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Appendix C

**Monitoring Well
Development Logs**

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**SITE ASSESSMENT,
REMEDICATION &
REVITALIZATION**

PHASE II ESA WELL DEVELOPMENT LOGS

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC

Project No: 60323992.2 Date: 4/15/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC

Measuring Point Description TOC Geology at Screen Interval (if known) _____

Depth to Top of Screen (ft.) _____

Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1058

Total Well Depth (ft.) 14.31 Calculate Purge Volume (gal.) 1.08

Depth to Static Water Level (ft.) 7.68 Disposal Method 55 GAL Drum

Original Well Development Redevelopment Date of Original Development _____

Wellhead PID/FID NA

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	ORP Other
1157	0.5	17.93	5.17	59	>1100	4.62	Brown	None	199.9
1158	5.0	17.80	4.46	52	98.35	4.74	Cloudy	"	209.7
1149	10.0	17.54	3.74	48	>1100	5.26	Brown	"	235.4
1204	12.5	17.82	3.79	48	192.4	5.74	"	"	272.0
1209	15.0	17.77	3.15	45	86.9	5.89	Cloudy	"	256.6
1222	18.0	17.78	3.08	46	26.13	6.32	Cloudy	"	265.8
1230	20.0	17.90	3.04	47	29.58	6.57	"	"	264.7

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 5.4 gallons
 Maximum Turbidity Allowed NA NTUs
 Stabilization of parameters 10 %

Yes	No	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized

If no or N/A explain below:

DRY AT 5.5 GAL, ALLOW TO RECOVER BETWEEN READINGS.

Signature

J. Leaphart

Date:

4/15/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC
 Project No: 60323992.2 Date: 4/15/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description TOC Geology at Screen Interval _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1400
 Total Well Depth (ft.) 24.79 Calculate Purge Volume (gal.) 3.2
 Depth to Static Water Level (ft.) 4.80 Disposal Method 55 GAL DRUM
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1403	1.0	19.99	5.34	67	7100	6.90	Brown	None	202.2
1409	6.5	19.31	4.67	57	46.60	6.14	clear	"	250.1
1415	12.0	19.37	4.37	49	76.20	5.97	"	"	262.4
1418	17.0	19.41	4.28	45	13.94	6.12	clear	"	262.5
1421	20.0	19.52	3.58	45	10.97	6.47	"	"	297.1
1436	23.0	19.32	3.67	45	5.36	6.34	"	"	294.0
1442	30.0	19.47	3.54	45	7.19	5.74	"	"	288.7

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 16 gallons
 Maximum Turbidity Allowed 10 NTUs
 Stabilization of parameters 10 %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature _____

J. Leaphart

Date: _____

4/15/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC

Project No: 60323992.2 Date: 4/15/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC

Measuring Point Description Top Geology at Screen Interval (if known) _____

Depth to Top of Screen (ft.) _____

Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1519

Total Well Depth (ft.) 24.82 Calculate Purge Volume (gal.) 26

Depth to Static Water Level (ft.) 8.77 Disposal Method 55 Gal Drum

Original Well Development Redevelopment Date of Original Development _____ Wellhead PID/FID NA

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	ORP Other
1523	1.0	18.35	3.11	114	>1100	4.96	Brown	None	282
1527	6.0	17.94	3.31	127	154.6	4.71	"	"	241.8
1531	11.0	18.29	3.45	147	232.6	3.89	"	"	200.8
1537	16.0	18.31	3.37	123	411.5	2.65	Cloudy	"	209.9
1541	20.0	18.75	3.16	109	30.12	2.28	"	"	224.4
1603	25.0	18.53	4.06	159	164.8	3.25	Brown	"	251.3
1607	30.0	18.51	3.57	106	240.7	2.21	"	"	211.9
1613	35.0	18.79	3.40	104	1034	1.87	"	"	229.8
1625	40.0	18.44	3.43	115	60.34	1.82	Cloudy	"	190.2
1628	45.0	18.24	3.56	121	102.7	3.22	"	"	210.9
1632	50.0	18.33	3.51	118	59.29	3.09	"	"	208.6

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 13 gallons
 Maximum Turbidity Allowed NA NTUs
 Stabilization of parameters 10 %

Has required volume been removed Yes No N/A
 Has required turbidity been reached Yes No N/A
 Have parameters stabilized Yes No N/A
 If no or N/A explain below:

Signature _____

J. Leaphart

Date: _____

4/15/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC
 Project No: 60323992.2 Date: 4/15/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material Pvc
 Measuring Point Description Toe Geology at Screen Interval _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement _____
 Total Well Depth (ft.) 25.18 Calculate Purge Volume (gal.) 1.9
 Depth to Static Water Level (ft.) 13.75 Disposal Method 55 Gal Drum
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	ORP Other
1203	1.0	19.01	4.44	233	>1100	5.55	Brown	None	209.8
1207	5.0	18.67	3.70	118	>1100	2.31	"	"	221.5
1213	10.0	19.09	3.07	93	40.97	2.79	Cloudy	"	278.9
1219	15.0	19.18	3.12	95	31.42	4.05	Clear	"	267.9
1222	20.0	19.29	2.89	96	13.10	3.89	"	"	288.6

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 9.3 gallons
 Maximum Turbidity Allowed NA NTUs
 Stabilization of parameters 10 %

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A explain below:

Signature J Leaphart Date: 4/15/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC
 Project No: 60323992.2 Date: 4/16/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description TOC Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 0923
 Total Well Depth (ft.) 27.15 Calculate Purge Volume (gal.) 2.2
 Depth to Static Water Level (ft.) 13.57 Disposal Method SS Cap Down
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	ORP Other
0926	1.0	16.66	4.87	69	>1100	4.27	Brown	None	300.2
0932	6.0	16.30	4.48	67	124.1	3.83	"	"	274.3
0938	12.0	14.25	4.46	67	302.5	4.05	"	"	274.5
0944	18.0	16.30	4.01	50	277.0	2.93	"	"	303.2
0951	25.0	16.60	3.95	48	19.92	2.88	Clear	"	317.8
0957	31.0	16.25	3.99	48	16.93	2.86	"	"	320.7

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 11.0 gallons
 Maximum Turbidity Allowed NA NTUs
 Stabilization of parameters 10 %

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A explain below:

Water level and TD taken prior to well casing being cut off for flush protective casing.

Signature J Leaphart

Date: 4/16/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC
 Project No: 60323992.2 Date: 4/16/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PC
 Measuring Point Description _____ Geology at Screen Interval _____
 (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1324
 Total Well Depth (ft.) 25.45 Calculate Purge Volume (gal.) 1.7
 Depth to Static Water Level (ft.) 14.98 Disposal Method 55 Gall Drum
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1327	1.0	18.11	5.25	69	21100	2.26	Brown	None	189.2
1332	6.0	18.48	4.65	66	21100	0.73	"	"	212.8
1337	11.0	18.26	4.27	65	219.3	0.62	"	"	236.5
1342	16.0	18.50	4.01	64	86.64	0.49	Cloudy	"	249.3
1347	21.0	18.39	4.11	63	98.82	0.47	"	"	243.8
1352	26.0	18.29	4.15	62	38.64	0.60	Clear	"	244.8
1357	30.0	18.42	4.12	62	12.53	0.62	"	"	242.9

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 8.5 gallons
 Maximum Turbidity Allowed NA NTUs
 Stabilization of parameters 10 %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature _____

J. Leaphart

Date: _____

4/16/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC
 Project No: 60323992.2 Date: 4/16/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material Pvc
 Measuring Point Description TOC Geology at Screen Interval _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1030
 Total Well Depth (ft.) 26.26 Calculate Purge Volume (gal.) 2.3
 Depth to Static Water Level (ft.) 11.95 Disposal Method 55 GAL DOWN
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	OTSP Other
1034	1.0	16.16	3.25	43	>1100	3.43	Brown	None	362.3
1039	6.0	16.02	3.39	40	232.1	3.22	"	"	370.5
1044	11.0	16.55	3.54	39	>1100	2.60	"	"	443
1050	17.0	16.91	3.69	32	13.79	2.36	Clear	"	486.2
1055	22.0	16.72	3.79	55	7.78	3.54	"	"	266.2
1100	27.0	16.82	3.64	57	15.26	3.48	"	"	261.5
1105	32.0	16.15	3.45	55	20.18	2.73	"	"	375.2

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 11.5 gallons
 Maximum Turbidity Allowed 1.0 NTUs
 Stabilization of parameters 10 %

Yes No N/A

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized

If no or N/A explain below:

WATER LEVEL AND TD TAKEN PRIOR TO WELL CASING BEING CUT OFF FOR FLUSH PROTECTIVE CASING 1.38' ABOVE

Signature J. Leaphart

Date: 4/16/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC
 Project No: 60323992.2 Date: 4/16/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material Pvc
 Measuring Point Description TOC Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1543
 Total Well Depth (ft.) 25.24 Calculate Purge Volume (gal.) 2.0
 Depth to Static Water Level (ft.) 13.10 Disposal Method 55 Gal Drum
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
ysi	556	04M1480AA
micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	ORP Other
1548	1.0	19.11	5.91	98	>1100	6.22	Brown	→→→	167.9
1557	8.0	18.74	4.62	69	1469	2.74	"	"	265.1
1607	15.0	18.46	3.90	43	24.58	2.40	Clear	"	340.3
1617	20.0	18.37	3.79	40	53.62	2.04	"	"	371.5
1627	26.0	18.61	3.20	36	41.92	1.96	"	"	379.2
1640	32.0	18.51	3.16	35	37.25	2.11	"	"	410.4

