	323.3	9.84	296	0.45	
1247	54	472.29	20.40	7.76	331.5	9.74	309	0.56	

Values Prior to Sampling

1247	54	472.29	20.40	7.76	331.5	9.74	309	0.56	1.0L/min

Field Alkalinity Result 124 mg/L as $CaCO_3$

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

140705

Sample ID:

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

Site / SWMU No.: 106 **Date:** 8-26-11

Weather: Sunny 90 **Time:** 0948

Field Crew: [illegible] **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 8 Sep 11

WELL OBSERVATIONS

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

Notes: VOCs pump set to 518ft

CALCULATIONS

(A) Depth to Well Bottom	530.30 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	472.85 ft	(K) Min Purge Volume (E + J)	75 gal
(C) Water Column Height (A-B)	57.45 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter YSI 9500	R27831
(E) One Well Casing Volume (C x D):	58.60 gal	Turbidity Meter HACH 2100P	07818
(F) Depth to Top of Screen	511.80 ft	Pump portable bennett	on file
(G) Depth to Bottom of Screen	526.80 ft	Field Alkalinity La Motte	3467#4
(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
8-26-11 1047	0	472.85	22.61	7.20	315.2	6.62	233	0.91	1.66L/min
1132	20	472.85	19.62	7.74	322.9	7.86	214	0.73	
1217	40	472.92	19.61	7.77	315.2	7.77	206	0.29	
1302	60	472.92	19.68	7.78	310.5	8.67	201	0.53	
1320	65	472.88	20.12	7.79	315.1	8.20	203	0.36	1.0L/min
1338	70	472.88	20.26	7.79	316.7	8.31	207	0.32	
1356	75	472.88	20.11	7.80	316.4	8.16	211	0.34	
Values Prior to Sampling									
1356	75	472.88	20.11	7.80	316.4	8.16	211	0.34	1.0L/min

Field Alkalinity Result 114 mg/L as $CaCO_3$

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

140705

Sample ID:

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:** 9-28-11

Weather: Sunny 80's **Time:** 0756

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

Review Signature: [signature] **Date Review:** 9/28/11

WELL OBSERVATIONS

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

Notes: VOCs Oin BH LNAPL 488.56-489.82
Pump set to 487.5ft

CALCULATIONS

(A) Depth to Well Bottom	508.4 ft
(B) Pre-Purge Depth to Water	489.82 ft
(C) Water Column Height (A-B)	18.58 ft
(D) Casing Factor: 4"=0.65 (6"=1.02)	1.07
(E) One Well Casing Volume (C x D):	18.96 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 –F, or B)	13.58 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (8/10 = 1.07), _____	1.07

(J) Filter Pack Volume (H x I)	14.54	gal
(K) Min Purge Volume (E + J)	34	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ 9500	R20661	
Turbidity Meter: HACH 2100P	07818	
Pump: portable bennett	on file	
Field Alkalinity: La Motte	346 #4	

PURGING INFORMATION

Description first water purged: Brown, 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
9-28-11 0904	0	489.82	19.68	7.07	807.6	4.99	120	259	1.4L/min
0931	10	489.87	19.28	7.36	583.3	1.81	-61	6.05	
0955	19	489.88	19.39	7.37	545.3	1.70	-73	2.02	
1013	24	489.85	19.49	7.37	541.8	2.30	-68	1.43	1.0L/min
1031	29	489.84	19.65	7.37	532.9	2.84	-67	1.21	
1049	34	489.83	19.90	7.33	562.9	3.83	-59	2.17	
Values Prior to Sampling									
1049	34	489.83	19.90	7.33	562.9	3.83	-59	2.17	1.0L/min

Field Alkalinity Result 174 mg/L as $CaCO_3$ **Sample ID:** GW0189

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.:** 106060

Site / SWMU No.: 106 **Date:** 8-30-11

Weather: Sunny 90s **Time:** 0759

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

Review Signature: **Date Review:** 8/30/11

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 ft		(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	488.94 ft		(K) Min Purge Volume (E + J)	51 gal
(C) Water Column Height (A-B)	34.06 ft		**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02		Parameter Meter In situ 9500	R27831
(E) One Well Casing Volume (C x D):	34.75 gal		Turbidity Meter HACH 2100P	02818
(F) Depth to Top of Screen	503 ft		Pump dedicated bennette	on file
(G) Depth to Bottom of Screen	518 ft		Field Alkalinity LaMotte	346704
(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
8-30-11 0845	0	488.94	19.50	7.33	324.9	5.21	217	0.75	3.96L/min
0904	20	489.08	19.37	7.75	325.3	7.50	108	2.18	
0920 0922	36	489.08	19.35	7.76	325.6	7.71	127	1.27	
0938	41	489.02	19.60	7.79	320.6	6.99	144	1.32	1.0L/min
0956	46	489.00	19.48	7.79	323.4	7.00	156	1.18	
1014	51	489.00	19.56	7.80	318.8	7.04	163	0.97	
Values Prior to Sampling									
1014	51	489.00	19.56	7.80	318.8	7.04	163	0.97	1.0L/min

Field Alkalinity Result 116 mg/L as $CaCO_3$ GW0190

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

Sample ID:

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106061

Site / SWMU No.: 106 **Date:** 8-10-11

Weather: Sunny 90s **Time:** 0801

Field Crew: DA, KM **Crew Signature:**

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

WELL OBSERVATIONS

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

Notes: VOCs 19.5 in borehole 0 in BZ

CALCULATIONS

(A) Depth to Well Bottom	603 ft
(B) Pre-Purge Depth to Water	488.45 ft
(C) Water Column Height (A-B)	114.55 ft
(D) Casing Factor: 4"=0.65 8"=1.02	1.02
(E) One Well Casing Volume (C x D):	116.85 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)	133 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Sitel 9500	R22831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated Bennette	on file
Field Alkalinity: La Motte	3467#4

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
8-10-11 0842	0	488.45	20.31	7.34	285.3	6.79	225	0.44	2.6L/min
0925	30	488.56	19.60	7.78	265.8	4.43	144	0.80	
1009	60	488.56	19.65	7.81	276.4	5.17	141	0.50	
1052	90	488.57	19.70	7.81	281.5	5.40	140	0.45	
1133	118	488.57	19.71	7.81	277.0	6.02	145	0.50	.99
1153	123	488.50	20.46	7.81	272.5	4.70	153	0.48	.96L/min
1212	128	488.49	20.78	7.83	272.2	4.47	180	0.50	
1232	133	488.48	20.56	7.82	272.9	4.36	195	0.57	
Values Prior to Sampling									
1232	133	488.48	20.56	7.82	272.9	4.36	195	0.57	.96L/min

Field Alkalinity Result 108 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.: 106062
Site / SWMU No.: 106
Date: 8-1-11
Weather: Sunny
Time: 0814
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/17/11

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	595 ft
(B) Pre-Purge Depth to Water	494.80 ft
(C) Water Column Height (A-B)	100.2 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	102.21 gal
(F) Depth to Top of Screen	575.78 ft
(G) Depth to Bottom of Screen	590.26 ft
(H) Saturated Filter Pack Length (G - F or B)	14.48 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	15.50 gal
(K) Min Purge Volume (E + J)	118 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#4

PURGING INFORMATION

Description first water purged: Clear. 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
8-1-11 0857	Ø	494.80	18.93	7.28	299.0	7.18	226	0.65	2.92 L/min
0936	30	494.91	19.52	7.72	286.9	12.39	207	1.32	
1015	60	494.91	19.55	7.75	291.3	12.35	201	0.66	
1054	90	494.91	19.65	7.74	299.1	12.94	197	1.20	
1110	103	494.91	19.65	7.74	298.4	13.14	198	0.63	
1127	108	494.85	19.94	7.75	297.7	11.69	211	0.45	1.0 L/min
1144	113	494.85	19.96	7.75	293.3	11.74	217	0.57	
1201	118	494.84	19.99	7.76	298.0	11.78	218	0.44	
Values Prior to Sampling									
1201	118	494.84	19.99	7.76	298.0	11.78	218	0.44	1.0 L/min

Field Alkalinity Result 106 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106063

Site / SWMU No.: 106 **Date:** 8-1-11

Weather: Sunny 90s **Time:** 1301

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

Review Signature: **Date Review:** 8/2/11

WELL OBSERVATIONS

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

Notes: VOC's in BH

CALCULATIONS

(A) Depth to Well Bottom	525 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	495.30 ft	(K) Min Purge Volume (E + J)	47 gal
(C) Water Column Height (A-B)	29.7 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):	30.30 gal	YSI 9500	R72831
(F) Depth to Top of Screen	~~500~~ 505 ft	Turbidity Meter	
(G) Depth to Bottom of Screen	~~520~~ ~~505~~ ft	HACH 2100P	~~02~~ 02818
(H) Saturated Filter Pack Length (G –F, or B)	15 ~~570~~ ft	Pump	Dedicated Bennett on file
(I) Casing/Borehole Factor 4/10 = 1.2, 8/10 = 1.07,	1.07	Field Alkalinity	
		La Motte	3467 #4

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
8-1-11 1343	0	495.30	19.25	7.60	357.1	6.74	204	0.41	3.32
1406	20	495.42	19.71	7.72	358.4	11.09	129	0.63	
1419	32	495.42	19.69	7.71	359.1	10.74	134	0.64	
1436	37	495.36	20.01	7.68	369.3	9.02	153	0.52	1.0L/min
1453	42	495.34	20.11	7.69	366.3	9.11	164	0.25	
1510	47	495.34	20.19	7.68	361.0	9.08	170	0.42	
Values Prior to Sampling									
1510	47	495.34	20.19	7.68	361.0	9.08	170	0.42	1.0L/min

Field Alkalinity Result 126 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
Well ID No.: 106064
Site / SWMU No.: 106
Date: 8-17-11
Weather: Sunny 90s
Time: 1238
Field Crew: DA DM
Crew Signature:
Review Signature:
Date Review: 8/22/11

