Golder Associates

PROJECT NUMBER: 10399709

WELL NUMBER: SW Well 1A

SHEET 1 OF 4

Aquifer Test Data Sheet

WELL #: SW Well 1A
TYPE OF DATA: Manual Water levels Step-Test
WELL DIAMETER: 12"
PUMPING WELL:
CHECK VALVE INSTALLED ON PUMP? Yes
DISTANCE FROM PUMPING WELL: NA
M.P.: 2.58 ft ags
HOW Q MEASURED: Totalizing Flow Meter
HOW WL'S MEASURED Manual Sounding Probe
INITIAL DEPTH TO WATER: 91.04
COMMENTS: STEP-RATE TEST

PUMPING / RECOVERY
RECOVERY / DRAWDOWN
DEPTH: 633'
DIAMETER: 12"
ELEVATION:

DATE: 7/23/10
DATA COLLECTED BY: L. Bartosik, K. Janssen
DATA LOGGER: Yes
PUMP ELEVATION:
OTHER:

	TIME DATA		WATER LEVEL DATA				REMARKS
	Clock Time HR:MM:SS	Elapsed Time (min)	Depth to Water (feet) BMP	Drawdown (feet)	Pump Rate (gal / min)	Totalizer Reading (gal)	Pump on, off, rate change; pump type; water quality; etc.
Start	1606		90.04	Feet BMP			START 6 GAL on totalizer
	1606		110' bmp				
		2min 20s	113.44				
	2:20		113.44	160 gpm			685 gpm
		3min 30sec					600 gpm
		5min	113.44				600 gpm
	1612	6min 10s	113.55				
	1612	6min 40s	113.65				
	1613		113.81				575 gpm
	1614		113.94				
	1614:45		114.00				
		9min 16s	114.04				575 gpm
	16:15:30		114.24				
	16:16	10 min 30	114.34				
	16:17		114.72				
	16:18		114.78				
STEP 1	16:19		114.99				
	16:20		115.06				
	16:21		115.14				
	16:22		115.23				
	16:24		115.12				
	16:26		115.15				550/575 gpm
	~~16:28~~						
	16:27						rate increase
	16:28		116.41				
	16:30		116.13				
	16:32		115.50				
	16:33						rate increase to 575
	16:34		116.16				
	16:36		~~116.85~~				rate increase back to 575 - trying to get H_2O overhill
	16:37		116.85				
	16:40		116.94				575 gpm
	16:41		116.90				
	16:44	38					24,000 gal
	16:45		116.88				550-575 gpm
	16:51						575 GPM
	16:52		117.17				575 GPM 26.13 total AK: 22.0
	17:03		117.65				550 GPM 35K Gallons
	17:07		117.77				
	17:13	67	117.91				550 GPM - Totalizer 41.5K gal.

my time 1min ahead of KJ

Golder Associates

PROJECT NUMBER: 10399709

WELL NUMBER: SW 4A

SHEET 2 OF 4

Aquifer Test Data Sheet

WELL #: SW Well 7A
TYPE OF DATA: Manual WL
WELL DIAMETER: 12"
PUMPING WELL: Yes
CHECK VALVE INSTALLED ON PUMP? Yes
DISTANCE FROM PUMPING WELL: NA
M.P.:
HOW Q MEASURED: Totalizing Flow Meter
HOW WL'S MEASURED: Sounding Probe
INITIAL DEPTH TO WATER: 91.64
COMMENTS: STEP RATE TEST

PUMPING / RECOVERY
RECOVERY / DRAWDOWN
DEPTH: 633
DIAMETER: 12"
ELEVATION:

DATE: 7/23/10
DATA COLLECTED BY: L. Bortosik, K. Janssen
DATA LOGGER:
PUMP ELEVATION:
OTHER:

	TIME DATA		WATER LEVEL DATA				REMARKS
	Clock Time HR:MM:SS	Elapsed Time (min)	Depth to Water (feet)	Drawdown (feet)	Pump Rate (gal / min)	Totalizer Reading (x 1000) (gal)	Pump on, off, rate change; pump type; water quality; etc.
STEP 1	17:20	74	118.20	27.16	550	45K	
	17:26	80	118.28	27.24	550	48	
	17:31	85	118.37	27.33	550	51.5	
	17:36	90	118.~~55~~	27.~~43~~	550	53.5	
	17:41	95	118.58	27.54	550/525	57.5	550/525
	17:48	102	118.73	27.69	550/525	61.5	
	17:57	111	118.94	27.9	550	67	
	18:08	118	119.02	27.98	550	71	
	18:09	125	119.15	28.11	550	~~73~~ 75	
	18:16	130	119.25	28.21			
	18:21	135	119.35	528.31	550	80.5	
	18:31	145	119.47	28.43	550	~~8~~	
	18:41	155	119.53	28.49	550	91	
	18:51	165	119.65	28.61	550	96.5	
18:56	~~[illegible]~~	~~[illegible]~~ 170	119.72	28.68	550		
	19:01	175	119.79	28.75	550	102	
	19:08	182	119.84	28.8	550	106	
STEP 1	19:16	190	119.90	28.86	550		
	19:23	19~~[illegible]~~7	119.98	28.94	550	113	
	19:26	200	120.01	28.97	550	116	
	19:31	205	120.06	29.02	550		
	19:35	209	120.08	29.04	550	122	
	1935						Bump up step
	1936	210					Set at 1100
	~~1938~~		~~136.30~~				
			~~13.0~~				
	1938	212	136.43	45.39			1100
	~~1939~~						~~1100~~
	1940	214	136.93	45.~~[illegible]~~ x9			1100
	1941	215	137.13	46.09			1100
	1942	216	137.23	46.19			1100
	1943	217	137.38	~~43~~ 46.34			1100
	1945	219	137.62	46.58			1100
	1950	224	138.06	47.02			1100
	1953	228	138.19	47.15			1100
	~~1950~~	~~232~~	~~138.61~~				
	1959	234	138.70	47.66		151	1100
2002	~~1927~~	237	138.78	47.74		155	1100
	2006	241	138.98	47.94			

