Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/12/11

Project/Site: KAFB - BFF | **Casing:** PVC | **Shaw QC GP:** D. Castañeda
Location: BFF | **Diameter:** 3" | **Logging Firm:** Jet West
Hole ID: KAFB-106120 | **Well Depth:** 448 | **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

AM check → bottom of screen @ 444 ft

1) GR Background and Sleeve (cps)	Pre-log 47 + 145	Post-log n/a
2) Induction Cal. Coil Test (cps)	Pre-log (D) 4389	Post-log (D) n/a
	Pre-log (M) 7097	Post-log (M) n/a
3) Induction Zero Test (cps)	Pre-log (D) 885	Post-log (D) n/a
	Pre-log (M) 1086	Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 443.44	Repeat Interval (ft): 300 → 200
Log Survey Information	**Repeat Log Survey Information**
Start Time: 0941	Start Time: 0959
Logging Speed (ft/min): 29	Logging Speed (ft/min): 29
End Time: 0956	End Time: 1003
Start Depth/End Depth (ft): 8.53 - 8.80	Start Depth/End Depth (ft): 8.53 - 8.66
Depth Error (ft): 0.27	Depth Error (ft): 0.13

Comments: a lot of errors in induction log

Tool 2 - Neutron and Natural Gamma Ray Logs

AM check

1) GR Background and Sleeve (cps)	Pre-log 48 + 154	Post-log n/a
2) Neutron Attached Source (cps)	Pre-log 343	Post-log n/a
3) Neutron Removed Source (cps)	Pre-log 0.1	Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 443.7	Repeat Interval (ft): 230 → 130
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1031	Start Time: 1049
Logging Speed (ft/min): 30	Logging Speed (ft/min): 29
End Time: 1046	End Time: 1053
Start Depth/End Depth (ft): 9.15 - 9.38	Start Depth/End Depth (ft): 9.15 - 9.29
Depth Error (ft): 0.23	Depth Error (ft): 0.14

Comments:

Shaw Group Inc. | **KAFB Geophysical Logging QC Form** | Date: 9/12/14

Project/Site: KAFB-BFF | **Casing:** PVC | **Shaw QC GP:** D. Castaneda
Location: BFF | **Diameter:** 3" | **Logging Firm:** Jet West
Hole ID: KAFB-106123 | **Well Depth:** 447 ft (↳ bottom of screen @ 442 ft) | **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log: n/a	Post-log: n/a
2) Induction Cal. Coil Test (cps)	Pre-log (D): n/a	Post-log (D): n/a
	Pre-log (M): n/a	Post-log (M): n/a
3) Induction Zero Test (cps)	Pre-log (D): n/a	Post-log (D): n/a
	Pre-log (M): n/a	Post-log (M): n/a

Survey Depth Information	Repeat Log Depth Information
Reference: ground surface	Reference: ground surface
Total Depth (ft): 441.97	Repeat Interval (ft): 300 → 200

Log Survey Information	Repeat Log Survey Information
1432 Start Time: ~~1303~~ DC 9/12 ~~1401~~ DC 9/12 28	Start Time: 1424 ☆ no errors!
30 Logging Speed (ft/min):	Logging Speed (ft/min): 30
1447 End Time: ~~1417~~ DC 9/12	End Time: 1428
8.53-8.67 Start Depth/End Depth (ft): ~~8.53-8.77~~	Start Depth/End Depth (ft): 8.53 - ~~8.77~~ DC 9/12 8.75
0.14 Depth Error (ft): ~~0.24~~ DC 9/12	Depth Error (ft): ~~0.17~~ DC 9/12 0.22

had to re-do

Comments: induction tool not working at first, had to adjust tool + cable head 617 errors/4395 datapoints ↳ no errors on repeat when we manually tuned modem

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log: n/a	Post-log: n/a
2) Neutron Attached Source (cps)	Pre-log: n/a	Post-log: n/a
3) Neutron Removed Source (cps)	Pre-log: n/a	Post-log: n/a

Survey Depth Information	Repeat Log Depth Information
Reference: ground surface	Reference: ground surface
Total Depth (ft): ~~444.5~~ DC 9/12 442.0	Repeat Interval (ft): 280 → 180

