average 100-200ml.

Groundwater - Well Sampling Data Form

ERM

Job Information	
Date: 20/11/13	Time: arrive 4:30 depart ~~4:35pm~~ 6pm
Project Name: Symphony	Project Number: 0224198.
Site Location: LIDDELL	Sampler: TH.
Well ID: LD_EW-MW02.	Weather: 100mm rain 72 hrs Prior.

Equipment

Water quality equipment description: Interface probe number:

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 8.160 m (-) Water level 2.890 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: 5.13pm Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
0.25	5.15	6.60	22.3	11706	0.52	40.5		turbid
0.75	5.17	6.63	22.2	10139	0.46	48.3		3.45mBGL.
1.5	5.23	6.55	22.0	7952	0.52	50.7		3.56mBGL.
2.5	5.27	6.39	21.4	5206	0.43	52.3		3.90mBGL.
3	5.30	6.23	21.2	4855	0.41	53.6		4.02mBGL.
4	5.35	6.14	21.2	4367	0.73	55.0		4.30mBGL.
5	5.38	6.14	21.3	4217	0.86	55.6		4.48mBGL.
								↳ Functionality of probe questioned
								repurged 21/11/13. -TH.

*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 _____

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: 21/11/13.	Time: arrive 3:05pm depart 4:10pm
Project Name: Symphony.	Project Number: 0224198
Site Location: Lidell.	Sampler: THAMOOD.
Well ID: LD-EW-MW02	Weather: Cloudy.

Equipment

Water quality equipment description: YSI – 11K101262 Interface probe number: SYD 3983 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 8.162 m (-) Water level 2.940 m (=) Water Column 5.222 m

Water Column 5.222 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 10.4 L

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

Water Quality Parameters

Beginning purge time: ~~3:30~~ 3:27 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	3:30	6.20	27.1	31.7	1.29	327.4	3.305	clear no odour.
2	3:36	6.20	27.0	27.9	0.99	322.2	3.595	clear, no odour.
3.	3:41	6.16	26.0	24.8	0.82	328.2	3.820	clear, No odour.
4	3:46	6.17	25.8	24.3	0.79	335.0	4.185	clear, No odour.
5.	3:52	6.20	26.0	24.2	0.70	351.6	4.210	clear, no odour.
6	3:57	6.27	25.6	25.1	0.73	359.0	4.358	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

6 **Total Well Volume** Actual amount of water prior to sampling Sample time — Containers used 0

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		PURGING ONLY TO INSPECT EC. TH 21/11/13.
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: 21/11/13.	Time: arrive 10:05. depart 11:15.
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell.	Sampler: Tim Haydon.
Well ID: LD_EW_MW03.	Weather: Overcast.

Equipment

Water quality equipment description: YSI - 11K101262 Interface probe number: SYD 3983 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 39.450 m (-) Water level 3.745 m (=) Water Column 5.705 m

3.745
5.705

Water Column 5.705 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: 10:19. Ending purge time: 10:45. Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	10:21	6.91	23.7	36.2	1.37	74.3	4.13	No Odour, very slightly cloudy
2.0	10:26	6.70	23.6	33.8	0.95	55.5	4.565	No Odour, very slightly cloudy
3.0	10:31	6.59	23.7	33.3	1.17	32.9	4.74	No Odour, very slightly turbid
4.0	10:37	6.64	~~23~~ 24.6	31.1	1.52	15.7	5.175	No Odour, very slightly cloudy
5.0	10:44	6.52	24.7	30.1	2.21	32.6	5.445	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

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

Flow rate mL/minute

Sample time 10:50 Containers used 6.

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: 21/11/13.	Time: arrive 12pm depart 1:35pm.
Project Name: Symphony	Project Number: 224198
Site Location: Liddell 7	Sampler: Tim Haydon.
Well ID: LD_EW_MW04	Weather: fine, hot

Equipment

Water quality equipment description: YSI - 11K101262 Interface probe number: SYD 3983 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 9.428 m (-) Water level 5.935 m (=) Water Column 3.493 m

Water Column 3.493 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 6.85 L

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

Water Quality Parameters

Beginning purge time: 12:35. Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond ~~µ~~S/cm	DO mg/L ppm	Redox mV	Drawdown <10cm	Comments
1	12.40	6.44	32.0	22.2	1.37	177.7		~~Start~~ 0.0 - PID reading on well opening grey cloudiness, No odour.
	12:40-45 - cease operation of pump.							
2	12:52	6.39	30.5	18.3	0.93	212.4	5.965	slight grey cloudy, No odour.
3.	12:57	6.17	28.4	0.9	0.66	225.5	6.020	slight grey cloudy, No odour.
4.	1:03	6.21	28.4	0.7	0.62	229.2	6.030	clear, no odour.
5.	1:09	6.22	28.3	0.7	0.63	237.3	6.080	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 1:15pm Containers used 12.

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 DO1_211113_TH.
Rinsate blank collected?	~~Y~~	N	Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 11/12/13	Time: arrive 1052 depart 1155
Project Name: Symphony	Project Number: 0224196
Site Location: Liddell	Sampler: Sean Renzo
Well ID: LD_MW01	Weather: Fine

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 9.946 m (-) Water level 3.270 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: 1105 Ending purge time: 1130 Pump Intake Depth (mbtoc): ~8.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
~~1.0~~	1110	6.38	23.6	26.5	2.47	152	3.70	Clear, no sheen, no odour. Slow recharge pumping rate slowed
1.5	1115	6.36	24.0	27.1	1.94	154	3.85	As above
2.0	1120	6.37	24.3	27.4	1.90	156	3.99	As above
2.5	1125	6.38	24.2	27.6	1.91	157	4.13	As above
3.0	1130	6.39	24.4	27.7	1.92	158	4.26	As above
								Sampled at 1140
								(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

200→100 **Flow rate** mL/minute

Sample time 1140 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		
Was documentation of equipment conducted?	(Y)	N	NA	Final Water Level: 4.396
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: 30/11/13	Time: arrive 3:30pm depart
Project Name: SYMPHONY	Project Number: 0224198.
Site Location: LIDDELL-LD	Sampler: TM.
Well ID: LD-MW02.	Weather: cloudy + windy

Equipment

Water quality equipment description: YSI - 11C19262. Interface probe number: 426.