WELL OBSERVATIONS

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

Notes: VOCs 0 in borehole. 30 min. hold called @ 12:55pm for lightning
Hold lifted @ 15:15

CALCULATIONS

(A) Depth to Well Bottom	510 ft	(J) Filter Pack Volume (H x I)	11 gal
(B) Pre-Purge Depth to Water	494.72 ft	(K) Min Purge Volume (E + J)	27 gal
(C) Water Column Height (A-B)	15.28 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5")=1.02	1.02	Parameter Meter YSI 556	R72831
(E) One Well Casing Volume (C x D):	15.59 gal	Turbidity Meter HACH 2100P	02818
(F) Depth to Top of Screen	485 ft	Pump dedicated Jennette	on file
(G) Depth to Bottom of Screen	505 ft	Field Alkalinity La Motte	3467#4
(H) Saturated Filter Pack Length (G –F, or B)	10.28 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07		

PURGING INFORMATION

Description first water purged: clear, 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
8-17-11 1301	0	494.72	22.80	7.81	388.3	6.59	201	0.34	
1341	12	494.80	19.87	7.43	423.3	0.43	-99	0.51	
1533/1400	17	494.78	19.40	7.46	427.4	0.32	-88	0.66	1.0 L/min
1551/1418	22	494.78	19.39	7.44	420.1	0.47	-79	0.66	
1609/1436	27	494.77	19.34	7.45	421.7	1.07	-75	0.53	
Values Prior to Sampling									
1436	27	494.77	19.34	7.45	421.7	1.07	-75	0.53	1.0 L/min

Field Alkalinity Result 176 mg/L as CaCO3

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

140705

Sample ID: GW 0195

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106065
Site / SWMU No.: 106
Date: 8/16/11
Weather: Sunny
Time: 0800
Field Crew: AT, AG
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/17/11

WELL OBSERVATIONS

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

Notes: VOC 10 in a B, set pump @ 496'

CALCULATIONS

(A) Depth to Well Bottom	509.2	ft
(B) Pre-Purge Depth to Water	492.91	ft
(C) Water Column Height (A-B)	16.09	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	16.41	gal
(F) Depth to Top of Screen	484.2	ft
(G) Depth to Bottom of Screen	509.2	ft
(H) Saturated Filter Pack Length (G –F, or B)	11.09	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07	

(J) Filter Pack Volume (H x I)	11.8	gal
(K) Min Purge Volume (E + J)	28.2	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R20661	
Turbidity Meter: Hach	2821	
Pump: Portable on file Bennett	on file	
Field Alkalinity: LaMotte	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
8/16/11 0908	0	492.91	19.15	7.06	616.6	1.07	18	4.40	1.76 l/m
0930	10	492.95	18.93	7.20	626.9	0.12	-34	4.26	
0952	20	492.95	18.88	7.25	692.9	00	-96	2.43	1.2 L/m
1011	25	492.92	18.96	7.26	701.3	0.01	-101	2.09	
1022	28	492.92	18.90	7.25	704.8	0.01	-102	1.84	
Values Prior to Sampling									
1022	28	492.92	18.90	7.25	704.8	0.01	-1.02	1.84	1.2 L/m

Field Alkalinity Result 200 mg/L as CaCO3

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

140705

GW0197

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106066
Site / SWMU No.: 106
Date: 8/15/11
Weather: Sunny
Time: 0800
Field Crew: AT, AG
Crew Signature: Antonio Jaylle
Review Signature: Amy Greenawald
Date Review: 8/15/2011

WELL OBSERVATIONS

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

Notes: VOC's Ø in WB, set pump @ 582.5'

CALCULATIONS

(A) Depth to Well Bottom	595.8	ft
(B) Pre-Purge Depth to Water	493.03	ft
(C) Water Column Height (A-B)	102.77	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	104.8	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: Insitu 9500	R22085	
Turbidity Meter: Hach	2821	
Pump: Bennett Portable	on file	
Field Alkalinity: Lar Motel	3467	

PURGING INFORMATION

Description first water purged: Clear, cloudy dark 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
8/15/11 0908	Ø	493.03	18.99	7.09	288.6	10.54	238	7.80	1.62 L/m
1018	30	493.29	18.87	7.64	273.1	13.18	221	14.1	cloudy, dark Brown
1128	60	493.29	18.94	7.67	269.5	13.53	216	2.97	
1238	90	493.28	19.02	7.69	267.4	14.21	205	1.37	
1250	~~110~~ 100	493.26	19.01	7.69	269.4	14.14	205	2.26	
1302	~~115~~ 105	493.24	18.99	7.71	275.7	14.16	205	1.67	
1321	~~121~~ 110	493.25	18.92	7.70	278.3	14.63	202	1.74	0.98 L/m
1340	115	493.24	18.80	7.71	269.8	14.44	202	1.10	
1403	121	493.24	18.83	7.70	272.8	14.79	203	1.11	
Values Prior to Sampling									
1403	121	493.24	18.83	7.70	272.8	14.79	203	1.11	0.98 L/m

Field Alkalinity Result 116 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*

GW 0198

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-3FF
Site / SWMU No.: 106
Weather: Sunny
Field Crew: AT/TN
Review Signature: Mark Lyon

Well ID No.: 106067
Date: ~~7/11/11~~ 7/12/11 (well)
Time: 0800
Crew Signature: Antonio Tapia
Date Review: 7/12/11

WELL OBSERVATIONS

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

Notes: VOCs 7.9 in well bore, set pump @ 5' 492'

CALCULATIONS

(A) Depth to Well Bottom	510.00 ft
(B) Pre-Purge Depth to Water	491.20 ft
(C) Water Column Height (A-B)	18.80 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	19.18 gal
(F) Depth to Top of Screen	485.00 ft
(G) Depth to Bottom of Screen	505.00 ft
(H) Saturated Filter Pack Length (G –F, or B)	13.80 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07,)	1.07

(J) Filter Pack Volume (H x I)	14.77 gal
(K) Min Purge Volume (E + J)	33.95 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In Situ U-50	R22885
Turbidity Meter: Hach	02821
Pump: Portable Bennett	on file
Field Alkalinity: La Motte	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
0913 7/11/11	0	491.51	19.37	7.41	725.6	1.38	183	2.25	1.54 L/min
0933	10	491.66	19.07	7.44	714.9	1.30	14	1.26	
0953	20	491.62	19.01	7.46	715.7	1.71	7	1.35	.98 L/min
1012 ~~1004~~ 1004 est	25	491.62	19.04	7.45	713.5	1.58	-1	1.06	.98 L/min
1029 ~~1015~~	30	491.62	19.08	7.45	716.3	1.65	-1	0.93	
1044	34	491.62	19.13	7.46	713.8	1.78	-8	0.93	
Values Prior to Sampling									
1044	34	491.62	19.13	7.46	713.8	1.78	-8	0.93	.98 L/min

Field Alkalinity Result 245 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.: 106068
Site / SWMU No.: 106
Date: 7/11/11
Weather: Sunny, Partly cloudy
Time: 0815
Field Crew: AT, TN
Crew Signature: Antonio Trujillo
Review Signature: Mark Jones
Date Review: 7/11/2011

WELL OBSERVATIONS

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

Notes: VOC's 23 in well bore, set pump @ 587'

CALCULATIONS

(A) Depth to Well Bottom	600.00 ft
(B) Pre-Purge Depth to Water	491.34 ft
(C) Water Column Height (A-B)	108.66 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	110.83 gal
(F) Depth to Top of Screen	580.00 ft
(G) Depth to Bottom of Screen	595.00 ft
(H) Saturated Filter Pack Length (G –F, or B)	15.00 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	126.88 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: 9500 YSI-Dnsltm	R22885
Turbidity Meter: Hach 2100	02821
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
7/11/11 10:16	Ø	491.63	19.94	7.85	320.9	12.19	-78	4.33	1.58L/min
1128	30	491.65	19.69	7.79	294.8	13.93	27	5.07	
1240	60	491.61	19.81	7.83	300.6	14.83	44	4.66	
1352	90	491.56	19.83	7.76	305.1	14.41	51	2.79	
1504	120	491.53	19.62	7.79	297.7	14.90	77	2.29	1.0L/m
1523	125	491.53	19.84	7.79	306.8	13.74	78	1.82	
1530	127	491.53	19.41	7.79	297.2	13.48	79	1.82	

Values Prior to Sampling

1530	127	491.53	19.41	7.79	297.2	13.48	79	1.82	1.0L/m

Field Alkalinity Result 110 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106069
Site / SWMU No.: 106
Date: 7/12/11
Weather: Sunny, Partly cloudy 90's
Time: 1230
Field Crew: AT, TN
Crew Signature: Ar Temple
Review Signature: [signature]
Date Review: 7-13-11

WELL OBSERVATIONS

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

Notes: VOC's 3.9 in well bore, Set pump @ 514'

CALCULATIONS

(A) Depth to Well Bottom	526.00 ft
(B) Pre-Purge Depth to Water	490.99 ft
(C) Water Column Height (A-B)	35.01 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	35.71 gal
(F) Depth to Top of Screen	506.00 ft
(G) Depth to Bottom of Screen	521.00 ft
(H) Saturated Filter Pack Length (G –F, or B)	15.00 ft
(I) Casing/~~Borehole~~ Factor 4/10 = 1.2, 5/10 = 1.07	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	51.76 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI 9500 Insta	R22885
Turbidity Meter: Hach	02821
Pump: Portable Burnett	on file
Field Alkalinity: Ca Mott	3467

