Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

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

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

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

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

WELL OBSERVATIONS

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

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

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged:
Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C/°F)	pH	Spec Cond (mS/cm²) uS/cm²	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1-25-11 1126	0	488.13	65.6	7.5	417.2	8.05	211.6	2.34	.4gpm increase Pump
1137	5	488.10	66.8	7.51	458.4	4.41	-20.7	2.34	.74gpm decrease Pump
1146	10	488.15	66.5	7.55	421.7	3.14	-77.2	NM	"
1152	15	488.12	66.1	7.60	401.5	1.96	-73.4	NM	" decrease pump
1201	20	488.11	66.2	7.61	382.1	3.17	-76.7	NM	.56
1210	25	488.12	66.2	7.62	384.6	2.30	-77.3	~~488.12~~	"
1217	30	488.10	66.3	7.65	381.0	2.48	-73.4	0.02	"
1227	35	488.10	66.3	7.64	377.9	1.88	-75.9	0.00	"
1235	40	488.09	66.3	7.64	377.6	1.96	-76.7	0.01	"

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Shaw Environmental, Inc.

KAFB-1061

1-25-11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (~~°C~~ °F)	pH	Spec Cond (~~mS/cm²~~ µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1/25/11 ~~12:44~~ 12:43	45	488.08	66.3	7.65	375.0	2.05	-76.7	0.00	.56 gpm
12:49	46.5	488.07	66.1	7.66	382.3	1.60	-75.2	0.00	1.21 lpm
12:51	47	488.08	66.1	7.67	377.2	1.64	-74.9	0.00	"
12:55	48	488.08	65.9	7.67	378.2	1.93	-70.1	0.00	
Values Prior to Sampling									
12:55	48	488.08	65.9	7.67	378.2	1.93	-70.1	0.00	1.21 lpm

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

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

~~1.39~~

1.65

1.21/m

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Site / SWMU No.: KAFB 106
Weather: Sunny 50s
Field Crew: RB, ML, DR, GP
Review Signature: Mark Ivan

Well ID No.: KAFB 1062
Date: 1/27/11
Time: 1330
Crew Signature: [signature]
Date Review: 1/27/11

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: Clear

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

Alkalinity = 135 mg/0 as $CaCO_3$

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KAFB-1062
01/27/2011

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

Field Alkalinity Result 135 mg/l as $CaCO_3$

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB ~~BFF 1063~~ **Well ID No.:** KAFB 1063

Site / SWMU No.: 106 **Date:** 1-27-11

Weather: Sunny 40s **Time:** 1105

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

Review Signature: **Date Review:** 1-27-11

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: Clear

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

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

Alkalinity = 100 mg/l in $CaCO_3$

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KAFB-1063
1-27-11

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

Field Alkalinity Result 100 mg/l in CaCO

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB Bulk Fuels Facility **Well ID No.:** KAFB-1064

Site / SWMU No.: **Date:** 01/27/11

Weather: Sunny - 40s 28s - 30 **Time:** 0845

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

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

WELL OBSERVATIONS

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

Notes: Clear

CALCULATIONS

(A) Depth to Well Bottom	512.44 ft	(J) Filter Pack Volume (H x I)	27 gal
(B) Pre-Purge Depth to Water	489.45 ft	(K) Min Purge Volume (E + J)	42 gal
(C) Water Column Height (A-B)	22.99 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: 4"=0.65 5"=1.02	.65	Parameter Meter YSI Pro	2431
(E) One Well Casing Volume (C x D):	14.94 gal	Turbidity Meter 2100P (HACH)	2821
(F) Depth to Top of Screen	486.44 ft	Pump Bennett Dedicated	
(G) Depth to Bottom of Screen	512.44 ft	Field Alkalinity Lamotte	3467
(H) Saturated Filter Pack Length (G –F, or B)	22.99 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2		

PURGING INFORMATION

Description first water purged:

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

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KAFB 1064
1/27/11

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

Field Alkalinity Result 102 mg/l CaCO

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

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

WELL OBSERVATIONS

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

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

CALCULATIONS

489.72 product
489.89 bw

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

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

PURGING INFORMATION

Description first water purged: Brownish / yellow

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1418	0	489.89	18.41	8.07	753.3	2.63	14	557	1.2 L/m
1435	5	"/m	21.31	6.64	1107	2.78	-66	346 557	
1452	10	n/m	21.10	6.53	1109	2.63	-61	715	
1514	15	n/m	21.09	6.47	1125	2.51	-57	595	
1534	20	n/m	20.87	6.45	1149	2.41	-55	481	
1550	25	n/m	20.86	6.44	1141	2.53	-58	426	
1610	30	n/m	20.97	6.42	1137	2.21	-60	392	
1614	31	n/m	20.99	6.43	1133	2.06	-61	369	