Log Survey Information	Repeat Log Survey Information
Start Time: 1114	Start Time: 1133
Logging Speed (ft/min): 29	Logging Speed (ft/min): 29
End Time: 1130	End Time: 1137
Start Depth/End Depth (ft): 9.15 - 9.37	Start Depth/End Depth (ft): 9.15 - 9.25
Depth Error (ft): 0.22	Depth Error (ft): 0.10

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/12/11

Project/Site: KAFB-BFF	**Casing:** PVC	**Shaw QC GP:** D. Castaneda
Location: KAFB-BFF	**Diameter:** 3"	**Logging Firm:** Jet West
Hole ID: KAFB-10612	**Well Depth:** 448 ft	**Screen Type/ Size:** PVC

→ bottom of screen @ 440 ft

Tool 1 - Induction and Natural Gamma Ray Logs

PM check

1) GR Background and Sleeve (cps) Pre-log N/a Post-log 42 + 132

2) Induction Cal. Coil Test (cps) Pre-log (D) N/a Post-log (D) 4343

Pre-log (M) N/a Post-log (M) 7139

3) Induction Zero Test (cps) Pre-log (D) N/a Post-log (D) 897

Pre-log (M) N/a Post-log (M) 1097

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 440.1	Repeat Interval (ft): 300 → 200
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1511	Start Time: 1529
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1526	End Time: 1532
Start Depth/End Depth (ft): 8.53 - 8.75	Start Depth/End Depth (ft): 8.53 - 8.64
Depth Error (ft): 0.22	Depth Error (ft): 0.11

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

PM check

1) GR Background and Sleeve (cps) Pre-log N/a Post-log 50 + 153

2) Neutron Attached Source (cps) Pre-log N/a Post-log 347

3) Neutron Removed Source (cps) Pre-log N/a Post-log 0.4

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 440.2	Repeat Interval (ft): 280 → 180
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1556	Start Time: 1614
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1610	End Time: 1617
Start Depth/End Depth (ft): 9.15 - 9.41	Start Depth/End Depth (ft): 9.15 - 9.27
Depth Error (ft): 0.26	Depth Error (ft): 0.12

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/13/11

Project/Site: KAFB - BFF	**Casing:** PVC	**Shaw QC GP:** D. Castaneda
Location: BFF	**Diameter:** 3"	**Logging Firm:** Jet West
Hole ID: KAFB - 106122	**Well Depth:** 448 ft → bottom of screen @ 444 ft	**Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs — AM check

1) GR Background and Sleeve (cps)	Pre-log 53 + 148	Post-log n/a
2) Induction Cal. Coil Test (cps)	Pre-log (D) 4502	Post-log (D) n/a
	Pre-log (M) 7223	Post-log (M) n/a
3) Induction Zero Test (cps)	Pre-log (D) 903	Post-log (D) n/a
	Pre-log (M) 1125	Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 443.83	Repeat Interval (ft): 180 → 80
Log Survey Information	**Repeat Log Survey Information**
Start Time: 0755	Start Time: 0812
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 0810	End Time: 0816
Start Depth/End Depth (ft): 8.53 - 8.81	Start Depth/End Depth (ft): 8.53 - 8.59
Depth Error (ft): 0.28	Depth Error (ft): 0.06

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs — AM check

1) GR Background and Sleeve (cps)	Pre-log 54 + 160	Post-log n/a
2) Neutron Attached Source (cps)	Pre-log 345	Post-log n/a
3) Neutron Removed Source (cps)	Pre-log 0.2	Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 444.02	Repeat Interval (ft): 260 → 160
Log Survey Information	**Repeat Log Survey Information**
Start Time: 0836	Start Time: 0853
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 0850	End Time: 0857
Start Depth/End Depth (ft): 9.15 - 9.50	Start Depth/End Depth (ft): 9.15 - 9.33
Depth Error (ft): 0.35	Depth Error (ft): 0.18

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/13/11

Project/Site: KAFB - BFF	**Casing:** PVC	**Shaw QC GP:** D. Castaneda	
Location: BFF	**Diameter:** 3"	**Logging Firm:** Jet West	
Hole ID: KAFB-106124	**Well Depth:** 458ft	**Screen Type/ Size:** PVC	