Golder Associates

PROJECT NUMBER: SW 7A

WELL NUMBER: 10399709

SHEET 3 OF 4

Aquifer Test Data Sheet

WELL #: SW Well 7A
TYPE OF DATA: Manual
WELL DIAMETER: 12"
PUMPING WELL: Yes
CHECK VALVE INSTALLED ON PUMP? Yes
DISTANCE FROM PUMPING WELL: NA
M.P.:
HOW Q MEASURED: Sounder, totalizer
HOW WL'S MEASURED
INITIAL DEPTH TO WATER: 91.04
COMMENTS: STEP RATE TEST

PUMPING / RECOVERY
RECOVERY / DRAWDOWN
DEPTH: 633
DIAMETER: 12"
ELEVATION:

DATE: 9/23/10
DATA COLLECTED BY: L. Bartosik, K. Janssen
DATA LOGGER: Yes
PUMP ELEVATION:
OTHER:

	TIME DATA		WATER LEVEL DATA				REMARKS
	Clock Time HR:MM:SS	Elapsed Time (min)	Depth to Water (feet)	Drawdown (feet)	Pump Rate (gal / min)	Totalizer Reading (gal)	Pump on, off, rate change; pump type; water quality; etc.
	2010	245	139.08	48.04	1100	165	
	2016	251	139.30	48.26	1100	173	
	2022	257	139.51	48.47			
	2028	263	139.67	48.63	1100	187	
	2035	270	139.83	48.79	1100	195.5	
	2040	276	139.93	48.89	1100	202	
Step 2	2044	280	140.04	49.0	1100	207.5	
	2049	285	140.13	49.09	1100	212.5	
	2054	~~300~~ 290	140.22	49.18	1100	218	
	2059	295	140.38	49.34	1100	225	
	2102	298	140.41	49.37	1100		
	2104	300	140.45	49.41	1100		
						302 MG	in 2106 Bumped flow up to ~~1600~~ 1600
	2108	304	155.30	64.26			
	2109	305	155.56	64.52			1600
	2110	306	155.69	64.65			
	2111	307	155.85	64.81			
Step 3	2112	308	155.93	64.89	1600	244	140
	2113	309	156.06	65.02			
	2114	310	156.13	65.09	1600	248	
	2122	318	156.73	65.69	1600	264	
	2126	322	157.01	~~65.49~~ 65.97	1600		
	~~2132~~						
	2132	328	157.24	66.20			
	2153	349	158.03	66.99			
	2158	354				325.5	
	2206	362	158.34	67.3	1600	345	48 psi ~ 4' downstream of well
	2224	380	158.85	67.81	1600	375	
	2237	→ 1415 RPM / 47 PSI / 1600 GPM. 12" from wellhead to flow meter; 2 8" from flow meter to valve; 14 OD pipe					
	2243		159.30	68.26			

S035728 ~~181~~ 42

171 46 MIN 81.5 Kgal

Golder Associates

PROJECT NUMBER: 1D399709

WELL NUMBER: SW WELL 7A

SHEET 4 OF 4

Aquifer Test Data Sheet

WELL #: SW7A
TYPE OF DATA: Manual
WELL DIAMETER: 12"
PUMPING WELL: Yes
CHECK VALVE INSTALLED ON PUMP? Yes
DISTANCE FROM PUMPING WELL: NA
M.P.:
HOW Q MEASURED: totalizer
HOW WL'S MEASURED Manual sounder
INITIAL DEPTH TO WATER: 91.04
COMMENTS: STEP RATE TEST

(PUMPING) / RECOVERY
RECOVERY / DRAWDOWN
DEPTH:
DIAMETER:
ELEVATION:

DATE: 9/28/10
DATA COLLECTED BY: L. Bertosik, K. Jaegger
DATA LOGGER:
PUMP ELEVATION:
OTHER:

TIME DATA		WATER LEVEL DATA				REMARKS
Clock Time HR:MM:SS	Elapsed Time (min)	Depth to Water (feet)	Drawdown (feet)	Pump Rate (gal / min)	Totalizer Reading (gal)	Pump on, off, rate change; pump type; water quality; etc.
2248				2700 GPM		Bumped ↑ to 1900RPM
2250						Down to 2050 GPM - 60PSI - 1620RPM
2251		171.4		1~~27~~.2100GPM		-Shut pump down

