Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 11/12/13	Time: arrive 0943 depart 1056
Project Name: Symphony Liddell	Project Number: 0224198
Site Location:	Sampler: Sean Penzo
Well ID: LL_MW09	Weather: Fine

Equipment

Water quality equipment description: 90FLMV 15443 Interface probe number: Geotech Interface Meter 30.m 3978

Purging equipment (please circle): Bailer type: Plastic Teflon

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 10.874 m (-) Water level 5.822 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 0952 Ending purge time: 1017 Pump Intake Depth (mbtoc): 9.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	0957	6.82	25.1	12.41	1.74	31	5.91	Clear, no sheen, no odour
2.0	1002	6.81	23.8	12.10	0.98	22	5.96	As above
3.0	1007	6.79	23.8	12.22	0.64	16	6.00	As above
4.0	1012	6.81	23.9	12.27	0.66	15	6.04	As above
5.0	1017	6.82	23.9	12.33	0.65	12	6.08	As above
								Sampled at 1022
								(allow 5 mins for recharge)

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5.0L **Total Well Volume** Actual amount of water prior to sampling

700 **Flow rate** mL/minute

Sample time 1022 Containers used 2 ambers, 3 vials, 1 filtered trace metals

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID _____
Rinsate blank collected?	(Y)	N		Rinsate blank ID RQ1_111213_SP

Final Water Level: 6.102

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 26/11/13	Time: arrive 12:40 pm depart 1:55pm.
Project Name: SYMPHONY.	Project Number: 224198
Site Location: 400EL	Sampler: TH.
Well ID: LM_MW01.	Weather: cloudy

Equipment

Water quality equipment description: YSI - 11C100752. Interface probe number: Geotech IP. 4261.30m

Purging equipment: (please cirlce) Bailer type: **Plastic** **Teflon** PID = 1.3 peak.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.057 m (-) Water level 4.230 m (=) Water Column 4.827 m

Water Column 4.827 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 9.46 L

Depth to product: — m Product Thickness: ✓ m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 13:02. Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	13:05:45	6.64	21.4.	18897	0.17.	36.8	6.490	clear, no odour.
2.0	13:09:50	6.62	21.8	19299	---	10.3	6.595	clear no odour.
3.0.	13:14:40	6.62	21.6	19285	1.51	-6.7	6.725	clear, no odour.
4.0	13:19:17	6.61	21.7.	20551	2.47.	-22.4	6.795	clear, no odour.
4.5.	13:22:10	6.61.	21.5	19180	2.93.	-26.6	6.845	clear, no odour.
5.0	13:24:00	6.61	21.5	19120	3.09	-30.0	6.882	" "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5L

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 1:40pm Containers used 7

Did field parameters stabilise? Y / N / NA Was the well dry purged? Y / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	Y	N	NA
Was sample for metals field filtered prior to preservations?	Y	N	NA
Duplicate sample collected?	Y	N	Duplicate sample ID No
Rinsate blank collected?	Y	N	Rinsate blank ID No.

Groundwater - Well Sampling Data Form

Job Information

Date: 26/11/13.	Time: arrive 2:10pm. depart 3:35pm.
Project Name: Symphony	Project Number: 224198.
Site Location: LIDDELL - LM	Sampler: TH
Well ID: LM-MW02.	Weather: FINE - WINDY.

Equipment

4261

Water quality equipment description: YSI-11 C100752 Interface probe number: Geotech IP ~~11521~~ 30m

Purging equipment: (please cirlce) Bailer type: **Plastic** **Teflon** PID = 0.2. (peak)

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth ~~10.650~~ 10.065. m (-) Water level 6.772 m (=) Water Column 3.293 m

Water Column 3.293 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 6.45 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / ~~N~~

Water Quality Parameters

Beginning purge time: 14:30:35 Ending purge time: 14:55:10. Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	14:33:30	6.68	21.5	12069	1.64	119.3	7.125	cloudy no odour
2.0	14:38:00	6.65	21.3	12257	1.42	108.1	7.125	cloudy, no odour.
3.0	14:43:34	6.64	21.7	12295	1.45	102.5	7.200	cloudy, no odour.
4.0	14:49:40	6.64	21.8	13427	2.58	101.2	7.275	cloudy, no odour
4.5	14:53:41	6.64	21.7	12821	2.79	100.7	7.295	cloudy, no odour.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.5. **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 3:10pm. Containers used 14.

Did field parameters stabilise? Y / ~~N~~ / NA Was the well dry purged? ~~Y~~ / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~	
Was sample for metals field filtered prior to preservations?	Y	N	~~NA~~	except RINSATE
Duplicate sample collected?	~~Y~~	N		Duplicate sample ID
Rinsate blank collected?	Y	N		Rinsate blank ID RINSATE_261113_TH

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 27/11/13	Time: arrive 9:40 AM depart
Project Name: SYMPHONY	Project Number: 224198
Site Location: LIDDELL - LN	Sampler: TH
Well ID: LN_MW01	Weather: HOT & CLEAR

Equipment

Water quality equipment description: 451 - 11K101262 Interface probe number: Geotech IP 4261 30m

Purging equipment: (please cirlce) Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.050 m (-) Water level 3.125 m (=) Water Column 5.925 m

Water Column 5.925 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 11.613 L

Depth to product: — m Product Thickness: ~~1.96~~ m Verified with Bailer: Y ~~N~~

Water Quality Parameters

Beginning purge time: 10:09:53 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond ~~mS~~/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1.0	10:12:30	6.70	21.6	7252	1.60	98.2	3.350	clear, no odour.
2.0	10:17:03	6.69	21.5	8069	1.30	92.8	3.450	clear, no odour.
3.0	10:21:30	6.69	21.4	8897	1.18	88.2	not taken	clear, no odour.
4.0	10:27:00	6.71	21.5	8560	1.02	85.8	3.555	clear, no odour.
5.0	10:32:00	6.72	21.5	8548	0.90	82.0	3.540	clear, no odour.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5.0 **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 10.35AM Containers used 16.

Did field parameters stabilise? Y ~~N~~ ~~NA~~ Was the well dry purged? ~~Y~~ N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~
Was sample for metals field filtered prior to preservations?	Y	~~N~~	~~NA~~
~~Duplicate~~ Triplicate sample collected?	Y	~~N~~	
Rinsate blank collected?	~~Y~~	N	

~~Duplicate~~ triplicate sample ID Triplicate_27/11/13_TH

Rinsate blank ID

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 27/11/13	Time: arrive 8:15am. depart 9:25 AM.
Project Name: SYMPHONY	Project Number: 224198
Site Location: LIDDELL LN	Sampler: TH
Well ID: LN_MW02.	Weather: HOT & CLEAR.

Equipment

Water quality equipment description: YSI - 11K101262 Interface probe number: Geotech IP 4261 30m.

Purging equipment: (please cirlce)

Bailer type: **Plastic** **Teflon**

PID = 0.1 ppm.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 7.550 m (-) Water level 2.091 m (=) Water Column 5.459 m

Water Column 5.459 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 10.70 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / ~~N~~

Water Quality Parameters

Beginning purge time: 8:44:44 Ending purge time: 9:01:00 Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1.0	8:44:40	6.74	20.7	3029	1.80	102.2	2.150	Brown turbidity No odour.
2.0	8:50:30	6.61	20.8	2690	0.79	86.1	2.140	" " " "
3.0	8:55:40	6.60	20.9	2659	0.63	75.0	2.140	" " " "
4.0	9:00:33	6.59	20.9	2651	0.18	66.2	2.140	" " " "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.00 **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 9.10AM Containers used 9

Did field parameters stabilise? Y / ~~N~~ / ~~NA~~ Was the well dry purged? ~~Y~~ / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	~~N~~	
Was documentation of equipment conducted?	Y	N	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~
Was sample for metals field filtered prior to preservations?	Y	N	~~NA~~
Duplicate sample collected?	~~Y~~	N	Duplicate sample ID —
Rinsate blank collected?	~~Y~~	~~N~~	Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 27/11/13	Time: arrive 4:10pm depart
Project Name: SYMPHONY	Project Number: 224198
Site Location: LIDDELL - LN -	Sampler: TH
Well ID: LN_MW04	Weather: FINE

Equipment

Water quality equipment description: YSI 11K101262 Interface probe number: Geotech IP#4261 30m.