140705

KAFB-1065

2/21/11

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

Field Alkalinity Result 200 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF
Site / SWMU No.: 106
Weather: Cloudy, Windy
Field Crew: AT, RB, ML, DR
Review Signature: Mark Ypsa
Well ID No.: KAFB 1066
Date: 2/21/11
Time: 0920
Crew Signature:
Date Review: 2/22/11

WELL OBSERVATIONS

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

Notes: PID - 20004 ppm. VOC, 13.3% O_2, LEL = 100 - Breathing zone 0 ppm, 20.8% O_2 LEL 0. LNAPL @ 494.10', water 495.13' =) 1.03' product

CALCULATIONS

Intake @ 503 pump @ 489'

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

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

PURGING INFORMATION

Description first water purged: Grey, Cloudy

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

140705

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KAFB-1066

2/21/11

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
					uS/cm2				
Values Prior to Sampling									
1036	26	NM	18.21	7.18	431.3	4.34	-98	7.60	

Field Alkalinity Result 165 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

WELL OBSERVATIONS

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

Notes: Pump operation with Nitrogen, Dedicated Bennett

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/3/11 1110	0	492.56	19.4	7.87	.355	7.73	164.6		~~1.5 gpm~~
1122	5	492.54	18.3	7.86	.354	6.00	78.7	1.44	1.1 gpm
11:29	10	492.56	18.1	7.88	.355	6.35	68.3	.63	
11:38	20	492.56	18.3	7.89	.352	6.64	32.6	1.62	
11:50	30	492.56	18.3	7.87	.354	6.93	58.9	.34	
12:04	40	492.56	18.3	7.89	.355	6.64	68.8	.35	
12:08	~~50~~ 45	492.56	17.3	7.88	.361	4.95	74.7	1.05	.86 lpm
12:37	50	492.56	17.3	7.85	.367	4.80	87.7	1.12	1.5 Lpm Change "N" bottles
12:42	52	492.56	17.6	7.81	.374	4.71	87.9	.55	

140705

Shaw Shaw Environmental, Inc. KAFB-1067 02-03-11

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

Field Alkalinity Result 140 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

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

WELL OBSERVATIONS

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

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

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	18.20	gal
(K) Min Purge Volume (E + J)	29.68	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: YSI-556 MPS		
Turbidity Meter: HACH 2100P	2821	
Pump: Portable Bennett pump		
Field Alkalinity: LaMotte Model DR-A	3467	

PURGING INFORMATION

Description first water purged: Cloudy - yellow/white

Date and / or Time	Gallons Removed	Depth to Groundwater	Temp (°C)	pH	Spec Cond (µS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
10:57	0	495.83	17.60	6.78	422.9	5.25	37	98.8	76 L/g
11:19	5	n/m	18.58	7.19	454.3	9.36	-20	15.0	
11:39	10	n/m	18.42	7.23	457.5	9.31	-35	10.4	
12:01	15	n/m	18.95	7.25	458.0	8.62	-41	8.3	
1224	20	n/m	18.51	7.26	452.7	7.78	-45	7.41	
1246	25	n/m	18.97	7.26	455.9	7.93	-48	7.51	
~~1245~~ 1306	30	n/m	19.31	7.28	454.5	7.40	-53	7.95	

Alkalinity - 190 mg/L as $CaCO_3$

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KAFB-1068
2/18/11

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

Field Alkalinity Result 190 mg/L as $CaCO_3$

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-13FF
Site / SWMU No.: 106
Weather: Sunny, windy
Field Crew: AT, KB, MC, DR
Review Signature: Mark Lyon
Well ID No.: KAFB 1069
Date: 2/17/11
Time: @ 13:00
Crew Signature:
Date Review: 2/17/11

WELL OBSERVATIONS

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

Notes: Mark Lyon . Jr decreased pump
sheen @ 487.72

CALCULATIONS

(A) Depth to Well Bottom	507.5	ft
(B) Pre-Purge Depth to Water	487.73	ft
(C) Water Column Height (A-B)	19.77	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.16	
(E) One Well Casing Volume (C x D):	12.85	gal
(F) Depth to Top of Screen	480	ft
(G) Depth to Bottom of Screen	505	ft
(H) Saturated Filter Pack Length (G –F, or B)	17.27	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	20.7	gal
(K) Min Purge Volume (E + J)	33.57	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: DH-SITE 500		
Turbidity Meter: Hach 2100	2821	
Pump: Portable Bennett pump		
Field Alkalinity: Lamotte model DRA		