PURGING INFORMATION

Description first water purged: light 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
7/12/11 1420	0	491.23	24.07	7.48	516.0	5.83	189	~~4.89~~ TN 49.8	1.8 L/min
1441	10	491.28	19.43	7.36	510.4	3.22	101	21.4	
1502	20	491.24	19.46	7.43	516.9	4.58	135	11.9	
1523	30	491.26	19.38	7.50	514.2	5.42	158	7.25	
1544	40	491.24	20.53	7.55	524.9	5.51	178	4.77	
1554 TO ~~1550~~ 1554	45	491.25	19.53	7.52	529.7	5.73	185	6.06	
1604 ~~1600~~ at	50	491.26	19.41	7.54	541.0	5.60	181	5.78	1 L/min
1623	55	491.22	19.69	7.54	528.0	5.72	184	5.02	
1631	57	491.22	19.95	7.55	534.9	5.72	187	5.22	
Values Prior to Sampling									
1631	57	491.22	19.95	7.55	534.9	5.72	187	5.22	1 L/m

Field Alkalinity Result ~~NM?? 7-13-11~~ 110 mg/L as $CaCO_3$ man for AT 7/14/11

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

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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.:** 106070

Site / SWMU No.: 106 **Date:** 7/14/11

Weather: partly cloudy **Time:** 0830

Field Crew: AT, JH **Crew Signature:**

Review Signature: Daniel Molina **Date Review:** 7/14/11

WELL OBSERVATIONS

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

Notes: VOC's 1.5 in well bore, set pump @ 470'

CALCULATIONS

(A) Depth to Well Bottom	485	ft
(B) Pre-Purge Depth to Water	463.52	ft
(C) Water Column Height (A-B)	21.48	ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	21.9	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)	16.48	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07	

(J) Filter Pack Volume (H x I)	17.6	gal
(K) Min Purge Volume (E + J)	40	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter 9500 Hydrolab	D22885	
Turbidity Meter Hach 2100	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
7/14/11 0929	0	463.52	21.85	7.65	537.1	6.37	253	1.58	1.64 L/m
0952	10	463.61	19.48	7.46	521.8	2.25	61	1.24	
1016	20	463.61	19.36	7.46	524.3	1.99	52	0.93	
1040	30	463.59	19.69	7.45	525.3	1.77	48	0.60	1.0 L/m
1059	35	463.57	19.62	7.50	519.4	3.30	55	0.53	
1118	40	463.58	19.47	7.48	517.0	2.19	58	0.40	
Values Prior to Sampling									
1118	40	463.58	19.47	7.48	517.0	2.19	58	0.40	1.04 L/m

Field Alkalinity Result 151 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.: 106072
Site / SWMU No.: 106
Date: 7/13/11
Weather: Sunny 90's
Time: 0830
Field Crew: AT TW
Crew Signature: Anton Jelle
Review Signature: Mark Lyon
Date Review: 7/14/11

WELL OBSERVATIONS

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

Notes: VOC's Ø in well bore / Set pump @ 555'

CALCULATIONS

(A) Depth to Well Bottom	568	ft
(B) Pre-Purge Depth to Water	465.75	ft
(C) Water Column Height (A-B)	102.25	ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	104.30	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, _____	1.07	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	120.35	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 clarke	R22885	
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
7/13/11 1156	Ø	465.75	24.12	7.51	349.5	8.27	231	10.6	1.77 L/m
1301 ~~1301~~ at	30	465.77	19.73	7.57	331.5	11.18	278	4.98	
1406 ~~1306~~ at	60	465.74	19.89	7.61	330.8	10.76	288	3.18	
1511 ~~1411~~ at	90	465.70	19.83	7.63	329.8	10.19	319	1.52	
1554 ~~1484~~ at	110	465.66	19.85	7.64	325.1	10.00	314	0.63	1L/min
1613	115	465.67	20.22	7.66	326.4	10.31	314	0.68	
1632	120	465.66	20.24	7.68	328.2	8.91	328.7	0.83	
	120								
Values Prior to Sampling									
1632	120	465.66	20.24	7.68	328.2	8.91	328.7	0.82	1L/m

Field Alkalinity Result 145 Mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106072
Site / SWMU No.: 106
Date: ~~7/13/11~~ at 7/14/11
Weather: Partly cloudy
Time: 1230
Field Crew: AT TW
Crew Signature: Anthony Trujillo
Review Signature:
Date Review: 7/15/11

WELL OBSERVATIONS

Protective Casing / Vault: - (Intact) - Damaged - Locked: (Yes) - No Well ID Mark: (Yes) - No
Notes: VOC's 7.7 in well bore, set pump @ 485'

CALCULATIONS

(A) Depth to Well Bottom	500	ft
(B) Pre-Purge Depth to Water	463.92	ft
(C) Water Column Height (A-B)	36.08	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	36.8	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 = (1.07)	1.07	

(J) Filter Pack Volume (H x I)	21.4	gal
(K) Min Purge Volume (E + J)	58	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insite	R22835	
Turbidity Meter: Hach 2100	2821	
Pump: Portable Bennett	on fill	
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
7/14/11 1355 (1)	0	463.92	21.02	7.47	520.0	4.17	226	1.20	~~1.6 L/min~~ 1.76 L/min
1417 ~~1419~~ (2)	10	464.03	1965	7.45	514.4	3.00	205	0.64	
1439 ~~1443~~ (3)	20	464.01	19.51	7.45	511.3	3.70	195	0.59	
1501 ~~1503~~ (4)	30	464.02	19.38	7.47	499.5	4.13	192	0.68	
1523 ~~1527~~ (5)	40	464.01	19.49	7.48	511.8	4.49	187	0.60	
1545 -	50	463.96	19.92	7.49	452.2	4.86	188	0.77	1.1 L/min
1604 -	55	463.95	19.58	7.48	445.1	4.69	188	0.53	
(10) ~~1623~~ 1615 -	58	463.95	19.72	7.48	441.5	4.67	187	0.51	
Values Prior to Sampling									
1615	58	463.95	19.72	7.48	441.5	4.67	187	0.51	1.1 L/m

Field Alkalinity Result 171 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.:** 106073

Site / SWMU No.: 106 **Date:** 7/22/11

Weather: Sunny **Time:** 1200

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

Review Signature: **Date Review:** 7/22/11

WELL OBSERVATIONS

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

Notes: VOCs Set pump @ 507 Ft

CALCULATIONS

(A) Depth to Well Bottom	519.5	ft
(B) Pre-Purge Depth to Water	483.68	ft
(C) Water Column Height (A-B)	35.82	ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	36.5	gal
(F) Depth to Top of Screen	500	ft
(G) Depth to Bottom of Screen	514.5	ft
(H) Saturated Filter Pack Length (G – F or B)	14.5	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)	52	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In situ U-50	R22885	
Turbidity Meter: Hach	2821	
Pump: Portable Bennett	on-site	
Field Alkalinity: LaMotte	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
7/22/11 1224	10	483.68	25.18	7.79	307.0	9.03	268	1.56	1.6 L/min
1247	~~20~~ 10	483.70	19.64	7.74	306.5	11.30	276	2.11	
1311	~~30~~ 20	483.72	19.46	7.74	294.6	11.20	275	1.62	
1334	30	483.71	19.49	7.74	295.9	11.23	273	1.00	
1357	40	483.70	19.44	7.74	294.3	11.42	270	1.01	
1416	45	483.67	19.62	7.74	298.0	10.74	271	0.83	1.0 L/m
1435	50	483.66	19.65	7.74	298.5	10.69	273	1.08	
1443	52	483.67	19.60	7.74	301.1	10.92	273	0.92	
Values Prior to Sampling									
1443	52	483.67	19.60	7.74	301.1	10.92	273	0.92	1.0 L/m

Field Alkalinity Result 150 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.:** 106074

Site / SWMU No.: 106 **Date:** 7/25/11

Weather: Sunny **Time:** 930

Field Crew: AT TN **Crew Signature:** Tim Nagy

Review Signature: [signature] **Date Review:** 7/25/11

WELL OBSERVATIONS

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

Notes: VOCOD set Pump at 577'

CALCULATIONS

(A) Depth to Well Bottom	589.5	ft	
(B) Pre-Purge Depth to Water	484.52	ft	
(C) Water Column Height (A-B)	104.98	ft	
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02		
(E) One Well Casing Volume (C x D):	107.07	gal	
(F) Depth to Top of Screen	570	ft	
(G) Depth to Bottom of Screen	584.5	ft	
(H) Saturated Filter Pack Length (G – F or B)	14.5	ft	
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.07		

(J) Filter Pack Volume (H x I)	15.51	gal
(K) Min Purge Volume (E + J)	121	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter In Situ ~~R22885~~ TN	R22885	
Turbidity Meter Hach ~~2100P~~ TN	2821 ~~2100P~~	
Pump portable Bennett	on file	
Field Alkalinity La Motte ~~3467~~ TN	3467	

PURGING INFORMATION

Description first water purged: clear, 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
7/25/11 946	0	484.71	19.56	7.73	1123	11.23	231	1.80	1.6 L/min
1054	30	484.76	19.49	7.78	1119	14.32	266	2.02	
1208	60	484.74	19.55	7.79	1113	14.48	279	1.60	
1310	90	484.71	19.32	7.80	1111	1482	302	0.57	
1355	110	484.69	19.35	7.81	1099	14.95	305	0.70	
1414	115	484.67	19.40	7.81	1111	16.32	308	0.67	1.6 L/min
1433	120	484.66	19.47	7.82	1066	15.93	310	0.75	
1437	121	484.66	19.45	7.82	1104	14.51	311	0.74	
Values Prior to Sampling									
1437	121	484.66	19.45	7.82	1104	14.51	311	0.74	1.0 L/min

Field Alkalinity Result 108 mg/L as $CaCO_3$ GW026-7

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*

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:** 7/22/11

Weather: partly cloudy **Time:** 0815

Field Crew: AJ, JH **Crew Signature:** Anthony Jaquez

Review Signature: [signature] **Date Review:** 7/22/11

WELL OBSERVATIONS

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

Notes: VOC's @ well bore set pump @ 490'