Golder Associates	PROJECT NUMBER 10399709	WELL NUMBER SW Well 1A	SHEET 1 OF 8

Aquifer Test Data Sheet

WELL #: SW Well 1A
TYPE OF DATA: Manual
WELL DIAMETER: 12"
PUMPING WELL: Yes
CHECK VALVE INSTALLED ON PUMP? @ well head
DISTANCE FROM PUMPING WELL: 0
M.P.: 2 58' Aqua
HOW Q MEASURED: Totalizing flow meter
HOW WL'S MEASURED Manual Probe
INITIAL DEPTH TO WATER: 105.52 bmp
COMMENTS: Constant Rate Test

PUMPING / RECOVERY
RECOVERY / DRAWDOWN
DEPTH: 633
DIAMETER: 12"
ELEVATION:

DATE: 10/6/10
DATA COLLECTED BY: L. Bartosik
DATA LOGGER:
PUMP ELEVATION:
OTHER:

TIME DATA		WATER LEVEL DATA				REMARKS
Clock Time HR:MM:SS	Elapsed Time (min)	Depth to Water (feet) BMP	Drawdown (feet)	Pump Rate (gal / min)	Totalizer Reading (gal)	Pump on, off, rate change; pump type; water quality; etc.
9/6/10 0820	—	105.50	/	/	/	
1310	—	105.52	/	/	/	
1437:00 START						
: 59		141.67	1334 59			
00: 1:56		146.65	1338 56			
2:42		147.54	1339 42	2100		
3:15		147.61	1340 15	1900	600	
4:00		148.03	1341 00			
4:28		148.17	1341 28			
5:06		148.38	1342 06			
5:37		148.64	1342 37			
6:13		148.82	1343 13			
00: 6:48		149.10	1343 48	2100		
7:30		149.40	1344 30	1900	607	increased Rate ~1750
8:34		149.55	1345 34			
9:17		149.74	1346 17			
10:11		153.17	1347 11			
11:23		155.98	1348 23			increased rate ~1800
1300		156.53	1350 00	2100		
1459		157.17	1351 59			
1549		157.42	1352 49			
1642		157.58	1353 42			
17:40		157.93	1354 40			
18:00			1355 00	2150	629	
19:00		158.08	1356 00			
20:00		158.20	1357 00			
21:00		158.53	1358 00			
22:00		158.65	1359 00			
23:50		158.89	1400 50			
27:20		159.45	1404 20			
28:30		159.66	1405 30			
1507	30:00	159.96		2200		Bumped up rate
15:09:27				2250	659	
15:10:30		162.26				
15:13		162.71				
15:18		163.19				
15:20		163.40		2200	684	

Golder Associates

PROJECT NUMBER: 10399709

WELL NUMBER: SW Well 7A

SHEET 2 OF 8

Aquifer Test Data Sheet

WELL #: SW Well 7A
TYPE OF DATA: Manual
WELL DIAMETER: 12"
PUMPING WELL: Yes
CHECK VALVE INSTALLED ON PUMP?
DISTANCE FROM PUMPING WELL:
M.P.: 2.58 Acs
HOW Q MEASURED: Totalizer/flow meter
HOW WL'S MEASURED Manual - sounding probe
INITIAL DEPTH TO WATER: 105.52'
COMMENTS: Constant Rate Test

PUMPING / RECOVERY
RECOVERY / DRAWDOWN
DEPTH: 233
DIAMETER: 12"
ELEVATION:

DATE: 10/6/10
DATA COLLECTED BY: L. Bartosik
DATA LOGGER:
PUMP ELEVATION:
OTHER:

2min ahead of clock time

Start 14:37

TIME DATA		WATER LEVEL DATA				REMARKS
Clock Time HR:MM:SS	Elapsed Time (min)	Depth to Water (feet)	Drawdown (feet)	Pump Rate (gal / min)	Totalizer Reading (gal)	Pump on, off, rate change; pump type; water quality; etc.
15:22:00		163.57				
15:25:00		163.87				
15:32		164.46		2200	703	
15:36		164.75		2200	717.5	
15:41		165.18		2200		
15:47	70	165.58		2200	741.5	
15:53	76	165.91		2200	752	
15:59	82					
16:02	85	166.44		2200	773	
16:09	92	166.80		2200	789	closing valves and discharge line (Not over hill yet due to open valves)
16:16	99	167.17		2200	802	
16:22	105	167.40	61.88	2200	814	
16:28	111	167.72	62.2	2200	827.5	SC = 35.4 GPM/ft
16:39	122	169.21		2250	851.5	
16:41	124			2500		flow meter very erratic (2200-2700)
16:50	133					flow meter still erratic (2100-2600)
16:53	136	170.76		2300		(Range 2100-2600)
17:04	147	171.17	65.65	2300	908	886 on totalizer
17:14	157	171.44		~~2200~~	930	still erratic (2100 GPM - 2600 GPM)
17:27		169.48		2200	958.5	Needle stable
17:31				2000		Needle going down
17:33		165.37		2000	971	
17:43						Bumped up to 2100 (opened valve)
1745		168.61	63.09	2100	994	
1757		168.97		2100	1021	Needle Steady
18:10		168.80	63.28	2050	1052	Adjust
18:20		169.08		2100		
1838		169.93		2100	1109	
18:48		170.15		2100	1127	

Pumping Test Form

Project Number: 103-99709
Project Name: COY/SW Well No2/WA
Start Time: 14:37:00
Initial Flowmeter Reading:
Initial Water Level: 185.52' BMP
Datum Description:

Well Name: SW Well No 1A
Date of Test: 10/6/10
Type of Test: Constant Rate
Contractor: Boart Longyear
Observer: L. Bartosik

Date & Time	Instantaneous Reading (gpm)	Totalizer reading (gallons)	Depth to Water (feet)	pH	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Electrical Conductivity (µS/cm)	Temperature °C (°F) / ORP mV
10/6/10 15:15	2200	674	163.19'	7.48	1.25	0.81	177	11.39 / -7.7
10/6/10 ~~15:25~~	crystal	clear; no odor; slight metallic after taste;						cold
15:25	2200	695	163.87	7.70	1.23	0.66	178	11.67 / -13.5
15:41	2200	729	165.18	7.67	1.30	0.62	178	11.27 / -14.6
15:53	2200	752	165.91	7.69	0.74	0.55	178	11.50 / -14.0
16:02	2200	773	166.44	7.61	1.01	0.56	177	11.52 / -13.5
16:09	2200	789	166.80	7.40	0.82	0.56	177	11.09 / -6.9
16:22	2200	814	167.40	7.36	0.77	0.52	177	11.36 / -13.2
16:39	2250	851.5	169.21	7.38	0.65	0.49	177	11.17 / -7.8
16:53	2300	886	170.76	7.39	0.67	0.46	177	11.31 / -5.7
17:04	2300	908	171.17	7.36	0.74	0.45	178	11.25 / -13.0
17:14	2300	930	171.44	7.37	0.86	0.51	178	11.08 / -9.6
17:45	2100	994	168.61	7.44	0.49	0.44	177	10.82 / -14.6
18:48	2100	1127	170.15	7.87	X	0.40	177	11.12 / 19.6
19:00	2100	1148	170.45	7.79		0.41	177	11-14' 14.1
19:30	2100	1216	170.95	7.63		0.37	176	11:00 25.4
20:00	2100	1278	171.5	7.58		0.37	180	11.00 14.6
20:30	2100	1342	172.05	7.48		0.36	180	10.92 / 5.8
21:00	2100	1403	172.6	7.49		0.35	180	10.85 -37.5

Pumping Test Form

Project Number: 103-99709
Project Name: COY/SW WELL WOO/WA
Start Time: 14:37:00
Initial Flowmeter Reading:
Initial Water Level: 105.52' bmp
Datum Description:

Well Name: SW WELL No 1A
Date of Test: 10/6 PM - 10/7 AM
Type of Test: CONSTANT RATE
Contractor: BOART LONGYEAR
Observer: L Bartosik

Date & Time		Instantaneous Reading (gpm)	Totalizer reading (gallons) X1000	Depth to Water (feet)	pH	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Electrical Conductivity (mS/cm)	Temperature (°F)	
10-6-10	21:30	2100	1466	173.05	7.45		0.38	180	10.85	-28.4
	22:00	2100	1527	173.5	7.45		0.43	179	10.74	-32.3
	22:30	2100	1590	173.9	7.44		0.42	180	10.58	-36.9
	23:00	2100	1652	174.4	7.43		0.43	186	10.78	-39.6
	23:30	2100	1714	174.8	7.45		0.42	180	10.65	-41.0
	24:00	2100	1776	175.0	7.44		.45	186	10.76	38.2
10-7-10	00:30	2100	1838	175.51	7.45		.43	180	10.80	-40.7
	1:00	2100	1899	175.92	7.48		.42	180	10.74	-40.3
	1:30	2100	1961	176.04	7.54		.40	179	10.76	-42.3
	2:00	2100	2023	176.47	7.50		.47	180	10.66	-36.3
	2:30	2100	2084	176.68	7.51		.47	180	10.60	-34.9
	3:00	2100	2146	176.96	7.51		.45	180	10.74	-36.5
	3:30	2100	2208	177.2	7.51		.41	180	10.60	-45.4
	4:00	2100	2269	177.51	7.51		.46	179	10.59	-41.9
	4:30	2100	2331	177.76	7.55		.44	180	10.60	-45.4
	5:00	2100	2393	178	7.55		.35	179	10.53	-42.6
	5:30	2100	2454	178.12	7.57		.37	179	10.55	-50.1
	6:00	2100	2515	178.39	7.57		.38	179	10.54	-47.2
	6:30	2100	2576	178.59	7.57		.40	179	10.64	-46.3

Pumping Test Form

Project Number: 103-99709
Project Name: COY / SW WELL W02/WA
Start Time: 14:37:00 10/6/10
Initial Flowmeter Reading:
Initial Water Level: 105.52' BMP
Datum Description:

Well Name: SW WELL NO. 1A
Date of Test: Start 10/6/10
Type of Test: CONSTANT RATE
Contractor: BOART LONGYEAR
Observer: L. Bartosek