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon** PID peak = 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 7.455 m (-) Water level 3.534 m (=) Water Column 3.921 m

Water Column 3.92 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 5.88 L

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

Water Quality Parameters

Beginning purge time: 16:01:10. 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	16:06:00	6.54	22.2	13036	0.21	91.6	4.260	cloudy, no odour.
2.0	16:10:20	6.33	22.1	13269	0.69	0.70	4.53	slightly cloudy, no odour.
3.0	16:16:10	6.19	22.6	13424	1.01	100.1	4.53	slightly cloudy, no odour
3.5	16:19:30	6.22	22.6	13487	1.02	95.4	4.60	slightly cloudy, no odour
4.0	16:21:07	6.23	22.7	13521	1.07	93.1	4.67	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

Total Well Volume Actual amount of water prior to sampling

Flow rate mL/minute

Sample time 4:30pm 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 _____
Rinsate blank collected?	Y	N	Rinsate blank ID 4INSATE_30/11/2013

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 30/11/13	Time: arrive 2:20pm depart
Project Name: ~~0274~~ SYMPHONY.	Project Number: 224198.
Site Location: LIDDELL - LD.	Sampler: TM
Well ID: LD_MW04.	Weather: cloudy + windy

Equipment

Water quality equipment description: YSI - 10K101262. 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 = 5.1

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 4.575 m (-) Water level 2.725 m (=) Water Column 6.85 m

Water Column 6.85 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 13.43. L

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

Water Quality Parameters

Beginning purge time: 14:~~27~~:30. 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	14:32:00	6.82	23.0	15209	3.15	88.0	3.250	cloudy, slight odour.
2.0	14:37:44	6.82	23.0	16151	1.97	78.9	3.620	cloudy, slight odour.
3.0	14:44:40	6.80	23.0	16483	1.93	74.8	3.950	clear & slight odour.
3.5	14:46:30	6.81	23.5	16557	1.92	72.8	4.085	clear & slight odour
4.0	14:49:00	6.80	22.9	16639	1.97	72.7	4.295	clear & slight odour.
4.5	14:51:45	6.80	23.0	16694	2.05	72.0	4.40	clear & slight 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 3pm. 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: 11/12/13	Time: arrive 1159 depart 1252
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penzo
Well ID: LD_MW05	Weather: Fine

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 10.577 m (-) Water level 3.388 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: 1210 Ending purge time: 1235 Pump Intake Depth (mbtoc): 9.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1215	6.52	24.9	11.38	2.06	147	3.49	Clear, no sheen, no odour
2.0	1220	6.51	24.8	11.20	1.37	145	3.51	As above
3.0	1225	6.51	24.3	11.17	1.09	146	3.52	As above
4.0	1230	6.50	24.1	11.17	1.04	144	3.53	As above
5.0	1235	6.51	24.0	11.19	1.01	139	3.55	As above
								Sampled at 1236

*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

200 **Flow rate** mL/minute

Sample time 1236 Containers used 2 ambers 3 vials 1 filtered 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: 3.496
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: 29/11/13	Time: arrive 3pm depart 4.35pm.
Project Name: Symphony	Project Number: 294198
Site Location: Liddell-LE.	Sampler: TM
Well ID: LE_MW01.	Weather: overcast.

Equipment

Water quality equipment description: 451-11K101262 Interface probe number: Geotech IP 42613

Purging equipment (please cirlce): Bailer type: **Plastic** **Teflon** PID peak = 0.4

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 7.104 m (-) Water level 3.728 m (=) Water Column 3.376 m

Water Column 3.376 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 6.62 L

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

Water Quality Parameters

Beginning purge time: 15:17:30 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	15:21:30	4.19	20.7	14396	0.23	127.2	4.005	minor light grey/brown turbidity, odour.
2.0	15:26:30	4.30	20.8	14403	0.66	159.7	4.120	minor grey turbidity, odour.
3.0	15:32:10	4.36	20.8	13399	1.47	177.8	4.235	As above.
4.0	15:37:20	4.41	20.8	13029	1.14	170.6	4.310	brown turbidity, odour.
4.5	15:40:30	4.42	20.8	13325	0.85	168.9	4.345	As above
5.0	15:42:00	4.42	20.8	13452	0.75	166.6	4.380	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

Flow rate mL/minute

Sample time 3:45pm. Containers used 21

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 DUP_291113_TH
Rinsate blank collected?	Y / ~~N~~	Rinsate blank ID RINSATE_291113_TH

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 29/11/13	Time: arrive 12:45. depart 2pm.
Project Name: Symphony	Project Number: 0224198.
Site Location: LIDDELL-LE	Sampler: TH.
Well ID: LE_MW02.	Weather: OVERCAST.

Equipment

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

Purging equipment: (please cirlce) Bailer type: Plastic Teflon PID peak = 0.7.