Purging equipment: (please cirlce) Bailer type: **Plastic** **Teflon** PID = 0.3 (Peak)

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 4.800 m (-) Water level 1.757 m (=) Water Column 3.043 m

Water Column 3.043 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 5.96 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 16:33:22. Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L ppm	Redox mV	Drawdown <10cm	Comments
1.0	16:36:40	5.68	21.5	8354	3.17	115.3	1.99	Very turbid (brown), no odour
2.0	16:41:30	5.80	22.1	8662	2.05	94.3	2.145	brown turbidity, no odour
3.0	16:46:00	5.87	21.9	6705	1.59	80.4	2.345	Minor ~~light~~ brown turbidity (decreasing), odour
4.0	16:51:00	5.67	22.1	9536	1.42	77.9	2.570	minor brown turbidity, odour
4.5	16:54:14	5.54	22.1	10236	1.24	82.2	2.615	brown turbid, odour.
5.0	16:57:30	5.44	22.0	10478	1.03	81.6	2.73	As above.
5.5	17:01:00	5.31	21.9	11274	0.61	82.1	2.855	As above.
6.0	17:03:00	5.23	22.0	11639	0.54	87.1	2.890	As above & pump stopped - water running out
6.5								
7.0								

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling Sample time 5.10pm Containers used —

Flow rate mL/minute Did field parameters stabilise? Y / N / ~~NA~~ Was the well dry purged? Y / ~~N~~

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~
Was sample for metals field filtered prior to preservations?	Y	~~N~~	~~NA~~
Duplicate sample collected?	~~Y~~	N	Duplicate sample ID —
Rinsate blank collected?	~~Y~~	~~N~~	Rinsate blank ID RINSATE_271113-TH

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 28/11/13.	Time: arrive 9:40AM. depart 10:45.
Project Name: SYMPHONY	Project Number: 224198
Site Location: LIDDELL - LN.	Sampler: TM
Well ID: LN - MW04	Weather: HOT

Equipment

Water quality equipment description: 451 - 111K101262 Interface probe number: Geotech IP ~~4261~~ 4261

Purging equipment: (please cirlce)

Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

PID reads = 9.8 ppm

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 4.800 m (-) Water level 2.295 m (=) Water Column 2.505 m

Water Column 2.505 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 4.90 L

Depth to product: — m Product Thickness: — m Verified with Bailer: ~~Y~~ (N)

Water Quality Parameters

Beginning purge time: 9:55:00 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1.0	10:03	5.29	21.3	10380	9.23	122.8	2.69	very brown turbidity, odour
2.0	10:06	5.30	21.2	11088	3.60	121.2	2.900	turbidity clearing, odour
2.5	10:08	5.23	21.3	11852	2.46	124.8	2.995	As above
3.0	10:09	5.21	21.3	12071	1.6	120.5	3.06	As above
								SAMPLED GIVEN LOW VOLUME OF WATER REMAINING (AND FACT THAT WELL WAS PURGED DRY DAY BEFORE)

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

3.0 **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 10.40AM Containers used 9

Did field parameters stabilise? Y N ~~NA~~ Was the well dry purged? ~~Y~~ N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	~~N~~	
Was documentation of equipment conducted?	(Y)	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	(N)	~~NA~~
Was sample for metals field filtered prior to preservations?	(Y)	~~N~~	~~NA~~
Duplicate sample collected?	Y	(N)	Duplicate sample ID —
Rinsate blank collected?	Y	(N)	Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 27/11/13.	Time: arrive 2:40. depart 4:05.
Project Name: SYMPTONY	Project Number: 0224108
Site Location: LIDDELL-LN.	Sampler: TH
Well ID: LN_MW05.	Weather: FINE & CLEAR.

Equipment

Water quality equipment description: YSI - 11K101262. Interface probe number: Geotech IP. # 4261. 30m

Purging equipment: (please cirlce) Bailer type: **Plastic** **Teflon** PID peak = 0.3.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 10.122 m (-) Water level 1.722 m (=) Water Column 8.400 m

Water Column 8.400 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 16.46 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / ~~N~~

Water Quality Parameters

Beginning purge time: 15:15:45 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1.0	15:20:12	6.67	22.2	5361	0.36	66.3	1.760	Brown turbidity, no odour.
2.0	15:25:04	6.68	21.8	5662	0.24	53.5	1.765	As above.
3.0	15:30:30	6.67	21.8	5854	0.18	49.2	1.755	As above.
4.0	15:36:00	6.68	21.8	5979	0.12	46.3	1.770	As above.
4.5.	15:39:00	6.66	21.6	6008	0.07	43.9	1.770	As above.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.5. **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 3.45pm Containers used 9.

Did field parameters stabilise? Y / ~~N~~ ~~NA~~ Was the well dry purged? ~~Y~~ / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	~~N~~		
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	~~N~~	~~NA~~	
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID ____
Rinsate blank collected?	Y	N		Rinsate blank ID ____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 27/11/13	Time: arrive 1:10pm - depart
Project Name: SYMPHONY	Project Number: 224198
Site Location: LIDELL LN	Sampler: TH
Well ID: LN_MW06	Weather: HOT & CLEAR. -

Equipment

Water quality equipment description: Interface probe number: Geotech IP #4261 30m

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

PID Peak = 0.3

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.930 m (-) Water level 1.814 m (=) Water Column 8.116 m

Water Column 8.116 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 15.91 L

Depth to product: — m Product Thickness: — m Verified with Bailer: ~~Y~~ N

Water Quality Parameters

Beginning purge time: 13:30:10 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond ~~uS~~/cm	DO ~~mg/L~~ %	Redox mV	Drawdown <10cm	Comments
1.0	13:34:30	6.53	23.0	5047	0.83	64.2	1.900	Brown turbidity, no odour.
2.0	13:39:00	6.55	22.7	5010	0.56	54.6	1.905	Brown turbidity, no odour.
3.0	13:44:00	6.61	22.6	4955	0.34	49.4	1.895	Brown turbidity, no odour.
4.0	13:50:00	6.56	22.7	5069	0.30	49.2	1.895	Brown turbidity, no odour.
4.5	13:53:00	6.60	22.9	5111	0.29	47.7	1.88	" " "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.5 **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 2pm Containers used 9

Did field parameters stabilise? Y N ~~NA~~ Was the well dry purged? ~~Y~~ N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	~~N~~	
Was documentation of equipment conducted?	Y	N	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~
Was sample for metals field filtered prior to preservations?	Y	~~N~~	~~NA~~
Duplicate sample collected?	~~Y~~	N	Duplicate sample ID
Rinsate blank collected?	~~Y~~	N	Rinsate blank ID

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 27/11/13	Time: arrive 11:15am depart
Project Name: SYMPHONY	Project Number: 224198
Site Location: CLODELL-LN	Sampler: TH
Well ID: LN_MW07	Weather: HOT & CLEAR

Equipment

Water quality equipment description: YSI - 11K101262 Interface probe number: Geotech IP. 612180m

Purging equipment: (please cirlce) Bailer type: Plastic Teflon PID read = 0.2

Pump type: ~~Peristaltic~~ Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	~~50mm~~	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 7.985 m (-) Water level 2.200 m (=) Water Column 5.785 m