CALCULATIONS

(A) Depth to Well Bottom	505 ft	(J) Filter Pack Volume (H x I)	16.67 gal
(B) Pre-Purge Depth to Water	484.46 ft	(K) Min Purge Volume (E + J)	37 gal
(C) Water Column Height (A-B)	20.54 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: Insitu 5500	R22885
(E) One Well Casing Volume (C x D):	20.95 gal	Turbidity Meter: Hach	2821
(F) Depth to Top of Screen	480 ft	Pump: Portable Bennett	on file
(G) Depth to Bottom of Screen	505 ft	Field Alkalinity: La Motte	3467
(H) Saturated Filter Pack Length (G –F, or B)	15.54 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
7/22/11 0907	0	484.46	21.90	7.52	422.4	5.78	236	1.41	1.60 L/m
0931	10	484.53	19.17	7.46	421.1	3.71	243	1.24	
0955	20	484.53	19.19	7.46	448.6	3.21	233	1.14	
1007	25	484.53	19.09	7.46	459.7	3.06	227	0.86	
1026	30	484.51	19.21	7.47	470.7	2.96	224	0.97	1.0 L/m
1045	35	484.51	19.19	7.47	476.7	3.00	224	0.85	
1053	37	484.51	19.32	7.47	478.6	2.98	225	0.91	
Values Prior to Sampling									
1053	37	484.51	19.32	7.47	478.6	2.98	225	0.91	1.0 L/m

Field Alkalinity Result 164 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.: 106076
Site / SWMU No.: 106
Date: 9-29-11
Weather: Sunny 80s
Time: 0807
Field Crew: DA, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 9/29/11

WELL OBSERVATIONS

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

Notes: VOCs 0.6 in B.H. 488.44 - 489.87
Set pump to 488.5 w/ 5 ft. extension

CALCULATIONS

(A) Depth to Well Bottom	505 ft
(B) Pre-Purge Depth to Water	489.87 ft
(C) Water Column Height (A-B)	15.13 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	15.44 gal
(F) Depth to Top of Screen	480 ft
(G) Depth to Bottom of Screen	500 ~~480~~ ft
(H) Saturated Filter Pack Length (G –F, or B)	~~B~~ 10.13 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07

(J) Filter Pack Volume (H x I)	10.84 gal
(K) Min Purge Volume (E + J)	28 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Ion Site 9500	R20661
Turbidity Meter: HACH 2100P	02818
Pump: portable bennett	on file
Field Alkalinity: La Motte	3467#4

PURGING INFORMATION

Description first water purged: Gray brown, 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
9-29-11 0900	0	489.87	18.91	6.71	723.1	6.62	201	56.6	1.28L/min
0924	8	489.92	19.37	7.02	682.0	1.86	180	7.01	
0939	13	489.92	19.39	7.06	682.7	1.89	164	6.54	
0958	18	489.90	19.46	7.11	672.6	2.03	159	6.61	1.0L/min
1017	23	489.89	19.54	7.15	635.7	1.85	150	4.52	
1036	28	489.88	19.58	7.17	620.8	1.58	139	3.15	
Values Prior to Sampling									
1036	28	489.88	19.58	7.17	620.8	1.58	139	3.15	1.0L/min

Field Alkalinity Result 314 mg/L as $CaCO_3$ **Sample ID:** GW0210

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

140705

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106077
Site / SWMU No.: 106
Date: 9/6/11
Weather: Sunny 80's
Time: 0814
Field Crew: [illegible]
Crew Signature: [illegible]
Review Signature: [illegible]
Date Review: 9/6/11

WELL OBSERVATIONS

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

Notes: VOCs 1.6 in borehole Ø in BZ

CALCULATIONS

(A) Depth to Well Bottom	524 ft
(B) Pre-Purge Depth to Water	489.77 ft
(C) Water Column Height (A-B)	34.23 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	34.92 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)	~~50.28~~ 51 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Un Site 9500	R22831
Turbidity Meter: HACH 2100P	R02818
Pump: dedicated	on file
Field Alkalinity: La Motte	3467#4

PURGING INFORMATION

Description first water purged: Clear, 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
9-6-11 0849	Ø	489.77	19.65	7.29	332.6	5.97	173	3.24	3.0L/min
0915	20	489.86	19.34	7.69	322.3	7.03	140	1.42	
0928	30	489.86	19.41	7.71	324.2	6.83	135	0.62	
0935	36	489.87	19.48	7.71	325.7	6.76	134	0.61	
0953	41	489.83	19.92	7.70	323.7	6.50	152	0.45	1.0L/min
1011	46	489.80	20.06	7.71	331.7	6.45	164	0.39	
1029	51	489.79	20.18	7.68	328.7	6.41	171	0.40	

Values Prior to Sampling

1029	51	489.79	20.18	7.68	328.7	6.41	171	0.40	

Field Alkalinity Result 124 mg/L as $CaCO_3$

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

140705

Sample ID:

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: 8/26/11
Weather: Sunny
Time: 0800
Field Crew: AG, AT
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8-26-2011

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	593.5	ft
(B) Pre-Purge Depth to Water	488.95	ft
(C) Water Column Height (A-B)	104.55	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	106.6	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	
	16.05	

(J) Filter Pack Volume (H x I)	16.05	gal
(K) Min Purge Volume (E + J)	123	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 4500	R22661	
Turbidity Meter: Hach	2821	
Pump: dedicated bundle	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
8/26/11 0923	Ø	488.95	19.72	7.29	260.3	7.56	216	8.43	3.2 L/m
0959 0934 at	30	489.03	19.53	7.77	246.0	8.13	185	7.21	
1035 1015 at	60	489.04	19.55	7.77	257.0	8.34	183	2.45	
1111 1051 at	90	489.03	19.57	7.78	257.8	8.24	178	2.51	
1135 1115 at	110	489.03	19.56	7.78	246.9	8.37	176	1.30	
1254	115	488.96	20.11	7.79	250.1	5.95	181	1.18	.96 L/m
1213	120	488.94	20.27	7.79	254.2	5.91	181	1.17	
1224	123	488.94	20.27	7.79	254.2	5.91	181	1.17	
Values Prior to Sampling									
1224	123	488.94	20.27	7.79	254.2	5.91	181	1.17	.96 L/m

Field Alkalinity Result 98 mg/L Calcs

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
Well ID No.: 106079
Site / SWMU No.: 106
Date: 7-22-11
Weather: Sunny 90's
Time: 1118
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 7-22-11

WELL OBSERVATIONS

Protective Casing / Vault: (Intact) - Damaged -
Locked: (Yes) - No
Well ID Mark: (Yes) - No
Notes: VOC's 0 in well bore

CALCULATIONS

(A) Depth to Well Bottom	509.46 ft
(B) Pre-Purge Depth to Water	493.91 ft
(C) Water Column Height (A-B)	16.54 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	16.88 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)	19 ft
(I) Casing/~~Borehole Factor~~ 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	20.33 gal
(K) Min Purge Volume (E + J)	38 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Sonde 9500	K22831
Turbidity Meter: HACH 2100P	02818
Pump: dedicated bennette	on file
Field Alkalinity: La Motte	3467#4

PURGING INFORMATION

Description first water purged: Clear brown w/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
7-22-11 1143	0	493.11	19.22	7.51	663.7	6.35	121	2.10	2.82 L/min
1201	13	493.21	19.36	7.07	876.6	0.04	-70	1.92	
1215	23	493.21	19.39	7.07	875.3	0.01	-63	1.98	
1235	28	493.16	19.61	7.09	833.2	0.07	-70	1.17	0.94 L/min
1255	33	493.16	19.63	7.07	868.5	0.06	-68	1.35	
1315	38	493.16	19.71	7.06	875.2	0.04	-68	1.36	
Values Prior to Sampling									
1315	38	493.16	19.71	7.06	875.2	0.04	-68	1.36	0.94 L/min

Field Alkalinity Result 298 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.: 106080
Site / SWMU No.: 106
Date: 7-22-11
Weather: Sunny 90's
Time: 0750
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 7-22-11

WELL OBSERVATIONS

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

Notes: VOCs Ø BZ 1.5 In Well bore

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	491.74 ft	(K) Min Purge Volume (E + J)	49 gal
(C) Water Column Height (A-B)	31.64 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):	32.28 gal	Turbidity Meter: HACH 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	4367#4
(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 Grey w/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
7/22/11 0847	Ø	491.74	17.93	7.25	1075	7.25	188	2.49	2.74L/min
0906	14	491.80	19.38	6.88	1055	0.09	-65	1.24	
0920	24	491.80	19.30	6.89	1072	0.04	-55	1.19	
0933	34	491.80	19.36	6.91	884.6	0.02	-54	1.47	
0950	39	491.76	19.74	6.92	1107	0.06	-62	1.88	1.06L/min
1010	44	491.76	19.55	6.92	1080	0.10	-60	1.43	
1030	49	491.76	19.66	6.93	1035	0.06	-59	1.44	
Values Prior to Sampling									
1030	49	491.76	19.66	6.93	1035	0.06	-59	1.44	1.0 L/min

Field Alkalinity Result 269 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.:** 106081

Site / SWMU No.: 106 **Date:** 8-17-11

Weather: ~~Sunny~~ Cloudy 80's **Time:** 0813

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

Review Signature: [signature] **Date Review:** 8/17/11

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	594.76 ft
(B) Pre-Purge Depth to Water	493.58 ft
(C) Water Column Height (A-B)	101.18 ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~103.25~~ 1.02
(E) One Well Casing Volume (C x D):	103.25 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)	14.04 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07

(J) Filter Pack Volume (H x I)	15.03 gal
(K) Min Purge Volume (E + J)	117 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#4

PURGING INFORMATION

Description first water purged: Clear, 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
8-17-11 0844	0	493.58	17.81	7.73	310.9	7.75	239	0.35	3.6L/min
0916	30	493.79	19.41	7.70	303.5	4.98	123	1.71	
0947	60	493.79	19.43	7.72	297.0	6.03	131	1.78	
1019	90	493.79	19.51	7.74	295.1	6.71	135	0.93	
1032	102	493.79	19.54	7.76	290.2	6.81	136	0.78	
1051	107	493.68	19.54	7.77	295.5	5.29	151	1.08	1.0L/min
1109	112	493.68	19.48	7.76	294.9	5.32	160	0.97	
1128	117	493.67	19.61	7.76	385.3	5.31	166	0.90	
Values Prior to Sampling									
1128	117	493.67	19.61	7.76	385.3	5.31	166	0.90	1.0L/min