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 8.145. m (-) Water level 4.293 m (=) Water Column 3.852m

Water Column 3.852. m (x) Conversion Factor 1.96. (=) Litres per 1 Well Volume 7.55. L

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

Water Quality Parameters

Beginning purge time: 1:05:40 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	13:11:00	3.38	21.2	21297	0.56	240.6	4.540	clear, no odour.
2.0	13:16:15	3.37	21.1	22361	0.25	255.2	4.670	clear, no odour.
3.0	13:21:20	3.38	21.1	22824	0.34	261.1	4.830	clear, no odour.
4.0	13:26:00	3.41	21.1	23024	0.42	263.0	4.925	clear, no odour.
4.5	13:30:00	3.41	21.2	23346	0.51	265.4	4.950	clear, no odour.
5.0	13:35:00	3.42	21.3	23388	0.50	262.5	4.985	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

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

Flow rate mL/minute

actual 1:35pm written on bottles 1:30. Sample time 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: 30/11/13	Time: arrive 9:30am. depart 10:45AM.
Project Name: SYMPHONY -	Project Number: 0224498
Site Location: LIDDELL - LE.	Sampler: TH
Well ID: LE_MW03	Weather: Overcast

Equipment

Water quality equipment description: YSI - 11K101267 Interface probe number: Geotech IP #4261 30m

Purging equipment: (please cirlce) Bailer type: Plastic Teflon PID peak = 3.2.

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 5.384 m (-) Water level 2.077 m (=) Water Column 3.307 m

Water Column 3.307 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 6.48 L

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

Water Quality Parameters

Beginning purge time: 9:53:30 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO ppm	Redox mV	Drawdown <10cm	Comments
1.0	9:58:00	6.53	23.0	2826	0.13	-27.3	2.300	cloudy, strong odour
2.0	10:02:45	6.53	23.2	2708	---	-17.7	2.320	clearing, strong odour
3.0	10:08:02	6.52	23.2	2702	0.19	-6.4	2.350	clear, strong odour
4.0	10:12:20	6.47	23.3	2700	0.10	-7.1	2.355	clear, strong odour
4.5	10:15:30	6.47	23.6	2726	0.06	-1.5	2.330	clear, strong 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

Sample time 10:30am. 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 —

11

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 6/12/13	Time: arrive 11.40 depart
Project Name: Symphony	Project Number: 0244198
Site Location: Lidell	Sampler: C. Henry
Well ID: ~~2x4~~ LE-MW04	Weather: sunny

Equipment

Water quality equipment description: US443 Interface probe number: 1220097747 . 1

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 6.015 m (-) Water level 2.495 m (=) Water Column 3.520 m

Water Column 3.520 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 NA

Water Quality Parameters

Beginning purge time: 11:50 Ending purge time: Pump Intake Depth (mbtoc): 5.0 m

Litres	Time	PH	Temp °C	Cond ~~µ~~S/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								PID = 1.1 ppm
1	11:55	4.75	22.8	7320	3.93	289	2.700	Clear, HC odour
2	12:00	4.74	22.9	7330	3.28	288	3.150	" "
3	12:05	4.76	22.0	7170	3.56	280	3.500	" "
4	12:10	4.82	22.4	7150	3.20	279	3.700	" "
								* sample taken

*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 **Total Well Volume** Actual amount of water prior to sampling Sample time 12:10 Containers used ~~6~~ 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		
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:	6/12/13	Time: arrive	0800 depart
Project Name:	Symphony	Project Number:	0244195
Site Location:	Lidell	Sampler:	C. Henry
Well ID:	~~0244195~~ LE-MW05	Weather:	fine

Equipment

Water quality equipment description: U5443 Interface probe number: 1220009447.1

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 6.900 m (-) Water level 2.240 m (=) Water Column 4.660 m

Water Column 4.660 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~9.2 L

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

Water Quality Parameters

Beginning purge time: 08:20 Ending purge time: Pump Intake Depth (mbtoc): ~5.0 m

Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								PID = 0.0 ppm
1	0825	6.60	18.9	6590	3.77	106	2.55	clear, no odour
2	0833	7.32	19.0	6370	3.78	112	2.70	" "
3	0838	7.32	19.1	6430	3.74	110	2.90	" "
4	0844	7.29	19.1	6410	3.69	109	3.10	" "
								* sample taken
								Photo & way point
								taken DSC00075
								soil cuttings present

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

~200 **Flow rate** mL/minute

Sample time 08:45 Containers used 6

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 RO1-061213-CH

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 30/11/13	Time: arrive 10:50AM. depart 12:10.
Project Name: SYMPHONY	Project Number: 0224198
Site Location: LIDDELL - LE.	Sampler: TH
Well ID: LE_MW06.	Weather: Overcast + warm.

Equipment

Water quality equipment description: 451 - 11K401262. 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 5.646 m (-) Water level 2.547. m (=) Water Column 3.099 m

Water Column 3.099. m (x) Conversion Factor 1.96. (=) Litres per 1 Well Volume 6.07 L

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

Water Quality Parameters

Beginning purge time: 11:17:30 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	11:23:30	4.89	23.1	8212	2.68	162.5	2.720	clear, odour.
2.0	11:28:00	5.14	23.0	8067	2.36	144.0	2.905	clear, odour.
3.0	11:32:30	5.21	23.1	7677	2.11	135.8	Not taken	clear, odour
3.50	11:36:00	5.20	23.2	7482	1.86	131.2	3.180	clear, odour
4.0	11:38:20	5.20	23.2	7364	1.70	129.6	3.240	clear, slight odour.
4.5	11:41:30	5.18	23.2	7408	1.49	130.4	3295	clear, 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 Sample time 11:45AM. 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 —

Photo. US [illegible] (CL) Soil cuttings present.