Water Column 5.785 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 11 L

Depth to product: — m Product Thickness: — m Verified with Bailer: ~~Y~~ N

Water Quality Parameters

Beginning purge time: 11:39:39 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond ~~mS~~/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1.0	11:45:25	6.41	22.4	14892	2.80	94.5	3.695	No odour, clear.
2.0	11:51:00	6.44	22.4	16319	2.44	79.9	2.835	No odour, clear.
3.0	11:56:30	6.45	22.2	16584	2.33	65.3	3.080	No odour, clear
4.0	12:02:00	6.46	22.0	16773	2.25	57.9	3.280	No odour, clear
4.5	12:05:30	~~6.46~~ 6.44	22.0	18019	1.93	49.9	3.315	No odour, clear.
5.0	12:07:15	6.46	22.2	18044	1.78	47.2	3.345	No odour, clear
5.5	12:10:45	6.47	22.1	17197	1.67	41.6	3.410	No odour, clear
6.0	12:13:47	6.47	22.1	17273	1.60	40.7	3.455	No odour, clear.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

6.0 **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 12.10pm Containers used 9

Did field parameters stabilise? Y ~~N~~ ~~NA~~ Was the well dry purged? ~~Y~~ N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	~~N~~	
Was documentation of equipment conducted?	Y	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~
Was sample for metals field filtered prior to preservations?	~~Y~~	N	~~NA~~
Duplicate sample collected?	~~Y~~	N	Duplicate sample ID ____
Rinsate blank collected?	~~Y~~	N	Rinsate blank ID ____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 16/12/13	Time: arrive 3 depart
Project Name: SYMPHONY	Project Number: 0224198
Site Location: LODELL	Sampler: TH
Well ID: LO - MW01	Weather: HOT

Equipment

Water quality equipment description: Interface probe number: Geotech IP. 42613

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon** Stainless steel.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 10.047 m (-) Water level 9.464 m (=) Water Column 0.583 m

Water Column 0.583 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 1.14 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y ~~N~~

Water Quality Parameters

Beginning purge time: Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								Grey turbidity, no odour
		Grab sample taken due to						
		insufficient well volume.						

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 4.30 Containers used 7

Did field parameters stabilise? ~~Y~~ ~~N~~ ~~NA~~ Was the well dry purged? Y ~~N~~

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~
Was sample for metals field filtered prior to preservations?	~~Y~~	N	~~NA~~ — too little well volume.
Duplicate sample collected?	~~Y~~	N	Duplicate sample ID —
Rinsate blank collected?	Y	~~N~~	Rinsate blank ID RD1_161213_TH.

Groundwater - Well Sampling Data Form

ERM

Job Information	
Date: 17/12/13	Time: arrive 10:30AM depart 11:20
Project Name: SYMPHONY	Project Number: 0224198.
Site Location: LIDDELL	Sampler: TH.
Well ID: LO_MW02	Weather: HOT + CLEAR

Equipment

Water quality equipment description: 90FLMV. 45443 Interface probe number: Geotech IP 4261 30m

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 6.060 m (-) Water level 2.874 m (=) Water Column 3.186 m

Water Column 3.186 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 6.244 L

Depth to product: \ m Product Thickness: \ m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 10:40:00 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO ~~mg/L~~ %	Redox mV	Drawdown <10cm	Comments
1L.	10:45:00	7.24	23.2	2.72	0.58	-77.	2.895	hydrocarbon odour.
2L	10:50:30	7.21	23.8	2.66	0.41	-77	2.900	as above.
3L	10:56:00	7.20	24.0	2.64	0.32	-76	2.905	as above.
4L.	11:01:00	7.20	23.9	2.62	0.27	-76	2.910	as above.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 11:10AM Containers used 7.

Did field parameters stabilise? Y N NA Was the well dry purged? Y N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	~~N~~	
Was documentation of equipment conducted?	(Y)	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	(N)	~~NA~~
Was sample for metals field filtered prior to preservations?	(Y)	~~N~~	~~NA~~
Duplicate sample collected?	~~Y~~	(N)	Duplicate sample ID —
Rinsate blank collected?	~~Y~~	(N)	Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information			
Date:	13/12/13	Time: arrive 09:20 depart 10:20	
Project Name:	Symphony	Project Number:	0224498
Site Location:	Liddell	Sampler:	K.F.
Well ID:	LD_MW03	Weather:	Fine

Equipment

Water quality equipment description: 451 1110101262 Interface probe number: NSW 4253 30m

Purging equipment (please circle) — Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.03 m (-) Water level 3.26 m (=) Water Column 1.77 m

Water Column 1.77 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~3.46 L

Depth to product: / m Product Thickness: / m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 09:25 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments PID=1.8 ppm
0.5	09:29	6.79	21.5	4302	2.67	48.0	3.39	clear, no odour
1	09:32	6.75	21.3	4121	2.26	45.8	3.44	slightly cloudy, no odour.
1.5	09:35	6.75	21.1	3977	1.98	45.4	3.48	" "
2	09:38	6.75	21.3	3847	1.79	44.9	3.54	" "
2.5	09:41	6.74	21.3	3748	1.62	44.6	3.56	" "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling

Sample time 09:45 Containers used 9+9

156 **Flow rate** mL/minute

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID /
Rinsate blank collected?	(Y)	N		Rinsate blank ID RQ1_131213_KF

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 16 / 12 / 13.	Time: arrive 10:45AM. depart
Project Name: SYMPHONY	Project Number: 0224198.
Site Location: LINDELL.	Sampler: TH.
Well ID: LO-MW03	Weather: FINE & cloudy.

Equipment

Water quality equipment description: Interface probe number: Geotech IP 4261 30m

Purging equipment (please circle): Bailer type: Plastic Teflon PID peak = 0.8.

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.023 m (-) Water level 3.308 m (=) Water Column 1.715 m

Water Column 1.715 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 3.36 L

Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: (Y) N

Water Quality Parameters

Beginning purge time: 11:55AM Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO ~~mg/L~~	Redox mV	Drawdown <10cm	Comments
1	11:59:30	6.77	22.1	4.4	0.88	143.	Not taken	clear, odour (slight)
1.5.	12:03:30	6.78	21.8	4.3.	0.87	131	3695	As above.
2.0	12:05:30	6.78	21.9	4.25	0.78	128	3735	" "
2.5	12:08:32	6.78	21.7	4.24	0.61	124.	3.770	" "
3.0	12:12:42	6.78	21.6	4.21	0.53	113	3.800	As above
3.5	12:18:02	6.78	22.1	4.17	0.48	104	3.910	As above.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 12:20PM Containers used 7

Did field parameters stabilise? (Y) ~~N~~ ~~NA~~ Was the well dry purged? ~~Y~~ (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	~~N~~	
Was documentation of equipment conducted?	(Y)	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	~~N~~	~~NA~~
Duplicate sample collected?	~~Y~~	(N)	Duplicate sample ID _____
Rinsate blank collected?	~~Y~~	(N)	Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 16/12/13	Time: arrive 1pm depart
Project Name: SYMPHONY	Project Number: 0224198
Site Location: LIDDELL	Sampler: TH
Well ID: LD_MW04	Weather: HOT + WINDY + CLOUDY

Equipment

Water quality equipment description: Interface probe number:

Purging equipment (please circle): Bailer type: **Plastic** **Teflon** PID peak = 0.8.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.020 m (-) Water level 3.452 m (=) Water Column 1.568 m

Water Column 1.568 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 3.07 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / (N)