Tool 1 - Induction and Natural Gamma Ray Logs (bottom of screen @ 450 ft)

1) GR Background and Sleeve (cps)	Pre-log: n/a	Post-log: n/a
2) Induction Cal. Coil Test (cps)	Pre-log (D): n/a	Post-log (D): n/a
	Pre-log (M): n/a	Post-log (M): n/a
3) Induction Zero Test (cps)	Pre-log (D): n/a	Post-log (D): n/a
	Pre-log (M): n/a	Post-log (M): n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 449.71	Repeat Interval (ft): 400 → 780
Log Survey Information	**Repeat Log Survey Information**
Start Time: 0950	Start Time: 1009
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1004	End Time: 1013
Start Depth/End Depth (ft): 8.53 - 8.86	Start Depth/End Depth (ft): 8.53 - 8.82
Depth Error (ft): 0.33	Depth Error (ft): 0.29

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log: n/a	Post-log: n/a
2) Neutron Attached Source (cps)	Pre-log: n/a	Post-log: n/a
3) Neutron Removed Source (cps)	Pre-log: n/a	Post-log: n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 449.9	Repeat Interval (ft): 180 → 780
Log Survey Information	**Repeat Log Survey Information**
Start Time: 0915	Start Time: 0933
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 0930	End Time: 0937
Start Depth/End Depth (ft): 9.15 - 9.36	Start Depth/End Depth (ft): 9.15 - 9.29
Depth Error (ft): 0.21	Depth Error (ft): 0.14

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/13/11

Project/Site: KAFB - BFF	**Casing:** PVC	**Shaw QC GP:** D. Castaneda
Location: BFF	**Diameter:** 3"	**Logging Firm:** Jet West
Hole ID: KAFB - 106125	**Well Depth:** 455 (bos @ 450 ft)	**Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log N/a Post-log N/a

2) Induction Cal. Coil Test (cps) Pre-log (D) N/a Post-log (D) N/a

Pre-log (M) N/a Post-log (M) N/a

3) Induction Zero Test (cps) Pre-log (D) N/a Post-log (D) N/a

Pre-log (M) N/a Post-log (M) N/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 450.0	Repeat Interval (ft): 390 → 290
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1033	Start Time: 1052
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1047	End Time: 1056
Start Depth/End Depth (ft): 8.53 - 8.80	Start Depth/End Depth (ft): 8.53 - 8.85
Depth Error (ft): 0.27	Depth Error (ft): 0.32

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log N/a Post-log n/a

2) Neutron Attached Source (cps) Pre-log N/a Post-log n/a

3) Neutron Removed Source (cps) Pre-log n/a Post-log N/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 450.2	Repeat Interval (ft): 180 → 80
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1112	Start Time: 1129
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1127	End Time: 1133
Start Depth/End Depth (ft): 9.15 - 9.43	Start Depth/End Depth (ft): 9.15 - 9.23
Depth Error (ft): 0.28	Depth Error (ft): 0.08

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/13/11

Project/Site: KAFB-BFF **Casing:** PVC **Shaw QC GP:** D. Castaneda
Location: BFF **Diameter:** 3" **Logging Firm:** JeA West
Hole ID: KAFB-106126 **Well Depth:** 458 ft → BOS @ 450 ft **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Induction Cal. Coil Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a
3) Induction Zero Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 449.34	Repeat Interval (ft): 160 → 60
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1223	Start Time: 1239
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1237	End Time: 1243
Start Depth/End Depth (ft): 8.53 - 8.77	Start Depth/End Depth (ft): 8.53 - 8.62
Depth Error (ft): 0.24	Depth Error (ft): 0.09

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Neutron Attached Source (cps) Pre-log n/a Post-log n/a
3) Neutron Removed Source (cps) Pre-log n/a Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 449.8	Repeat Interval (ft): 180 → 80
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1149	Start Time: 1206
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1203	End Time: 1210
Start Depth/End Depth (ft): 9.15 - 9.37	Start Depth/End Depth (ft): 9.15 - 9.26
Depth Error (ft): 0.22	Depth Error (ft): 0.11