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	06/12/13	Time: arrive	09:25 depart 10:25
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	KF.
Well ID:	LE-MW07	Weather:	Fine

Equipment

Water quality equipment description: 45111K101262 Interface probe number: NSW42J3 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 6.91 m (-) Water level 3.06 m (=) Water Column 3.85 m

Water Column 3.85 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~7.5 L

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

Water Quality Parameters

Beginning purge time: 09:47 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond ~mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								PID = 15.4 ppm
1	09:53	4.01	20.6	17870	2.95	240.3	3.25	Clear, hydrocarbon odour
2	09:58	4.08	20.7	18376	2.49	239.7	3.44	" "
3	10:03	4.27	20.8	18590	2.01	225.3	3.58	" "
4	10:08	4.34	20.8	18318	1.43	205.6	3.73	" "

*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 10:12 Containers used 6

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:	6/12/13	Time: arrive	0920 depart
Project Name:	Symphony	Project Number:	0244198
Site Location:	Lidell	Sampler:	C. Henry
Well ID:	LE-MW08	Weather:	fine

Equipment

Water quality equipment description: U5443 Interface probe number: 1221009747-1

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 6.740 m (-) Water level 2.900 m (=) Water Column 3.840 m

Water Column 3.840 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~7.6 L

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

Water Quality Parameters

Beginning purge time: 09:40 Ending purge time: Pump Intake Depth (mbtoc): ~5.5m

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								PID = 1.2 ppm
1	0950	4.49	20.11	19.63	4.25	272	3.100	Clear, HC odour
2	0955	4.44	20.0	19.43	4.63	290	3.300	" "
3	0959	4.50	20.2	19.42	4.20	287	3.500	" "
4	1003	4.55	20.3	19.30	4.30	274	3.700	" "
								* Sample taken
								Photo DSC00077

*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 **Total Well Volume** Actual amount of water prior to sampling Sample time 10:03 Containers used 6

~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	
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 _____

Photo: DSC 000 T4 (G)
Soil cuttings present

Groundwater - Well Sampling Data Form

ERM

Job Information	
Date: 6/12/13	Time: arrive 08:00 depart 09:11
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: K.F.
Well ID: LE_MW09	Weather: Fine

Equipment

Water quality equipment description: YSI 11K10262 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)	0.98	(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
7.03 m (-) 2.81 m (=) 4.22 m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
4.22 m (x) 1.96 (=) 8.27 L

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

Water Quality Parameters

Beginning purge time: 08:15 Ending purge time:

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								PID = 0.1 PPM
1	08:22	5.09	20.4	18423	5.49	159.3	3.12	Clear, no odour
2	08:29	5.02	20.6	16971	5.01	151.7	3.15	" "
3	08:34	5.04	20.5	15578	4.76	140.3	3.31	" "
4	08:40	5.12	20.5	14538	4.57	127.0	3.49	" "

*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 08:45 Containers used 6

~114 **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 1600 depart	1645
Project Name:	Symphony Lodell	Project Number:	022493
Site Location:		Sampler:	J.G / S.C
Well ID:	LG-MW01	Weather:	Fine

Equipment

Water quality equipment description: 90 FLMK 9117 Interface probe number: STD 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

6.040 m (-) 2.251 m (=) 3.789 m

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

3.789 m (x) 1.96 (=) ~7 L

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

Water Quality Parameters

Beginning purge time: 1615 Ending purge time:

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1624	7.42	27.6	2.44	1.10	23	-	Clear, no odour
2	1628	7.34	26.2	2.45	0.49	-4	2.300	" "
3	1632	7.33	25.8	2.41	0.31	-39	2.320	
4	1636	7.32	25.7	2.42	0.31	-56	2.330	
5	1640	7.31	25.6	2.39	0.26	-63	2.340	

*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 1645 Containers used 7

-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

5 8
6.040
2.251
3.789

Groundwater - Well Sampling Data Form

ERM

Job Information			
Date:	16.12.13	Time: arrive 1440	depart 1525
Project Name:	Symphony	Project Number:	0224198
Site Location:	Lidell	Sampler:	J. Grant
Well ID:	LG-MW02	Weather:	Fine

Equipment

Water quality equipment description: 90-FLMV U9117 Interface probe number: Syd 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
7.990 m (-) 2.400 m (=) 5.590 m

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

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

Water Quality Parameters

Beginning purge time: 1452 Ending purge time: VOL 0.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1456	7.32	26.8	2.97	1.45	-201	2.410	cloudy - H_2S odour
2	1500	7.35	25.8	2.82	0.91	-203	2.410	
3	1504	7.38	25.0	2.75	0.57	-212	2.410	good recharge
4	1508	7.38	24.9	2.64	0.42	-211	2.410	
5	1512	7.33	24.7	2.52	0.30	-208	2.410	

*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 1515 Containers used 7

~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	1525 depart
Project Name:	Symphony	Project Number:	0224193
Site Location:	Lidell	Sampler:	J. Grant
Well ID:	LG-MW03	Weather:	fine

Equipment

Water quality equipment description: 90_FLMV U9117 Interface probe number: Syd 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
7.870 m (-) 2.420 m (=) 5.450 m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
5.45 m (x) 1.96 (=) ~10.5 L

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

Water Quality Parameters

Beginning purge time: 1535 Ending purge time: VOC 0.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	1535	7.35	24.6	2.31	2.31	-180	2.420	Clear - H_2S odour
2	1539	7.29	22.9	2.33	1.04	-190	2.440	
3	1543	7.47	22.5	2.32	0.47	-196	2.460	
4	1547	7.26	24.1	2.27	0.28	-189	2.480	
5	1551	7.26	24.2	2.28	0.27	-188	2.480	

*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 1555 Containers used 7

-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: 12/12/13	Time: arrive 0957 depart 1201
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penzo
Well ID: LH_MW01	Weather: Fine

Equipment

Water quality equipment description: 90FCMV 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 7.916 m (-) Water level 1.862 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: 1105 Ending purge time: 1135 Pump Intake Depth (mbtoc): ~ 7.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1110	7.97	25.5	2.04	2.71	128	1.98	Clear, no sheen, no odour
2.0	1115	7.85	23.9	1.99	2.19	123	2.02	As above
3.0	1120	7.83	24.1	1.97	1.78	121	2.04	As above
4.0	1125	7.82	24.0	1.96	1.37	119	2.07	As above
5.0	1130	7.81	24.0	1.95	1.28	117	2.09	As above
6.0	1135	7.80	23.9	1.94	1.22	116	2.11	As above
								Sampled at 1136