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 10 gallons
 Maximum Turbidity Allowed NA NTUs
 Stabilization of parameters 10 %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes	No	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature _____

J. Leaphart

Date: _____

4/16/14

Well/Piezometer Development Record

Client: Shakespeare Site Location: Newberry SC

Project No: 60323992.2 Date: 4/16/14 Developer: James Leaphart

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC

Measuring Point Description TOC Geology at Screen Interval (if known) _____

Depth to Top of Screen (ft.) _____

Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1416

Total Well Depth (ft.) 25.57 Calculate Purge Volume (gal.) 2.1

Depth to Static Water Level (ft.) 12.80 Disposal Method 55 Gall Drum

Wellhead PID/FID NA

Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD Typhoon pump PURGE METHOD _____

Field Testing Equipment Used:	Make	Model	Serial Number
	ysi	556	04M1480AA
	micro tpw	200000	201104076

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1420	1.0	18.29	4.78	94	21100	6.86	Brown	None	232
1425	6.0	17.83	4.79	96	21100	6.31	"	"	232.5
1431	12.0	18.26	4.22	56	285.9	5.26	"	"	281.7
1436	17.0	18.49	4.10	52	268.3	4.72	"	"	297.8
1441	22.0	18.66	3.97	44	122.4	4.01	Clear	"	334.3
1451	32.0	18.86	3.95	42	52.36	3.01	Clear	"	354.8
1501	35.0	18.91	4.02	41	34.51	2.82	"	"	373.8
1507	40.0	19.03	3.92	40	32.98	2.61	"	"	419.0

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (5 well volumes) 10.5 gallons
 Maximum Turbidity Allowed NA NTUs
 Stabilization of parameters 10 %

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A explain below:

Signature J. Leaphart Date: 4/16/14

EI WELL DEVELOPMENT LOGS



Monitoring Well Development Log

Date Started (y/m/d) 8/15/14 Date Completed (y/m/d) _____
 Field Personnel C. Suddeth
 Site Name Shakespeare Newbery
 Job # _____
 Well ID # MW-2D
 _____ Upgradient _____ Downgradient _____
 Weather Conditions Sunny, warm
 Air Temperature _____ °F 90°

Total Well Depth (TWD) = 84.9 1/100 ft
 Depth to Ground Water (DGW) = 8.67 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 76.23 1/100 ft
 1 Casing Volume (OCV) = LWC x _____ gallons
 5 Casing Volumes = 250 gallons
 Method of Well Development Overpumping
 Total Volume of Water Removed _____ gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	ORP	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sample Comment	Remarks
1315	0.25	0	27.88	10.37	43.0	364	24.49	7.08	
1316	0.5								
1320	2.0		22.09	11.48	-1.2	21035	23.48	4.50	WL = 13.00
1330	2.0		22.35	11.44	-44.3	11097	29.55	8.72	WL = 41.50
1345	1.0		23.01	11.05	-46.0	448	29.02	9.20	WL = 70.40
1409	0.5		26.73	10.94	-9.2	617	32.60	6.18	WL = 81.77
1413									Turn off pump
1443									WL = 77.50
1300	2.0	Initial	21.83	11.29	126.4	666	10.14	2.38	WL = 8.83
1316	2.0		22.94	10.57	111.1	275	6.21	2.35	WL 44.30
1331	0.75		23.71	10.43		289	8.23	2.33	WL 64.92

COMMENTS/OBSERVATIONS: Development stopped on 8/15/14. Continued on 8/21/14.

WELL DEVELOPMENT

Well ID: ML-3D

~~NEW~~ Ground Water Sample Collection Record

Client: Shakespeare Date: 8/27/14 Time: Start 0900 am/pm
 Project No: 60318382.5 Finish 1140 am/pm
 Site Location: Newberry, SC
 Weather Conds: Clear, 70's - 90's Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)
 a. Total Well Length 105.02 c. Length of Water Column 90.32 (a-b) Casing Diameter/Material 4" PVC
 b. Water Table Depth 14.65 d. Calculated System Volume (see back) 58.7

2. WELL PURGE DATA
 a. Purge Method: Graveling
 b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'
 c. Field Testing Equipment used:

Make	Model	Serial Number
YSI	556	
HF Scientific	20000	

Time (24hr)	Volume Remove (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0944	2	19.53	8.03	278	2.24	207	7.99	2 GPM	23.20	Clear/None
0954	17	19.86	6.62	243	1.30	214.3	11.37	1.5 GPM	38.65	" "
1004	30	20.18	6.70	232	1.41	157.8	15.71	1.25	51.02	" "
1014	40	20.38	6.62	222	1.21	105.9	14.88	1.00	64.80	" "
1024	50	21.22	6.45	217	1.43	74.4	15.72	1.00	74.51	" "
1034	60	21.12	6.49	209	1.84	61.1	15.16	1.50	85.65	" "
1044	70	21.56	6.32	215	1.80	61.0	27.52	1.00	98.00	" "

d. Acceptance criteria pass/fail

Has required volume been removed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Bailer

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ML-3D</u>	<u>40 ml vial</u>	<u>3</u>	<u>None</u>	<u>VOC's</u>	<u>0930</u>

Comments: Drop @ 75 Gal. Sample Collected on 8/28/14
WL 14.78 at time of sample collection.

Signature: J. Leaphart Date: 8/28/14



Monitoring Well Development Log

Page 1 of 1

Date Started (yr/mo/day) 3/21/14 Date Completed (yr/mo/day) _____

Field Personnel S. Boss

Site Name Shakerstone - Newberry

Job # _____

Well ID # MW6D

Upgradient _____ Downgradient _____

Weather Conditions Sunny, hot

Air Temperature 70 °F

Total Well Depth (TWD) = 105.03 1/100 ft

Depth to Ground Water (DGW) = 16.64 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 88.47 1/100 ft

1 Casing Volume (OCV) = LWC x 0.65 = 57 (4" x 11) gallons

5 Casing Volumes = 287 gallons

Method of Well Development submersible pump

Total Volume of Water Removed _____ gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
9/7/14 1544	2 gpm	Instrul	24.81	11.87	-66.2	2632	Clear-17.21	0	WL - 18.6'
1600	1.0	32	21.47	11.93	-38.0	1831	clear-14.04	0	WL - 49.05'
1615	1.0	47	22.40	11.82	-74.7	1823	" 12.95	0	WL - 70.9'
1630	1.0	62	22.12	11.89	-82.8	1860	" 14.74	0	WL - 94.2'
1640	stopped pumping	allow well to recover		to recover		over night			WL - 103.9'
8/22/14 0937	2.6 gpm	10.5 GAL	21.60	11.40	102.2	868	13.06	0	86.64
0940	"	5.0	21.50	10.74	87.8	513	9.07	0	95.20
0943	"	10.0							103 (103)

COMMENTS/OBSERVATIONS:

Well Development/

Well ID: MW-7D

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Date: 8/27/14 Time: Start 1230 am/pm
 Project No: 60318382.5 Finish 1345 am/pm
 Site Location: Newberry, SC
 Weather Conds: Cloudy, 80's Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 94.87 c. Length of Water Column 80.07 (a-b) Casing Diameter/Material 4" / PVC
 b. Water Table Depth 14.8 d. Calculated System Volume (see back) 52

2. WELL PURGE DATA

a. Purge Method: Gravel Pack

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	-D.O.	10%
- pH	+ 1.0 unit	- ORP	± 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
YSI	556	
HF Scientific	20000	

Time (24hr)	Volume Remove (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1248	2	22.70	9.76	195	2.88	94.0	28.72	2.0	24.95	clear/none
1258	22	21.44	9.22	155	2.41	100.1	17.48	1.5	45.80	" "
1308	37	21.12	9.32	157	2.38	86.0	10.60	1.25	66.30	" "
1318	50	22.14	9.10	159	1.69	56.8	15.22	1.25	88.10	" "

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: BALLOON

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
MW 7D	40 mL VOA	3	None	VOC's	0945
Dup-1	40 mL VOA	3	None	VOC's	0945

Comments Dry @ 50 Gal Sample Collected on 8/28/14
WV @ 22.83 at time of sample collection

Signature J. Leaphart Date 8/28/14



Monitoring Well Development Log

Page 1 of 1

Total Well Depth (TWD) = 84.25 1/100 ft
 Depth to Ground Water (DGW) = 6.30 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 77.95 1/100 ft
 1 Casing Volume (OCV) = LWC x 1.47 ~~1.47~~ gallons
 3 Casing Volumes = 315 gallons
 Method of Well Development Graveling
 Total Volume of Water Removed 120 gallons

Date Started (yr/mo/day) 8/22/14 Date Completed (yr/mo/day) _____
 Field Personnel James Leppert
 Site Name SHAKESPEARE - NEWBERRY
 Job # 6032830B-1
 Well ID # RDW-1
 Upgradient Downgradient
 Weather Conditions Sunny, Hot 90's
 Air Temperature _____ °F