PURGING INFORMATION

Description first water purged: Dark Grey, odor

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1312	0	487.73	21.64	6.83	820.6	4.73	-74	2.51	.8 lpm
1329	5	n/m	21.41	6.76	787.2	5.07	-85	13.9	
1349	15	n/m	21.39	6.79	782.4	4.85	-89	16.3	
1408	20	n/m	21.49	6.74	798.1	4.87	-100	18.0	
1426	25	n/m	21.81	6.71	801.1	4.18	-117	16.3	
1443	30	n/m	21.77	6.73	793.7	4.04	-118	13.3	
1456	34	n/m	21.72	6.73	807.8	3.82	-127	15.2	

Alkalinity - 382 mg/l as $CaCO_3$

140705

KAFB-1069
2/17/11

Shaw Environmental, Inc.

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

Field Alkalinity Result 382 mg/L as $CaCO_3$

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF

Well ID No.: KAFB 10610

Site / SWMU No.: 106

Date: 2/16/2011

Weather: Cloudy

Time: 0900

Field Crew: AT, RB, MC, DL

Crew Signature: [signature]

Review Signature: Mark [signature]

Date Review: 2/16/2011

WELL OBSERVATIONS

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

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

CALCULATIONS

(A) Depth to Well Bottom	510.5	ft
(B) Pre-Purge Depth to Water	487.49	ft
(C) Water Column Height (A-B)	23.01	ft
(D) Casing Factor: 4"=0.65 5"=1.02	1.65	
(E) One Well Casing Volume (C x D):	14.9	gal
(F) Depth to Top of Screen	483	ft
(G) Depth to Bottom of Screen	508	ft
(H) Saturated Filter Pack Length (G –F, or B)	20.5	ft
(I) Casing/Borehole Factor 4/10 = 1.2 5/10 = 1.07, _____	1.2	

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

PURGING INFORMATION

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

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0921 2/15	0	487.49	18.19	7.16	585.8	.21	-160	4.96	.5gl
0932	5	487.48	18.25	7.34	590.1	.06	-162	1.72	
0942	10	487.48	18.28	7.40	605.1	.01	-166	1.70	
0952	15	487.48	18.41	7.44	607.8	-.01	-175	1.24	
1002	20	487.48	18.42	7.45	607.1	-.03	-182	1.28	
1022	30	487.48	18.48	7.48	611.2	-.04	-193	.97	
1032	35	487.48	18.47	7.48	614.4	-.05	-201	.84	
1037	38	487.48	18.45	7.49	612.2	-.05	-203	.79	1 l/m
1045	40	487.48	18.55	7.48	619.3	-.05	-206	.90	

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KAFB-1010
2/16/11

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

Field Alkalinity Result 127 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 10611
Site / SWMU No.: KAFB - 106
Date: 1-31-11
Weather: Partly Cloudy - mid 40s
Time: 1050
Field Crew: RB, DR
Crew Signature:
Review Signature:
Date Review: 1131/11

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	26.32 gal
(K) Min Purge Volume (E + J)	40.5 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter 4/51 Pro	24131
Turbidity Meter Hach 2100P	2821
Pump Bennett Pump (Ded.)	
Field Alkalinity Lamotte DR-H	3467

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1112	0	497.19	16.8	8.22	406.8	10.52	149.4	4.44	1.3 gpm
1115	4	497.19	18.6	7.94	335.1	8.99	148.9	1.50	
1120	8	497.20	18.8	7.93	334.5	9.33	141.4	1.04	
1125	16	497.20	18.8	7.93	332.6	6.68	129.4	1.04	
1131	24	497.20	18.8	7.94	331.0	6.14	126.0	.55	
1137	32	497.19	18.8	7.94	329.1	6.17	126.5	.45	Adjusting to
1147	40	497.06	18.3	7.94	334.6	5.12	124.8	.30	1 lpm
1152	41	497.06	17.9	7.94	333.9	4.92	121.7	~~.54~~	.9 lpm

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KAFB-106 11
01/31/2011

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

Field Alkalinity Result 135 mg/l as $CaCO_3$

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

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

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

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

Field Crew: RB + DR **Crew Signature:**

Review Signature: **Date Review:**

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

(A) Depth to Well Bottom	513.57 ft
(B) Pre-Purge Depth to Water	489.61 ft
(C) Water Column Height (A-B)	23.96 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	15.57 gal
(F) Depth to Top of Screen	483.57 ft
(G) Depth to Bottom of Screen	513.57 ft
(H) Saturated Filter Pack Length (G –F, or B)	23.96 ~~30~~ ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

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

PURGING INFORMATION

Description first water purged: Clear

Units were bumped

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

140705

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KAFB-10612
01-31-2011

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

Field Alkalinity Result 154 mg/L @ $CaCO_3$

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

WELL OBSERVATIONS

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

Notes: Set pump @ 502.5 (appx) - could not get water level meter down to water, Indicator on Bennett read appx water level. Used monthly water level for the purge calculation.