*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

200 **Flow rate** mL/minute

Sample time 1136 Containers used 1 amber, 3 vials, 1 metals x3

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:

Duplicate sample ID DOL121213_SP / DOL-2121213_SP

Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 12/12/13	Time: arrive 1206 depart 1256
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penzo
Well ID: LH_MW02	Weather: Fine

Equipment

Water quality equipment description: 90FLMV 05443 Interface probe number: Geotech Interface Meter 3on 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 7.939 m (-) Water level 2.045 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: 1213 Ending purge time: 1233 Pump Intake Depth (mbtoc): ~7.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1218	7.45	25.5	2.91	1.72	137	2.09	Clear, no sheen, no odour
2.0	1223	7.44	25.0	2.90	1.11	132	2.12	As above
3.0	1228	7.44	25.0	2.90	0.94	130	2.13	As above
4.0	1233	7.44	25.0	2.89	0.90	128	2.15	As above
								Sampled at 1234

*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

4.0L **Total Well Volume** Actual amount of water prior to sampling

200 **Flow rate** mL/minute

Sample time 1234 Containers used 1 amber 3 x VOC 1 x TRH

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: 2.094

Duplicate sample ID _____

Rinsate blank ID RO1-121213_SP

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	12/12/13	Time: arrive 1325	depart 1424
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	Sean Penzo
Well ID:	LH-MW03	Weather:	Fine

Equipment

Water quality equipment description: 90FLMV U5443 Interface probe number: Geotech Interface Meter 30m 3878

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 7.957 m (-) Water level 1.878 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: 1333 Ending purge time: 1358 Pump Intake Depth (mbtoc): ~7.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	1338	6.91	25.2	16.33	3.62	162	2.06	Slightly cloudy, no sheen, no odour
2.0	1343	6.92	25.0	16.57	3.06	164	2.17	As above
3.0	1348	6.92	25.1	16.69	2.76	166	2.28	As above
4.0	1353	6.92	24.9	16.75	2.83	167	2.39	As above
5.0	1358	6.93	24.9	16.77	2.88	167	2.49	As above
								Sampled at 1408
								(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

Total Well Volume Actual amount of water prior to sampling

Sample time 1408 Containers used 1 amber 3 vials 1 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
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: 2.583

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 18.12.13	Time: arrive 10:45 depart 11:39
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell.	Sampler: JW
Well ID: LI_MW01	Weather: Sunny

Equipment

Water quality equipment description: Aurmet 90 PCMV Interface probe number: Aurmet 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 11.0 m (-) Water level 5.818 m (=) Water Column 5.2 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: 10:57 Ending purge time: 11:22. Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	11:02	7.87	21.4	15.83	3.37	215	5.94	cloudy, no odour
2.0	11:07	8.06	20.8	16.03	3.01	193	6.01	as above
3.0	11:12	8.38	21.1	16.06	2.91	182	6.12	as above.
4.0	11:17	8.32	20.7	16.10	2.96	176	6.21	as above
5.0	11:22	8.33	21.0	16.10	2.96	175	6.27	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 11:23 Containers used 6

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
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: 30/11/13	Time: arrive 13:25 depart
Project Name: Symphony	Project Number: 0224198
Site Location: Cobbitty	Sampler: N.H
Well ID: LI_MW02	Weather: Overcast, Clearing

Equipment

Water quality equipment description: YSI Interface probe number: SYD 3954

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 6.930 m (-) Water level 2.425 m (=) Water Column 4.505 m

Water Column 4.505 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 8.83 L

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

Water Quality Parameters

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

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	13:36	5.72	22.6	21367	1.25	167.8	2.895	cloudy. No odour
2	13:46	5.73	22.7	21491	1.61	155.3	3.040	Cloudy. No odour
3	13:54	5.75	22.6	21345	2.01	146.4	3.165	Cloudy. No odour
4	14:01	5.75	22.6	21316	2.20	140.0	3.220	Cloudy. No odour.
5	14:10	5.76	22.6	21289	2.29	135.1	3.310	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

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

147 **Flow rate** mL/minute

Sample time 14:15

Containers used 3x 40mL H_2SO_4 2x 100mL Amber 1x ORC ultra trace metal 1x HNO_3 metal

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_301113_NH

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 30/11/13	Time: arrive 12:00 depart 13:00
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: N.H
Well ID: LI_MW03	Weather: Overcast

Equipment

Water quality equipment description: YSI Interface probe number: SID 3954

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: 6.045 m (-) Water level: 3.730 m (=) Water Column: 2.315 m

Water Column: 2.315 m (x) Conversion Factor: 1.96 (=) Litres per 1 Well Volume: 4.537 L

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

Water Quality Parameters

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

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	12:22	4.38	22.7	7097	1.23	367.3	3.920	Cloudy to clear. No odour.
2	12:29	4.46	22.6	6591	1.92	362.7	4.150	Clear, no odour.
2.5	12:33	4.50	22.6	6383	2.49	358.9	4.215	Clear, no odour
3.0	12:37	4.54	22.6	6240	2.77	354.4	4.285	Clear, no odour.
3.5	12:41	4.56	22.6	6184	2.86	352.2	4.325	Clear, no odour.
4.0	12:45	4.57	22.6	6160	2.93	350.7	4355	
4.5	12:50	4.57	22.6	6140	3.01	349.5	4380	↓

*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 Sample time 12:55 Containers used 3x40mL H2SO4 vials, 2x100mL Amber, 1x ORC ultratrace metals, 1x HNO3 metals

160 **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: 30/11/13	Time: arrive 11:05 depart 11:55
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: N.H
Well ID: LI-MW04	Weather: Overcast