Field Alkalinity Result 91 mg/L as $CaCO_3$

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

140705

Sample ID: EW0215

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:** 7/7/11

Weather: Sunny 90's **Time:** 0830

Field Crew: AT, TN **Crew Signature:**

Review Signature: **Date Review:** 7/7/11

WELL OBSERVATIONS

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

Notes: VOC's 4.2 ppm, set pump @ 482'

CALCULATIONS

(A) Depth to Well Bottom	497.20 ft
(B) Pre-Purge Depth to Water	479.03 ft
(C) Water Column Height (A-B)	18.17 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	18.53 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)	12.97 ft
(I) Casing/Borehole Factor 4/10 = 1.2, (5/10 = 1.07)	1.07

(J) Filter Pack Volume (H x I)	13.9 gal
(K) Min Purge Volume (E + J)	32 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Ins. tq 5500	R 22885
Turbidity Meter: Hach 2100	2821
Pump: Portable Bennett	on Fuels
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged: clear slight 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
7/7/11 0950	0	479.41	19.52	9.72	529.4	2.84	76	2.68	1.7 L/min
7/7/11 1002	5	479.46	19.17	9.87	530.8	1.89	7	1.76	
7/7/11 1011	10	479.50	19.22	10.04	524.1	1.09	-50	1.41	
7/7/11 1022	15	479.51	19.13	10.56	516.9	0.85	-78	1.49	
7/7/11 1033	20	479.51	19.12	10.95	513.2	0.61	-90	1.04	
1048	25	479.47	19.44	11.26	512.8	0.53	-101	0.79	1.0 L/min
1107	30	479.47	19.40	11.31	508.4	0.54	-110	0.74	
1114	32	479.47	19.51	11.28	506.3	0.54	-111	0.62	
Values Prior to Sampling									
1114	32	479.47	19.51	11.28	506.3	0.54	-111	0.62	1.0 L/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 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.: 106
Date: 7/7/11
Weather: Sunny 90's
Time: 1300
Field Crew: AT JTN
Crew Signature: [signature]
Review Signature: Mark Lyon
Date Review: 7/7/11

WELL OBSERVATIONS

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

Notes: VOC's Ø, pump set @ 502'

CALCULATIONS

(A) Depth to Well Bottom	515.65 ft
(B) Pre-Purge Depth to Water	478.91 ft
(C) Water Column Height (A-B)	36.74 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	37.5 gal
(F) Depth to Top of Screen	495.45 ft
(G) Depth to Bottom of Screen	510.45 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)	53.55 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: In situ 9500	R22885
Turbidity Meter: Hach 2160	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
7/7/11 1330	0.	479.17	24.39	10.35	388.8	7.59	-27	0.73	1.7L/min
1348	10.	479.18	19.76	11.71	418.2	8.78	25	0.58	
1406	20.	479.23	19.76	11.70	434.0	8.82	39	0.50	
1424	30.	479.22	19.48	11.66	437.0	8.97	46	0.55	
1442	40.	479.21	19.58	11.58	392.1	8.86	54	0.51	
1505	45	479.18	20.00	11.67	358.2	8.39	58	0.75	0.98 L/min
1524	50	479.18	20.01	11.66	369.4	8.22	63	0.52	
1540	54	479.17	20.21	11.64	385.8	8.53	66	0.52	
Values Prior to Sampling									
1540	54	479.17	20.21	11.64	385.8	8.53	66	0.52	0.98 L/min

Field Alkalinity Result 124 mg/L as $CaCO_3$

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

140705

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: 7/8/11
Weather: Sunny 90's
Time: 0830
Field Crew: AT TW
Crew Signature: [signature]
Review Signature: Mark [signature]
Date Review: 7-8-11

WELL OBSERVATIONS

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

Notes: VOC's Ø in well bore, set pump @ 574'

CALCULATIONS

(A) Depth to Well Bottom	585.75 ft
(B) Pre-Purge Depth to Water	478.25 ft
(C) Water Column Height (A-B)	107.50 ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02
(E) One Well Casing Volume (C x D):	109.65 gal
(F) Depth to Top of Screen	566.00 ft
(G) Depth to Bottom of Screen	581.00 ft
(H) Saturated Filter Pack Length (G –F, or B)	15.00 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07,	1.07

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	125.70 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI 9500 Dronta	R22885
Turbidity Meter: Hach 2100	02821
Pump: Portable Bennett	on file
Field Alkalinity: LaMotte	3467

PURGING INFORMATION

Description first water purged: silty

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
7/8/11 1014	Ø	478.54	24.12	12.34	300.7	11.16	217	5.48	1.72 L/min
1120	30	478.61	19.69	11.18	271.9	14.58	258	3.69	
1226	60	478.59	19.94	11.29	288.4	14.52	80	2.14	
1332	90	478.54	19.52	11.14	260.9	15.35	76	1.70	
1416	110	478.54	19.66	11.11	297.5	14.20	96	1.04	
1435	115	478.50	19.76	7.85	292.4	12.88	158	1.06	1.00 L/min
1454	120	478.48	19.85	7.34	281.5	12.56	177	0.84	
1516	126	478.48	20.02	7.84	285.6	12.22	195	0.71	
Values Prior to Sampling									
1516	126	478.48	20.02	7.84	285.6	12.22	195	0.71	1.0 L/min

Field Alkalinity Result 131 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106085

Site / SWMU No.: 106 **Date:** 8-31-2011

Weather: PARTLY CLOUDY **Time:** 1438

Field Crew: AG RB **Crew Signature:**

Review Signature: **Date Review:** 8-31-2011

WELL OBSERVATIONS

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

Notes: Pump @ 468'

CALCULATIONS

(A) Depth to Well Bottom	481.51 ft
(B) Pre-Purge Depth to Water	462.57 ft
(C) Water Column Height (A-B)	18.94 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	~~19.31~~ RSB
(E) One Well Casing Volume (C x D):	19.31 gal
(F) Depth to Top of Screen	446.5 ft
(G) Depth to Bottom of Screen	476.5 ft
(H) Saturated Filter Pack Length (G –F, or B)	13.93 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, ____	

(J) Filter Pack Volume (H x I)	14.90 gal
(K) Min Purge Volume (E + J)	34.21 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Insitu Troll	219432
Turbidity Meter: Hach	2100P
Pump: Bennett Portable	
Field Alkalinity: Lamotte	#3

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
~~1438~~	0	462.60	24.93	7.42	468.3	3.96	210	not taken	1.4 lpm
1445	9.8	462.60	20.73	7.49	461.5	2.72	199	2.43	Restart Pump to PC
1507	~~20~~	462.63	20.14	7.47	458.6	2.53	191	2.28	lost water.
1520	25	462.64	~~19.66~~ 16.6	7.51	457.6	2.12	166	1.70	resumed
1533 ~~1546~~	30	462.64	19.49	7.52	457.7	2.09	160	1.40	1 lpm
1546 ~~1606~~ ~~1546~~	35	462.62	20.11	7.51	458.6	2.25	156	1.43	
Values Prior to Sampling									
1546	35	462.62	20.11	7.51	458.6	2.25	156	1.43	1 lpm

Field Alkalinity Result 115 by $CaCO_3$

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.: KAFB 106086
Site / SWMU No.: 106
Date: 8/31/11
Weather: Ptly Cldy
Time: 0952
Field Crew: RB AG
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8-31-2011

WELL OBSERVATIONS

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

Notes: Pump to 483',

CALCULATIONS

(A) Depth to Well Bottom	490 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	463.05 ft	(K) Min Purge Volume (E + J)	49.65 gal
(C) Water Column Height (A-B)	32.95 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02		Parameter Meter Insitu	21432 Troll 9500
(E) One Well Casing Volume (C x D):	33.60 gal	Turbidity Meter Hach	2100P
(F) Depth to Top of Screen	476 ft	Pump Portable Bennett	186075
(G) Depth to Bottom of Screen	491 ft	Field Alkalinity Lamotte	#3
(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 Groundwater (Ft)	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0952	0	463.12	20.10	7.23	380	5.29	238	1.61	1720 ml/min 1.7 D
1012	10	463.14	19.25	7.54	357.9	6.41	209	1.28	1.7 D
1034	20	463.15	19.25	7.55	344.4	6.35	193	1.62	
1056	30	463.15	19.22	7.56	359.2	6.23	183	1.45	
1118	40	463.15	19.31	7.57	369.2	6.79	173	1.04	
1129	45	463.15	19.37	7.57	350.6	6.93	167	1.21	1 Lpm *
1148	50	463.15	19.66	7.56	348.7	6.20	166	1.21	
Values Prior to Sampling									
1148	50	463.15	19.66	7.56	348.7	6.20	166	1.21	1 Lpm

Field Alkalinity Result 130 as $CaCO_3$ mg/L

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.:** 106087

Site / SWMU No.: 106 **Date:** 8-29-11

Weather: Sunny 90s **Time:** 0827

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

Review Signature: **Date Review:** 8/29/2011

WELL OBSERVATIONS

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

Notes: VOCs @ Set pump @ 551 ft.