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1034	0	N/m	15.2	7.31	.453	5.28	138.8	11.8	.5gal/min
1045	5	N/m	18.1	7.51	.457	2.72	-6.3	8.36	
1055	10	N/m	18.2	7.56	.472	2.68	-19.4	4.97	
1105	~~20~~ 15	N/m	18.2	7.58	.461	2.76	-23.8	2.81	
1116	~~30~~ 20	N/m	18.2	7.61	.460	2.77	-22.2	1.73	
1126	~~35~~ 25	N/m	18.1	7.65	.451	3.28	-12.1	1.49	
1137	~~35~~ 30	N/m	18.4	7.67	.442	3.58	-11.9	.88	
1148	~~36~~ 35	N/m	18.3	7.68	.439	3.59	-12.6	.87	
1150	36	N/m	18.3	7.68	.447	3.57	-14.4	.80	

Alkalinity = 160 mg/L as $CaCO_3$

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KAFB-1013
2/7/2011

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

Field Alkalinity Result 160 mg/L as $CaCO_3$

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

140705

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

Well ID No.: KAFB 10614
Date: 2/17/11
Time: 0856
Crew Signature: [signature]
Date Review: 2/17/11

WELL OBSERVATIONS

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

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

CALCULATIONS

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

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

PURGING INFORMATION

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

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0950	0	493.35	18.07	7.03	429.7	0.13	-46	7.82	1.7 L/g
1002	5	493.43	18.15	7.17	431.3	0.05	-54	6.17	
1013	10	493.43	18.20	7.26	434.7	0.01	-82	4.89	
1023	15	493.43	18.20	7.31	434.8	-.02	-107	3.95	
1033	20	493.43	18.28	7.35	433.4	-.03	-121	3.47	
1052	30	493.43	18.34	7.38	437.5	-.05	-140	2.00	
1101	33	493.43	18.27	7.38	435.8	-.05	-147	3.90	1.0 L/g
1110	36	493.43	17.97	7.39	432.3	-.03	-149	2.09	

140705

KAPB 10614
2/17/11

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

Field Alkalinity Result 185 mg/L as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** 10615

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

Weather: Cloudy **Time:** 0900

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

Review Signature: **Date Review:** 3/8/11

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	26.17 gal
(K) Min Purge Volume (E + J)	~~74.89~~ gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI 9500	
Turbidity Meter HACH 2100	2B1B
Pump Dedicated Bennett	
Field Alkalinity DeMotte	

PURGING INFORMATION

Description first water purged:

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0954 ~~0948~~	0	488.19	63.46	7.60	291.2	7.45	-0.01	4.57	1 L/m
1000	5	488.24	64.62	7.60	296.6	8.29	-0.01	3.43	
1008	10	488.24	64.80	7.64	297.1	8.43	-.01	3.55	
1019	15	488.25	64.85	7.64	297.5	8.35	-.01	2.52	
1026	20	488.25	64.92	7.64	298.5	8.42	-.01	2.16	
1040	30	488.26	64.87	7.64	297.7	8.32	-.01	1.86	
1054	40	488.26	64.91	7.67	297.7	8.27	.01	1.47	
1105	~~45~~ 50	488.27	64.95	7.66	298.3	8.27	0	1.09	1 L/m
	~~45~~								

Alkalinity = 130 mg/L $CaCO_3$

140705

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

Field Alkalinity Result 130 mg/L $CaCO_3$

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: Water is greyish

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

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KAFB-10616
1/26/11

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

Field Alkalinity Result 105

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

Dave

(A) Depth to Well Bottom	512 ft	(J) Filter Pack Volume (H x I)	23.90 gal
(B) Pre-Purge Depth to Water	487.08 ft	(K) Min Purge Volume (E + J)	40.09 gal
(C) Water Column Height (A-B)	24.92 ft	**EQUIPMENT / MODEL**	**ID NUMBER**
(D) Casing Factor: (4"=0.65 5"=1.02		Parameter Meter Hach 2100	
(E) One Well Casing Volume (C x D):	16.19 gal	Turbidity Meter In Situ Troll 9500	
(F) Depth to Top of Screen	482 ft	Pump Bennett Portable	
(G) Depth to Bottom of Screen	502 ft	Field Alkalinity LaMotte	
(H) Saturated Filter Pack Length (G –F, or B)	19.92 ft		
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____			