Equipment

Water quality equipment description: 45I Interface probe number: SYD 3954

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 5.965 m (-) Water level 3.675 m (=) Water Column 2.290 m

Water Column 2.290 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 4.488 L

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

Water Quality Parameters

Beginning purge time: 11:14 Ending purge time: 11:45 Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	11:20	4.05	21.9	4222	2.76	352.5	3.805	PID = 0.1 brown, turbid, becoming less turbid after 500mL. No odour
2	11:25	4.02	21.8	4078	2.65	342.1	3.850	Cloudy to clear. No odour
2.5	11:29	4.00	21.8	4044	2.68	337.8	3.850	
3.0	11:33	4.00	21.8	4032	2.70	336.4	3.850	
3.5	11:38	4.00	21.8	4029	2.72	335.9	3.850	

*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

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

194 **Flow rate** mL/minute

Sample time 11:45

Containers used: 3x40mL H_2SO_4 vials, 2x100mL Amber, 1x ORC ultratrace metal, 1x HNO_3 metal

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: 30/11/13	Time: arrive 10:20 depart 11:00
Project Name: area Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: N.H
Well ID: LI_MW05	Weather: overcast

Equipment

Water quality equipment description: Interface probe number:

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 5.975 m (-) Water level 2.905 m (=) Water Column 3.07 m

Water Column 3.07 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 6.017 L

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

Water Quality Parameters

Beginning purge time: 10:25 Ending purge time: 10:58 Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	10:32	5.34	21.1	.4916	6.62	162.9	3.230	PID=0.0 brown, turbid, becoming cloudy after 500ml No odour.
2	10:39	5.32	21.0	4845	6.66	156.3	3.440	cloudy to clear. No odour
2.5	10:43	5.31	21.0	4792	6.61	155.2	3.555	
3.0	10:48	5.30	21.0	4767	6.54	154.3	3.640	
3.5	10:53	5.30	21.0	4745	6.77	153.9	3.660	

*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

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

Sample time 10.58

Containers used 3x 40mL H2SO4 vials, 2x 100mL Amber 1xORC ultratrace metal, 1x HNO3 Metal.

160 **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: 30/11/13	Time: arrive 07-50 depart 8:50
Project Name: Project Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: N.H
Well ID: LI_MW06	Weather: Overcast.

Equipment

Water quality equipment description: YSI Interface probe number: 540 3954

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 8.000 m (-) Water level 2.985 m (=) Water Column 5.015 m

Water Column 5.015 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 9.829 L

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

Water Quality Parameters

Beginning purge time: 07:58 Ending purge time: 08:40 Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	08:04	5.87	21.3	9193	0.02	13.0	3.06	PID = 0.0. brown, turbid, becoming clear after 250mL. No odour
2	08:10	5.86	21.3	9150	0.01	-21.1	3.09	Clear to cloudy. No odour.
3	08:15	5.85	21.3	9119	0.09	-19.3	3.12	clear, no odour
4	08:20	5.75	21.4	8651	0.36	13.8	3.13	
5	08:26	5.63	21.4	8276	0.70	45.5	3.14	
5.5	08:29	5.60	21.4	8215	0.88	59.1	3.14	
6.0	08:32	5.59	21.4	8198	1.12	66.4	3.15	

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

214 **Flow rate** mL/minute

Sample time 08:40

Containers used 3x40mL H2SO4 vials, 2x 100mL Amber, 1 OAC ultratrace metals, 1 HNO3 metal

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 DO1_301113_NH
Rinsate blank collected?	Y	(N)		Rinsate blank ID

Groundwater - Well Sampling Data Form

ERM

Job Information	
Date: 30/11/13	Time: arrive 9:00 depart 10:10
Project Name: Project Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: N.H
Well ID: LI_MW07	Weather: Overcast

Equipment

Water quality equipment description: YSI Interface probe number: SYD 3954

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 8.090 m (-) Water level 3.455 m (=) Water Column 4.635 m

Water Column 4.635 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 9.085 L

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

Water Quality Parameters

Beginning purge time: 09:14 Ending purge time: 09:50 Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								PID = 0.2
1	09:20	6.05	21.6	9916	1.88	13.1	3.985	Cloudy to clear, no sulfur odour.
2	09:26	6.06	21.7	9918	2.44	19.2	4.245	
3	09:33	6.06	21.7	9907	2.99	19.6	4.495	
4	09:39	6.06	21.7	9901	3.30	21.7	4.705	

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

260 — **Flow rate** mL/minute

Sample time 09:50

Containers used 6x 40mL Vials H2SO4, 2x 100mL Amber, 2x ORC ultratrace metals, 2x HNO3 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 TO1_301113_NH
Rinsate blank collected?	Y	N		Rinsate blank ID

Groundwater - Well Sampling Data Form

ERM

Job Information	
Date: 18.12.13	Time: arrive 15:20 depart 16:30
Project Name: Symphony	Project Number: 0224198
Site Location: Hidden	Sampler: JW
Well ID: Li-MW08	Weather: Sunny.

Equipment

Water quality equipment description: Airmet 90 FLOW Interface probe number: Airmet NSW 42554

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 6.0 m (-) Water level 4.129 m (=) Water Column 1.9 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: 15:29. Ending purge time: 15:54 Pump Intake Depth (mbtoc): 5.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	15:34	5.12	24.2	20.36	2.33	296	4.18	cloudy. no odour.
2.0	15:39	5.29	23.7	16.79	2.58	289	4.64	as above.
3.0	15:45	5.36	23.5	17.55	2.18	315	4.73	as above
4.0	15:49	5.40	23.5	17.80	2.00	319.	4.89	as above.
5.0	15:54	5.42	23.4	17.95	1.97	313	5.10	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

5L **Total Well Volume** Actual amount of water prior to sampling Sample time 15:55 Containers used 6.

