

Appendix G
Well Development Logs

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW944
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>15.78</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>--</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>--</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>--</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>--</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>--</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>--</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
pH												
SPEC. COND. (mS/cm)												
TEMPERATURE (°C)												
TURBIDITY (NTU)												

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 12/4/2012, 1420: well dry. Added 4 gal. of distilled water as per USACE approval and began development.
 Water level came up to grade level. 3.5 of 4 gal. was recovered after development. Turbidity = >1,000 NTU.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW945
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>17.88</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>--</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>--</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>--</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>--</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>--</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>--</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
pH												
SPEC. COND. (mS/cm)												
TEMPERATURE (°C)												
TURBIDITY (NTU)												

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 12/4/2012, 1450: well dry. Added 4 gal. of distilled water as per USACE approval and began development.
 2 of 4 gal. was recovered after development. Turbidity = >1,000 NTU, little fine sand.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW946
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 11/29/2012, 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>15.48</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>15.02</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>0.46</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>0.08</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>0.39</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>--</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
pH												
SPEC. COND. (mS/cm)												
TEMPERATURE (°C)												
TURBIDITY (NTU)												

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 11/29/2012 - water in PVC cap at base of screen.
 12/4/2012, 1600: DTW = 15.03 ft. Added 4 gal. of distilled water to the well per USACE approval and began development.
 3.5 of 4 gal. was recovered after development. Turbidity = >1,000 NTU, little fine sand.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW947
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 11/29/2012, 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>21.50</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>21.06</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>0.44</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>0.07</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>0.37</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>--</u>	8"	2.60

OR

$$V=0.0408 \times (\text{CASING DIAMETER})^2$$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
pH												
SPEC. COND. (mS/cm)												
TEMPERATURE (°C)												
TURBIDITY (NTU)												

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 Water in PVC cap at base of screen. Too little water to recover.
 12/4/2012, 1320: - well dry. Added 4 gal. of distilled water as per USACE approval and began development.
 2.5 of 4 gal. was recovered after development.
 Turbidity = >1,000 NTU, some fine sand .

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW948
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>17.79</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>--</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>--</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>--</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>--</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>--</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>--</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
pH												
SPEC. COND. (mS/cm)												
TEMPERATURE (°C)												
TURBIDITY (NTU)												

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 12/4/2012, 1255: well dry. Added 4 gal. of distilled water as per USACE approval and began development.
 3.75 of 4 gal. was recovered after development. Turbidity = >1,000.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW949

PROJECT NO.: 11176781.00009

STAFF: ██████████

DATE(S): 11/29/2012, 11/30/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>36.50</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>13.04</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>23.46</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>3.99</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>19.94</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>40.00</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	Initial	5	10	15	20	24	25	30	34	36	37	40
pH	11.77	11.90	11.81	9.98	9.92	9.18	9.70	9.63	9.59	8.90	9.15	9.38
SPEC. COND. (mS/cm)	2.152	2.212	2.147	2.457	2.428	2.518	2.431	2.399	2.412	2.414	2.410	2.407
TEMPERATURE (°C)	8.76	8.95	9.39	10.64	10.87	10.74	10.88	11.01	10.29	9.43	9.77	10.07
TURBIDITY (NTU)	>1,000	>1,000	>1,000	>1,000	>1,000	30.9	14.9	71.7	35.8	26.3	25.3	17.6

COMMENTS: Well developed using submersible pump with dedicated/disposable HDPE tubing.
 11/29/2012, 1320: DTW = 19.41 ft. Purged dry after 25 gal.
 11/30/2012, 1000: DTW = 13.88 ft. Purged dry after 15 gal. DTB = 43.96 ft