Date & Time	Instantaneous Reading (gpm)	Totalizer reading (gallons) x1000	Depth to Water (feet)	pH	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Electrical Conductivity (mS/cm)	Temperature (°F)	
10/7/10 7:00	2100	2638	178.79	7.5		.40	178	10.43	-42.9
7:30	2100	2700	179.04	7.51		.39	179	10.76	-46.8
8:00	2100	2760	179.16	7.47		.38	180	10.90	-49.8
8:30	2100	2822	179.35	7.44		.32	180	10.89	-41.7
9:00	2100	2883	179.46	7.52		.35	180	10.95	-46.6
9:30	2100	2944	179.73	7.49		.37	180	11.05	-49.7
10:00	2100	3006	179.90	7.5		.37	180	11.06	-50.1
10:30	2100	3067	180.07	7.46		.39	180	11.18	-51.5
11:00	2100	3128	180.24	7.44		.35	180	11.29	-56.5
11:30	2100	3189	180.38	7.37		.37	179	11.47	-58.7
12:00	2100	3251	180.55	7.33		.38	179	11.51	-60.2
12:30	2100	3313	180.75	7.18		.38	180	11.63	63.2
13:00	2100	3376	180.9	7.17		.37	180	11.63	-61.7
13:30	2100	3439	180.91	7.32		.38	180	11.47	-53.6
14:00	2100	3491	181.00	7.37		.37	179	11.49	-61.3
~~14:30~~ 15	2100	3617	181.3	7.49		.37	179	11.58	-65.1
~~15:00~~ 16	2100	3739	181.55	7.48		.37	179	11.50	64.1
~~15:30~~ 17	2100	3861	181.8	7.48		.38	179	11.50	64.1
~~16:00~~ 18	2100	3983	182.0	7.53		.37	178	11.52	-65.4

10/7/10 am/pm Time K	Depth to Water (ft. BRP)	Drawdown (ft) 10/7	Specific Capacity	Sand Reading	Water Quality pH	Dissolved Oxygen	Elect. cond.	Temp.	Discharge Rates Time	Flow Hand Reading gpm	Totalizer Reading	Calculated Rate gpm
5:30am	178.12			NONE	7.55					2100	2454	2033
6:00	178.39			"						2100	2515	2033
6:30	178.59			"						2100	2576	2033
7:00	178.79			"						2100	2638	2066
7:30	179.04			"						2100	2700	2066
8:00	179.16			"						2100	2760	2000
8:30	179.35			"						2100	2822	2066
9:00	179.46			"						2100	2883	2033
9:30	179.73			"						2100	2944	2033
10:00	179.90			"						2100	3006	2066
10:30	180.07			"						2100	3067	2033
11:00	180.24			"						2100	3128	2033
11:30	180.38			"						2100	3189	2033
12:00	180.55			"						2100	3251	2066
12:30	180.75			"						2100	3313	2066
1:00	180.9			"						2100	3376	2100
1:30	180.91			"						2100	3439	2100
2:00	180.00			"						2100	3497	1933
~~2:30~~ 3	181.3			"						2100	3617	2000
3:00 4	181.55			"						2100	3739	2033
~~3:30~~ 5	181.80	10/7 1800		"						2100	3861	2033
~~4:00~~ 6	182.00			"						2100	3983	2033
~~4:30~~ 7	182.3	1900		"	7.52	.37	179	11.50	-68.1	2100	4105	2033
~~5:00~~ 8	182.45	2000		"	7.42	.38	179	11.31	-63.2	2100	4227	2033
~~5:30~~ 9	182.65	2100			7.52	.37	178	11.39	-62.4	2100	4349	2033
~~6:00~~ 10	182.85	2200			7.54	.36	178	11.29	-63.8	2100	4470	2016
~~6:30~~ 11	183.1	off			7.53	.36	178	11.46	62.8	2100	4595	2083
~~7:00~~ 12	183.3	pm 10/8			7.55	.33	178	11.30	-71.5	2100	4713	1966

Starting 2100 hours

Job Number / Location: 0069 YELM, WA

Page: 6 of 8

7/8/10 am/pm Time	Depth to Water (ft. BRP)	Drawdown (ft)	Specific Capacity	Sand Reading	Water Quality PH	DO	EC	Temp.	Discharge Rates Time	Flow Hand Reading gpm	Totalizer Reading	Calculated Rate gpm
1100	183.37	0100 am	10/8		7.57	.34	177	11.21 / -72.7		2100	4835	2033
1:00	183.55	0200			7.57	.34	177	11.27 / -72.8		2100	4957	2033
1:00	183.72	0300			7.57	.34	177	11.30 / -73.6		2100	5078	2016
1:00	183.81	0400			7.60	.34	177	11.33 / -75		2100	5200	2033
1:00	184.01	0500			7.59	.33	177	11.36 / -73.9		2100	5322	2033
1:00	184.18	0600			7.62	.33	176	11.45 / -77.1		2100	5442	2000
1:00	184.31	0700			7.60	.35	176	11.08 / -75		2100	5563	2016
1:00	184.45	0800			7.59	.33	175	11.11 / -76.6		2100	5685	2033
1:00	184.60	0900			7.58	.30	176	11.10 / -77		2100	5806	2016
1:00	184.8	1000			7.58	.33	176	11.44 / -77.5		2100	5929	2050
1:00	184.95	1100			7.58	.35	176	11.38 / -80.2		2100	6048	1983
1:00	185.14	1200			7.56	.33	175	11.94 / -81.6		2100	6169	2016
1:00	185.15	1300			7.54	.35	174	11.87 / -84.1		2100	6290	2016
1:00	185.25	1400			7.54	.33	175	11.84 / -82.7		2100	6411	2016
3:00	185.35	1500			7.53	.35	174	11.93 / -82.7		2100	6532	2016
4:00	185.520	1600			7.61	.30	175	11.93 / -87.6		2100	6653	2016
5:00	185.6	1700			7.59	.26	174	11.96 / -87.0		2100	6774	2016
6:00	185.75	1800			7.59	.24	173	11.58 / -79.9		2100	6895	2016
7:00	185.75	1900			7.63	.29	173	11.72 / -83.6		2100	7017	2033
8:00	185.9	2000			7.64	.27	172	11.75 / -84.6		2100	7137	2000
9:00	186.0	2100			7.66	.29	172	11.66 / -85.1		2100	7258	2016
10:00	186.15	2200			7.66	.26	172	11.78 / 83.5		2100	7380	2033
11:00	186.25	2300			7.64	.30	171	11.59 / -82.0		2100	7499	1983
1200	186.3	0000	10/9		7.66	.27	171	11.64 / -82.0		2100	7620	2016
1:00	186.54				7.67	.28	170	11.59 / -84.4		2100	7740	2000
2:00	186.57				7.69	.28	170	11.82 / -85.5		2100	7860	2000
3:00	186.70				7.65	.27	171	11.62 / -83.4		2100	7981	2016
4:00	186.79				7.65	.30	170	11.74 / -83.8		2100	8102	2016