CALCULATIONS

(A) Depth to Well Bottom	565.5 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	462.26 ft	(K) Min Purge Volume (E + J)	122 gal
(C) Water Column Height (A-B)	103.24 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter: Horiba U-22	RZ2831
(E) One Well Casing Volume (~~C x D~~):	105.31 gal	Turbidity Meter: HACH 2100P	02818
(F) Depth to Top of Screen	546.0 ft	Pump: portable bennett	on file
(G) Depth to Bottom of Screen	561.0 ft	Field Alkalinity: La Motte	3467-4
(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
8-29-11 0919	0	462.26	21.59	7.23	310.0	6.97	217	2.79	1.68L/min
1027	30	462.34	19.83	7.67	290.2	8.24	207	1.47	
1134	60	462.38	19.96	7.75	289.5	8.80	227	0.88	
1242	90	462.38	20.35	7.79	291.8	8.82	273	0.77	
1320	107	462.38	19.98	7.80	293.9	8.78	307	0.98	
1338	112	462.36	20.26	7.79	291.5	8.82	319	0.93	1.0L/min
1356	117	462.34	20.24	7.79	291.3	8.73	322	0.73	
1414	122	462.32	20.34	7.79	290.1	8.69	322	1.05	
Values Prior to Sampling									
1414	122	462.32	20.34	7.79	290.1	8.69	322	1.05	1.0L/min

Field Alkalinity Result 100 mg/L as CaCO3

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

140705

Sample ID:

Shaw™ Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106088
Site / SWMU No.: 106
Date: 8/2/11
Weather: Sunny
Time: 0800
Field Crew: AT, TN
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/2/11

WELL OBSERVATIONS

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

Notes: VOC Ø Ø in WB, set pump @ 473'
Lec 6

CALCULATIONS

(A) Depth to Well Bottom	485	ft
(B) Pre-Purge Depth to Water	469.35	ft
(C) Water Column Height (A-B)	15.65	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02 ~~15.96~~ at	
(E) One Well Casing Volume (C x D):	15.96	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)	10.65	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	11.39	

(J) Filter Pack Volume (H x I)	11.39	gal
(K) Min Purge Volume (E + J)	27.35	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R 22885	
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
8/2/11 0913	Ø	469.35	20.43	7.73	352.3	7.69	261	3.02	1.48 L/min
0926	5	469.42	19.26	7.79	347.9	8.00	250	3.46	
0939	10	469.41	19.17	7.79	350.9	8.12	247	3.39	
0952	15	469.41	19.10	7.79	352.6	8.25	245	2.17	
1011 ~~1005~~ at	20	469.39	19.21	7.78	353.5	8.20	245	1.44	1.0 L/min
1030	25	469.39	19.24	7.78	354.9	8.26	244	1.13	
1041	27	469.38	19.20	7.78	355.3	8.46	243	1.05	
Values Prior to Sampling									
1041	27	469.38	19.20	7.78	355.3	8.46	243	1.05	1.0 L/min

Field Alkalinity Result 148 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106089

Site / SWMU No.: 106 **Date:** 8/2/11

Weather: Sunny **Time:** 1200

Field Crew: AT, TW **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 8/3/11

WELL OBSERVATIONS

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

Notes: VOC's ∅ in WB Set pump @ 488'

CALCULATIONS

(A) Depth to Well Bottom	501.5	ft
(B) Pre-Purge Depth to Water	469.03	ft
(C) Water Column Height (A-B)	32.47	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	33.11	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)	49.16	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
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
8/2/11 1234	∅	469.03	25.55	7.85	351.4	7.86	200	2.85	1.50 L/m
1259	10	n/m	19.45	7.76	341.4	7.76	288	1.14	
1324	20	469.18	19.55	7.75	337.8	9.34	297	1.05	
1349	30	469.21	19.30	7.73	336.5	9.59	307	1.06	
1402	35	469.21	19.34	7.74	335.9	9.50	305	0.97	
1421	40	469.18	19.46	7.74	330.8	8.95	302	0.66	1.0 L/min
1440	45	469.17	19.41	7.74	336.8	9.08	293	0.60	
1455	49	469.16	19.44	7.74	337.2	9.32	291	0.48	
Values Prior to Sampling									
1455	49	469.16	19.44	7.74	337.2	9.32	291	0.48	1.0 L/min

Field Alkalinity Result 158 Mg/L as CaCO3

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 1060090

Site / SWMU No.: 106 **Date:** 8/1/11

Weather: Sunny **Time:** 0800

Field Crew: AN, TN **Crew Signature:**

Review Signature: **Date Review:** 8/2/11

WELL OBSERVATIONS

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

Notes: VOC's Ø in well bore, Set pump @ 562'

CALCULATIONS

(A) Depth to Well Bottom	575	ft
(B) Pre-Purge Depth to Water	468.04	ft
(C) Water Column Height (A-B)	106.96	ft
(D) Casing Factor: 4"=0.65 (6"=1.02)	1.02	
(E) One Well Casing Volume (C x D):	109	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)	125	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Ysi 556	R22885	
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
8/1/11 09:12	Ø	468.04	19.97	7.78	281.5	11.29	279	1.07	1.62 L/min
1022	30	468.08	19.44	7.76	269.6	15.46	290	2.74	
1132	60	468.07	19.55	7.78	274.2	15.49	292	4.76	
1242	90	468.06	19.69	7.78	274.7	15.82	296	2.73	
1328	120	468.03	19.69	7.80	282.4	15.07	295	1.92	
1347	115	468.03	19.96	2.80	278.1	14.14	305	1.34	1L/min
1406	120	467.99	20.00	7.80	280.7	14.12	310	1.50	
1425	125	467.99	20.07	7.81	277.7	14.17	314	1.79	
Values Prior to Sampling									
1425	125	467.99	20.07	7.81	277.7	14.17	314	1.79	1L/min

Field Alkalinity Result 122 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106091
Site / SWMU No.: 106
Date: 8/4/11
Weather: Sunny
Time: 12:30
Field Crew: AT, DM
Crew Signature: [signature]
Review Signature: Mark Jyan
Date Review: 8/5/2011

WELL OBSERVATIONS

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

Notes: VOC's Ø in well bore, pump set @ 464'

CALCULATIONS

(A) Depth to Well Bottom	479	ft
(B) Pre-Purge Depth to Water	459.91	ft
(C) Water Column Height (A-B)	19.09	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	19.47	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)	14.09	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07	1.07	

(J) Filter Pack Volume (H x I)	15.07	gal
(K) Min Purge Volume (E + J)	35	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
Turbidity Meter: Hach	2821	
Pump: Bennett Portable	on file	
Field Alkalinity: Lee 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
8/4/11 1314	Ø	459.91	24.24	7.71	430.7	7.09	323	2.32	1.73 L/m
1336	10	459.96	19.58	7.65	414.1	7.55	319	1.34	
1358	20	459.96	19.50	7.66	402.9	7.68	311	1.07	
1418	25	459.93	19.94	7.67	401.1	7.59	308	0.81	0.97 L/m
1438	30	459.93	20.00	7.67	396.2	7.45	309	0.91	
1458	35	459.92	19.95	7.67	390.6	7.82	312	0.70	

Values Prior to Sampling

1458	35	459.92	19.95	7.65	391.3	7.50	312	0.70	0.97 L/m

Field Alkalinity Result 177 Mg/L as $CaCO_3$

GW0224

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.: 106092
Site / SWMU No.: 106
Date: ~~0800~~ 8/4/11
Weather: Sunny
Time: 0800
Field Crew: AT, TN, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/4/11

WELL OBSERVATIONS

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

Notes: VOC' Ø in WB, set pump @ 482'

CALCULATIONS

(A) Depth to Well Bottom	493	ft
(B) Pre-Purge Depth to Water	460.12	ft
(C) Water Column Height (A-B)	32.88	ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~3~~ 1.02	
(E) One Well Casing Volume (C x D):	33.5	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	1.07	

(J) Filter Pack Volume (H x I)	13.91	gal
(K) Min Purge Volume (E + J)	47.41	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
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
8/4/11 0932	Ø	460.12	20.48	7.61	403.6	7.74	185	4.26	1.87 L/m
0952	10	460.19	19.30	7.58	407.7	7.58	193	3.14	
1012	20	460.21	19.25	7.59	394.5	8.60	200	2.33	
1032	30	460.20	19.24	7.60	372.5	8.90	201	1.27	
1042	35	460.21	19.22	7.61	372.3	8.71	202	1.34	
1101	40	460.17	19.50	7.61	366.0	8.52	206	1.22	0.98 L/m
1120	45	460.19	19.61	7.62	377.2	8.48	209	1.10	
1128	47	460.20	19.67	7.62	383.0	8.37	210	1.13	
Values Prior to Sampling									
1128	47	460.20	19.67	7.62	383.0	8.37	210	1.13	0.98 L/m

Field Alkalinity Result 123 Mg/L as $CaCO_3$

GW0227

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.:** 106093

Site / SWMU No.: 106 **Date:** 08:30 8/3/17

Weather: Sunny **Time:** 08:30

Field Crew: MTH **Crew Signature:**

Review Signature: **Date Review:** 8/4/17

WELL OBSERVATIONS

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

Notes: VOC's in WB, set pump @ 550'

CALCULATIONS

(A) Depth to Well Bottom	563.23 ft
(B) Pre-Purge Depth to Water	460.11 ft
(C) Water Column Height (A-B)	103.12 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	105.18 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)	1.07

(J) Filter Pack Volume (H x I)	13.91 gal
(K) Min Purge Volume (E + J)	117.03 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Insitu 950	K22805
Turbidity Meter: Hach	2821
Pump: Bennett Portable	on fuel
Field Alkalinity: La Motte	3467

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
8/3/17 1025	0	460.11	25.03	7.68	323.6	8.79	238	1.81	1.70 L/m
1131	30	460.19	19.65	7.74	254.8	13.55	237	1.30	
1237	60	460.17	19.56	7.77	253.4	13.44	244	0.84	
1343	90	460.11	19.62	7.79	256.6	13.70	252	1.07	
1405	100	460.11	19.72	7.80	252.9	12.88	254	0.93	
1443	100	460.07	20.14	7.79	259.9	13.58	262	1.30	1.04 L/min
1502	115	460.06	20.14	7.80	256.3	13.05	268	0.95	
1510	117	460.05	19.99	7.79	252.8	12.99	269	1.12	
Values Prior to Sampling									
1510	117	460.05	19.99	7.79	252.8	12.99	269	1.12	1.6 L/m

Field Alkalinity Result 124 mg/L as $CaCO_3$ GW0228

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.: 106094
Site / SWMU No.: 106
Date: 8-25-11
Weather: Sunny Breezy 80's
Time: 0811
Field Crew: DA, DT
Crew Signature:
Review Signature:
Date Review: 8/26/11