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
1047	~2.0	~2.0	19.23	12.87	-21.1	8357	14.94		Water Level
1050	~2.0	7.0	18.76	12.88	-21.4	7603	12.98		
1058	~1.5	20.0	18.98	12.84	-82.2	5106	7.92		12.75
1105	~1.5	30.0	18.95	12.72	-81.7	3177	10.37		20.25
1114	~1.2	40.0	18.90	12.79	-85.9	3615	10.25		24.80
1122	~1.2	50.0	18.87	12.77	-84.8	3584	13.41		37.80
1132	~1.0	60.0	19.34	12.75	-89.4	3566	13.19		44.00
1144	~1.0	70.0	19.33	12.73	-88.4	3544	12.22		51.50
1215	~0.75	90.0	20.77	12.70	-86.6	3298	10.08		57.35
1234	~1.50	120.0	19.46	12.68	-83.2	3236	9.86		67.60

COMMENTS/OBSERVATIONS:

PHASE I RI WELL DEVELOPMENT LOGS



Monitoring Well Development Log

Date Started (yr/mo/day) 8-5-15 Date Completed (yr/mo/day) 8-6-15
 Field Personnel JAMES LEPLANT
 Site Name SWALES POND
 Job # 60328308.11
 Well ID # MW-11
 Upgradient Downgradient
 Weather Conditions P. CLOUDY 80°
 Air Temperature _____ °F

Total Well Depth (TWD) = 30.32 1/100 ft
 Depth to Ground Water (DGW) = 13.63 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 16.69 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 2.7 gallons
 5 Casing Volumes = 13.5 gallons
 Method of Well Development WASTE PUMP
 Total Volume of Water Removed 15.0 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Fe ORP	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
0912	2.0	1.0	19.74	6.56	77.2	102	967	1.85	BROWN
0915	1.0	6.0	19.21	4.99	55	104	> 1100	0.64	"
0941	1.2	6.5	19.38	6.95	-12.1	106	> 1100	6.03	"
1003	0.75	7.5	19.69	6.98	-29.3	110	> 1100	4.72	"
1000	1.00	11.5	20.95	5.90	106	100	400	6.18	LT. BROWN
0846	2.0	12.5	18.86	6.03	116	116	326	6.08	"
0850	1.00	15.0	18.06	5.61	105.7	120	319	6.93	"

COMMENTS/OBSERVATIONS: TO FULLY RECOVER TO FULLY RECOVER - SLOW RECOVERY, 1008 ABOVE



Monitoring Well Development Log

Date Started (yr/mo/day) B-6-15 Date Completed (yr/mo/day) B-6-15
 Field Personnel JAMES LEONARDI
 Site Name SHAKESPEARE
 Job # 60328308.11
 Well ID # MW-12
 Upgradient Downgradient
 Weather Conditions P. Cloudy 70's
 Air Temperature _____ °F

Total Well Depth (TWD) = 31.37 1/100 ft
 Depth to Ground Water (DGW) = 6.65 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 24.72 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 4.0 gallons
 5 Casing Volumes = 20.0 gallons
 Method of Well Development Water Pump
 Total Volume of Water Removed 25.0 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (g/m ³)	Remarks
B-6/0930	2.0	2.0	18.08	5.95	111	>1100	1.06	ET PDR
0934	1.0	5.0	18.07	5.43	109	>1100	1.15	
0946	1.0	10.0	17.46	5.50	95	>1100	4.25	
1013	1.0	15.0	17.89	5.69	93	>1100	5.98	
1024	1.0	20.0	17.89	5.60	87	329	5.70	
1046	1.0	25.0	18.00	5.67	90	309	6.54	

COMMENTS/OBSERVATIONS: _____



Monitoring Well Development Log

Date Started (yr/mo/day) 8-6-13 Date Completed (yr/mo/day) 8-6-13
 Field Personnel JAMES LEFKOWITZ
 Site Name SWAKESVILLE
 Job # 60328308.11
 Well ID # MJ-13
 Upgradient Downgradient
 Weather Conditions P. Cloudy, 80's
 Air Temperature _____ °F

Total Well Depth (TWD) = 25.29 1/100 ft
 Depth to Ground Water (DGW) = 3.97 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 21.32 1/100 ft
 1 Casing Volume (OCV) = LWC x 163 = 3.47 gallons
 5 Casing Volumes = 17.0 gallons
 Method of Well Development WALKER PUMP
 Total Volume of Water Removed 30 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	EC (µS/cm)	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
8-6-13 1124	2.0	1.5	18.31	6.08	9.0	155	>1100	1.80	
1127	5.5	5.0	18.61	6.13	16.4	165	>1100	1.01	
1135	2.0	10.0	17.54	6.06	12.2	126	>1100	2.00	
1140	2.0	15.0	17.61	5.42	34.8	121	>1100	3.00	
1144	2.0	20.0	17.68	5.01	44.4	122	>1100	2.31	
1304	2.0	26.0	20.58	6.20	19.9	135	640	3.37	
1309	2.0	30.0	18.05	5.91	27.7	112	493	3.80	

COMMENTS/OBSERVATIONS:



Monitoring Well Development Log

Date Started (yr/mo/day) 8-5-15 Date Completed (yr/mo/day) 8-6-15
 Field Personnel JAMES LEONARDI
 Site Name SPATESE
 Job # 60378308,11
 Well ID # MWS-14
 Upgrade Downgradient
 Weather Conditions P. CLOUDY 90's
 Air Temperature _____ °F

Total Well Depth (TWD) = 20.22 1/100 ft
 Depth to Ground Water (DGW) = 3.15 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 17.07 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 2.8 gallons
 5 Casing Volumes = 14 gallons
 Method of Well Development WHALE PUMP
 Total Volume of Water Removed 35.0 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	ET (gpm)	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
1400	2.0	2.0	23.66	6.33	7.1	158	>1100	1.27	
1403	2.0	4.0	20.73	6.15	18.1	119	>1100	1.46	
1511	2.0	16.0	22.73	6.11	75.0	97	616	5.25	
1514	2.0	28.0	20.36	5.90	61.4	106	>1100	2.27	
1521	2.0	25.0	20.02	5.99	94.5	75	>1100	4.43	
1527	2.0	30.0	19.55	5.38	130.6	68	>1100	4.34	
8-6/09-4	2.0	35.0	20.82	5.19	101.4	76	261	4.42	

COMMENTS/OBSERVATIONS: _____



Monitoring Well Development Log

Date Started (yr/mo/day) 8-5-15 Date Completed (yr/mo/day) 8-5-15
 Field Personnel JAMES W. HART
 Site Name SUNSHINE
 Job # 60328308.11
 Well ID # NW-15
 Upgrade Downgradient
 Weather Conditions Clear, 90's
 Air Temperature _____ °F

Total Well Depth (TWD) = 11.63 1/100 ft
 Depth to Ground Water (DGW) = 3.37 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 8.26 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 1.3 gallons
 5 Casing Volumes = 6.5 gallons
 Method of Well Development WATER PUMP
 Total Volume of Water Removed 11.0 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	SP ORP	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
1205	2.0	2.0	24.88	6.21	—	157	2100	6.29	Brown
1219	2.0	5.0	23.97	6.11	72.8	117	7100	3.58	"
1236	2.0	6.0	23.46	5.88	84.9	101	1039	3.86	"
1315	2.0	8.5	23.33	5.93	107.6	91	993	4.37	"
1341	2.0	11.0	22.24	5.89	117.9	86	529	4.66	"

COMMENTS/OBSERVATIONS: DRY @ 2.5 GALLONS, MODERATE RECOVERY RATE
0.2' SLICK DR.



Monitoring Well Development Log

Date Started (yr/mo/day) 8-6-15 Date Completed (yr/mo/day) 8-6-15
 Field Personnel JAMES WOODBORN
 Site Name SHANKS FARM
 Job # 6032830B.11
 Well ID # MW-16
 Upgradient Downgradient
 Weather Conditions Cloudy 90's
 Air Temperature _____ °F

Total Well Depth (TWD) = 20.29 1/100 ft
 Depth to Ground Water (DGW) = 8.22 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 12.07 1/100 ft
 1 Casing Volume (OCV) = LWC x 1.63 = 1.96 gallons
 5 Casing Volumes = 9.8 gallons
 Method of Well Development LIQUID PUMP
 Total Volume of Water Removed 12 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	SP OR EIP	Specific Conductivity (umhos/cm)	Turbidity/Color	Sand Content (Do (%))	Remarks
8-6-1535	2.0	2.0	20.22	6.46	64.8	213	503	4.15	
1337	2.0	5.0	18.62	6.18	35.7	308	415	1.91	
1343	2.0	10.0	18.38	5.58	64.5	311 249 (SD)	249	5.03	
1349	2.0	12.0	18.12	5.27	108	344	184	5.03	

COMMENTS/OBSERVATIONS:



Monitoring Well Development Log

Date Started (yr/mo/day) 8-7-15 Date Completed (yr/mo/day) 8-7-15
 Field Personnel JAMES LEONARD
 Site Name SHAKESPEARE
 Job # 60328308.11
 Well ID # MW-17
 Upgradient Downgradient
 Weather Conditions P. Cloudy To's
 Air Temperature _____ °F

Total Well Depth (TWD) = 30.27 1/100 ft
 Depth to Ground Water (DGW) = 6.70 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 23.57 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 3.8 gallons
 5 Casing Volumes = 19 gallons
 Method of Well Development WATER PUMP
 Total Volume of Water Removed 20.0 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	EFF	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content	Remarks
8-7 0846	2.0	3.0	18.11	5.15	DIRT	108	1017	2.05	Do not sample
0850	2.0	7.0	17.65	3.94		124	733	2.42	
0853	2.0	12.0	17.65	3.13		117	310	2.44	
0856	2.0	17.0	17.55	3.40		119	187	2.37	
0858	2.0	20.0	17.50	3.57		114	128	1.35	