7/8

10/9/10 am/pm Time	Depth to Water (ft. BRP)	Drawdown (ft)	Specific Capacity	Sand Reading	Water Quality P.H.	D.O.	E.C.	Temp	Discharge Rates Time	Flow Hand Reading gpm	Totalizer Reading	Calculated Rate gpm
5:00	186.81				7.66	.31	170	11.35/-82.8		2100	8203	2016
6:00	186.95				7.69	.31	169	11.63/-84.6		2100	8343	2000
7:00	187.02				7.66	.29	169	11.67/-84.4		2100	8463	2000
8:00	187.11				7.68	.30	168	11.71/-84.8		2100	8584	2016
9:00	187.23				7.68	.27	168	11.79/-86.9		2100	8704	2000
10:00	187.30				7.67	.29	168	11.99/-88.1		2100	8825	2016
11:00	187.40				7.67	.29	168	12.20/-88.1		2100	8946	2016
12:00	187.45				7.67	.26	168	12.27/-90.8		2100	9067	2016
1:00	187.45				7.66	.29	168	11.96/-88.7		2100	9187	2000
2:00	187.6				7.66	.30	167	11.59/89.5		2100	9307	2000
3:00	187.7				167	.28	167	11.70/-89.5		2100	9426	1983

Job Number / Location: 0069 Yelm, WA.

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Golder Associates

PROJECT NUMBER: 10399709

WELL NUMBER: SW 7A

SHEET 1 OF 1

Aquifer Test Data Sheet

WELL #: SW7A
TYPE OF DATA: Manual
WELL DIAMETER: 12"
PUMPING WELL: Yes
CHECK VALVE INSTALLED ON PUMP? Yes (Gate @ top)
DISTANCE FROM PUMPING WELL: NA
M.P.: 2.58
HOW Q MEASURED: Totalizing flow meter
HOW WL'S MEASURED sounder
INITIAL DEPTH TO WATER: 105.52
COMMENTS: RECOVERY - CR-TEST

~~PUMPING~~ / RECOVERY
RECOVERY / ~~DRAWDOWN~~
DEPTH: 633
DIAMETER: 12"
ELEVATION:

DATE: 10/9/10
DATA COLLECTED BY:
DATA LOGGER:
PUMP ELEVATION:
OTHER:

TIME DATA		WATER LEVEL DATA				REMARKS
Clock Time HR:MM:SS	Elapsed Time (min)	Depth to Water (feet)	Drawdown (feet)	Pump Rate (gal / min)	Totalizer Reading (gal)	Pump on, off, rate change; pump type; water quality; etc.
STOP AT 1527						
	:43	162.77				
	1:15	148.48				
	1:32	142.41				
	2:40	138.26				pump fully off
	4:00	138.26				
	5:00	137.72				
	5:50	137.29				
	700	136.78				
15:29	8:15	136.43				
	10:00					
15:32		135.49				
15:33		135.13				
15:36		134.60				
15:37		134.28				
15:38		134.10				
15:40		133.90				
15:43		133.43				
15:46		133.12				
15:52		132.43				
16:00		131.78				
16:05		131.40				
16:10		131.06				
16:15		130.77				
16:19		130.54				
16:42		129.43				
10/10/10	10:40	118.60' BMP				

TCMW

Water Level Monitoring Data Sheet

Golder Associates

Location: Thompson Creek
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 1" / 17' BGS
Pump Installed? NO Pump Type: NO
Is the Well Used? NO
Any known trouble spots in the well? NO
Weather _____

Contact Person/Info:
Measuring Point (MP): 1.~~92~~' AGS
MP Height Above Ground: 3.8'
Survey Mark Elevation:
Correction to Survey Mark:

Date (mm/dd/yy)	Time (hrmm)	Depth to Water (ft bmp)	Water Level Elev. (ft amsl)	By	Comments
10/6/10	1030	9.02' BMP		LB	
10/7/10	0951	8.74' BMP		LB	
10/7/10	1134	8.34' BMP		LB	Downloaded Data
10/9/10	0830	9.09 BMP		LB	downloaded data
10/10/10	0859	8.68 BMP		LB	*Rain
10/13/10	1540	8.81' BMP		LB	