Water Quality Parameters

Beginning purge time: 1:30:30 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO ~~mg/L~~ %	Redox mV	Drawdown <10cm	Comments
1	13:34:34	7.54	21.7	3.03	0.94	36	3.710	no odour clear.
2	13:41:07	7.56	21.7	3.02	0.56	13	3.886	no odour, clear.
3	13:49:21	7.56	22.8	3.14	3.71	29	3.912	no odour, clear.
4	14:03:28	7.28	21.4	3.40	1.67	20	3.986	no odour, clear.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling Sample time _____ Containers used _____

Flow rate mL/minute Did field parameters stabilise? Y N NA Was the well dry purged? Y N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		Final DTW 3.991.
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID _____
Rinsate blank collected?	Y	N		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	16.12.13	Time: arrive 1150	depart 1240
Project Name:	Symphony Lidell	Project Number:	0224198
Site Location:		Sampler:	J. Grant
Well ID:	LO-MW05	Weather:	Fine

Equipment

Water quality equipment description: U9117 90FLMV Interface probe number: Syd 3954 Con

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	~~1.96~~	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V = Pr x r x h
V = volume in litres
P ≐ 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth (-) Water level (=) Water Column
5.990 m (-) 2.950 m (=) 3.040 m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
3.040 m (x) 1.96 (=) ~6 L

Depth to product: / m Product Thickness: / m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 1200 Ending purge time:

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1204	6.09	27.8	12.22	1.39	-83	3.075	Slightly cloudy - clear
2	1208	6.07	26.7	12.32	0.86	-88	3.190	H.C odour - ~~Nil~~ sheen
3	1212	6.09	26.6	12.23	0.55	-91	3.410	small
4	1216	6.18	26.7	12.19	0.40	-79	3.590	
5	1220	6.20	26.7	12.19	0.38	-78	3.770	

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5 **Total Well Volume** Actual amount of water prior to sampling Sample time 1225 Containers used 9

-250 **Flow rate** mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N		
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID _____
Rinsate blank collected?	Y	(N)		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	16.12.13	Time: arrive 1245	depart 1330
Project Name:	Symphony	Project Number:	0224198
Site Location:	Lidell	Sampler:	J. Grant
Well ID:	LO-MW06	Weather:	fine

Equipment

Water quality equipment description: 90 FLMV U9117 Interface probe number: SXD 3954 60m

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth (-) Water level (=) Water Column
7.090 m (-) 2.980 m (=) 4.11 m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
4.11 m (x) 1.96 (=) ~8 L

Depth to product: / m Product Thickness: / m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 1255 Ending purge time: VOC: 0.2

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1259	6.49	26.3	3.39	1.54	-94	3.085	Turbid milky brown → clear
2	1303	6.45	24.9	3.24	0.93	-102	3.175	Slight HC odour - very small
3	1307	6.45	24.3	3.15	0.56	-104	3.275	sheen
4	1311	6.44	24.2	3.14	0.42	-117	3.335	
5	1315	6.43	24.2	3.12	0.40	-116	3.380	

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5 **Total Well Volume** Actual amount of water prior to sampling Sample time 1320 Containers used 9

250 **Flow rate** mL/minute Did field parameters stabilise? Y N NA Was the well dry purged? Y N

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N		
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID _____
Rinsate blank collected?	Y	(N)		Rinsate blank ID _____

6, 7.09, 2.98, 4.11

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 17-12-13	Time: arrive 10:55 depart 10:45
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: JW
Well ID: LO_MW08	Weather: Sunny

Equipment

Water quality equipment description: Airmet 90 FLMV V9114 Interface probe number: Airmet NSW 4254 30m.

Purging equipment: (please cirlce) Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 10.01 m (-) Water level 3.144 m (=) Water Column 6.9 m

Water Column 6.9 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~14 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 11:03 Ending purge time: 11:30 Pump Intake Depth (mbtoc): 9.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	11:08	7.38	24.0	18.01	1.02	77	3.17	cloudy/brown, no odour
2.0	11:15	7.51	23.2	19.05	0.49	82	3.22	as above
3.0	11:20	8.71	23.1	19.08	0.33	85	3.23	as above.
4.0	11:25	8.75	22.9	19.10	0.25	88	3.23	as above.
5.0	11:30	8.79	22.9	19.10	0.23	89	3.23	as above.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5.0 **Total Well Volume** Actual amount of water prior to sampling Sample time 11:31 Containers used 10

200 **Flow rate** mL/minute Did field parameters stabilise? Y (N) NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		4 x amber
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		1 x metal.
Was documentation of equipment conducted?	(Y)	N	NA	4 x vials.
Were air bubbles present in vials at time of collection?	Y	(N)	NA	1 x PFOS.
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	Final DTW 3.18
Duplicate sample collected?	Y	(N)		Duplicate sample ID —
Rinsate blank collected?	Y	(N)		Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 16·12·13	Time: arrive 16:10 depart 17:00
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: JN
Well ID: LO - MW10	Weather: Sunny

Equipment

Water quality equipment description: Airmet 96 FLMU V9114 Interface probe number: Airmet NSW 4254 30m.

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 6.03 m (-) Water level 2.498 m (=) Water Column — m

Water Column — m (x) Conversion Factor — (=) Litres per 1 Well Volume — L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1·0	16:32	4·38	24·3	4·12	1·03	39	2·56	Cloudy, brown no odour.
2·0	16:37	4·23	23·1	4·24	0·92	46	2·60	as above
3·0	16:43	4·22	22·5	4·33	0·78	48	2·63	as above.
4·0	16:49	4·22	22·2	4·33	0·62	53	2·65	as above.
5·0	16:54	4·20	22·1	4·31	0·59	56	2·68	as above.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5·0L **Total Well Volume** Actual amount of water prior to sampling Sample time 16:55 Containers used 7

200 **Flow rate** mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		Amber 4 x vials 1 x metals. PFOS
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	(Y)	N		Duplicate sample ID —
Rinsate blank collected?	(Y)	N		Rinsate blank ID RQ1-161213-JN.

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 17.12.13	Time: arrive 8:30 depart 10:10
Project Name: Symphony	Project Number: 0224198
Site Location: Lidden	Sampler: JW
Well ID: LO-MW11	Weather: Sunny.

Equipment

Water quality equipment description: Airmet 90 FLMV1 V9114 Interface probe number: Airmet NSW 4254 30m.

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.04 m (-) Water level 1.578 m (=) Water Column 3.5 m

Water Column 3.5 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 7.0 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 8:46 Ending purge time: 9:12. Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	8:49	8.32	21.9	1.53	2.73	48	1.90	clear. no odour.
2.0	8:56	8.09	22.1	1.44	2.60	-2.0	2.35	as above
3.0	9:01	8.11	21.6	1.28	2.66	-14.0	2.88	as above.
4.0	9:07	8.13	21.9	1.28	2.67	-20.0	2.95	as above
5.0	9:12	8.15	21.1	1.28	2.71	-23.0	3.04	as above
During sampling water stopped flow checked water level, changed tubing. Tubing caught on screen lowered and continued sampling.								

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5.0 **Total Well Volume** Actual amount of water prior to sampling Sample time 9:13 Containers used 7

Flow rate mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		1x amber 1x metal
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	4x vials. 1x PFOS.
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	Final DTW.
Duplicate sample collected?	Y	(N)		Duplicate sample ID —
Rinsate blank collected?	Y	(N)		Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Possible product Returned with bailer.

Job Information

Date: 17·12·13 / 18·12·13		Time: arrive 10:20 depart 10:50 / 9:15 ; 10:00	
Project Name: Symphony		Project Number: 0224198	
Site Location: Lidden		Sampler: JN	
Well ID: LO_MW12		Weather: Sunny	

Equipment

Water quality equipment description: Airmet 90 PCMV1 V9114 Interface probe number: Airmet NSW 4254 10m.

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.01 m (-) Water level 3.442 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: 3.443 m Product Thickness: 0 m Verified with Bailer: (Y) N

no visible product in bailer no odour. sheen on rp.