PURGING INFORMATION

Description first water purged: Clear

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

Alkalinity = 121 mg/L as $CaCO_3$

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

Field Alkalinity Result 121 mg/L as $CaCO_3$

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

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Well ID No.: KAFB - 10618
Site / SWMU No.: KAFB - 106
Date: 2-14-11
Weather: Sunny, Lt Brz, 50-60
Time: 1220
Field Crew: RB, AT, ML
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 2-14-11

WELL OBSERVATIONS

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

Notes: Pumpset @ 490'

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	24.6 gal
(K) Min Purge Volume (E + J)	41.17 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: 45i Pro	2431
Turbidity Meter: Hach Turbidity	2821
Pump: Bennett Portable	
Field Alkalinity: La Motte	3467

PURGING INFORMATION

Description first water purged: Clear - odor

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

Alkalinity = 132 mg/l as $CaCO_3$

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KAFB-10618

2-14-11

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

Field Alkalinity Result 132 mg/L as 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.*

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB 10619
Site / SWMU No.: KAFB 106
Date: 2-14-11
Weather: Sunny - lt brz 30s 40s
Time: 0910
Field Crew: RB, AT, ML
Crew Signature: [signature]
Review Signature: [signature]
Date Review: 2-14-11

WELL OBSERVATIONS

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

Notes: Pump Set @ 509

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/14 0910	0	499.23	15.3	7.95	.380	6.09	150.5	5.91	.4 gpm
0925	5	499.23	17.9	8.02	.381	3.93	103.6	2.96	
0942	10	499.23	18.2	8.04	.382	4.25	66.2	1.86	
0958	15	499.22	18.3	8.04	.384	4.30	62.7	1.86	
1014	20	499.22	18.1	8.05	.386	4.35	66.7	.95	
1047	30	499.19	18.3	8.05	.389	4.44	65.6	.53	
1106	35	499.19	18.3	8.04	.392	4.52	69.9	.28	
1115	39	499.19	18.3	8.06	.391	4.53	66.0	.64	1.08 lpm
1117	38	499.19	18.5	8.05	.393	4.54	63.6	.43	

Alkalinity = 124 mg/l as $CaCO_3$

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KAFB-10619
2/14/11

Shaw Shaw Environmental, Inc.

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

Field Alkalinity Result 124 mg/L as 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.: 10620
Site / SWMU No.: 1016
Date: 2/15/2011
Weather: Sunny
Time: 0900
Field Crew: ML, AT, RB
Crew Signature:
Review Signature: Mark Jordan
Date Review: 2/15/2011

WELL OBSERVATIONS

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

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

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	25.75	gal
(K) Min Purge Volume (E + J)	42.9	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI, In Situ 5520	2431	
Turbidity Meter Hach 2100P	2821	
Pump Portable Bennett pump		
Field Alkalinity LaMotte Model DDT	2467	

PURGING INFORMATION

Description first water purged: clear, with floaters "particulates"

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
2/15/11 0935	0	485.54	14.3	6.65	.419	4.69	130	3.04	YSI
0956	5	485.43	17.42	7.43	.394	3.67	32	3.27	IN SITU
1033	~~10~~ 15	485.46	18.3	7.88	.420	4.06	-15	1.33	1.75 L/min
1115	at ~~25~~ 18	Air Flow stopped, pulled pump to replace.							
1328 Resume	Flow ~~25~~ 25	Resumed Pumping w/ Spare Bennett Pump							
1330	at ~~26~~ 30	not measured	18.1 ~~25~~ at	7.57	.394	4.81	-51	2.02	
1344	at ~~25~~ 35	not measured	18.2	7.57	.390	4.16	-51	.88	IN SITU
1352	at ~~36~~ 40	not measured	18.2	7.57	.397	3.81	-53	.72	
1355	~~35~~ 41 46 at	not measured	18.2	7.57	.397	3.72	-53	.43	

140705

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KAFB-10620
2/15/11

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

Field Alkalinity Result 122 mg/L as 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.: KAFB-10621
Site / SWMU No.: 106
Date: 2/10/11
Weather: Sunny, warm
Time: 1239
Field Crew: AT, RB, MC
Crew Signature:
Review Signature: Mark Lopez
Date Review: 2/10/11