COMMENTS/OBSERVATIONS:



Monitoring Well Development Log

Date Started (yr/mo/day) 8-7-15 Date Completed (yr/mo/day) 8-7-15
 Field Personnel James Leahart
 Site Name Stokespear-E
 Job # 60328308.11
 Well ID # MW-20
 ___ Upgradient Downgradient
 Weather Conditions P. Cloudy 70's
 Air Temperature _____ °F

Total Well Depth (TWD) = 35.32 1/100 ft
 Depth to Ground Water (DGW) = 9.11 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 26.11 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 4.3 gallons
 5 Casing Volumes = 21.5 gallons
 Method of Well Development _____
 Total Volume of Water Removed _____ gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (Do #/ft ml)	Remarks
8-7/1041	2.0	1.5	19.08	6.26	73.8	147	>1100	5.14	
1045	1.5	5.0	19.23	6.21	15.9	144	>1100	2.42	
1053	1.5	10.0	18.87	6.34	4.5	126	>1100	2.68	
1116	1.5	15.0	18.61	6.27	41.5	107	>1100	4.70	
1120	1.5	20.0	18.73	5.83	36.7	99	924	5.13	
1124	1.0	25.0	18.78	5.40	67.3	91	372	5.39	
1139	1.0	30.0	19.12	5.69	59.8	83	125	6.13	
1145	1.0	35.0	18.71	5.45	74.8	82	80	5.79	

COMMENTS/OBSERVATIONS: _____



Monitoring Well Development Log

Date Started (yr/mo/day) 8-7-15 Date Completed (yr/mo/day) 8-7-15
 Field Personnel JAMES LEAHART
 Site Name SHAKESPEARE
 Job # 60328308.11
 Well ID # MW-21
 Upgradient Downgradient
 Weather Conditions P. Cloudy, 80's
 Air Temperature _____ °F

Total Well Depth (TWD) = 24.17 1/100 ft
 Depth to Ground Water (DGW) = 13.41 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 10.76 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 1.7 gallons
 5 Casing Volumes = 8.5 gallons
 Method of Well Development WATER PUMP
 Total Volume of Water Removed _____ gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (ppm)	Remarks
8-7 / 1209	2.0	2.0	21.86	6.29	80.1	211	>1100	3.91	
1211	2.0	5.0	22.14	6.32	66.4	212	658	3.15	
1216	2.0	10.0	20.17	6.96	91.7	133	71100	3.59	
1220	2.0	15.0	19.67	6.51	125.4	118	456	3.08	
1243	2.0	20.0	19.93	6.63	123.5	116	210	2.69	
1249	2.0	25.0	19.57	6.53	129.4	111	330	2.79	
1257	2.0	30.0	19.36	6.61	124.9	109	200	2.78	

COMMENTS/OBSERVATIONS:

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry SC
 Project No: 60328308 Date: 8/12/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description Flash Mount Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1010
 Total Well Depth (ft.) 54.73 Calculate Purge Volume (gal.) 6.54
 Depth to Static Water Level (ft.) 14.59 Disposal Method _____
 Original Well Development Redevelopment Wellhead PID/FID _____
 Date of Original Development _____

DEVELOPMENT METHOD

Typhoon pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
<u>YSI</u>	<u>556</u>	<u>0501520AU</u>
<u>HE Scientific</u>	<u>MicroTRV</u>	<u>200704111</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1015	Initial	26.89	5.84	0.317	21100	2.31			
1025	~7	21.20	5.10	0.276	21100	1.24			
1035	~14	20.38	4.92	0.232	21100	1.35			
1040	~21	20.88	4.96	0.218	85.41	1.47			
1055	~28	20.73	4.94	0.206	92.14	1.51			
1055	~35	20.71	4.91	0.202	16.26	1.46			

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature J Butler

Date: 8/12/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry SC
 Project No: 60328308 Date: 8/12/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description Flush Mount Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____
 Total Well Depth (ft.) 53.11 Time of Water Level Measurement 1100
 Depth to Static Water Level (ft.) 7.90 Calculate Purge Volume (gal.) 7.39
 Disposal Method _____
 Wellhead PID/FID _____
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Field Testing Equipment Used:

Typhoon Pump

PURGE METHOD

Make	Model	Serial Number
<u>YSE</u>	<u>556</u>	<u>0501520AU</u>
<u>HE SeconPic</u>	<u>MicroTPW</u>	<u>2007 04141</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1152	Initial	19.19	5.98	0.191	21100	1.56			
1202	~10	18.56	5.34	0.115	6440	3.47			
1212	~20	18.60	4.71	0.100	353.0	4.14			
1222	~30	18.19	4.75	0.095	114.1	5.02			
1232	~40	18.60	4.72	0.092	130.2	5.11			

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes	No	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature J Butler

Date: 8/12/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry SC
 Project No: 60328308 Date: 8/11/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description Flush Mount Geology at Screen Interval _____
 (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 0945
 Total Well Depth (ft.) 54.83 Calculate Purge Volume (gal.) 5.63
 Depth to Static Water Level (ft.) 20.31 Disposal Method _____
 Wellhead PID/FID _____
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon Pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
<u>YSE</u>	<u>556</u>	<u>05P1520 AU</u>
<u>HEScientific</u>	<u>MicroPW</u>	<u>2007041141</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
0949 <u>0949</u>	<u>Initial</u>	<u>18.25</u>	<u>6.78</u>	<u>0.240</u>	<u>1057</u>	<u>10.78</u>			
<u>0959</u>	<u>~5</u>	<u>19.22</u>	<u>6.15</u>	<u>0.247</u>	<u>7100</u>	<u>8.88</u>			
<u>1014</u>	<u>~10 (Dry)</u>	<u>19.62</u>	<u>6.11</u>	<u>0.218</u>	<u>832.6</u>	<u>7.18</u>			
1505 <u>1505</u>	<u>~15</u>	<u>18.98</u>	<u>5.54</u>	<u>0.235</u>	221.9 <u>437.5</u>	<u>5.38</u>			
<u>1610</u>	<u>~20</u>	<u>19.92</u>	<u>5.99</u>	<u>0.185</u>	<u>445.2</u>	<u>3.82</u>			
<u>1625</u>	<u>~25</u>	<u>19.64</u>	<u>6.06</u>	<u>0.190</u>	<u>350.5</u>	<u>4.00</u>			<u>Holds @ 0.3 g/min</u>
<u>1640</u>	<u>~30</u>	<u>19.85</u>	<u>6.08</u>	<u>0.184</u>	<u>230.2</u>	<u>3.95</u>			

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized

Yes No N/A

If no or N/A explain below:

Signature J Butler

Date: 8/11/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 60328308 Date: 8/19/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____
 Total Well Depth (ft.) 46.55
 Depth to Static Water Level (ft.) 10.5
 Geology at Screen Interval (if known) _____
 Time of Water Level Measurement _____
 Calculate Purge Volume (gal.) 587
 Disposal Method _____
 Wellhead PID/FID _____
 Date of Original Development _____

Original Well Development Redevelopment

DEVELOPMENT METHOD

Typhoon Pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
<u>YST</u>	<u>SS6</u>	<u>0501520AV</u>
<u>HEWLETT</u>	<u>MED TPN</u>	<u>208701141</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

8/20
8/21

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1506	Initial	22.51	7.30	0.213	7100	0.68			
1516	~6	22.24	7.18	0.204	7100	0.50			
1150	~11	20.76	5.12	0.157	926.3	4.14			Dry
1745	~16	20.85	5.04	0.160	7100	5.81			Dry (Recharge 15')
0925	~21	20.37	4.90	0.153	7100.0	5.47			Dry (Recharge 16.5')
1605	~26	20.27	4.85	0.146	7100.0	5.62			Dry (Recharge 13.75')
					7100.0	5.62			Dry (Recharge to 12.84')

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature [Signature]

Date: 8/21/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 60328308 Date: 8/24/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____
 Total Well Depth (ft.) 57.00
 Depth to Static Water Level (ft.) 18.86
 Geology at Screen Interval (if known) _____
 Time of Water Level Measurement 0945
 Calculate Purge Volume (gal.) 6.26
 Disposal Method _____
 Wellhead PID/FID _____
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

Typhoon Pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
<u>YSE</u>	<u>556</u>	<u>0501520 AU</u>
<u>HFSuwater</u>	<u>MICROTPV</u>	<u>200704141</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
0948	Initial	20.61	6.63	0.508	7100	6.64			
0958	~7.0	20.81	5.66	0.336	1068	1.72			
1008	~13.0	20.10	5.24	0.408	349.4	2.47			
1018	~19.0	20.16	5.21	0.492	163.5	2.96			
1028	~25.0	20.21	5.31	0.548	70.02	3.19			
1038	~31.0	20.35	5.36	0.581	52.91	3.30			
									Steady @ 0.6 gal/min

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature [Signature]

Date: 8/24/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 60328303 Date: 8/24/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description _____ Geology at Screen Interval (If known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____
 Total Well Depth (ft.) 50 Time of Water Level Measurement _____
 Depth to Static Water Level (ft.) 20.2 Calculate Purge Volume (gal.) 4.86
 Disposal Method _____
 Wellhead PID/FID _____
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
YSI	556	0501520AU
HFSerientHRz	MicroTPW	2007041141