Water Quality Parameters

Beginning purge time: 9:14 Ending purge time: 9:40 Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1·0	9:20	8·30	21·5	2·78	1·67	37		cloudy, no odour.
2·0	9:25	8·84	21·2	2·29	0·93	24	3·50	as above
3·0	9:30	8·94	21·0	2·06	0·91	14	3·51	as above.
4·0	9:35	8·89	21·1	2·06	0·90	12	3·52	slightly cloudy, no odour.
5·0	9:40	8·92	21·1	2·06	0·87	7·0	3·52	as above.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5·0 **Total Well Volume** Actual amount of water prior to sampling Sample time 9:41 Containers used 7.

200 **Flow rate** mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		4 x Vials. 1 x amber. 1 x metals. 1 x PFOS.
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	Final DTW 3.53.
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID —
Rinsate blank collected?	Y	(N)		Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 17·12·13	Time: arrive 7:05 depart 8:10
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: JN
Well ID: LO-MW13	Weather: Sunny.

Equipment

Water quality equipment description: Airmet 90 FLMV V9114 Interface probe number: Airmet NSW 4254 30m.

Purging equipment: (please circle)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.02 m (-) Water level 1.908 m (=) Water Column 27.0 m

Water Column 7.0 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~14 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 7:28 Ending purge time: 7:57 Pump Intake Depth (mbtoc): 8.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1·0	7:33	8·43	21·1	3·64	1·46	125	1·92	clear, no odour.
2·0	7:43	8·31	21·3	3·65	0·58	98	1·97	as above.
3·0	7:48	8·49	21·4	3·62	0·57	86	1·93	as above.
4·0	7:53	8·42	21·4	3·58	0·51	79	1·93	as above.
5·0	7:57	8·41	21·4	3·62	0·49	79	1·93	as above.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5.0L **Total Well Volume** Actual amount of water prior to sampling Sample time 7:58 Containers used 9

200 **Flow rate** mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? (Y) N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		3x amber
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		4x vials.
Was documentation of equipment conducted?	(Y)	N	NA	1x metals.
Were air bubbles present in vials at time of collection?	Y	(N)	NA	PFOS.
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	Final DTW 1·92.
Duplicate sample collected?	(Y)	(N)		Duplicate sample ID —
Rinsate blank collected?	Y	(N)		Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 17/12/13	Time: arrive 11:45. depart
Project Name: SYMPHONY.	Project Number: 224198
Site Location: LIDDELL.	Sampler: TH
Well ID: LD_MW14	Weather: HOT & CLEAR.

Equipment

Water quality equipment description: 90 FLMV. 45443 Interface probe number: Geotech IP 30m 4261.

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 13.897 m (-) Water level 1.977 m (=) Water Column ____ m

Water Column ____ m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ____ L

Depth to product: ~ m Product Thickness: ~ m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 12:15:00 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1	12:19:00	7.41	22.0	4.04	0.72	-203	2.05	odour (not hydrocarbon) clear.
2	12:25:00	7.42	22.0	3.70	0.36	-211	2.070	odour (sulfur-like) clear.
3.	12:31:00	7.42	22.4	3.64	0.25	-218	2070	as above
4	12:37:30	7.41	22.6	3.7	0.21	-224	2.080	" "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 12:45 Containers used ____

Did field parameters stabilise? Y / N / NA Was the well dry purged? Y / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	~~N~~	
Was documentation of equipment conducted?	Y	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	N	~~NA~~
Was sample for metals field filtered prior to preservations?	Y	~~N~~	~~NA~~
Duplicate sample collected?	Y	~~N~~	Duplicate sample ID LD1_171213_TH
Rinsate blank collected?	~~Y~~	N	Rinsate blank ID ____

TB1_171213_TH

Groundwater - Well Sampling Data Form

ERM

Job Information			
Date:	13/12/13	Time: arrive	07:20 depart 08:15
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	K.F.
Well ID:	LO_MW15	Weather:	Fine

Equipment						
Water quality equipment description:	YSI 1111C101262.	Interface probe number:	NSW 4253 30m			
Purging equipment: (please cirlce)	Bailer type:	**Plastic**	**Teflon**			
	Pump type:	**Peristaltic**	**Submersible**	**Micro-purge**	**Amazon**	**Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.01 m (-) Water level 2.82 m (=) Water Column 6.19 m

Water Column 6.19 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~12.13 L

Depth to product: / m Product Thickness: / m Verified with Bailer: Y N

Water Quality Parameters

Beginning purge time: 07:25 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments PID=1.0ppm
1	07:31	6.40	21.2	5053	9.82	110.3	3.40	clear, no odour
2	07:36	5.69	21.3	4843	9.18	124.3	3.76	" "
3	07:41	5.60	21.3	5020	8.52	124.4	4.02	" "
4	07:46	5.58	21.4	5197	8.52	126.1	4.32	" "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling

Sample time 07:50 Containers used 9

~490 **Flow rate** mL/minute

Did field parameters stabilise? Y N NA

Was the well dry purged? Y N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	Y	N	NA
Was sample for metals field filtered prior to preservations?	Y	N	NA
Duplicate sample collected?	Y	N	Duplicate sample ID
Rinsate blank collected?	Y	N	Rinsate blank ID

Groundwater - Well Sampling Data Form

ERM

Job Information			
Date:	13/12/13	Time: arrive 08:30 depart 09:15	
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	K.F.
Well ID:	LO-MW16	Weather:	Fine

Equipment

Water quality equipment description: YSI 11K101262 Interface probe number: NSW 4253 30m 1

Purging equipment: (please circle) Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 10.07 m (-) Water level 4.65 m (=) Water Column 5.42 m

Water Column 5.42 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~10.62 L

Depth to product: / m Product Thickness: / m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 08:28 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	µCond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	08:33	6.11	21.2	10297	7.88	75.0	5.07	Clear, no odour PID=0.8ppm
2	08:39	6.13	21.3	11010	6.51	72.4	5.20	" "
3	08:43	6.13	21.2	11305	4.33	70.3	5.15	" "
4	08:49	6.11	21.2	11521	3.33	69.8	5.17	" "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

	Total Well Volume Actual amount of water prior to sampling
~190	**Flow rate** mL/minute

Sample time 08:55 Containers used 9

Did field parameters stabilise? Y / N / NA Was the well dry purged? Y / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N	
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	
Was documentation of equipment conducted?	Y	N	NA
Were air bubbles present in vials at time of collection?	Y	N	NA
Was sample for metals field filtered prior to preservations?	Y	N	NA
Duplicate sample collected?	Y	N	Duplicate sample ID
Rinsate blank collected?	Y	N	Rinsate blank ID

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 17.12.13	Time: arrive 11:50 depart 12:40
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: JW
Well ID: LO_MW17	Weather: Sunny

Equipment

Water quality equipment description: Airnet 90 FLMV Interface probe number: Airnet NSW 4254 30m.

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 6.07 m (-) Water level 3.168 m (=) Water Column ___ m

Water Column ___ m (x) Conversion Factor ___ (=) Litres per 1 Well Volume ___ L

Depth to product: ___ m Product Thickness: ___ m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 12:04 Ending purge time: 12:24 Pump Intake Depth (mbtoc): 5.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	12:10	8.10	24.9	9.86	2.25	80	3.19	cloudy/brown, no odour.
2.0	12:15	8.05	23.2	9.58	1.71	93	3.19	as above.
3.0	12:19	8.02	22.8	9.52	1.60	100	3.19	as above.
4.0	12:24	8.01	22.7	9.53	1.57	100	3.19.	slightly cloudy, no odour.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.0 **Total Well Volume** Actual amount of water prior to sampling Sample time 12:25 Containers used 10

200 **Flow rate** mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		4 x amber.
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		1 x metals.
Was documentation of equipment conducted?	(Y)	N	NA	4 x vials.
Were air bubbles present in vials at time of collection?	Y	(N)	NA	1 x PFOS
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	final DTW.
Duplicate sample collected?	Y	(N)		Duplicate sample ID ___
Rinsate blank collected?	Y	(N)		Rinsate blank ID ___

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 28/11/13.	Time: arrive 11AM. depart
Project Name: SYMPHONY	Project Number: 0226198.
Site Location: LIODELL - LP.	Sampler: TH.
Well ID: LP_MW01.	Weather: HOT.