WELL OBSERVATIONS

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

Notes: VOC's pump set to 495 ft

CALCULATIONS

(A) Depth to Well Bottom	517 ft	(J) Filter Pack Volume (H x I)	15.61 gal
(B) Pre-Purge Depth to Water	489.61 ft	(K) Min Purge Volume (E + J)	45 gal
(C) Water Column Height (A-B)	27.39 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (6"=1.02)	1.02	Parameter Meter In Situ 9500	R27831
(E) One Well Casing Volume (C x D):	27.94 gal	Turbidity Meter La Motte/HACH	07818
(F) Depth to Top of Screen	484.2 ft	Pump portable	on file
(G) Depth to Bottom of Screen	504.2 ft	Field Alkalinity La Motte	0346#4
(H) Saturated Filter Pack Length (G –F, or B)	14.59 ft		
(I) Casing/~~Borehole~~ Factor 4/10 = 1.2, (6/10 = 1.0), _____	1.07		

PURGING INFORMATION

Description first water purged: Clear brown, 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
8-25-11 0858	0	489.61	22.04	7.36	508.7	4.22	212	5.70	1.5L/min
0947	20	489.68	19.64	7.48	516.1	1.06	-87	3.45	
1011	30	489.68	19.61	7.50	513.8	1.21	-92	2.40	
1029	35	489.65	19.81	7.50	515.9	1.15	-98	2.60	1.0L/min
1047	40	489.64	20.05	7.50	515.7	1.17	-99	2.79	
1105	45	489.64	19.98	7.50	515.2	1.22	-100	2.63	
Values Prior to Sampling									
1105	45	489.64	19.98	7.50	515.2	1.22	-100	2.63	1.0L/min

Field Alkalinity Result 140 mg/L as $CaCO_3$

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

140705

Sample ID:

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:** 1200

Weather: Sunny **Time:** 08/16/11

Field Crew: AT, AG **Crew Signature:**

Review Signature: **Date Review:** 8/17/11

WELL OBSERVATIONS

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

Notes: VOC's 6 in well, set pump @ 510'

CALCULATIONS

(A) Depth to Well Bottom	523.75 ft
(B) Pre-Purge Depth to Water	488.92 ft
(C) Water Column Height (A-B)	34.82 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	503.75 ft
(G) Depth to Bottom of Screen	518.75 ft
(H) Saturated Filter Pack Length (G – D, 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: Insitu 4500	R22601
Turbidity Meter: Hach	2814
Pump: Redlab 6 Bennett	n/a
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
8/16/11 1255	0	488.92	22.60	7.02	371.1	5.03	152	5.27	1.68 L/m
1318	10	488.91	19.57	7.39	362.8	5.61	134	4.51	
1341	20	488.96	19.51	7.36	330.6	5.81	133	2.65	
1404	30	488.96	19.62	7.40	338.7	6.03	131	2.50	
1427	40	488.95	19.59	7.39	342.7	6.06	130	1.59	
1446	45	488.94	19.86	7.39	334.2	5.60	134	1.14	1.0 L/m
1505	50	488.93	20.12	7.39	347.1	5.41	131	1.37	
1513	52	488.92	20.12	7.39	347.2	5.41	131	1.37	
Values Prior to Sampling									
1513	52		~~19.57~~ 20.12	~~7.39~~ 7.39	~~362.8~~ 347.2	~~5.61~~ 5.41	~~134~~ 131	~~1.37~~ 1.37	1.0 L/m

Field Alkalinity Result 151 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 **Well ID No.:** 106096

Site / SWMU No.: 106 **Date:** 8-18-11

Weather: Sunny 80's **Time:** 0834

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

Review Signature: **Date Review:** 8/18/11

WELL OBSERVATIONS

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

Notes: VOC's 8in BH. pump set to 494ft

CALCULATIONS

(A) Depth to Well Bottom	596.3 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	489.76 ~~489.67~~ ft	(K) Min Purge Volume (E + J)	~~124~~ 126 gal
(C) Water Column Height (A-B)	107.67 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	Parameter Meter ion Selective 9500	RZ2831
(E) One Well Casing Volume (C x D):	109.83 gal	Turbidity Meter HACH 2100P	02818
(F) Depth to Top of Screen	576.3 ft	Pump ~~Dedicated~~ Portable Bennette	on file
(G) Depth to Bottom of Screen	591.3 ft	Field Alkalinity La Motte	3467#4
(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
8-18-11 0948	0	489.76	20.44	7.55	293.9	8.26	213	1.51	1.7L/min
1055	30	498.78	19.80	7.77	287.6	10.03	193	0.67	
1201	60	498.79	19.97	7.80	280.6	9.53	196	0.83	
1308	90	498.79	19.99	7.82	285.3	9.11	210	0.63	
1355	111	498.79	20.19	7.84	288.7	9.03	218	0.54	
1413	116	498.77	20.41	7.83	289.7	8.78	225	0.58	1.0L/min
1431	121	498.77	20.36	7.84	284.0	8.84	233	0.52	
1449	126	498.77	20.48	7.83	291.5	8.67	244	0.51	
Values Prior to Sampling									
1449	126	498.77	20.48	7.83	291.5	8.67	244	0.51	1.0L/min

Field Alkalinity Result 105 mg/L as $CaCO_3$ GW0232

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*

Sample ID: GW0232 140705

Shaw™ Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 106097

Site / SWMU No.: 106 **Date:** 7/21/11

Weather: Sunny **Time:** 13:30

Field Crew: AT, TW **Crew Signature:** [signature]

Review Signature: [signature] **Date Review:** 7/22/11

WELL OBSERVATIONS

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

Notes: VOC's Ø in well bore, Set pump @ 514'

CALCULATIONS

(A) Depth to Well Bottom	526	ft
(B) Pre-Purge Depth to Water	490.54	ft
(C) Water Column Height (A-B)	35.46	ft
(D) Casing Factor: 4"=0.65 5"=1.02	~~36.16~~ 1.02	
(E) One Well Casing Volume (C x D):	36.16	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)	52.21	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
Turbidity Meter: Hach	2821	
Pump: Portable Bennett	orifice	
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
7/21/11 1404	0	491.19	22.00	7.66	442.4	10.09	226	1.19	~~1.86 L/m~~ at 1.7 L/m
1408	10	491.21	19.87	7.63	428.6	10.68	240	1.31	
1446	20	491.21	19.58	7.63	412.6	11.45	262	1.55	
1506	30	491.21	19.48	7.65	367.6	11.52	269	1.59	
1526	40	491.19	19.48	7.66	372.9	11.36	269	1.42	
1545	45	491.16	19.69	7.66	372.0	10.75	270	1.54	1.0 L/min
1604	50	491.15	19.70	7.67	380.5	11.32	271	1.34	
1611	52	491.15	20.00	7.68	376.8	11.24	272	1.35	
Values Prior to Sampling									
1611	52	491.15	20.00	7.68	376.8	11.24	272	1.35	1.0 L/min

Field Alkalinity Result at 117 Mg/L a Calcium

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.:** 106898

Site / SWMU No.: 106 **Date:** ~~0800~~ 7/21/11

Weather: Cloudy **Time:** 0800

Field Crew: AT, TH **Crew Signature:**

Review Signature: **Date Review:** 7/21/11

WELL OBSERVATIONS

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

Notes: VOC's Ø LEL 6 in well bore set pump @ 538'

CALCULATIONS

(A) Depth to Well Bottom	551	ft
(B) Pre-Purge Depth to Water	491.39	ft
(C) Water Column Height (A-B)	59.61	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	60.8	gal
(F) Depth to Top of Screen	531	ft
(G) Depth to Bottom of Screen	546	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)	77	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter In Situ U-50	D22885	
Turbidity Meter Hach	2821	
Pump Proactive Bennett	on fil	
Field Alkalinity La Motte	34167	

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
7/21/11 0919	0	491.39	21.71	7.65	296.5	9.29	225	4.31	1.69 L/m
1004	20	491.45	19.06	7.75	274.9	12.39	238	2.79	
1026	30	491.46	19.13	7.76	277.1	11.80	235	1.18	
1049	40	491.44	19.30	7.77	279.2	11.61	233	1.20	
1111	50	491.41	19.35	7.78	276.4	11.48	232	1.13	
1133	60	491.42	19.30	7.78	274.9	11.18	232	1.30	
1155 at 205	70	491.41	19.59	7.79	274.1	10.66	236	1.20	1.0 L/m
1224	75	491.39	19.80	7.80	275.7	10.57	239	1.08	
1235	77	491.38	19.74	7.80	277.5	10.58	242	0.97	
Values Prior to Sampling									
1235	77	491.38	19.74	7.80	277.5	10.58	242	0.97	1.0 L/m

Field Alkalinity Result 112 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 **Well ID No.:** 106099

Site / SWMU No.: 106 **Date:** ~~1300~~ at 7/26/11

Weather: Sunny **Time:** 1300

Field Crew: AP, JN **Crew Signature:** Antonio Jaylle

Review Signature: PN Johnson **Date Review:** 7-26-11

WELL OBSERVATIONS

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

Notes: VOCs & in well bore, set pump @ 508'

CALCULATIONS

(A) Depth to Well Bottom	521 ft	(J) Filter Pack Volume (H x I)	16.05 gal
(B) Pre-Purge Depth to Water	485.80 ft	(K) Min Purge Volume (E + J)	52 gal
(C) Water Column Height (A-B)	35.2 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02	Parameter Meter In Situ 9500	R22885
(E) One Well Casing Volume (C x D):	35.9 gal	Turbidity Meter Hach	2821
(F) Depth to Top of Screen	501 ft	Pump Portable Bennett	on file
(G) Depth to Bottom of Screen	506 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 = 1.0), _____	1.07		