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

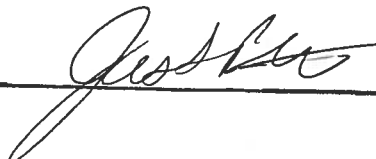
Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1310	Initial	21.73	7.42	0.176	71100	0.17			
1320	~ 7.0	21.08	5.76	0.153	615.3	1.29			
1330	~ 14.0	20.62	5.18	0.135	711.9	1.79			
1340	~ 21.0	20.97	5.21	0.122	202.7	1.95			
1350	~ 28.0	21.08	5.76	0.113	109.4	2.01			

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature 

Date: 8/24/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 60328308 Date: 8/24/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description _____ Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement _____
 Total Well Depth (ft.) 17.69 Calculate Purge Volume (gal.) 4.79
 Depth to Static Water Level (ft.) 47.10 Disposal Method _____
 Wellhead PID/FID _____

Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD -Typhoon Pump PURGE METHOD _____

Field Testing Equipment Used:

Make	Model	Serial Number
<u>YSE</u>	<u>556</u>	<u>0501520AW</u>
<u>HFSuenerHC</u>	<u>MicroPUN</u>	<u>200709141</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1059	Initial	19.65	6.83	0.220	7160	0.74			
1109	~7	19.28	4.93	0.155	517.2	1.24			
1119	~14	19.41	5.18	0.125	274.5	2.26			
1129	~21	19.69	5.17	0.109	87.05	1.74			
1139	~28	19.78	5.16	0.101	38.77	1.87			steady @ 0.75 gal/min

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed Yes No N/A
 Has required turbidity been reached Yes No N/A
 Have parameters stabilized Yes No N/A
 If no or N/A explain below:

Signature: [Signature] Date: 8/24/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 60328308 Date: 8/24/15 Developer: JBT/Her

WELL/PIEZOMETER DATA

Well Piezometer Diameter _____ Material _____
 Measuring Point Description _____ Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement _____
 Total Well Depth (ft.) 47.60 Calculate Purge Volume (gal.) 4.59
 Depth to Static Water Level (ft.) 19.42 Disposal Method _____
 Original Well Development Redevelopment Wellhead PID/FID _____
 Date of Original Development _____

DEVELOPMENT METHOD

Typhoon Pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
YSE	556	0501520AW
HF Scientific	MicroTPW	200701141

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1227	Initial	20.63	8.40	0.306	71100	1.23			
1234	~5	20.60	7.69	0.300	71100	1.16			
1509	~10	22.47	6.25	0.243	71100	6.88			Dry
1539	~15	22.86	6.38	0.172	772.6	5.73			Recharge to 20-25'
1549	~20	22.35	6.34	0.147	591.0	5.36			Steady @ 0.25 gal/min

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature _____



Date: _____

8/24/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 60328308 Date: 8/25/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description _____ Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement _____
 Total Well Depth (ft.) 24.79 Calculate Purge Volume (gal.) 1.69
 Depth to Static Water Level (ft.) 14.41 Disposal Method _____
 Wellhead PID/FID _____

Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

PURGE METHOD _____

Field Testing Equipment Used:

Make	Model	Serial Number
<u>YSE</u>	<u>556</u>	<u>08J101253</u>
<u>HF Scientific</u>	<u>MICRO PW</u>	<u>201503451</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
0948	Initial	19.84	5.79	0.165	71160	2.71			
0952	~2	19.92	3.80	0.083	894.9	3.38			
1022	~4	19.86	4.88	0.076	400.4	2.77			Dry
1042	~6	19.96	4.98	0.076	197.8	2.61			Dry (Recharge to 15.2')
1102	~8	20.04	4.92	0.076	174.2	2.70			Dry (Recharge to 15.74')
									Dry (Recharge to 15.91')

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature [Handwritten Signature]

Date: 8/25/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 6032830B Date: 8/27/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC

Measuring Point Description _____ Geology at Screen Interval (if known) _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement _____
 Total Well Depth (ft.) 40.97 Calculate Purge Volume (gal.) 5.04
 Depth to Static Water Level (ft.) 10.02 Disposal Method _____
 Wellhead PID/FID _____
 Original Well Development Redevelopment Date of Original Development _____

DEVELOPMENT METHOD

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
YSE	556	08J101253
HF SCIENTIFIC	MICROTPW	201503451

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

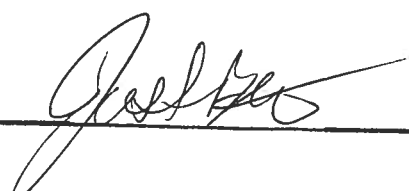
Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
10:31	Initial	19.91	8.36	0.244	71100	3.68			
10:41	~10	19.66	7.14	0.169	791.1	3.65			
10:51	~20	19.32	6.84	0.135	192.2	3.79			
1:01	~30	19.25	6.60	0.120	65.3	3.82			
1:11	~40	19.27	6.57	0.115	76.46	3.86			

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Yes No N/A

Signature 

Date: 8/27/15

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
 Project No: 60328308 Date: 8/26/15 Developer: JButler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVL
 Measuring Point Description _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____
 Total Well Depth (ft.) 39.72
 Depth to Static Water Level (ft.) 66.91
 Geology at Screen Interval (if known) _____
 Time of Water Level Measurement _____
 Calculate Purge Volume (gal.) 4.43
 Disposal Method _____
 Wellhead PID/FID _____
 Date of Original Development _____

Original Well Development Redevelopment

DEVELOPMENT METHOD

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
YSE	SSG	08J101253
HFScientific	MICROTPW	201503451

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
09:50	Initial	20.35	12.20	8.894	71100	5.22			
10:20	~4.5	22.76	12.14	8.770	71100	5.34			
16:20	~5.25	22.82	12.03	6.715	71100	4.92			Dry
10:00	~6.00	21.06	11.90	6.095	71100	7.16			Dry (Recharge to 61.5')
									Dry (Recharge to 59.7')

3/27

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
 Maximum Turbidity Allowed _____ NTUs
 Stabilization of parameters _____ %

Has required volume been removed Yes No N/A
 Has required turbidity been reached Yes No N/A
 Have parameters stabilized Yes No N/A
 If no or N/A explain below:

Signature _____

Date: _____

AECOM

Well/Piez. ID:
MW-22

Well/Piezometer Development Record

Client: Phillips Site Location: Newberry, SC
Project No: 60328308 Date: 8/27/15 Developer: J Butler

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC

Measuring Point Description _____
Depth to Top of Screen (ft.) _____
Depth to Bottom of Screen (ft.) _____
Total Well Depth (ft.) 26.85
Depth to Static Water Level (ft.) 13.32

Geology at Screen Interval (if known) _____
Time of Water Level Measurement _____
Calculate Purge Volume (gal.) 2.09
Disposal Method _____
Wellhead PID/FID _____
Date of Original Development _____

Original Well Development Redevelopment

DEVELOPMENT METHOD

Typhoon Pump

PURGE METHOD

Field Testing Equipment Used:

Make	Model	Serial Number
YSI	556	081101253
HFScientific	MicroTPW	201503451

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1219	Initial	21.68	7.28	0.107	71100	5.00			
1225	~2.25	21.29	6.66	0.136	71100	3.89			
1245	~3.40	20.97	6.36	0.122	71100	4.46			Dry
1305	~4.40	21.29	6.21	0.116	71100	5.88			Dry (Recharge to 19.5')
1450	~6.75	21.71	5.91	0.106	71100	6.00			Dry (Recharge to 20.5')
1558	~9.00	21.09	5.22	0.103	71100	7.31			Dry (Recharge to 13.95')
									Dry (Recharge to 14.30')

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
Maximum Turbidity Allowed _____ NTUs
Stabilization of parameters _____ %

Has required volume been removed
Has required turbidity been reached
Have parameters stabilized
If no or N/A explain below:

Yes No N/A

Signature [Signature]

Date: 8/27/15

Well/Piezometer Development Record

Client: SWAKES POND Site Location: NEWBERRY, SC
 Project No: _____ Date: 1-13-16 Developer: JAMES LEAPHANT

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description TOC Geology at Screen Interval _____
 Depth to Top of Screen (ft.) _____ (if known) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement _____
 Total Well Depth (ft.) 36.37 Calculate Purge Volume (gal.) 3.50 * 5 = 17.5 GAL
 Depth to Static Water Level (ft.) 8.85 Disposal Method 55 Gall Drum
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development 1-13-16

DEVELOPMENT METHOD Whale Pump PURGE METHOD Surge + Purge

Field Testing Equipment Used:

Make	Model	Serial Number
<u>YSI</u>	<u>556</u>	<u>08101253</u>
<u>HANNA MICRO TAW</u>	<u>20000</u>	<u>201503451</u>

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1000	1.00	17.85	7.01	70	>1100	8.37	TAN	NO	146.7
1005	5.00	18.04	5.83	67	853.4	7.35	MILKY	NO	171.2
1009	10.00	18.56	5.35	66	>1100	6.60	"	NO	195.0
1014	15.00	18.18	5.22	66		6.05	"	NO	202.6