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/13/11

Project/Site: KAFB	**Casing:** PVC	**Shaw QC GP:** D. Castañeda
Location: BFF	**Diameter:** 3"	**Logging Firm:** Jet West
Hole ID: KAFB-106127	**Well Depth:** 458 ft → BOS @ 450 ft	**Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log N/a Post-log N/a

2) Induction Cal. Coil Test (cps) Pre-log (D) N/a Post-log (D) N/a

Pre-log (M) N/a Post-log (M) N/a

3) Induction Zero Test (cps) Pre-log (D) N/a Post-log (D) N/a

Pre-log (M) N/a Post-log (M) N/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 449.86	Repeat Interval (ft): 150 → 50
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1259	Start Time: 1316
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1314 DC 9/13	End Time: 1320
Start Depth/End Depth (ft): 8.53 - 8.85	Start Depth/End Depth (ft): 8.53 - 8.62
Depth Error (ft): 0.32	Depth Error (ft): 0.09

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log N/a Post-log N/a

2) Neutron Attached Source (cps) Pre-log N/a Post-log N/a

3) Neutron Removed Source (cps) Pre-log N/a Post-log N/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 449.73	Repeat Interval (ft): 180 → 80
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1332	Start Time: 1350
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1347	End Time: 1353
Start Depth/End Depth (ft): 9.15 - 9.37	Start Depth/End Depth (ft): 9.15 - 9.22
Depth Error (ft): 0.22	Depth Error (ft): 0.07

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/13/11

Project/Site: KAFB - BFF **Casing:** PVC **Shaw QC GP:** D. Castañeda
Location: BFF **Diameter:** 3" **Logging Firm:** Jet West
Hole ID: KAFB - 106136 **Well Depth:** 457 ft → 8.3 @ 450 ft **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log	N/a	Post-log	41 + 133 (PM check)
2) Induction Cal. Coil Test (cps)	Pre-log (D)	N/a	Post-log (D)	4316
	Pre-log (M)	N/a	Post-log (M)	7069
3) Induction Zero Test (cps)	Pre-log (D)	N/a	Post-log (D)	871
	Pre-log (M)	N/a	Post-log (M)	1034

Survey Depth Information		**Repeat Log Depth Information**	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	449.9	Repeat Interval (ft):	200 → 100
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	1444	Start Time:	1502
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	1458	End Time:	1505
Start Depth/End Depth (ft):	8.53 - 8.79	Start Depth/End Depth (ft):	8.53 - 8.64
Depth Error (ft):	0.26	Depth Error (ft):	0.11

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log	N/a	Post-log	55 + 154 (PM check)
2) Neutron Attached Source (cps)	Pre-log	N/a	Post-log	344
3) Neutron Removed Source (cps)	Pre-log	N/a	Post-log	0.7

Survey Depth Information		**Repeat Log Depth Information**	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	450.06	Repeat Interval (ft):	300 → 200
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	1530	Start Time:	1549
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	1545	End Time:	1552
Start Depth/End Depth (ft):	9.15 - 9.42	Start Depth/End Depth (ft):	9.15 - 9.30
Depth Error (ft):	0.27	Depth Error (ft):	0.15

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/14/11

Project/Site: KAFB - BFF	**Casing:** PVC	**Shaw QC GP:** D. Castañeda
Location: California + Ross	**Diameter:** 5"	**Logging Firm:** Jet West
Hole ID: KAFB-106054	**Well Depth:** 536ft	**Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs — AM check → BOS@519 ft sump@524 ft

1) GR Background and Sleeve (cps)	Pre-log 57 + 144	Post-log n/a
2) Induction Cal. Coil Test (cps)	Pre-log (D) 4488	Post-log (D) n/a
	Pre-log (M) 7254	Post-log (M) n/a
3) Induction Zero Test (cps)	Pre-log (D) 894	Post-log (D) n/a
	Pre-log (M) 1134	Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 523.58	Repeat Interval (ft): 130 → 30

Log Survey Information	**Repeat Log Survey Information**
Start Time: 0840	Start Time: 0859
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 0857	End Time: 0902
Start Depth/End Depth (ft): 8.53 - 8.93	Start Depth/End Depth (ft): 8.53 - 8.62
Depth Error (ft): 0.4	Depth Error (ft): 0.09