PURGING INFORMATION

Description first water purged: clear, 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
7/26/11 1357	0	485.80	25.74	7.75	452.5	9.43	292	6.67	1.69 L/min
1420	10	485.83	19.63	7.75	442.3	11.76	272	5.17	
1442	20	485.83	19.56	7.75	431.2	11.52	264	2.96	
1505	30	485.83	19.63	7.75	426.8	11.40	265	2.84	
1527	40	485.81	19.58	7.75	409.2	11.72	265	2.72	
1546	45	485.78	20.00	7.75	414.1	10.45	266	2.86	1.0 L/min
1605	50	485.79	19.97	7.75	414.6	10.12	265	2.34	
1612	52	485.79	20.02	7.75	410.7	10.45	265	2.27	
Values Prior to Sampling									
1612	52	485.79	20.02	7.75	410.7	10.45	265	2.27	1.0 L/m

Field Alkalinity Result 100 Mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106000
Site / SWMU No.: 106
Date: 7/26/11
Weather: Sunny
Time: 0850
Field Crew: AT, DTW
Crew Signature: Antonio Jaquelle
Review Signature: [signature]
Date Review: 7-26-11

WELL OBSERVATIONS

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

Notes: VOCs Ø in well bore, set pump @ 533'

CALCULATIONS

(A) Depth to Well Bottom	546	ft
(B) Pre-Purge Depth to Water	485.93	ft
(C) Water Column Height (A-B)	60.07	ft
(D) Casing Factor: 4"=0.65, 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	61.27	gal
(F) Depth to Top of Screen	526	ft
(G) Depth to Bottom of Screen	542	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)	78	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: Insitu 9500	R22885	
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
7/26/11 0911	Ø	485.93	20.33	7.77	320.3	14.27	234	2.35	1.68 L/min
956	20	485.99	19.44	7.79	315.0	15.78	271	2.17	
1041	40	485.98	19.65	7.79	301.2	14.58	278	2.05	
1126	60	485.96	19.55	7.81	313.9	15.86	290	2.40	
1132	65	485.96	19.56	7.80	314.0	16.20	292	2.32	
1156	70	485.96	19.57	7.81	309.6	14.51	299	2.14	1L/min
1215	75	485.92	19.63	7.81	324.0	14.72	305	2.05	
1223	78	485.92	19.56	7.81	313.0	14.62	306	2.14	
Values Prior to Sampling									
1223	78	485.92	19.56	7.81	313.0	14.62	306	2.14	1L/min

Field Alkalinity Result 103 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106101
Site / SWMU No.: 106
Date: 7-29-11
Weather: Cloudy 70s
Time: 0911
Field Crew: DA, DM
Crew Signature:
Review Signature:
Date Review: 7/29/11

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	515.06 ft
(B) Pre-Purge Depth to Water	483.32 ft
(C) Water Column Height (A-B)	31.74 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	32.38 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)	15.78 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 2100P	02818
Pump: dedicated bennette	on file
Field Alkalinity: La Motte	3467 #4

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
7-29-11 1006	0	483.32	20.43	7.46	817.9	7.27	220	2.72	3.8 L/min
1026	20	483.48	19.20	7.62	770.7	11.15	219	0.49	
1040	34	483.48	19.18	7.61	798.3	11.41	198	0.46	
1058	39	483.38	19.38	7.63	774.0	10.15	212	0.51	1.0 L/min
1118	44	483.38	19.33	7.64	805.8	10.15	218	0.27	
1137	49	483.37	19.41	7.64	829.9	10.21	215	0.36	

Values Prior to Sampling

1137	49	483.37	19.41	7.64	829.9	10.21	215	0.36	1.0 L/min

Field Alkalinity Result 77 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.:** 106107

Site / SWMU No.: 106 **Date:** 7-25-11

Weather: Sunny 90s **Time:** 0801

Field Crew: DA, FO **Crew Signature:**

Review Signature: **Date Review:** 7-25-11

WELL OBSERVATIONS

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

Notes: VOCs 0 in well bore

CALCULATIONS

(A) Depth to Well Bottom	540.21 ft
(B) Pre-Purge Depth to Water	483.38 ft
(C) Water Column Height (A-B)	53.05 ft
(D) Casing Factor: 4"=0.65 (5"=1.02)	1.02
(E) One Well Casing Volume (C x D):	56.16 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)	71 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI 556 MPS	RZ7831
Turbidity Meter: HACH 2100P	072818
Pump: dedicated bennett	on file
Field Alkalinity: La Motte	346144

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
7-25-11 0851	0	483.38	18.91	7.47	333.1	6.84	48	2.80	3.2L/min
0916	21	483.50	19.37	7.80	338.8	6.71	160	1.77	
0940	41	483.50	19.33	7.79	320.6	6.74	156	1.37	
0958	56	483.50	19.42	7.81	319.9	6.68	150	0.58	
1020	61	483.43	19.72	7.81	322.3	5.67	158	0.62	0.97L/min
1040	66	483.42	19.61	7.81	319.6	5.58	164	0.52	
1100	71	483.42	19.72	7.82	319.2	5.79	170	0.48	
Values Prior to Sampling									
1100	71	483.42	19.72	7.82	319.2	5.79	170	0.48	0.97L/min

Field Alkalinity Result 118 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.:** 106163

Site / SWMU No.: 106 **Date:** 1250 8/8/14

Weather: sunny **Time:** 1250

Field Crew: AT, TN **Crew Signature:**

Review Signature: **Date Review:** 8/9/14

WELL OBSERVATIONS

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

Notes: VOC's @ inner well bore, Set pump @ 492'
CO 10

CALCULATIONS

(A) Depth to Well Bottom	505.2 ft
(B) Pre-Purge Depth to Water	474.22 ft
(C) Water Column Height (A-B)	30.98 ft
(D) Casing Factor: 4"=0.65 5"=(1.02)	1.02
(E) One Well Casing Volume (C x D):	31.6 gal
(F) Depth to Top of Screen	488 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)	48 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: Horiba U50	D22885
Turbidity Meter: Hach	2821
Pump: Portable Bennett	on field
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
8/8/14 1336	0	474.22	28.07	7.97	275.8	7.21	225	11.0	1.52 L/m
1401	10	474.29	19.56	7.83	282.8	11.89	254	5.23	
1426	20	474.29	19.48	7.85	267.6	12.10	256	3.72	
1451	30	474.27	19.43	7.86	264.1	12.25	256	1.65	
1516	40	474.26	19.52	7.86	270.7	12.35	255	1.89	0.98 L/m
1535	45	474.24	19.71	7.86	268.7	11.47	257	0.90	
1546	48	474.24	19.61	7.86	259.5	11.87	258	0.90	
Values Prior to Sampling									
1546	48	474.24	19.61	7.86	259.5	11.87	258	0.90	0.98 L/m

Field Alkalinity Result 132 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Well ID No.: 106104
Site / SWMU No.: 106
Date: 0800 8/5/11
Weather: cloudy
Time: 0800
Field Crew: AT, DM
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 8/5/11

WELL OBSERVATIONS

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

Notes: VOC Ø in Well bore, Set pump @ 517'

CALCULATIONS

(A) Depth to Well Bottom	530	ft
(B) Pre-Purge Depth to Water	473.66	ft
(C) Water Column Height (A-B)	56.33	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.02	
(E) One Well Casing Volume (C x D):	57.45	gal
(F) Depth to Top of Screen	510	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)	74	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 9500 Insitu	R22885	
Turbidity Meter: Hach	2821	
Pump: Portable 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
8/5/11 1021	Ø	473.66	19.22	7.69	270.2	10.43	222	7.80	1.76 L/m
1104	20	473.75	19.14	7.73	268.0	12.50	262	2.80	
1147	40	473.75	19.27	7.74	265.7	12.87	262	2.12	
1209	50	473.76	19.29	7.74	262.4	12.41	263	1.97	
1231	60	473.75	19.29	7.74	267.1	12.68	263	1.57	
1250	65	473.72	19.52	7.75	269.0	11.58	264	1.58	1.0 L/m
1309	70	473.72	19.61	7.76	260.0	11.70	260	1.65	
1324	74	473.71	19.70	7.76	265.6	11.54	271	1.58	
Values Prior to Sampling									
~~1324~~ 1324	74	473.71	19.70	7.76	265.6	11.54	271	1.58	1.0 L/m

Field Alkalinity Result 111 mg/L on $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: ST 1016-VA2
Site / SWMU No.: 1016
Date: 7/6/11
Weather: Sunny 80's
Time: 1015
Field Crew: AT, JM
Crew Signature:
Review Signature:
Date Review: 7/7/11

WELL OBSERVATIONS

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

Notes: VA Production well, Sampled Valve, pump stopped during sampling, approx 40 min until VA personal could re-start pump Then sampling was completed

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: Horiba U-50	22885	
Turbidity Meter: Hach 2100	02821	
Pump: N/A	N/A	
Field Alkalinity: La Motte	3467 #3	

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
7/6/11 1026	60	N/A	22.23	7.80	357.11	6.00	192	0.87	
Values Prior to Sampling									
7/6/11 1026	60	N/A	22.23	7.80	357.11	6.00	192	0.87	

Field Alkalinity Result 110 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.:** ST106-VA2

Site / SWMU No.: 106 **Date:** 8-3-11

Weather: Sunny 90's **Time:** 0941

Field Crew: DA, DM **Crew Signature:** D M Aubrey

Review Signature: Mark Jaya **Date Review:** 8/5/2011

WELL OBSERVATIONS

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

Notes: Sampled from spigot in pump house

CALCULATIONS

(A) Depth to Well Bottom	NA	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)	NA	gal
(K) Min Purge Volume (E + J)	NA	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: In Situ 9500	R22831	
Turbidity Meter: HACH 2100P	Q818	
Pump: production well	NA	
Field Alkalinity: La Motte	3467#4	

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
8-3-11 0955	NA	NA	22.19	7.72	347.2	4.73	237	0.24	NA
Values Prior to Sampling									
0955	NA	NA	22.19	7.72	347.2	4.73	237	0.24	NA

Field Alkalinity Result 104 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*