ACCEPTANCE CRITERIA (from workplan)
 Min. Purge Volume (5 well volumes) 17.5 gallons
 Maximum Turbidity Allowed 10 NTUs
 Stabilization of parameters 10%

Has required volume been removed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A explain below:

Signature J. Leaphant Date: 1-13-16

Well/Piezometer Development Record

Client: Sherwin-Williams Site Location: Newberry, SC
 Project No: _____ Date: 1-13-16 Developer: James Leppert

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material PVC
 Measuring Point Description TOC Geology at Screen Interval _____
 Depth to Top of Screen (ft.) _____
 Depth to Bottom of Screen (ft.) _____ Time of Water Level Measurement 1046
 Total Well Depth (ft.) 25.27 Calculate Purge Volume (gal.) 2.03 x 5
 Depth to Static Water Level (ft.) 12.78 Disposal Method 55 Gal Drum = 10.18
 Wellhead PID/FID NA
 Original Well Development Redevelopment Date of Original Development 1-13-16

DEVELOPMENT METHOD Whale Pump PURGE METHOD Surge + Purge

Field Testing Equipment Used:
 Make YSI Model 556 Serial Number 08J101253
MICRO TPW 20000 201503451

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1051	1.00	18.37	4.96	32	>1100	7.76	BROWN	NO	230.2
1054	5.00	18.30	4.96	34	73.15	7.75	CLEAR	NO	243.8
1057	10.00	18.67	4.70	36	19.01	7.44	"	NO	252.7
1102	15.00	18.47	4.79	37	19.49	7.37	"	NO	253.6

ACCEPTANCE CRITERIA (from workplan)
 Min. Purge Volume (6 well volumes) 10.2 gallons
 Maximum Turbidity Allowed 10 NTUs
 Stabilization of parameters 10%

Yes No N/A
 Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A explain below:

Signature [Signature] Date: 1-13-16

Low Flow Ground Water Sample Collection Record

Client: SHAKESPEARE Date: 2-23-16 Time: Start _____ am/pm
 Project No: 60328308.10 Finish _____ am/pm
 Site Location: NEWBERRY, SC
 Weather Conds: P. CLOUDY 40's - 60's Collector(s): JAMES LEIGHTON/EL

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 41.20 c. Length of Water Column 27.84 (a-b) Casing Diameter/Material
2" PVC
 b. Water Table Depth 13.34 d. Calculated System Volume (see back) 4.5 Gals

x 5 = 23 Gals

2. WELL PURGE DATA

a. Purge Method: WHALE PUMP

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used: Make _____ Model _____ Serial Number _____

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
10:45	0.25	17.31	8.28	0.181	0.79	-88.8	1071			brown/milky-grey
10:55	4.00	17.50	8.36	0.163	0.80	-108.4	71100			" "
11:08	7.5	17.86	8.80	0.155	4.20	-24.3	71100			" "
11:21	10.00	17.70	7.14	0.141	56.9	93.2	906.1			" " more clear
11:51	14.00	17.62	6.55	0.173	11.7	-51.2	21100			" "
12:59	18.00	16.44	6.55	0.108	5.46	70.4	206.3			Cloudy
14:18	24.00	17.39	5.40	0.087	5.40	127.1	65.24			Clear

d. Acceptance criteria pass/fail Yes No N/A (continued on back)

- Has required volume been removed
- Has required turbidity been reached
- Have parameters stabilized

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: _____

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>NA</u>					

Comments stick up 2.5' Total 29 gallons removed

Signature [Signature] Date 2-23-16

Well Development and Groundwater Sample
Low Flow Ground Water Sample Collection Record

Client: Philips Date: 2/20/16 Time: Start 10 am/pm
 Project No: 60328308.10 Finish _____ am/pm
 Site Location: Newberry, SC
 Weather Conds: pt cloudy 40-50' Collector(s): S Ross / J Teagarden

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 30' c. Length of Water Column 11.28 (a-b) Casing Diameter/Material sch 40 pvc / 2"
 b. Water Table Depth 8.72 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Submersible pump

b. Acceptance Criteria defined (see workplan)

- Temperature	3%	- D.O.	10%
- pH	+ 1.0 unit	- ORP	+ 10mV
- Sp. Cond.	3%	- Drawdown	< 0.3'

c. Field Testing Equipment used: Make _____ Model _____ Serial Number _____

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
Initial	10.0	15.52	7.93	114	1.4	-92	>1000			light brown
1118	11.0	17.28	7.07	1094	1.38	-63.8	>1100			
1130	16.0	17.27	6.52	1086	1.61	-47.8	778			
1138	20.0	17.37	6.42	1091	1.98	-37.6	>1100			
1203	25.0	17.80	6.25	1081	1.81	-25.4	183.4			
1218	30.0	17.58	6.11	1081	2.17	-12.9	288.4			
1224	33.0	17.07	6.07	1079	.	-3.0	100.8			

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Soda straw using peristaltic pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
MW25	40 ml vial	3	None	TCL VOCs	1330

Comments _____

Signature [Signature] Date 2/20/16



Well/Piezometer Development Record

Well/Piez. ID: MW-9D

Client: Philips Site Location: Shakespeare - Newberry
Project No: 60326308 Date: 4/19/16 Developer: _____

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material 80% 40 Pre
Measuring Point Description TC Geology at Screen Interval (if known) bedrock granite (cross threaded)
Depth to Top of Screen (ft.) 144.06
Depth to Bottom of Screen (ft.) 154.06 Time of Water Level Measurement 0917
Total Well Depth (ft.) 154.06 Calculate Purge Volume (gal.) 23.2 gal
Depth to Static Water Level (ft.) 11.74 Disposal Method _____
142.32 Wellhead PID/FID N/A
Original Well Development Redevelopment Date of Original Development 4/19/16

DEVELOPMENT METHOD

PURGE METHOD

Field Testing Equipment Used: _____
Make HACH Model 2100Q Serial Number _____
VSI 556

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1009	5g	20.74	7.02	.164	20.0	17.97	clear/brown	-	-
1009	10g	21.76	7.31	.145	20.6	10.29	brown/red	-	-
1011	15g	21.96	7.83	.151	30.5	8.70	brown	-	-
1018	17.85g	21.81	8.41	0.152	63.8	11.85	clear	-	-
1024	20.0g	22.85	10.75	0.512	164.	10.55	Murky	-	-
1108	25.0g	22.28	10.82	1.037	82.1	9.54	clear/brown	-	-
1113	30.0g	22.41	10.66	0.982	86.4	8.23	clear/brown	-	-
1118	32.5g	21.71	10.54	0.537	71.8	7.32	clear/brown	-	-
1121	35.0g	22.48	10.55	0.604	72.7	6.86	brown/clear	-	Dry
1207	40.0g	22.65	10.29	0.372	20.1	6.34	clear	-	-
1214	45.0g	21.58	10.20	0.378	17.4	6.23	clear	-	-

dry at 22g

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (_____ well volumes) _____ gallons
Maximum Turbidity Allowed _____ NTUs
Stabilization of parameters _____%

Yes No N/A
Has required volume been removed
Has required turbidity been reached
Have parameters stabilized
If no or N/A explain below:

Signature _____ Date: _____



Well/Piezometer Development Record

Well/Piez. ID: SDW-2

Client: Philips Site Location: Shakespeare - Noubesay, SC
Project No: 60326300.11 Date: 4/18/2016 Developer: SA/EFJ

WELL/PIEZOMETER DATA

Well Piezometer Diameter 2" Material Sch 40 PVC
Measuring Point Description TOC Geology at Screen Interval (if known) Bedrock
Depth to Top of Screen (ft.) 83.68 Granite gneiss
Depth to Bottom of Screen (ft.) 88.67 Time of Water Level Measurement 1145
Total Well Depth (ft.) 88.48 Calculate Purge Volume (gal.) 9 gals/volume
Depth to Static Water Level (ft.) 34.02 54.46 Disposal Method _____
Wellhead PID/FID N/A
Original Well Development Redevelopment Date of Original Development 4/13/2016

DEVELOPMENT METHOD Comp/purge PURGE METHOD N/A

Field Testing Equipment Used: _____
Make Hach Model 2100 Q Serial Number _____
45E 556

Field Testing Calibration Documentation Found in Field Notebook # _____ Page # _____

Time	Volume Removed (gal)	T° (C/F)	pH	Spec. Cond (umhos)	Turbidity (NTUs)	DO	Color	Odor	Other
1243	Initial	22.00	11.24	0.430	>1000	—	gray	none	—
1307	8.0 g	20.58	10.27	0.195	21100	—	milky	none	—
1414	9.5 g	22.34	10.19	0.200	21100	—	gray	none	—
1527	10.0 g	23.43	10.16	0.132	>1100	—	gray	none	—
1600	10.2 g	24.97	10.16	0.170	>1100	—	gray	none	—
1630	10.8 g	24.98	10.10	0.162	>1000	—	gray	none	—

dry
dry
dry
dry

ACCEPTANCE CRITERIA (from workplan)

Min. Purge Volume (___ well volumes) ___ gallons Has required volume been removed Yes No N/A
Maximum Turbidity Allowed ___ NTUs Has required turbidity been reached Yes No N/A
Stabilization of parameters ___% Have parameters stabilized Yes No N/A

If no or N/A explain below:
Well continuously goes dry.