WELL OBSERVATIONS

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

Notes:
pump set at 470-ft

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Groundwater	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1319	0	459.33	16.7	7.86	.70	2.30	2.9	3.36	.5 g/m
1329	5	459.55	17.8	7.90	.71	.76	-64.6	1.43	
1340	10	459.35	18.0	7.90	.70	.67	-81.1	1.03	
1358	20	459.35	17.9	7.92	.68	.62	-120.8	1.13	
1414	30	459.35	18.0	7.93	.68	.64	-119.1	.54	
1433	40	459.35	18.1	7.92	.68	.84	-117.1	.42	
1443	45	459.35	18.0	7.89	.67	.77	-118.2	.30	
1445	46	459.35	17.9	7.93	.67	.71	-118.8	.32	
1448	47	459.35	17.9	7.93	.67	.71	-120.5	.22	

Alkalinity: 115 mg/L as $CaCO_3$

140705

KAFB-1062 1
2/10/11

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

Field Alkalinity Result 115 mg/L as $CaCO_3$

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

140705

Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

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

WELL OBSERVATIONS

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

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

CALCULATIONS

(A) Depth to Well Bottom	492 ft
(B) Pre-Purge Depth to Water	464.16 ft
(C) Water Column Height (A-B)	27.84 ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65
(E) One Well Casing Volume (C x D):	18.09 gal
(F) Depth to Top of Screen	462 ft
(G) Depth to Bottom of Screen	487 ft
(H) Saturated Filter Pack Length (G –F, or B)	~~25~~ 22.8 ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2

(J) Filter Pack Volume (H x I)	~~50~~ 27.4 gal
(K) Min Purge Volume (E + J)	~~48.09~~ 45.5 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI	2431
Turbidity Meter Hach 2100	2821
Pump Portable Bennett pump	
Field Alkalinity LAMotte Model DR-A	3467

PURGING INFORMATION

Description first water purged:

NOT Measured - see note

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

Alkalinity: 152 mg/l as $CaCO_3$

140705

Shaw Shaw Environmental, Inc.

KAFB-10622
2-9-2011

Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
Values Prior to Sampling									
1648	48	464.16	18.0	7.83	0.410	1.03	-104.8	0.24	

Field Alkalinity Result 152 mg/L as $CaCO_3$

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

140705

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Site / SWMU No.: 106
Weather: Sunny, partly cloudy
Field Crew: RB, DR, ML, AT
Review Signature: Mark Ryan
Well ID No.: 10623 KAFB
Date: 2/8/2011
Time: 09 40
Crew Signature: [signature]
Date Review: 2/8/11

WELL OBSERVATIONS

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

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

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged:

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

Alkalinity = 120 mg/l as $CaCO_3$

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KAFB -10623
2/8/11

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

Field Alkalinity Result 120 mg/L as 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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Well ID No.: KAFB - 10624
Site / SWMU No.: 106
Date: 2/10/11
Weather: Sunny, Breezy
Time: 0820
Field Crew: AT, RB, ME
Crew Signature:
Review Signature: Mark Jaa
Date Review: 2/10/11

WELL OBSERVATIONS

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

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

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
0918	0	486.61	16.4	7.49	.82	4.25	235.4	1.89	.5 gl/m
0928	5	486.61	18.2	7.59	.82	2.48	179.1	1.24	
0939	10	486.61	18.3	7.59	.80	2.19	66.0	1.46	
0953	20	486.61	18.3	7.62	.76	2.14	-33.7	1.29	
1013	30	486.61	18.3	7.63	.73	2.03	-61.7	.69	
1023	35	486.62	18.4	7.62	.72	2.04	-67.3	.65	
1033	40	486.62	18.4	7.66	.70	2.03	-74.5	.52	
1034	41	486.62	18.4	7.64	.71	2.02	-74.5	.65	
1035	42-43	486.62	18.5	7.66	.71	2.01	-75.3	.65	

Alkalinity : 185 mg/L as $CaCO_3$

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KAFB-10624
2/10/11

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

Field Alkalinity Result 185 mg/L as $CaCO_3$

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Well ID No.: KAFB - 10625
Site / SWMU No.: KAFB - 106
Date: 2/8/2011
Weather: cloudy, windy
Time: ~~2/8/2011~~ AT 14:22
Field Crew: RB, AT, DR
Crew Signature:
Review Signature: Mark Jordan
Date Review: 2/9/2011

WELL OBSERVATIONS

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

Notes: Well needs to be modified for dedicated sample pump

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged:

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

Alkalinity 125 mg/l as $CaCO_3$

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KAFB-10625
2/8/2011

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

Field Alkalinity Result 125 mg/L as $CaCO_3$

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

WELL OBSERVATIONS

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

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

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	19.2 ~~24.00~~ gal
(K) Min Purge Volume (E + J)	32.9 gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI	2431
Turbidity Meter HACH 2100P	2821
Pump Portable Bennett Pump	
Field Alkalinity LaMotte model OR-A	34167

PURGING INFORMATION

Description first water purged:

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

Alkalinity - 100 mg/l as $CaCO_3$

140705

KAFB-1062
2/7/2011

Shaw Shaw Environmental, Inc.