Equipment

Water quality equipment description: YSI 11K101262. Interface probe number: Geotech IP. #4261 30m

Purging equipment: (please cirlce) Bailer type: **Plastic** **Teflon** PID = 0.1.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.944 m (-) Water level 3.106 m (=) Water Column 6.838 m

Water Column 6.838 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 13.40 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 11:37:20 Ending purge time: 12:05. Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO ~~mg/L~~ %	Redox mV	Drawdown <10cm	Comments
1.0	11:42:02	6.78	21.6	18293	1.02	63.7	3.75	Clear & no odour.
2.0	11:47:20	6.81	21.8	18555	1.02	50.3	3.87	clear & no odour.
3.0	11:53:50	6.78	22.4	18085	0.70	35.6	3.915	clear & no odour.
4.0	11:59:00	6.77	22.1	18001	0.67	27.8	4.030	clear & no odour.
4.5	12:02:42	6.78	21.9	17810	0.73	23.3	4.055	clear & no odour
5.0	12:04:00	6.79	21.8	17800	0.70	21.1	4.055	clear & no odour.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5 **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 12:10 Containers used 7.

Did field parameters stabilise? Y / ~~N~~ / ~~NA~~ Was the well dry purged? ~~Y~~ / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID _____
Rinsate blank collected?	Y	N		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 28/11/13	Time: arrive 3:30pm depart 5pm.
Project Name: SYMPHONY	Project Number: 224198
Site Location: LIDDELL - LP.	Sampler: TH
Well ID: LP-MW07	Weather: WET - INCREASING WIND

Equipment

Water quality equipment description: YSI 11K101262. Interface probe number: Geotech IP. #4261 30m

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon** PID peak = 0.3.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 7.855 m (-) Water level 3.269 m (=) Water Column 4.586 m

Water Column 4.586 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 8.99 L

Depth to product: - m Product Thickness: - m Verified with Bailer: Y / (N)

Water Quality Parameters

Beginning purge time: 15:41:30 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO ~~mg/L~~ ppm	Redox mV	Drawdown <10cm	Comments
1.0	15:46:00	4.00	22.4	17297	4.91	193.8	3.920	clear, no odour.
2.0	15:50:00	4.13	22.3	17769	4.49	201.8	4.230	clear, no odour.
3.0	15:55:00	4.12	22.7	18854	4.01	205.1	4.430	clear, no odour.
4.0	16:01:20	4.13	22.8	19869	3.49	210.1	4.555	clear, no odour.
4.5	16:04:52	4.17	23.1	20209	2.97	222.4	4.565	clear, no odour
5.0	16:08:35	4.13	23.9	21157	2.59	233.6	4.700	clear no odour.
5.5	16:11:25	4.41	22.5	19928	2.69	224.4	4.790	clear no odour.
6.0	16:13:25	4.43	22.7	20280	2.54	221.2	4.845	clear, no odour.
6.5	16:16:10	4.46	22.7	20450	2.35	235.3	4.910	clear, no odour
7.0	16:18:40	4.41	22.7	20540	2.21	235.9	4.930	clear, no odour.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

7.0 **Total Well Volume** Actual amount of water prior to sampling — actual taken off marked as 4.10pm. Sample time 4.10pm Containers used 14

Flow rate mL/minute

Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N	NA
Were air bubbles present in vials at time of collection?	Y	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	Y	(N)	Duplicate sample ID:
Rinsate blank collected?	(Y)	N	Rinsate blank ID: RINSATE-281113-TH

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 28/11/13	Time: arrive 2:15pm depart
Project Name: SYMPHONY	Project Number: 0224198
Site Location: LIDDELL - LP.	Sampler: TH
Well ID: LP - MW03.	Weather: HOT - INCREASING WIND

Equipment

Water quality equipment description: YSI 11K101262. Interface probe number: Geotech IP #4261 30m

PID peak = 0.4.

Purging equipment (please cirlce)

Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.863 m (-) Water level 2.214 m (=) Water Column 3.649 m

Water Column 3.649 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 7.15 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 14:22:24 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO ~~mg/L~~ %	Redox mV	Drawdown <10cm	Comments
1.0	14:28:00	6.97	22.5	2878	0.13	42.2	NTAKEN	Minor brown turbidity, no odour
2.0	14:29:46	6.99	22.6	28>1	0.11	35.8	3.220	" " "
3.0	14:34:40	6.98	22.8	2926	0.08	19.7	3.225	Minor light brown turbidity, no odour
4.0	14:39:30	6.95	22.5	2985	0.06	3.3	3.220	" " " "
4.5	14:41:41	6.95	22.8	3042	0.08	-1.9	3.220	" " " "

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.5. **Total Well Volume** Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 2:45pm. Containers used 7

Did field parameters stabilise? Y / ~~N~~ / ~~NA~~ Was the well dry purged? ~~Y~~ / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID _____
Rinsate blank collected?	Y	N		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 28/11/13	Time: arrive 12:55pm depart
Project Name: SIMPHONY	Project Number: 0224198
Site Location: WODELL_LP	Sampler: TH
Well ID: LP_MW04	Weather: HOT

Equipment

Water quality equipment description: YSI 11K101262 Interface probe number: Geotech IP #4261 30m

Purging equipment: (please cirlce)

Bailer type: **Plastic** **Teflon** PID Rank = 0.2

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.149 m (-) Water level 2.120 m (=) Water Column 3.029 m

Water Column 3.029 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 5.94 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 13:25:14 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond ~~uS/cm~~	DO ~~mg/L ppm~~	Redox mV	Drawdown <10cm	Comments
1.0	13:28:00	6.98	24.5	2829	0.24	-80.8	2.120	Odour, ~~light~~ Minor grey turbidity
2.0	13:31:30	6.92	24.5	2720	0.07	-77.4	2.125	Odour, minor grey turbidity
3.0	13:37:00	6.90	24.6	2677	0.02	-74.6	2.125	Odour minor grey turbidity
4.0	13:42:00	6.89	24.4	2625	0.03	-71.6	2.125	Odour, minor grey turbidity
~~4.5~~								

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.0 **Total Well Volume** Actual amount of water prior to sampling Sample time 2pm. Containers used 7.

Flow rate mL/minute Did field parameters stabilise? (Y) ~~N~~ ~~NA~~ Was the well dry purged? ~~Y~~ (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	(N)	~~NA~~
Was sample for metals field filtered prior to preservations?	(Y)	~~N~~	~~NA~~
Duplicate sample collected?	~~Y~~	(N)	Duplicate sample ID —
Rinsate blank collected?	~~Y~~	(N)	Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 28/11/13.	Time: arrive 8.15am. depart
Project Name:	Project Number:
Site Location:	Sampler: TM
Well ID: LP_MW05.	Weather:

Equipment

Water quality equipment description: YSI - 11K101262 Interface probe number: Geotech IP #4261 30m

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon** PID peak = 0.1.