Signature: [Signature]

Date: 4/19/2016

[Signature]

PHASE II RI WELL DEVELOPMENT LOGS

Monitoring Well Development Log

Date Started (yr/mo/day) 6/22/17 Date Completed (yr/mo/day) _____
 Field Personnel Justin Butler
 Site Name shakespeare composition structures
 Job # 60534283
 Well ID # MW-191
 _____ Upgradient _____ Downgradient _____
 Weather Conditions cloudy 70's
 Air Temperature _____ °F

Total Well Depth (TWD) = 22.50 1/100 ft
 Depth to Ground Water (DGW) = 6.36 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 16.14 1/100 ft
 1 Casing Volume (OCV) = LWC x 0.163 = 2.63 gallons
 5 Casing Volumes = 13.15 gallons
 Method of Well Development Gravelos Pump
 Total Volume of Water Removed _____ gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
6/22/17 1035	Initial	Initial	17.00	8.15	-173.2	0.087	7100	40.190	
6/22/17 1040	0.5	2.5	18.24	6.52	-85.1	0.086	157.5	40.070	Dry
6/22/17 1405	0.5	1.5	18.39	5.97	-48.0	0.082	257.0	40.070	Recharge 13.65/Dry

COMMENTS/OBSERVATIONS: _____

Monitoring Well Development Log

Date Started (yr/mo/day) 6/22/17 Date Completed (yr/mo/day) _____
 Field Personnel Justin Butler
 Site Name Shakespeare composition structures
 Job # 60538283
 Well ID # MW-12I
 _____ Upgradient _____ Downgradient _____
 Weather Conditions cloudy
 Air Temperature 70.5 °F

Total Well Depth (TWD) = 46.18 1/100 ft
 Depth to Ground Water (DGW) = 4.16 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 46.02 42.06 1/100 ft
 1 Casing Volume (OCV) = LWC x 0.163 = 7.50 6.85 gallons
 5 Casing Volumes = 37.50 gallons
 Method of Well Development 60000lbs Pump
 Total Volume of Water Removed 37.50 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
6/22/17 1145	Initial	Initial	18.19	6.19	-317.4	0.206	7100	40.1%	
1153	~1.0	7.5	17.28	4.81	53.4	0.121	103.2	—	wt: 7.10
1201	~1.0	15.00	17.28	5.13	77.1	0.114	46.01	—	wt: 7.88
1209	~1.0	22.50	17.22	5.18	91.2	0.110	11.93	—	wt: 7.91
1237	~1.0	30.00	17.30	5.29	110.0	0.109	9.80	—	wt: 7.15
1245	~1.0	37.50	17.30	5.19	118.4	0.106	7.38	—	wt: 7.31

Empty purge water

COMMENTS/OBSERVATIONS: _____



Monitoring Well Development Log

Page _____ of _____

Date Started (yr/mo/day) 7/24/17 Date Completed (yr/mo/day) 7/24/17

Field Personnel E. Harrington, S. Minko

Site Name Shutespeere

Job # 60534783

Well ID # MW-12D

_____ Upgradient _____ Downgradient

Weather Conditions Cloudy

Air Temperature 80s °F

Total Well Depth (TWD) = 82 1/100 ft

Depth to Ground Water (DGW) = 6.05 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 75.95 1/100 ft

1 Casing Volume (OCV) = LWC x .163 = 12.34 gallons

5 Casing Volumes = _____ gallons

Method of Well Development Sub-

Total Volume of Water Removed 30 gallons

Date/Time	Discharge Rate (gpm) mL	Volume Purged (gallons)	Water Temperature (°C)	pH	ORP	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
14:35	350	0	20.33	5.90	ORP	0.243	852.4	0	
14:40	350	4.7	20.77	5.80		0.183	346.0	0	
14:50	350	5.5	20.03 19.98	6.05 5.91		0.185 0.144	219.5	0	
15:10	350	10.0	20.71	6.12	172.5	0.199	133.2	0	
15:30	350	15.0	21.31	6.01		0.118	96.08	0	
16:05	350	20.0	26.75	6.00		0.123	67.70	0	
16:35	350	25.0	25.17	5.98		0.125	51.00	0	
16:50	350	—	—	—		—	45.01	0	

COMMENTS/OBSERVATIONS: Sample time 17:00 - MW-12D



Monitoring Well Development Log

Date Started (yr/mo/day) 7/25/17 Date Completed (yr/mo/day) 7/25/17

Field Personnel S. Minko, E. Harrington

Site Name RI Phase II, Newberry, S.C.

Job # 60534283

Well ID # MW-170

Upgradient Downgradient

Weather Conditions sunny, clear, 91°F

Air Temperature _____ °F

Total Well Depth (TWD) = 49.7 1/100 ft

Depth to Ground Water (DGW) = 10.31 ft 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 39.39 ft 1/100 ft

1 Casing Volume (OCV) = LWC x 163 = 6.42 gallons

5 Casing Volumes = _____ gallons

Method of Well Development Sub. pump

Total Volume of Water Removed 157 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
10:50	Initial	—	28.79	6.37	195.0	0.250	54.12/Cloudy		
11:10	0.1	0.5	29.01	6.24	77.5	0.180	> 1100		
11:30	0.20	4.0	26.33	5.59	124.7	0.115	63.81		
11:50	0.20	6.0	26.49	5.74	130.7	0.114	76.38		
12:10	0.20	8.0	28.03	5.87	133.4	0.110	37.67		
12:20	0.20	14.5	27.03	5.72	126.4	0.111	50.78		
12:40	0.20	14	28.15	5.82	94.4	0.107	28.60		
12:55	0.20	15	26.48	5.22	120.4	0.112	30.79		

COMMENTS/OBSERVATIONS: _____



Monitoring Well Development Log

Date Started (yr/mo/day) 7/27/17 Date Completed (yr/mo/day) 7-27-17

Field Personnel C. Harrington, J. Leaphart

Site Name Shakespeare

Job # 605 34283

Well ID # MW-19D

Upgradient Downgradient

Weather Conditions Sunny 80's

Air Temperature _____ °F

Total Well Depth (TWD) = 162.0 1/100 ft

Depth to Ground Water (DGW) = 8.78 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 153.22 1/100 ft

1 Casing Volume (OCV) = LWC x 0.163 = 25.0 gallons

5 Casing Volumes = 125 gallons

Method of Well Development Surge / Purge

Total Volume of Water Removed 75.0 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
7-27-17/1000	1.0	145.0	19.55	11.73	71.0	2821	1.58 / Clear		
/1015	1.0	15.0	19.67	10.25	78.0	290	7.95 / Clear		DTW 9.60
/1030	1.0	35.0	21.18	7.45	77.2	257	8.26 / Clear		
1100	1.0	50.0	20.00	7.00	108.7	249	9.43 / Clear		DTW 9.60
1117	1.0	65.0	19.74	6.95	79.6	248	7.96 / Clear		
1127	1.0	75.0	20.18	6.79	68.5	249	8.15 / Clear		DTW 9.60

COMMENTS/OBSERVATIONS: MW 19D: Sample time 11:30



Monitoring Well Development Log

Date Started (yr/mo/day) 7/25/17 Date Completed (yr/mo/day) 7/25/17
 Field Personnel E. Harrington, S. Minkes
 Site Name Shakerpearce
 Job # 60554283
 Well ID # SDW-3
 _____ Upgradient _____ Downgradient
 Weather Conditions Sunny & Clear
 Air Temperature _____ °F 96

Total Well Depth (TWD) = 100ft 1/100 ft
 Depth to Ground Water (DGW) = 17.88 ft. 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 82.12 1/100 ft
 1 Casing Volume (OCV) = LWC x .163 = 13.3 gallons
 5 Casing Volumes = _____ gallons
 Method of Well Development Sub.
 Total Volume of Water Removed _____ gallons
20

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
<u>14:30</u>	<u>Initial</u>	<u>—</u>	<u>25.94</u>	<u>8.95</u>	<u>109.1</u>	<u>0.326</u>	<u>32.68/0.001</u>		
<u>14:45</u>		<u>5</u>	<u>22.52</u>	<u>8.75</u>	<u>39.6</u>	<u>0.263</u>	<u>41.89</u>		
<u>15:00</u>		<u>8</u>	<u>23.08</u>	<u>7.52</u>	<u>82.7</u>	<u>0.257</u>	<u>27.05</u>		
<u>15:15</u>		<u>10</u>	<u>22.08</u>	<u>7.89</u>	<u>16.4</u>	<u>0.252</u>	<u>23.17</u>		
<u>15:30</u>		<u>14</u>	<u>21.18</u>	<u>7.85</u>	<u>37.1</u>	<u>0.257</u>	<u>28.17</u>		
<u>15:50</u>		<u>18</u>	<u>21.24</u>	<u>8.02</u>	<u>24.5</u>	<u>0.259</u>	<u>18.65</u>		

COMMENTS/OBSERVATIONS: Sample IO: SDW-3
Sample time: 15:57

Appendix D
Groundwater Sampling
Logs

PHASE II ESA GROUNDWATER SAMPLING LOGS

Well ID: MW-1

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Date: 4/22/14 Time: Start 1100 am/pm
 Project No: 60318382.2 Finish 1140 am/pm
 Site Location: Newberry SC
 Weather Conds: Clear, 70's Collector(s): James Leaphart

- 1. WATER LEVEL DATA: (measured from Top of Casing)**
- a. Total Well Length 14.29 c. Length of Water Column 6.75 (a-b) Casing Diameter/Material 2"/pvc
 b. Water Table Depth 7.56 d. Calculated System Volume (see back) 1.1 GAL