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW950
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 11/29/2012, 11/30/2012, 12/3/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>23.18</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>6.34</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>16.84</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>2.86</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>14.31</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>14.00</u>	8"	2.60
OR V=0.0408 x (CASING DIAMETER) ²			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	5	9.5	14							
pH	7.24	7.34	7.34	7.42							
SPEC. COND. (mS/cm)	2.600	2.556	2.458	2.705							
TEMPERATURE (°C)	12.12	11.28	10.51	13.23							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	>1,000							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 11/29/2012 - Purged dry after 5 gal.
 11/30/2012, 1620: DTW = 6.59 ft. Purged dry after 4.5 gal.
 12/3/2012, 1135: DTW = 6.22 ft. Purged dry after 4.5 gal.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW951
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 11/30/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>22.78</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>7.36</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>15.42</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>2.62</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>13.11</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>25.00</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	5	10	15	20	25					
pH	6.74	7.02	6.94	6.97	6.98	7.02					
SPEC. COND. (mS/cm)	1.847	1.655	1.712	1.387	1.415	1.369					
TEMPERATURE (°C)	12.40	11.86	12.58	11.66	11.51	11.64					
TURBIDITY (NTU)	>1,000	>1,000	>1,000	92.3	72.2	24.6					

COMMENTS: Well developed using submersible pump with dedicated/disposable HDPE tubing.
 11/30/2012 - Purged dry multiple times. Removed 25 gal. Turbidity less than 50 NTU.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW952

PROJECT NO.: 11176781.00009

STAFF: [REDACTED]

DATE(S): 12/3/2012, 12/4/2012, 12/5/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>12.35</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>4.53</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>7.82</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>1.33</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>6.65</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>3.50</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	2.5	3.5								
pH	7.72	7.71	7.53	7.53							
SPEC. COND. (mS/cm)	1.283	1.282	1.379	1.255							
TEMPERATURE (°C)	11.07	11.09	14.01	10.74							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	>1,000							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 12/3/2012, 1445: DTW = 10.56 ft. Purged dry after 2.5 gal.
 12/4/2012, 1020: DTW = 9.03 ft. Purged dry after 1 gal. Recharge rate approximately 0.10 ft/45 sec.
 12/5/2012, 1035: DTW = 9.87 ft. Purged dry.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW953
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 12/3/2012, 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>12.98</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>8.11</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>4.87</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>0.83</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>4.14</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>4.50</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	1.5	3	4.5							
pH	7.33	7.32	7.31	7.23							
SPEC. COND. (mS/cm)	1.560	1.555	1.404	1.391							
TEMPERATURE (°C)	11.61	11.67	12.29	13.49							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	876							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 12/3/2012, 1445: DTW = 8.24 ft.
 12/4/2012, 1034: DTW = 6.97 ft. Very little fines.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW954
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 12/3/2012, 12/4/2012, 12/5/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>13.18</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>10.55</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>2.63</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>0.45</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>2.24</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>1.75</u>	8"	2.60
OR V=0.0408 x (CASING DIAMETER) ²			

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	1	1.5	1.75							
pH	7.43	7.37	7.54	7.52							
SPEC. COND. (mS/cm)	1.597	1.620	1.706	1.399							
TEMPERATURE (°C)	12.64	12.69	13.90	7.53							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	>1,000							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 12/3/2012, 1455: DTW = 12.36 ft. Purged dry after 1 gal.
 12/4/2012, 1045: DTW = 11.95 ft. Purged dry after 0.5 gal.
 12/5/2012, 1050: DTW = 12.34 ft. Purged dry after 0.25 gal.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW955
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 12/3/2012, 12/4/2012, 12/5/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>18.29</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>5.76</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>12.53</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>2.13</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>10.65</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>9.00</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	4.5	7	9							
pH	7.35	7.41	7.41	7.32							
SPEC. COND. (mS/cm)	1.406	1.413	1.513	1.292							
TEMPERATURE (°C)	11.82	13.03	14.66	8.20							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	238							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 12/3/2012, 1456: DTW = 14.53 ft. Purged dry after 4.5 gal. 4 ft of recovery after approximately 4 hours.
 12/4/2012, 1105: DTW = 10.58 ft. Purged dry after 2.5 gal.
 12/5/2012, 1110: DTW = 10.99 ft. Purged dry after 2 gal.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW956