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 8.505. m (-) Water level 2.490 m (=) Water Column 6.015. m

Water Column 6.015. m (x) Conversion Factor 1.96. (=) Litres per 1 Well Volume 11.79 L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 8:33:20 Ending purge time: 8:56:15 Pump Intake Depth (mbtoc):

Litres	Time	PH 6.86	Temp °C	Cond µS/cm	DO mg/L ppm	Redox mV	Drawdown <10cm	Comments
1.0	8:37:52	6.68	20.5	7995	1.78	79.5	2.755	clear, no odour.
2.0	8:43:02	6.82	20.7	8379	1.19	73.9	2.860	clear; no odour.
3.0	8:48:00	6.79	20.9	8734	0.70	70.5	2.925	clear, no odour
4.0	8:53:00	6.76	21.0	8771	0.38	93.1	2.965	clear, no odour.
4.5	8:56:15	6.73	20.9	8695	0.24	40.3	2.985	clear, no odour.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.5 L

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 9am. Containers used 1

Did field parameters stabilise? Y N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y) N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y) N	
Was documentation of equipment conducted?	(Y) N NA	
Were air bubbles present in vials at time of collection?	Y (N) NA	
Was sample for metals field filtered prior to preservations?	(Y) N NA	
Duplicate sample collected?	(Y) N	Duplicate sample ID N/A
Rinsate blank collected?	Y (N)	Rinsate blank ID N/A

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 11/12/13	Time: arrive 1544 depart 1652
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Panzera
Well ID: LP_MW06	Weather: Overcast

Equipment

Water quality equipment description: 90FLMV U5443 Interface probe number: Geotech Interface Meter 30m 3978

Purging equipment (please circle): Bailer type: Plastic Teflon

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 4.630 m (-) Water level 1.273 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor _____ (=) Litres per 1 Well Volume _____ L

Depth to product: ~ m Product Thickness: ~ m Verified with Bailer: Y | N

Water Quality Parameters

Beginning purge time: 1351 Ending purge time: 1631 Pump Intake Depth (mbtoc): ~3.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1556	7.07	23.2	19.51	4.02	111	1.61	Slow recharge, Pumping rate slowed. Clear, no sheen, no odour.
1.5	1601	7.10	23.3	19.47	2.90	110	1.70	As above
2.0	1606	7.11	23.5	19.66	3.39	150	1.72	As above
2.5	1611	7.12	22.6	19.69	3.64	264	1.74	As above
3.0	1616	7.12	22.4	19.68	3.68	335	1.76	As above
3.5	1621	7.13	22.2	19.57	3.56	410	1.79	As above
4.0	1626	7.14	22.3	19.63	3.50	407	1.82	As above
4.5	1631	7.15	22.4	19.65	3.46	415	1.85	As above
								Sampled at 1641
								(allow 10mins for recharge)

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

4.5L **Total Well Volume** Actual amount of water prior to sampling

Sample time 1641 Containers used 2 ambers, 3 vials, 1 Ultra Trace Metals

200 > 100 **Flow rate** mL/minute

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N	NA
Were air bubbles present in vials at time of collection?	Y	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	Y	(N)	
Rinsate blank collected?	Y	(N)	

Final Water Level: 2.055

Duplicate sample ID _____

Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information			
Date:	10/12/13	Time: arrive	1425 depart 1518
Project Name:	Symphony	Project Number:	0224198
Site Location:	Caldell	Sampler:	Sean Penzo
Well ID:	LG_MW01	Weather:	Fine, Windy

Equipment

Water quality equipment description: 90FLMV U5443 Interface probe number: Geotech Interface Meter 30m 3978

Purging equipment (please cirlce): Bailer type: Plastic Teflon

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 5.149 m (-) Water level 1.927 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor _____ (=) Litres per 1 Well Volume _____ L

Depth to product: ____ m Product Thickness: ____ m Verified with Bailer: Y N

Water Quality Parameters

Beginning purge time: 1436 Ending purge time: 1506 Pump Intake Depth (mbtoc): -4.15

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1441	7.43	25.4	3.99	1.14	-151	1.93	Slightly turbid yellow, no sheen, slight fish like odour
2.0	1446	7.49	24.9	3.93	0.67	-164	1.93	As above
3.0	1451	7.49	24.6	3.87	0.52	-169	1.93	As above
4.0	1456	7.50	24.5	3.37	0.42	-172	1.93	As above, slightly cloudy
5.0	1501	7.54	24.3	3.29	0.45	-168	1.93	As above
6.0	1506	7.52	24.3	3.22	0.46	-163	1.93	As above
								Sampled at 1507

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

6.0L **Total Well Volume** Actual amount of water prior to sampling Sample time 1507 Containers used 2 ambers 3 vials 1 other trace metals

200 **Flow rate** mL/minute Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	final Water Level: 1.929
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID _____
Rinsate blank collected?	Y	(N)		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information	
Date: 10/12/13	Time: arrive 1220 depart 1315
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penzo
Well ID: LQ-MW03	Weather: Fine

Equipment

Water quality equipment description: 90FLMV V5443 Interface probe number: Geotech Interface Meter 30m 3978

Purging equipment (please circle): Bailer type: Plastic Teflon

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 4.858 m (-) Water level 1.344 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 1231 Ending purge time: 1301 Pump Intake Depth (mbtoc): ~3.8

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1236	7.30	26.2	4.52	1.32	-196	1.35	Cloudy, no sheen, slight fish like odour
2.0	1241	7.28	25.1	4.39	0.74	-209	1.35	As above
3.0	1246	7.26	25.3	4.12	0.53	-206	1.35	As above
4.0	1251	7.24	25.4	4.03	0.52	-204	1.35	As above
~~5.0~~	1301	7.24	25.6	3.98	0.48	-206	1.35	As above
								Sampled at 1302

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

5.0 L **Total Well Volume** Actual amount of water prior to sampling

200 **Flow rate** mL/minute

Sample time 1302 Containers used 2 ambers, 3 vials, 1 ultra trace metals

Did field parameters stabilise? (Y) N NA Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		Final Water Level: 1.358
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID _____
Rinsate blank collected?	(Y)	N		Rinsate blank ID R01-101213-SP

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 12/12/13	Time: arrive 0947 depart 1052
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penza
Well ID: LQ_MW05	Weather: Fine

Equipment

Water quality equipment description: 90 FLMV U5443 Interface probe number: Geotech Interface Meter 30m 3978

Purging equipment (please circle): Bailer type: **Plastic** **Teflon**

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.906 m (-) Water level 8.852 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 0956 Ending purge time: 1024 Pump Intake Depth (mbtoc): ~9.6

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
0.5	1004	7.47	26.2	13.62	2.60	151	8.98	Slightly cloudy, no sheen, no odour
1.0 (1009)	~~1008~~	7.47	25.4	13.87	1.88	146	9.05	As above
1.5 (1014)	~~1013~~	7.45	25.8	13.76	1.83	148	9.12	As above
2.0	1019	7.45	26.0	13.67	1.77	148	9.18	As above
2.5	1024	7.45	26.1	13.62	1.68	147	9.26	As above
								Sampled at 1034
								(allow 10 mins for recharge)

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

2.5L **Total Well Volume** Actual amount of water prior to sampling

100 **Flow rate** mL/minute

Sample time 1034 Containers used 1 amber 3 vials 1 vial for trace metals

Did field parameters stabilise? Y / N / NA

Was the well dry purged? Y / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	Final Water Level: 9.483
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID _____
Rinsate blank collected?	Y	N		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 10/12/13	Time: arrive 1321 depart 1410
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penzo
Well ID: LD_MW06	Weather: Fine

Equipment

Water quality equipment description: 90FLMV 05443 Interface probe number: Geotech Interface Meter 30m 3978

Purging equipment (please circle)
Bailer type: (Plastic) → Sample Teflon
Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.921 m (-) Water level 8.805 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 1332 Ending purge time: 1339 Pump Intake Depth (mbtoc): ~9.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
0.5	1337	7.41	33.0	8.00	2.04	49	9.32	slightly cloudy, no sheen, no odour
1.0	1342	No water being pumped → too little water						
1.5	1345							
		Bailer sample collected at 1400						