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

Field Alkalinity Result 100 mg/L as $CaCO_3$

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

140705

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB-BFF **Well ID No.:** KAFB-10627

Site / SWMU No.: 106 **Date:** 2/9/11

Weather: Sunny **Time:** 1318

Field Crew: AT, KB, DR, ML **Crew Signature:**

Review Signature: Mark Ryan **Date Review:** 2/9/11

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

(A) Depth to Well Bottom	506	ft
(B) Pre-Purge Depth to Water	490.58	ft
(C) Water Column Height (A-B)	15.42	ft
(D) Casing Factor: 4"=0.65 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	10.02	gal
(F) Depth to Top of Screen	~~at 480~~ 481	ft
(G) Depth to Bottom of Screen	~~at 501~~ 490.58	ft
(H) Saturated Filter Pack Length (G –F, or B)	10.42 ~~at 20.0~~	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

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

PURGING INFORMATION

Description first water purged:

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

Alkalinity 138 mg/L as $CaCO_3$

140705

KAFB-10627

2/9/11

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

Field Alkalinity Result 138 mg/L as $CaCO_3$

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Site / SWMU No.: 106
Weather: Sunny, lt brz, 60s
Field Crew: RB, AT, DR
Review Signature: Mark Lyon
Well ID No.: KAFB 10628
Date: 2/16/11
Time: 1245
Crew Signature: RBR
Date Review: 2/16/11

WELL OBSERVATIONS

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

Notes: Pump set @ 503'

CALCULATIONS

(A) Depth to Well Bottom	516	ft
(B) Pre-Purge Depth to Water	492.51	ft
(C) Water Column Height (A-B)	23.49	ft
(D) Casing Factor: 4"=(0.65) 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	15.26	gal
(F) Depth to Top of Screen	491	ft
(G) Depth to Bottom of Screen	511	ft
(H) Saturated Filter Pack Length (G –F, or (B))	18.49	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

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

PURGING INFORMATION

Description first water purged: Clear - lt odor

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

140705

KAFB-10628

Shaw Shaw Environmental, Inc.

2/16/11

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

Field Alkalinity Result 146 mg/l as $CaCO_3$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF
Well ID No.: KAFB -10644
Site / SWMU No.: KAFB 106
Date: 2/4/11
Weather: Sunny -Cold- Breezy <20°
Time: 09:30
Field Crew: RB, AT, ML
Crew Signature:
Review Signature:
Date Review:

WELL OBSERVATIONS

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

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

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	16.05 gal
(K) Min Purge Volume (E + J)	~~3249.83~~ gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter: YSI Pro	2421
Turbidity Meter: HACH Turbidity	2821
Pump: Bennett Portable	1807-65
Field Alkalinity: La Motte DR-A	3467

PURGING INFORMATION

Description first water purged: Cloudy - Clear @ 5gal

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

Values Prior to Sampling 50 490.78 17.2 7.85 .301 8.99 135.6 .92 ~½gal/min

Alkalinity - 105 mg/l as $CaCO_3$

140705

Shaw Shaw Environmental, Inc.

KAFB-106044
02-04-11

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

Field Alkalinity Result 105 mg/L as $CaCO_2$

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

WELL OBSERVATIONS

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

Notes: Pump set @ 542' BTOC

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged:

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

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

Alkalinity - 115 mg/l as $CaCO_3$

140705

Shaw Shaw Environmental, Inc.

KAFB-106045
112811

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

Field Alkalinity Result 115 mg/L as CaCO3

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

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

140705

Shaw Shaw Environmental, Inc.

GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB BFF **Well ID No.:** KAFB-3411

Site / SWMU No.: KAFB BFF 106 **Date:** 1-26-2011

Weather: Sunny - 40s **Time:** 0930

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

Review Signature: **Date Review:** 1/26/2011

WELL OBSERVATIONS

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

Notes:

CALCULATIONS

(A) Depth to Well Bottom	505.97	ft
(B) Pre-Purge Depth to Water	486.87	ft
(C) Water Column Height (A-B)	19.10	ft
(D) Casing Factor (4"=0.65) 5"=1.02	.65	
(E) One Well Casing Volume (C x D):	12.41	gal
(F) Depth to Top of Screen	484.99	ft
(G) Depth to Bottom of Screen	509.99	ft
(H) Saturated Filter Pack Length (G –F, or B)	25	ft
(I) Casing/Borehole Factor 4/10 = 1.2, 5/10 = 1.07, _____	1.2	

(J) Filter Pack Volume (H x I)	30	gal
(K) Min Purge Volume (E + J)	42.41	gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter YSI Pro ~~2030~~	2431	
Turbidity Meter Hach	2821	
Pump Bennett Dedicated	—	
Field Alkalinity LaMotte	3467	

PURGING INFORMATION

Description first water purged: Clear - No odor

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

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KAFB-~~106~~ 3411 (initialed 7/27/11)

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

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

Note: For 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
Site / SWMU No.: KAFB-106
Weather: Cold, Ofty cloudy, 5°-10°
Field Crew: RB, ML, AT, DR
Review Signature: Mark Lyon

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

WELL OBSERVATIONS

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

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

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	n/A	gal
(K) Min Purge Volume (E + J)		gal
EQUIPMENT / MODEL	**ID NUMBER**	
Parameter Meter: 451 Pro	2431	
Turbidity Meter: Hach 2100	2821	
Pump: UNKNOWN		
Field Alkalinity: Lamotte	3467	

PURGING INFORMATION

Description first water purged: clear

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

Alkalinity - 50 mg/l as $CaCO_3$

Static Readings Water collected from Spigot

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

Field Alkalinity Result _____

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

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

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

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

WELL OBSERVATIONS

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

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

CALCULATIONS

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

(J) Filter Pack Volume (H x I)	gal
(K) Min Purge Volume (E + J)	gal
EQUIPMENT / MODEL	**ID NUMBER**
Parameter Meter YSI	2431
Turbidity Meter Hach	7818
Pump UNKNOWN	
Field Alkalinity LaMotte DR-A	3467

PURGING INFORMATION

Description first water purged: Clear

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

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KAFB-15
2-17-11

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

Field Alkalinity Result 105 mg/L as 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.*

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GROUNDWATER PURGE LOG

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: Kirtland AFB
Site / SWMU No.: 106
Weather: Sunny 50's breezy
Field Crew: M. Lyon, D. Rust
Review Signature:
Well ID No.: KAFB-116
Date: 2-17-11
Time: ~~1047~~ 1041
Crew Signature:
Date Review: 2/17/11

WELL OBSERVATIONS

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

Notes: collected outside hose bib at Pump House

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: clear

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

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KAFB-16
2-17-1

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Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
~~1050~~	~~NM~~	~~NM~~							
		2/17/1							
Values Prior to Sampling									
1050	NM	NM	27.0	8.12	0.469	2.37	62.0	0.49	

Field Alkalinity Result 100 mg/L as $CaCO_3$

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

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GROUNDWATER PURGE LOG

ST106-

Kirtland Air Force Base, Bulk Fuels Facility Spill

Project Name: KAFB - BFF
Site / SWMU No.: KAFB - 106
Weather: Cold ply Cdy 5-10°
Field Crew: RB, ML
Review Signature: Mark Lyon

Well ID No.: ~~KAFB~~ VA 2
Date: 2-2-11
Time: 1157
Crew Signature:
Date Review: 2/2/11

WELL OBSERVATIONS

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

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

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged:

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

Alkalinity 110 mg/l as $CaCO_3$

Static readings water collected from Spigot

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

Field Alkalinity Result _____

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

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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:** 3/9/11

Weather: Sunny, 60s **Time:** 1327

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

Review Signature: **Date Review:** 3/9/2011

WELL OBSERVATIONS

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

Notes: Open pipe in gravel - side yard (East)

CALCULATIONS

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

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

PURGING INFORMATION

Description first water purged: Clear

Date and / or Time	Gallons Removed	Depth to Ground-water	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1327	>1	n/a	22.40	7.88	.0012	6.15	-41	.86	

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Date and / or Time	Gallons Removed	Depth to Ground-water*	Temp (°C)	pH	Spec Cond (mS/cm²)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Comment
1327	>1	n/a	22.60	7.87	.0012	6.15	-41	.96	
Values Prior to Sampling									
1327	>1	n/a	22.60	7.87	.0012	6.15	-41	.96	

Field Alkalinity Result 150 ~~$CaCO_3$~~ 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.*