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 vials 2x amber 1x metals
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
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 RO1-181213

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 17-12-13	Time: arrive 15:05 depart 16:00
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell.	Sampler: JN
Well ID: LI-MW09.	Weather: Sunny.

Equipment

Water quality equipment description: Airmet 90 FCAV 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 8.85 m (-) Water level ~~8.85~~ 1.678 m (=) Water Column — m
JN 17-12-13

— m Water Column (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: 15:16 Ending purge time: 15:50 Pump Intake Depth (mbtoc): 8.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	15:21	8.10	21.7	15.38	4.66	172	2.52	cloudy, brown, no odour.
2.0	15:27	7.42	20.0	15.23	4.44	148	2.78	as above.
3.0	15:34	—*	19.8	15.01	4.34	156	3.05	as above.
4.0	15:39	—	20.0	15.00	4.27	134	3.37	as above.
5.0	15:45	—	19.8	14.96	4.20	129	3.19	as above.
6.0	15:50	—	19.5	14.93	4.17	124	4.38	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

6.0 L **Total Well Volume** Actual amount of water prior to sampling Sample time 15:52 Containers used 6

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	* Ph reading not working jumping constantly.
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	
Was documentation of equipment conducted?	(Y)	N NA	2 x amber
Were air bubbles present in vials at time of collection?	Y	(N) NA	3 x vials.
Was sample for metals field filtered prior to preservations?	(Y)	N NA	1 x metals.
Duplicate sample collected?	Y	(N)	Final DTW
Rinsate blank collected?	Y	(N)	

Duplicate sample ID —

Rinsate blank ID —

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 16.12.13	Time: arrive 14:45 depart 15:50
Project Name: Symphony.	Project Number: 0224198
Site Location: ~~Lindsette~~ JW 16-12-13 liddell	Sampler: JW
Well ID: LJ_MW01	Weather: Sunny.

Equipment

Water quality equipment description: Airmet 90 FLMV U9114 Interface probe number: Airmet 4254. NSW 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 5.0 m (-) Water level 1.212 m (=) Water Column 3.8 m

Water Column 3.8 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 7.6 L

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

Water Quality Parameters

Beginning purge time: 15:05 Ending purge time: 15:39 Pump Intake Depth (mbtoc): 4.5

Litres	Time	PH	Temp °C	Cond mS/cm	DO ~~PPM~~ mg/L	Redox mV	Drawdown <10cm	Comments
1.0	15:07	5.84	25.3	3.31	1.96	90	1.25	slightly cloudy, sulpher odour.
2.0	15:11	6.22	23.0	3.26	1.55	95	1.33	as above.
3.0	15:16	5.66	22.9	3.21	1.56	96	1.38	as above.
4.0	15:22	5.40	22.7	3.17	1.56	98	1.40	clear, slight Sulpher odour.
5.0	15:26	4.46	22.8	3.13	1.99	98	1.45	as above
6.0	15:31	4.41	22.8	3.14	2.01	99	1.49	as above
7.0	15:35	4.40	22.7	3.12	2.04	98	1.51	as above
8.0	15:39	4.39	22.7	3.12	2.05	98	1.55	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

8.0L **Total Well Volume** Actual amount of water prior to sampling Sample time 15:40 Containers used 6.

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		metals.
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N		TRH
Was documentation of equipment conducted?	(Y)	N	NA	BTEX
Were air bubbles present in vials at time of collection?	Y	(N)	NA	PAH / phenol.
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	VOC
Duplicate sample collected?	Y	(N)		PCB.
Rinsate blank collected?	Y	(N)		final DTW 1.58

Duplicate sample ID —

Rinsate blank ID —

Groundwater - Well Sampling Data Form

Job Information	
Date: 10/12/13	Time: arrive 0853 depart 0947
Project Name: Symphony - Liddell	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penza
Well ID: LJ_MW02	Weather: Overcast

Equipment

Water quality equipment description: 90FLMV U5443 Interface probe number: Geotech Interface meter 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 4.315 m (-) Water level 1.932 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: 0901 Ending purge time: 0926 Pump Intake Depth (mbtoc): ~3.3

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
0.5	0906	6.90	24.0	8.50	1.60	137	2.08	Clear, no sheen, no odour
1.0	0911	6.90	24.2	8.41	1.61	139	2.15	As above
1.5	0916	6.89	24.3	8.33	1.42	142	2.25	As above
2.0	0921	6.87	24.4	8.31	1.39	143	2.34	As above
2.5	0926	6.86	24.5	8.29	1.37	139	2.32	As above
								Sampled at 0931
								(allow 5mins 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

Sample time 0931 Containers used 3 ambers, 4 vials, 1 ultra trace metals

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: 2.382mbTOC

Duplicate sample ID _____

Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date: 10/12/13	Time: arrive 0745 depart 0825
Project Name: Symphony-Liddell	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penza
Well ID: LS_MW04	Weather: Fine

Equipment

Water quality equipment description: 90FLMV 05443 Interface probe number: Geotech Interface Meter 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 10.060 m (-) Water level 3.438 m (=) Water Column _____ m

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

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

Water Quality Parameters

Beginning purge time: 0759 Ending purge time: 0824 Pump Intake Depth (mbtoc): ~9.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	0804	6.66	21.6	11.36	2.56	166	3.50	Slightly cloudy, no sheen, no odour
2.0	0809	6.63	21.3	11.26	2.34	157	3.51	As above
3.0	0814	6.59	20.9	11.21	2.20	151	3.51	As above, slightly turbid brown
4.0	0819	6.59	20.9	11.20	2.10	149	3.51	As above
5.0	0824	6.60	20.9	11.22	2.04	149	3.51	As above
								Sampled at 0825