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs — AM check

1) GR Background and Sleeve (cps)	Pre-log 53 + 155	Post-log n/a
2) Neutron Attached Source (cps)	Pre-log 352	Post-log n/a
3) Neutron Removed Source (cps)	Pre-log 1.3	Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 523.7	Repeat Interval (ft): 200 → 100

Log Survey Information	**Repeat Log Survey Information**
Start Time: 0927	Start Time: 0946
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 0943	End Time: 0949
Start Depth/End Depth (ft): 9.15 - 9.46	Start Depth/End Depth (ft): 9.15 - 9.35
Depth Error (ft): 0.31	Depth Error (ft): 0.2

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/14/11

Project/Site: KAFB - BFF | **Casing:** PVC | **Shaw QC GP:** D. Castaneda
Location: Dakota + Ross | **Diameter:** 5" | **Logging Firm:** Jet West
Hole ID: KAFB - 106107 | **Well Depth:** 538 ft → BOS @ 525.2 Ft | **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Induction Cal. Coil Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a
3) Induction Zero Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a

Survey Depth Information		**Repeat Log Depth Information**	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	~~530~~ DC 9/14 529.5	Repeat Interval (ft):	150 → 750
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	~~1022~~ DC 9/14 1059	Start Time:	1118
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	1116	End Time:	1121
Start Depth/End Depth (ft):	8.53 - 8.89	Start Depth/End Depth (ft):	8.53 - 8.62
Depth Error (ft):	0.36	Depth Error (ft):	0.09

Comments: no coordinates available yet, not yet surveyed

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Neutron Attached Source (cps) Pre-log n/a Post-log n/a
3) Neutron Removed Source (cps) Pre-log n/a Post-log n/a

Survey Depth Information		**Repeat Log Depth Information**	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	530	Repeat Interval (ft):	200 → 100
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	1022	Start Time:	1042
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	1039	End Time:	1045
Start Depth/End Depth (ft):	9.15 - 9.65	Start Depth/End Depth (ft):	9.15 - 9.31
Depth Error (ft):	0.50	Depth Error (ft):	0.16

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/14/11

Project/Site: KAFB - BFF **Casing:** PVC **Shaw QC GP:** D. Castaneda
Location: Eastern + Florida **Diameter:** 5" **Logging Firm:** Jet West
Hole ID: KAFB - 106058 **Well Depth:** 540ft GB.S@ 530 ft **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Induction Cal. Coil Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a
3) Induction Zero Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a

Survey Depth Information		**Repeat Log Depth Information**	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	530.6	Repeat Interval (ft):	180 → 80
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	1230	Start Time:	1250
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	1248	End Time:	1253
Start Depth/End Depth (ft):	8.53 - 8.91	Start Depth/End Depth (ft):	8.53 - 8.65
Depth Error (ft):	0.38	Depth Error (ft):	0.12

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Neutron Attached Source (cps) Pre-log n/a Post-log n/a
3) Neutron Removed Source (cps) Pre-log n/a Post-log n/a

Survey Depth Information		**Repeat Log Depth Information**	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	530.6	Repeat Interval (ft):	200 → 100
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	1311	Start Time:	1332
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	1329	End Time:	1336
Start Depth/End Depth (ft):	9.15 - 9.43	Start Depth/End Depth (ft):	9.15 - 9.28
Depth Error (ft):	0.28	Depth Error (ft):	0.13

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/14/11

Project/Site: KAFB-BFF **Casing:** PVC **Shaw QC GP:** D. Castaneda
Location: Bullhead Park **Diameter:** 5" **Logging Firm:** Jet West
Hole ID: KAFB-106096 **Well Depth:** 620 ft **Screen Type/ Size:** PVC
↳ BOS @ 596.3 ft

Tool 1 - Induction and Natural Gamma Ray Logs — PM check

1) GR Background and Sleeve (cps) Pre-log n/a Post-log 42 & 136
2) Induction Cal. Coil Test (cps) Pre-log (D) n/a Post-log (D) 4416
Pre-log (M) n/a Post-log (M) 7115
3) Induction Zero Test (cps) Pre-log (D) n/a Post-log (D) 893
Pre-log (M) n/a Post-log (M) 1063