NTW

Water Level Monitoring Data Sheet

Golder Associates

Location: Thurston Highlands
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 8"/250'BGS
Pump Installed? NO Pump Type: NA
Is the Well Used? NO
Any known trouble spots in the well? NO
Weather _____

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 1.92'AGS
Survey Mark Elevation:
Correction to Survey Mark:
(Labeled STW on well)

Date (mm/dd/yy)	Time (hrmm)	Depth to Water (ft bmp)	Water Level Elev. (ft amsl)	By	Comments
10/6/10	0900	172.98'		LB	Pre start
10/7/10	1011	172.95'		LB	
10/7/10	1202	173.08'		LB	downloaded data
10/8/10	0927	173.01'		LB	
10/8/10	1422	173.04'		LB	downloaded data
10/9/10	0935	173.03'		LB	
10/10/10	0939	173.13'		LB	
10/17/10	1332	173.01		KJ	

STW

Water Level Monitoring Data Sheet

Golder Associates

Location: Thurston Highlands
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 8"/260' bgs
Pump Installed? NO Pump Type:
Is the Well Used? NO
Any known trouble spots in the well? NO

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 3.27' AGS
Survey Mark Elevation:
Correction to Survey Mark:

Date	Time	Depth to Water (feet)	Water Level Elevation (feet)	By	Comments
10/6/10	0930	158.04'		LB	pre start
10/7/10	1019	156.93'		LB	
10/7/10	1213	158.10'		LB	downloaded data
10/8/10	0910	157.95		LB	
10/8/10	1435	157.90		LB	
10/9/10	1001	158.20		LB	
10/10/10	0948	157.74		LB	
10.13.10	1320	158.32		KY	

P2

Water Level Monitoring Data Sheet

Golder Associates

Location: Thurston Highlands
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 2" / 59'
Pump Installed? NO Pump Type: NA
Is the Well Used? NO
Any known trouble spots in the well? NO
Weather _____

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 1.5' AGS
Survey Mark Elevation:
Correction to Survey Mark:

Date (mm/dd/yy)	Time (hrmm)	Depth to Water (ft bmp)	Water Level Elev. (ft amsl)	By	Comments
10/6/10 ~~0833~~	0835	54.81'		LB	Pre-test start
10/7/10	1002	54.80'		LB	
10/7/10	1344	54.83'		LB	
10/8/10	0847	54.91		LB	
10/9/10	0906	54.95		LB	
10/10/10	0916	55.02		LB	
10/13/10	1059	55.00		MJ	Ignored transducer S/N 2526019

P18

Water Level Monitoring Data Sheet

Golder Associates

Location: Thurston Highlands
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 2"/56' bgs
Pump Installed? NO Pump Type: NA
Is the Well Used? NO
Any known trouble spots in the well? NO
Weather _____

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 2.41' AGS
Survey Mark Elevation:
Correction to Survey Mark:

Date (mm/dd/yy)	Time (hrmm)	Depth to Water (ft bmp)	Water Level Elev. (ft amsl)	By	Comments
10/6/10	0845	57.42'		LB	probe hit bottom of well
10/8/10	0853	57.41'		LB	Probe hit bottom
10/9/10	0923	57.41'		LB	" "
10/10/10	0925	57.41'		LB	" "
10/12/10	10:52	57.43'		KJ	removed Transducer S/N = 1526014

P3

Water Level Monitoring Data Sheet

Golder Associates

Location: Thurston Highlands
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 2"/61.2'bgs
Pump Installed? ND Pump Type:
Is the Well Used? ND
Any known trouble spots in the well? ND
Weather _____

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 2.74'AGS
Survey Mark Elevation:
Correction to Survey Mark:

Date (mm/dd/yy)	Time (hrmm)	Depth to Water (ft bmp)	Water Level Elev. (ft amsl)	By	Comments
10·6·10	0855	59.02		LB	
10/7/10	1006	59.03		LB	
10/7/10	1353	59.03		LB	
10/7/10	1647	59.03		LB	
10/8/10	0903	59.03		LB	
10/8/10	1414	58.90		LB	
10/9/10	0928	59.04		LB	
10/10/10	0931	59.05		LB	
10·13·10	1327	59.05		KJ	

WTW

Water Level Monitoring Data Sheet

Golder Associates

Location: Highlands
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 8"/290' bgs
Pump Installed? ND Pump Type:
Is the Well Used? No
Any known trouble spots in the well? No

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 1.38'
Survey Mark Elevation:
Correction to Survey Mark:

Manual only

Date	Time	Depth to Water (feet)	Water Level Elevation (feet)	By	Comments
10/6/10	0915	←	176.71'	LB	
10/7/10	1026	176.65		LB	
		~~176.20~~			
10/7/10	1033	176.80		LB	
10/8/10	0920	176.81		LB	
10/9/10	01037	176.84		LB	
10/10/10	1002	176.75		LB	
10/12/10	1240	176.75		KJ	

Baker Well

Water Level Monitoring Data Sheet

Golder Associates

Location: Berry Valley Rd, Yelm WA
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 6"/84' bgs
Pump Installed? Yes Pump Type: Unknown
Is the Well Used? Yes, Domestic
Any known trouble spots in the well? None
Weather _____

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 0.65'AGS
Survey Mark Elevation:
Correction to Survey Mark:

Date (mm/dd/yy)	Time (hrmm)	Depth to Water (ft bmp)	Water Level Elev. (ft amsl)	By	Comments
10/6/10	1050	52.12'		LB	After pump shut off
10/8/10	1025	50.97		LB	Not pumping
10/9/10	1116	51.82		LB	Pumped & shut down during visit
10/10/10	0834	57.38		LB	
10.13.10	1530	51.65		KJ	Pump off
11.15.10	1510	48.80		LB	Pump off

Purvis Well

Water Level Monitoring Data Sheet

Golder Associates

Location: 14504 Berry Valley RD SE, Yelm, WA
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 6"/155' bgs
Pump Installed? Yes Pump Type: Unknown
Is the Well Used? Yes
Any known trouble spots in the well? No
Weather _____

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 0.36'AGS
Survey Mark Elevation:
Correction to Survey Mark:

Date (mm/dd/yy)	Time (hrmm)	Depth to Water (ft bmp)	Water Level Elev. (ft amsl)	By	Comments
10/6/10	1100	81.35		LB	
10/8/10	1125	~~[illegible]~~ 83.27'		LB	Not pumping
10/9/10	1130	83.93		LB	
10/10/10	852	89.27		LB	Not pumping
10.13.10	1510	83.69		KJ.	Pump off
11.18.10	1521	79.01'		LB	Pump off

SW Well No 1

Water Level Monitoring Data Sheet

Golder Associates

Location: Thurston Highlands
Type of data: Manual Only / Electronic + Manual
Well Diameter/Depth: 12"/410'bgs
Pump Installed? No Pump Type:
Is the Well Used? No
Any known trouble spots in the well? NA

Contact Person/Info:
Measuring Point (MP):
MP Height Above Ground: 2.46' AGS
Survey Mark Elevation:
Correction to Survey Mark:

Date	Time	Depth to Water (feet)	Water Level Elevation (feet)	By	Comments
10/6/10	0920	179.20		LB	Pre-start
10/7/10	1034	179.20		LB	
10/7/10	1230	179.32		LB	Downloaded Data
10/8/10	0917	179.31		LB	top not all the way on
10/8/10	1458	179.27		LB	downloaded data
10/9/10	1022	179.36		LB	
10/10/10	0959	179.45		LB	
10.13.10	1303	179.35		KJ	

PROJECT NUMBER	WELL NUMBER	
103.99709	SW Yelm Well #1	SHEET 1 OF 1

Golder Associates

Water Quality Field Parameters

PROJECT: SW Yelm Well #2 LOCATION: Thurston Highlands, Yelm, WA
DEVELOPMENT CONTRACTOR: Robert Longyear LOGGER: [illegible]
DEVELOPMENT METHOD AND EQUIPMENT USED: Purging Well, 150 HP Pump
START WATER LEVELS: DATE: 5.19.10 START TIME: 1639 END TIME: 1720

MAXIMUM DRAWDOWN DURING PUMPING: —
RANGE AND AVERAGE DISCHARGE RATE: ~ 200 gpm
TOTAL QUANTITY OF WATER DISCHARGED: 7800 gallons
DISPOSITION OF DISCHARGE WATER: to ground surface
NOTES / COMMENTS:

Time	Volume Discharged (gallons)	DO (mg/L)	RedOx Potential (mv)	Turbidity (NTU)	Temperature (°C)	pH (-)	Specific Conductivity (µS/cm)	Remarks (color, odor, sheen, sediment, etc.)
1531	—	—	—	—	—	—	—	SWL = 180.9 ft btoc
1531	—	—	—	—	—	—	—	totalizer reading before test = 4863700 gal.
1639	—	—	—	—	—	—	—	start purge
1645	1600	1.85	400	—	9.84	6.56	104	
1648	2100	1.74	393	—	9.84	6.44	105	
1654	3100	2.30	379	—	9.84	6.34	107	
1659	4100	2.63	357	—	9.85	6.29	108	
1707	5500	2.82	324	—	9.84	6.40	109	
1715	7000	2.99	217	—	9.84	6.25	109	
1716	7200	2.99	209	—	9.84	6.24	109	bubbles collecting on outer surface of DO probe
1718	7400	2.92	196	—	9.83	6.24	110	
1720	7800	3.03	183	—	9.84	6.23	110	collected sample

total depth of well = 450 ft
450 − 180.9 = 269.1 ft
well volume = $\pi r^2 * 269.1 = (3.14)(0.5)^2(269.1) = 211.2\ ft^3$
= 1580 gallons
[3 well volumes = 1580 * 3 = 4740 gallons]

Golder Associates
Record of Calibration

Date	Time	Meter Type	Meter Brand	Meter Model	Golder Equip #	Standard Value (give units)	Standard Temp (C or F)	Meter Reading (give units)	Other
5.19.10	1450	multimeter	YSI	556	—	1000 µS/cm	20	1000 µS/cm	specific conductance
					—	4.00		4.00	pH
					—	7.02		7.02	
					—	10.06		10.07	
					—	199 mV		199.0 mV	ORP
					—	100%		98%	DO

Project Name: SW Yelm #2

Site Name: SW Yelm Well #1

Project Number: 103.99709

Operator: K. Lansing

Investigation Description: Collect WQ sample from SW Yelm Well #1

Golder Associates

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Record_of_Calibration_Form.xls
5/03