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

0.5 **Total Well Volume** Actual amount of water prior to sampling

— **Flow rate** mL/minute

Sample time 1400 Containers used 2 amber 3 vials 1 nitrate metals

Did field parameters stabilise? Y (N) NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N	NA
Were air bubbles present in vials at time of collection?	Y	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	Y	(N)	Duplicate sample ID _____
Rinsate blank collected?	Y	(N)	Rinsate blank ID _____

Final Water level: 9.364

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 10/12/13	Time: arrive 0955 depart 1051
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Ponzo
Well ID: LQ_MW07	Weather: Fine, windy

Equipment

Water quality equipment description: 90 FLMV U5443 Interface probe number: Geotech Interface Meter 30m 3978

Purging equipment (please circle): Bailer type: Plastic Teflon

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 9.844 m (-) Water level 1.165 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor _____ (=) Litres per 1 Well Volume _____ L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 1005 Ending purge time: 1030 Pump Intake Depth (mbtoc): ~8.8

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1010	6.78	25.3	13.19	1.29	-191	1.60	Slightly cloudy, no sheen, fish like odour Slow recharge, pumping rate slowed.
1.5	1015	6.76	25.3	13.28	0.94	-193	1.80	As above
2.0	1020	6.75	25.3	13.43	0.61	-200	2.06	As above
2.5	1025	6.75	25.3	13.49	0.50	-202	2.26	As above
3.0	1030	6.75	25.4	13.51	0.48	-205	2.49	As above
								Sampled at 1040
								(Allow 10mins for recharge)

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

3.0L **Total Well Volume** Actual amount of water prior to sampling

Sample time 1040 Containers used 2 ambers, 3 vials, 1 ultra trace metals

200-100 **Flow rate** mL/minute

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N	NA
Were air bubbles present in vials at time of collection?	Y	(N)	NA
Was sample for metals field filtered prior to preservations?	(Y)	N	NA
Duplicate sample collected?	Y	(N)	
Rinsate blank collected?	Y	(N)	

Final water level: 2.796

Duplicate sample ID _____

Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	18-12-2013	Time: arrive	0700 depart 0750
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	Sam Campbell
Well ID:	LR_MW01	Weather:	Overcast

Equipment

Water quality equipment description: YSI - MWQ - 842 Interface probe number: Solinst 55491

Purging equipment: (please circle)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 14.940 m (-) Water level 14.339 m (=) Water Column ~0.6 m

Water Column ~0.6 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~1.2 L

Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: Y (N)

Water Quality Parameters

Beginning purge time: 0710 Ending purge time: 0730 Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								- little water in well
								therefore failing to pump
								sufficiat amounts to sample.

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling — Sample time _____ Containers used _____

Flow rate mL/minute — Did field parameters stabilise? Y N ~~NA~~ Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID _____
Rinsate blank collected?	Y	N		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 19/12/13	Time: arrive 10AM depart 10:30AM
Project Name: SYMPHONY	Project Number: ~~FB~~ 0224198
Site Location: LIDDELL	Sampler: TH
Well ID: LR_MW01	Weather: HOT & CLEAR.

Equipment

Water quality equipment description: Interface probe number: Geotech ID 30m 4261

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon** stainless steel

Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 14.670 m (-) Water level 14.210 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: _____ m Product Thickness: _____ m Verified with Bailer: Y | N

Water Quality Parameters

Beginning purge time: Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments

INSUFFICIENT VOLUME TO LOW FLOW SAMPLE ∴ GRAB SAMPLE COLLECTED

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time _____ Containers used 5.

Did field parameters stabilise? Y | N | NA Was the well dry purged? Y | N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	~~N~~	
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	~~N~~	
Was documentation of equipment conducted?	(Y)	~~N~~	~~NA~~
Were air bubbles present in vials at time of collection?	~~Y~~	(N)	~~NA~~
Was sample for metals field filtered prior to preservations?	~~Y~~	(N)	~~NA~~
Duplicate sample collected?	~~Y~~	(N)	Duplicate sample ID _____
Rinsate blank collected?	~~Y~~	(N)	Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 4/12/13	Time: arrive 1325 depart 1425
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penzo
Well ID: LR_MW03	Weather: Fine

Equipment

Water quality equipment description: 90FLMV 05443 Interface probe number: Geotech Interface meter 30m 3978

Purging equipment (please cirlce): Bailer type: Plastic Teflon

Pump type: (Peristaltic) Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 11.020 m (-) Water level 4.078 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: — m Product Thickness: — m Verified with Bailer: Y | N

Water Quality Parameters

Beginning purge time: 1334 Ending purge time: 1359 Pump Intake Depth (mbtoc): ~9.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1339	6.92	23.1	10.35	1.24	-150	4.54	Slightly turbid brown, no sheen organic like odour Slow Recharge pumping rate slowed.
1.5	1344	6.94	23.5	10.45	0.72	-152	4.79	As above
2.0	1349	6.96	24.7	10.49	0.58	-161	5.04	As above
2.5	1354	6.97	24.8	10.50	0.56	-164	5.26	As above slightly cloudy
3.0	1359	6.98	24.7	10.44	0.53	-169	5.46	As above
								Sampled at 1409
								(Allow 10 mins for recharge)

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

3.0L **Total Well Volume** Actual amount of water prior to sampling

Sample time 1409 Containers used 2 amber 3 vials 1 ultra trace metals

200 → 100 **Flow rate** mL/minute

Did field parameters stabilise? (Y) N NA

Was the well dry purged? Y (N)

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	(Y)	N		
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		
Was documentation of equipment conducted?	(Y)	N	NA	Final Water Level: 5.62
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	Y	(N)		Duplicate sample ID _____
Rinsate blank collected?	Y	(N)		Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 11/12/13	Time: arrive 1433 depart 1530
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penza
Well ID: LR_MW04	Weather: Fine

Equipment

Water quality equipment description: 90FC MV V5443 Interface probe number: Geotech Interface Meter 30m 3978

Purging equipment: (please circle)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.49	1.96	7.85	12.3	17.7	31.4	49.1	70.7

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth 10.935 m (-) Water level 7.823 m (=) Water Column _____ m

Water Column _____ m (x) Conversion Factor (=) Litres per 1 Well Volume _____ L

Depth to product: ~ m Product Thickness: ~ m Verified with Bailer: Y / N

Water Quality Parameters

Beginning purge time: 1441 Ending purge time: 1506 Pump Intake Depth (mbtoc): ~10.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1446	7.28	24.9	16.16	2.10	22	8.05	Slightly cloudy, no sheen, no odour
								slow recharge, pumping rate slowed
1.5	1451	7.27	23.7	16.09	1.04	26	8.18	As above
2.0	1456	7.27	24.0	16.11	0.80	28	8.27	clear, no sheen, no odour
2.5	1501	7.27	24.2	16.13	0.75	29	8.37	As above
3.0	1506	7.25	24.4	16.16	0.71	34	8.46	As above
								Sampled at 1516
								(Allow 10 mins for recharge)

*pH, temp, cond readings not necessary if well is purged dry

Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth

3.0L **Total Well Volume** Actual amount of water prior to sampling

200 → 100 **Flow rate** mL/minute

Sample time 1516 Containers used 2 ambers, 3 vials, 1 vial trace metals

Did field parameters stabilise? Y / N / NA

Was the well dry purged? Y / N

Field QC Checks

Was pre-cleaned sampling equipment used for these samples?	Y	N		
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N		
Was documentation of equipment conducted?	Y	N	NA	Final Water Level: 8.512
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID _____
Rinsate blank collected?	Y	N		Rinsate blank ID _____