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 595.17	Repeat Interval (ft): 240 → 140
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1424	Start Time: 1447
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1444	End Time: 1451
Start Depth/End Depth (ft): 8.53 - 8.82	Start Depth/End Depth (ft): 8.53 - 8.73
Depth Error (ft): 0.29	Depth Error (ft): 0.2

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs — PM check

1) GR Background and Sleeve (cps) Pre-log n/a Post-log 59 & 149
2) Neutron Attached Source (cps) Pre-log n/a Post-log ~~36~~ DC 9/14 347
3) Neutron Removed Source (cps) Pre-log n/a Post-log 1.4

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 595.56	Repeat Interval (ft): 200 → 100
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1514	Start Time: 1537
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1533	End Time: 1541
Start Depth/End Depth (ft): 9.15 - 9.51	Start Depth/End Depth (ft): 9.15 - 9.27
Depth Error (ft): 0.36	Depth Error (ft): 0.12

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/15/11

Project/Site: KAFB - BFF | **Casing:** PVC | **Shaw QC GP:** D. Castaneda
Location: Ridgecrest Yard | **Diameter:** 5" | **Logging Firm:** Jet West
Hole ID: KAFB-106040 | **Well Depth:** 560 FT | **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs — AM check → BOS @ 550 ft

1) GR Background and Sleeve (cps) Pre-log 53 +159 Post-log n/a
2) Induction Cal. Coil Test (cps) Pre-log (D) 4516 Post-log (D) n/a
Pre-log (M) 7239 Post-log (M) n/a
3) Induction Zero Test (cps) Pre-log (D) 902 Post-log (D) n/a
Pre-log (M) 1143 Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 549.98	Repeat Interval (ft): 150 → 50
Log Survey Information	**Repeat Log Survey Information**
Start Time: 0813	Start Time: 0834
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 0831	End Time: 0838
(5.78 - 6.26) Start Depth/End Depth (ft): ~~8.53~~ DC 9/15	Start Depth/End Depth (ft): ~~8.53~~ - DC 9/15 (5.78 - 5.92)
Depth Error (ft): 0.48	Depth Error (ft): 0.14

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs — AM check

1) GR Background and Sleeve (cps) Pre-log 54 +158 Post-log n/a
2) Neutron Attached Source (cps) Pre-log 351 Post-log n/a
3) Neutron Removed Source (cps) Pre-log 0.5 Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 550.2	Repeat Interval (ft): 700 → 100
Log Survey Information	**Repeat Log Survey Information**
Start Time: 0903	Start Time: 0923
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 0921	End Time: 0927
~~(5.78 DC 9/15~~ Start Depth/End Depth (ft): ~~9.15~~ DC 9/15	Start Depth/End Depth (ft): ~~9.15~~ DC 9/15 (6.4 - 6.56)
Depth Error (ft): 0.47	Depth Error (ft): 0.16

Comments: (6.4 - 6.87)

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/15/11

Project/Site: KAFB - BFF **Casing:** PVC **Shaw QC GP:** D. Castaneda
Location: Dakota St, South of Mitchell Rd **Diameter:** 5" **Logging Firm:** Jet West
Hole ID: KAFB-106090 **Well Depth:** 576ft **Screen Type/ Size:** PVC
↳ BOS @ 575 ft

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Induction Cal. Coil Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a
3) Induction Zero Test (cps) Pre-log (D) n/a Post-log (D) n/a
Pre-log (M) n/a Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 575.1	Repeat Interval (ft): 280 → 180
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1014	Start Time: 1039
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1033	End Time: 1042
Start Depth/End Depth (ft): 8.53 - 9.03	Start Depth/End Depth (ft): 8.53 - 8.78
Depth Error (ft): 0.50	Depth Error (ft): 0.25

Comments:

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps) Pre-log n/a Post-log n/a
2) Neutron Attached Source (cps) Pre-log n/a Post-log n/a
3) Neutron Removed Source (cps) Pre-log n/a Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 575.08	Repeat Interval (ft): 300 → 200
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1058	Start Time: 1121
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1117	End Time: 1124
Start Depth/End Depth (ft): 9.15 - 9.54	Start Depth/End Depth (ft): 9.15 - 9.40
Depth Error (ft): 0.39	Depth Error (ft): 0.25

Comments: Fluid @ 469 ft

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/15/11

Project/Site: KAFB - BTF | **Casing:** PVC | **Shaw QC GP:** D. Castaneda
Location: Hertz Dr | **Diameter:** 5" | **Logging Firm:** Jet West
Hole ID: KAFB-106104 | **Well Depth:** 542 ft BGS @ 530 ft | **Screen Type/ Size:** PVC

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log n/a	Post-log n/a
2) Induction Cal. Coil Test (cps)	Pre-log (D) n/a	Post-log (D) n/a
	Pre-log (M) n/a	Post-log (M) n/a
3) Induction Zero Test (cps)	Pre-log (D) n/a	Post-log (D) n/a
	Pre-log (M) n/a	Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 528.6	Repeat Interval (ft): 330 → 230
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1208	Start Time: 1230
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1226	End Time: 1234
Start Depth/End Depth (ft): 8.53 - 8.89	Start Depth/End Depth (ft): 8.53 - 8.83
Depth Error (ft): 0.36	Depth Error (ft): 0.30

DK 9/15

Comments: 11 3/4 ⇄ @ 200ft

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log n/a	Post-log n/a
2) Neutron Attached Source (cps)	Pre-log n/a	Post-log n/a
3) Neutron Removed Source (cps)	Pre-log n/a	Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 528.8	Repeat Interval (ft): 300 → 200
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1248	Start Time: 1309
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1305	End Time: 1312
Start Depth/End Depth (ft): 9.15 - 9.43	Start Depth/End Depth (ft): 9.15 - 9.36
Depth Error (ft): 0.28	Depth Error (ft): 0.21

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/15/11

Project/Site: KAFB - BFF **Casing:** PVC **Shaw QC GP:** D. Castaneda

Location: South of Gibson, East of Bob **Diameter:** 5" **Logging Firm:** Jet West

Hole ID: KAFB-106037 **Well Depth:** 530ft **Screen Type/ Size:** PVC

LBOS @ 527ft Debris

Tool 1 - Induction and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log n/a	Post-log n/a
2) Induction Cal. Coil Test (cps)	Pre-log (D) n/a	Post-log (D) n/a
	Pre-log (M) n/a	Post-log (M) n/a
3) Induction Zero Test (cps)	Pre-log (D) n/a	Post-log (D) n/a
	Pre-log (M) n/a	Post-log (M) n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 527.3	Repeat Interval (ft): 150 → surface
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1347	Start Time: 1406
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1404	End Time: 1411
Start Depth/End Depth (ft): 8.53 - 8.85	Start Depth/End Depth (ft): 8.53 - 8.65
Depth Error (ft): 0.32	Depth Error (ft): 0.12

Comments: 1134 ⇄ @140ft

Tool 2 - Neutron and Natural Gamma Ray Logs

1) GR Background and Sleeve (cps)	Pre-log n/a	Post-log n/a
2) Neutron Attached Source (cps)	Pre-log n/a	Post-log n/a
3) Neutron Removed Source (cps)	Pre-log n/a	Post-log n/a

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 527.4	Repeat Interval (ft): 150 → surface
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1425	Start Time: 1444
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1442	End Time: 1449
Start Depth/End Depth (ft): 9.15 - 9.36	Start Depth/End Depth (ft): 9.15 - 9.27
Depth Error (ft): 0.21	Depth Error (ft): 0.12

Comments: fluid level @ 468 ft.