PROJECT NO.: 11176781.00009

STAFF: ██████████

DATE(S): 11/30/2012, 12/3/2012, 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>22.88</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>9.42</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>13.46</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>2.29</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>11.44</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>10.50</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	4	7.5	10.5							
pH	7.65	7.25	7.31	7.74							
SPEC. COND. (mS/cm)	1.712	1.599	1.636	1.634							
TEMPERATURE (°C)	11.88	10.82	13.74	14.96							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	>1,000							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 11/30/2012 - Purged dry after 4 gal.
 12/3/2012, 1223: DTW = 9.88 ft. Purged dry after 3.5 gal.
 12/3/12, 1520: DTW = 16.80 ft. Approximately 50% recover after 3 hours.
 12/4/2012, 0900: DTW = 12.64 ft at. Purged dry after 3 gal.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW957
 PROJECT NO.: 11176781.00009
 STAFF: ██████████
 DATE(S): 11/30/2012, 12/3/2012, 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	<u>17.98</u>	1" 0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	<u>9.89</u>	2" 0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	<u>8.09</u>	3" 0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	<u>0.17</u>	4" 0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	<u>1.38</u>	5" 1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	=	<u>6.88</u>	6" 1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	<u>9.00</u>	8" 2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	3	6	9							
pH	7.11	7.01	7.04	7.04							
SPEC. COND. (mS/cm)	1.992	1.947	2.235	2.335							
TEMPERATURE (°C)	9.81	9.55	13.70	14.21							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	>1,000							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 11/30/2012 - Purged dry after 3 gal.
 12/3/2012, 1310: DTW = 9.68 ft. Purged dry after 3 gal. Recharge rate approximately 0.10 ft/70 sec.
 12/4/2012, 0915: DTW = 9.48 ft. Purged dry after 3 gal.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW958

PROJECT NO.: 11176781.00009

STAFF: ██████████

DATE(S): 11/31/2012, 12/3/2012, 12/4/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>13.10</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>12.04</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>1.06</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>0.18</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>0.90</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>0.48</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	0.35	0.48								
pH	7.28	7.44	7.53								
SPEC. COND. (mS/cm)	0.980	1.171	1.219								
TEMPERATURE (°C)	8.63	12.92	13.90								
TURBIDITY (NTU)	96.3	65.0	72.1								

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 11/30/2012 - Purged dry after 0.25 gal.
 12/3/2012, 1333: DTW = 12.38 ft. Purged dry after 0.1 gal.
 12/4/2012, 0932: DTW = 12.53 ft. Purged dry after 0.13 gal.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW959

PROJECT NO.: 11176781.00009

STAFF: ██████████

DATE(S): 11/29/2012, 11/30/2012, 12/3/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>18.38</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>8.70</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>9.68</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>1.65</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>8.23</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>8.50</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	4	6	8.5							
pH	7.39	7.20	7.45	7.27							
SPEC. COND. (mS/cm)	1.573	1.653	1.559	1.690							
TEMPERATURE (°C)	10.91	12.16	10.48	13.44							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	179							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 11/29/2012 - Purged dry after 4 gal.
 11/30/2012, 1605: DTW = 12.69 ft. Purged dry after 2 gal.
 12/3/2012, 1207: DTW = 10.56 ft. Purged dry after 2.5 gal. Recharge rate approximately 0.10 ft/20 sec.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: NFSS - BOP Field Investigation WELL NO.: MW960

PROJECT NO.: 11176781.00009

STAFF: ██████████

DATE(S): 11/29/2012, 11/30/2012, 12/3/2012

		WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	= <u>18.15</u>	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	= <u>7.24</u>	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	= <u>10.91</u>	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	= <u>0.17</u>	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	= <u>1.85</u>	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	= <u>9.27</u>	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	= <u>14.00</u>	8"	2.60

OR
 $V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Initial	5	9.5	14							
pH	7.01	7.20	7.16	7.07							
SPEC. COND. (mS/cm)	1.368	1.352	1.360	1.474							
TEMPERATURE (°C)	11.86	12.01	10.63	12.89							
TURBIDITY (NTU)	>1,000	>1,000	>1,000	>1,000							

COMMENTS: Well developed using dedicated/disposable HDPE tubing with a surge block and check valve.
 11/29/2012 - Purged dry after 5 gal.
 11/30/2012, 1550: DTW = 9.60 ft. Purged dry after 4.5 gal.
 12/3/2012, 1150: DTW = 6.71 ft. Purged dry after 4.5 gal. Recharge rate approximately 0.10 ft/12 sec.