- 2. WELL PURGE DATA**
- a. Purge Method: Peristaltic Pump
- b. Acceptance Criteria defined (see workplan)
- | | | | |
|---------------|------------|------------|--------|
| - Temperature | 3% | -D.O. | 10% |
| - pH | + 1.0 unit | - ORP | + 10mV |
| - Sp. Cond. | 3% | - Drawdown | < 0.3' |
- c. Field Testing Equipment used:
- | | | | |
|--|---------------|-------|-------------------|
| | Make | Model | Serial Number |
| | YSI | 556 | <u>04M1480 AA</u> |
| | HF Scientific | 20000 | <u>201104076</u> |

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1103	0.20	19.34	5.20	39	5.15	193.0	11.50	200	7.70	<u>clear/none</u>
1108	1.20	19.08	4.43	35	5.02	234.9	11.60	200	7.71	" "
1113	2.20	18.84	4.13	34	5.00	255.4	6.68	200	7.72	" "
1118	3.20	18.76	4.02	34	5.03	259.2	5.64	200	7.73	" "
1123	4.20	18.51	3.86	34	5.09	268.9	5.20	200	7.75	" "
1128	5.20	18.39	3.81	34	5.20	272.8	5.25	200	7.76	" "

- d. Acceptance criteria pass/fail
- | | | | |
|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| | Yes | No | N/A |
| Has required volume been removed | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Has required turbidity been reached | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Have parameters stabilized | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-1</u>	<u>40 ml voa</u>	<u>3/1</u>	<u>none / hcl</u>	<u>voc's</u>	<u>1130</u>

Comments _____

Signature J. Leaphart Date 4/22/14

Well ID: MW-2

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Date: 4/22/14 Time: Start 1150 am/pm
 Project No: 60318382.2 Finish 1239 am/pm
 Site Location: Newberry SC
 Weather Conds: Cloudy, 70's Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 24.80 c. Length of Water Column 90.25 (a-b) Casing Diameter/Material
2"/pvc
 b. Water Table Depth 4.55 d. Calculated System Volume (see back) 3.3 Gal

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:	Make	Model	Serial Number
	YSI	556	<u>04M1480 DA</u>
	HF Scientific	20000	<u>20104076</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>1158</u>	<u>0.20</u>	<u>19.15</u>	<u>5.06</u>	<u>33</u>	<u>7.13</u>	<u>288.3</u>	<u>4.07</u>	<u>200</u>	<u>4.91</u>	<u>Cloudy/powd</u>
<u>1203</u>	<u>1.20</u>	<u>19.15</u>	<u>4.42</u>	<u>33</u>	<u>6.74</u>	<u>281.8</u>	<u>2.66</u>	<u>200</u>	<u>4.97</u>	<u>" "</u>
<u>1208</u>	<u>2.20</u>	<u>18.84</u>	<u>4.28</u>	<u>33</u>	<u>6.70</u>	<u>286.4</u>	<u>2.35</u>	<u>200</u>	<u>5.00</u>	<u>" "</u>
<u>1213</u>	<u>3.20</u>	<u>18.84</u>	<u>4.17</u>	<u>33</u>	<u>6.68</u>	<u>289.1</u>	<u>2.07</u>	<u>200</u>	<u>5.01</u>	<u>" "</u>
<u>1218</u>	<u>4.20</u>	<u>18.87</u>	<u>4.16</u>	<u>33</u>	<u>6.61</u>	<u>291.0</u>	<u>2.04</u>	<u>200</u>	<u>5.02</u>	<u>" "</u>
<u>1223</u>	<u>5.20</u>	<u>18.92</u>	<u>4.07</u>	<u>33</u>	<u>6.60</u>	<u>295.6</u>	<u>1.90</u>	<u>200</u>	<u>5.02</u>	<u>" "</u>

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-2</u>	<u>40 ml voa</u>	<u>3 / X</u>	<u>none / hcl</u>	<u>voc's</u>	<u>1225</u>

Comments _____

Signature [Signature] Date 4/22/14

Well ID: MLW-3

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Date: 4/22/14 Time: Start 1244 am/pm
 Project No: 60318382.2 Finish 1342 am/pm
 Site Location: Newberry SC
 Weather Conds: Clear, 70's Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 24.82 c. Length of Water Column 16.48 (a-b) Casing Diameter/Material
2"/pvc
 b. Water Table Depth 8.34 d. Calculated System Volume (see back) 2.70

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10 mV
 - Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:	Make	Model	Serial Number
	YSI	556	04M1480 AA
	HF Scientific	20000	201104026

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1254	0.20	18.65	4.80	68	4.26	260.5	24.53	200	8.68	Clear/None
1259	1.20	18.20	4.28	68	4.07	278.8	21.44	200	8.72	" "
1304	2.20	18.15	4.02	68	4.14	286.3	20.72	200	8.74	" "
1309	3.20	18.24	3.92	67	4.10	283.8	20.12	200	8.76	" "
1314	4.20	18.35	3.88	66	4.30	324.0	20.21	200	8.77	" "
1319	5.20	18.20	3.81	66	3.93	343.1	17.81	200	8.80	" "
1324	6.20	18.24	3.78	66	3.74	337.6	15.38	200	8.80	" "

d. Acceptance criteria pass/fail
 Has required volume been removed Yes No N/A
 Has required turbidity been reached Yes No N/A
 Have parameters stabilized Yes No N/A
 If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MLW-3</u>	<u>40 ml voa</u>	<u>3/1</u>	<u>none / hcl</u>	<u>voc's</u>	<u>1325</u>

Comments _____

Signature [Signature] Date 4/22/14

Well ID: MW-4

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Date: 4/22/14 Time: Start 1355 am/pm
 Project No: 60318382.2 Finish 1443 am/pm
 Site Location: Newberry SC
 Weather Conds: Clear, 70's Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 25.17 c. Length of Water Column 11.22 (a-b) Casing Diameter/Material
2" pvc
 b. Water Table Depth 13.45 d. Calculated System Volume (see back) 1.9

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10 mV
- Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:	Make	Model	Serial Number
	YSI	556	04M1480PA
	HF Scientific	20000	201104076

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1401	0.20	20.32	4.82	82	4.29	188.5	10.65	200	13.76	Cloudy/Amo
1406	1.20	19.87	4.55	82	3.92	201.0	7.51	200	13.81	" "
1411	2.20	19.49	4.22	81	3.73	219.7	7.41	200	13.82	" "
1416	3.20	19.52	4.11	81	3.65	229.4	6.43	200	13.83	" "
1421	4.20	19.58	4.01	81	3.92	237.4	6.12	200	13.81	" "
1426	5.20	19.50	3.85	80	3.54	250.4	5.21	200	13.81	" "
1431	6.20	19.49	3.81	79	3.03	253.2	4.53	200	13.81	" "

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-4</u>	<u>40 ml voa</u>	<u>3/1</u>	<u>none / hcl</u>	<u>voc's</u>	<u>1435</u>

Comments _____

Signature [Signature] Date 4/22/14

Well ID: MW-5

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Date: 4/22/14 Time: Start 1458 am/pm
 Project No: 60318382.2 Finish 1539 am/pm
 Site Location: Newberry SC
 Weather Conds: P. cloudy, 70's Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 25.57 c. Length of Water Column 14.01 (a-b) Casing Diameter/Material
2"/pvc
 b. Water Table Depth 11.56 d. Calculated System Volume (see back) 2.3

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH + 1.0 unit - ORP + 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:	Make	Model	Serial Number
	YSI	556	<u>04M1480 AA</u>
	HF Scientific	20000	<u>201104076</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>1507</u>	<u>0.20</u>	<u>18.68</u>	<u>4.88</u>	<u>73</u>	<u>2.81</u>	<u>248.1</u>	<u>3.87</u>	<u>200</u>	<u>11.77</u>	<u>CLAR/None</u>
<u>1512</u>	<u>1.20</u>	<u>18.32</u>	<u>4.43</u>	<u>74</u>	<u>2.62</u>	<u>283.5</u>	<u>2.65</u>	<u>200</u>	<u>11.79</u>	<u>" "</u>
<u>1517</u>	<u>2.20</u>	<u>18.13</u>	<u>4.22</u>	<u>75</u>	<u>2.64</u>	<u>301.6</u>	<u>2.71</u>	<u>200</u>	<u>11.80</u>	<u>" "</u>
<u>1522</u>	<u>3.20</u>	<u>18.00</u>	<u>4.11</u>	<u>77</u>	<u>2.93</u>	<u>308.6</u>	<u>2.19</u>	<u>200</u>	<u>11.81</u>	<u>" "</u>
<u>1527</u>	<u>4.20</u>	<u>18.00</u>	<u>4.06</u>	<u>78</u>	<u>3.11</u>	<u>314.1</u>	<u>2.21</u>	<u>200</u>	<u>11.80</u>	<u>" "</u>
<u>1532</u>	<u>5.20</u>	<u>18.16</u>	<u>4.04</u>	<u>78</u>	<u>2.73</u>	<u>314.8</u>	<u>4.70</u>	<u>200</u>	<u>11.80</u>	<u>" "</u>

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-5</u>	<u>40 ml voa</u>	<u>3/1</u>	<u>none/hcl</u>	<u>voc's</u>	<u>1535</u>

Comments _____

Signature J. Leaphart Date 4/22/14