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 9/15/11

Project/Site: KAFB - BFF **Casing:** PVC **Shaw QC GP:** D. Castaneda
Location: Ridgecrest Loop SE **Diameter:** 5" **Logging Firm:** Jet West
Hole ID: KAFB - 106087 **Well Depth:** 569 ft **Screen Type/ Size:** PVC
↳ B.S @ 565.5 ft

Tool 1 - Induction and Natural Gamma Ray Logs — PM check

1) GR Background and Sleeve (cps) Pre-log n/a Post-log 39 + 137
2) Induction Cal. Coil Test (cps) Pre-log (D) n/a Post-log (D) 4444
Pre-log (M) n/a Post-log (M) 7094
3) Induction Zero Test (cps) Pre-log (D) n/a Post-log (D) 904
Pre-log (M) n/a Post-log (M) 1058

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 565.54	Repeat Interval (ft): 320 → 220
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1527	Start Time: 1549
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1546	End Time: 1553
Start Depth/End Depth (ft): 8.53 - 8.85	Start Depth/End Depth (ft): 8.53 - 8.81
Depth Error (ft): 0.32	Depth Error (ft): 0.28

Comments: U 3/4 ⇄ @ 180 ft

Tool 2 - Neutron and Natural Gamma Ray Logs — PM check

1) GR Background and Sleeve (cps) Pre-log n/a Post-log 58 + 146
2) Neutron Attached Source (cps) Pre-log n/a Post-log 356
3) Neutron Removed Source (cps) Pre-log n/a Post-log 1.3

Survey Depth Information	**Repeat Log Depth Information**
Reference: ground surface	Reference: ground surface
Total Depth (ft): 565.56	Repeat Interval (ft): 310 → 210
Log Survey Information	**Repeat Log Survey Information**
Start Time: 1619	Start Time: 1642
Logging Speed (ft/min): 30	Logging Speed (ft/min): 30
End Time: 1638	End Time: 1645
Start Depth/End Depth (ft): 9.15 - 9.44	Start Depth/End Depth (ft): 9.15 - 9.34
Depth Error (ft): 0.29	Depth Error (ft): 0.19

Comments:

Shaw Group Inc.

KAFB Geophysical Logging QC Form

Date: 6/16/11

Project/Site: KAFB-BFF **Casing:** PVC **Shaw QC GP:** D. Castaneda
Location: Ridgecrest Pl **Diameter:** 5" **Logging Firm:** Jet West
Hole ID: KAFB-106039 **Well Depth:** 527ft **Screen Type/ Size:** PVC

N: 1476153.33 / E: 1541580.09 / Elev: 5318.6

Tool 1 - Induction and Natural Gamma Ray Logs BOS @ 522ft

	Pre-log check	Post-log check
1) GR Background and Sleeve (cps)	Pre-log 45 + 179	Post-log 37 + 127
2) Induction Cal. Coil Test (cps)	Pre-log (D) 4543	Post-log (D) 4466
	Pre-log (M) 7223	Post-log (M) 7079
3) Induction Zero Test (cps)	Pre-log (D) 910	Post-log (D) 892
	Pre-log (M) 1133	Post-log (M) 1053

Survey Depth Information		Repeat Log Depth Information	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	523.88	Repeat Interval (ft):	440 → 340
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	0811	Start Time:	0835
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	0828	End Time:	0838
Start Depth/End Depth (ft):	8.53 - 8.99	Start Depth/End Depth (ft):	8.53 - 8.91
Depth Error (ft):	0.46	Depth Error (ft):	0.38

Comments:
1 3/4 ⇄ @ 140 ft

Tool 2 - Neutron and Natural Gamma Ray Logs

	Pre-log check	Post-log check
1) GR Background and Sleeve (cps)	Pre-log 58 + 159	Post-log + 140
2) Neutron Attached Source (cps)	Pre-log 352	Post-log 364
3) Neutron Removed Source (cps)	Pre-log 1.0	Post-log 0.99

Survey Depth Information		Repeat Log Depth Information	
Reference:	ground surface	Reference:	ground surface
Total Depth (ft):	523.94	Repeat Interval (ft):	280 → 180
Log Survey Information		**Repeat Log Survey Information**	
Start Time:	0912	Start Time:	0932
Logging Speed (ft/min):	30	Logging Speed (ft/min):	30
End Time:	0929	End Time:	0936
Start Depth/End Depth (ft):	9.15 - 9.58	Start Depth/End Depth (ft):	9.15 - 9.38
Depth Error (ft):	0.43	Depth Error (ft):	0.23

Comments:
water table @ 464 ft