*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

200 **Flow rate** mL/minute

Sample time 0825 Containers used 3 amber 4 vials 1 metals filtered + preserved

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: 3.474

Duplicate sample ID _____

Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information	
Date: 11/12/13	Time: arrive 0758 depart 0905
Project Name: Symphony	Project Number: 0224198
Site Location: Liddell	Sampler: Sean Penza
Well ID: LL-MW01	Weather: Fine

Equipment

Water quality equipment description: 90 FLNV 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 11.260 m (-) Water level 3.657 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: 0808 Ending purge time: 0833 Pump Intake Depth (mbtoc): ~ 10.0

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1.0	0813	7.12	20.3	9.76	3.52	94	3.83	Clear, no sheen, no odour
2.0	0818	7.09	20.3	9.69	1.96	88	3.84	As above
3.0	0823	7.07	20.6	9.75	1.67	87	3.84	As above
4.0	0828	7.06	20.4	9.83	1.49	89	3.85	As above
5.0	0833	7.05	20.3	9.79	1.45	91	3.86	As above
								Sampled at 0834

*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 0834 Containers used 2 ambers 3 vials (1 filtering 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	
Rinsate blank collected?	Y	N	

Final Water Level: 3.793

Duplicate sample ID DOL_111213_SP TOL_111213_SP

Rinsate blank ID _____

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	18-12-2013	Time: arrive ~~0900~~ 0930	depart
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	Sam Campbell
Well ID:	LL_MW02	Weather:	Fine & Sunny

Equipment

PID Peak = 0.483 ppm.

Water quality equipment description: YSI - MWQ - 842 Interface probe number: Solinst 55191

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 19.705 m (-) Water level 10.905 m (=) Water Column ~9 m

Water Column ~9 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~18 L

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

Water Quality Parameters

Beginning purge time: 0941 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
1	0946	7.58	22.8	314.9	2.88	-104.9	11.281	grey, turbid, no odour
2	0951	7.55	23.2	122.1	1.60	-109.4	11.487	" " "
3	0956	7.52	23.7	99.5	6.45	-106.2	11.781	" " "
4	1000	7.51	23.7	152.1	5.60	-102.0	12.031	" " "
5	1004	7.44	23.5	125.3	0.86	-98.6	12.359	" " "
6	1009	7.42	23.5	114.3	2.42	-102.3	12.624	" " "
								Sample taken.

*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 **Total Well Volume** Actual amount of water prior to sampling Sample time 1010 Containers used 7

~225 **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:	18-12-13	Time: arrive	0800 depart 0930
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	Sam Campbell
Well ID:	LL_MW03	Weather:	Overcast / Fine

Equipment

PID peak = 0.896 ppm

Water quality equipment description: YSI MWQ-842 Interface probe number: Solinst 5594

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 20.334 m (-) Water level 4.669 m (=) Water Column ~15.7 m

Water Column ~15.7 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume ~31.4 L

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

Water Quality Parameters

Beginning purge time: 0806 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
~~1~~	~~0811~~	~~4.52~~	~~22.8~~	~~25.7~~	~~9.87~~	~~261.3~~	~~4.670~~	~~light grey, turbid, organic odour~~
~~2~~	~~0817~~	~~4.52~~	~~23.0~~	~~20.7~~	~~8.97~~	~~247.9~~	~~5.224~~	" " "
1	0829	7.12	21.9	17661	0.47	-208.2	5.786	" " "
2	0834	7.15	22.5	17595	0.57	-226.6	5.940	" " "
3	0839	7.30	22.2	17480	0.44	-246.0	6.252	" " "
4	0844	7.30	22.0	17630	0.13	-259.6	6.540	" " "
5	0849	7.31	22.0	17634	0.18	-260.2	6.929	Sample taken.

*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

~200 **Flow rate** mL/minute

Sample time 0850 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 _____

photo: DSC00078 (4) soil cuttings present

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	6/12/13	Time: arrive 11:31	depart 12:25
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	K.F.
Well ID:	LL_MW06	Weather:	Fine

Equipment

Water quality equipment description: 451111C101262 Interface probe number: NSW4253 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 10.80 m (-) Water level 2.85 m (=) Water Column 7.95 m

Water Column 7.95 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 15.5 L

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

Water Quality Parameters

Beginning purge time: 11:43 Ending purge time: Pump Intake Depth (mbtoc):

Litres	Time	PH	Temp °C	Cond mS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								0.1ppm
1	11:49	6.70	19.0	9935	3.12	49.4	2.30	clear, no odour
2	11:54	6.79	19.0	9708	1.91	61.6	3.54	" "
3	11:59	6.78	19.1	10916	1.22	63.2	3.70	" "
4	12:04	6.73	18.9	9559	0.93	64.2	3.79	" "

*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 12:09 Containers used 7

~190 **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

Photo: DSC00079 (E)

Groundwater - Well Sampling Data Form

ERM

Job Information

Date:	6/12/13	Time: arrive 12:33	depart 13:50
Project Name:	Symphony	Project Number:	0224198
Site Location:	Liddell	Sampler:	K.F.
Well ID:	LL-MW07	Weather:	Fine

Equipment

Water quality equipment description: YSI 11K 101262 Interface probe number: NSW 42JJ 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 11.22 m (-) Water level 3.85 m (=) Water Column 7.37 m

Water Column 7.37 m (x) Conversion Factor 1.96 (=) Litres per 1 Well Volume 14.44 L

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

Water Quality Parameters

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

Litres	Time	PH	Temp °C	Cond µS/cm	DO mg/L	Redox mV	Drawdown <10cm	Comments
								PID=0.0 ppm
1	12:52	6.76	19.4	10163	3.27	60.3	4.12	clear, no odour
2	12:58	6.77	19.5	10188	2.49	61.4	4.22	" "
3	13:04	6.75	19.5	10250	2.00	63.0	4.25	" "
4	13:11	6.77	19.6	10275	1.90	63.6	4.26	" "

*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 13:20	Containers used 7
160	**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 R01_061213_KF